A890 Stromeferry Bypass

Annual Slope Inspection 2025

The Highland Council

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Quality information

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Table of Contents

1. Introduction

1.1 General

AECOM Limited (AECOM) was appointed by The Highland Council (THC) on 29 April 2022 (THC Letter Ref. YEHAS6098) to undertake annual inspections of rock faces along part of the A890 in Wester Ross in the Scottish Highlands. The site forming the subject of this report extends between the properties of Attadale and Ardnarff, known locally as the Stromeferry Bypass. The scope of work also included the inspection of rock slopes to the north of Attadale at Maman Hill, which is reported under separate cover. The works were commissioned under the Scotland Excel Framework for Engineering and Technical Consultancy Services: Ref. 0820 – A890 Stromeferry Bypass Rockworks, Job No.: YEHAS6098 which runs until 2026.

AECOM (formerly URS) first undertook a detailed inspection of the slopes between Ardnarff and Attadale in May 2012 under the Highlands and Islands Consultancy Services Term Commission (Lot 3, Rock slope), which expired in April 2015. It was recommended that ongoing annual inspections were undertaken by suitably qualified engineering geologists using a combination of roadside and targeted roped access inspections.

Since 2012, AECOM has undertaken and reported the following annual inspections:

- May 2012 – 'Stromeferry Bypass, The Scottish Highlands - A890 Slope Inspection Report,' September 2012;
- April 2013 - 'Stromeferry Bypass, The Scottish Highlands - A890 Annual Slope Inspection Report for 2013', July 2013);
- June 2014 – 'Stromeferry Bypass, The Scottish Highlands - A890 Annual Slope Inspection Report for 2014', August 2014);
- (No inspection was undertaken in 2015);
- April 2016 - 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2016', May 2016;
- April/May 2017 - 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2017', August 2017;
- April 2018 - 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2018', July 2018;
- April 2019 - 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2019', July 2019;
- November 2020 (interim road level inspection during COVID-19 pandemic, reported on within the 2021 inspection report);
- May 2021 – 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2021', August 2021;
- June 2022 – 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2022', September 2022;
- April 2023 – 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2023', May 2023; and
- April 2024 – 'A890 Stromeferry Bypass, Annual Slope Inspection Report 2024', July 2024.

AECOM has also been involved in the design, specification and supervision of several phases of planned maintenance / remedial works since 2012. Planned maintenance / remedial works are carried out approximately every one to two years, with the Phase 6 works completed in 2012, Phase 7 works in 2013, Phase 8 works in 2015, Phase 9 works in 2017, Phase 10 works in 2018, Phase 11 works in 2019, Phase 12 works in 2021, and Phase 13 works in 2025.

Additionally, since 2012, AECOM has been involved in several emergency call outs following rock falls or other slope instabilities, and the design, specification and supervision of associated remedial works.

1.2 Background

The A890 serves as the main link-road along the west coast of Scotland and is also a significant transit for east to west traffic travelling between the Isle of Skye and Inverness. It is mainly single carriageway but frequently reduces to single track with passing places along the stretch between Attadale and Ardnarff. This section of the A890 is a national speed limit road.

The road was opened in 1970 following the formation of a number of rock slopes along the road alignment on the landward side of the Inverness to Kyle railway line, which was completed in 1870. Previous inspections have

identified that over-blasting during construction resulted in the rock cuttings being left in a fractured state prone to rock falls. These conditions have also left the exposed rock mass susceptible to weathering, frost and root action.

There has been a history of rock falls at the site since the road was opened. In 1996 TRL Scotland undertook a risk assessment of the rock faces and a risk-based maintenance management strategy was developed. Two phases of remedial works were completed in 2002 to bring the slopes into a manageable condition. Following the completion of these remedial works, the slopes were managed by monthly and annual inspections. It was noted that ongoing maintenance would be required along with remedial works for rock falls that develop due to deterioration of the rock slopes (Nettleton, 2003).

Rock falls have continued to occur and pose a risk to the road and users of the road. Additionally, on several occasions rock and soil has impacted the road from debris-flows originating from the adjacent slopes.

Further details on the site setting and geology are included in the 2012 A890 Slope Inspection Report (Ref. 46400079/GLRP0001, September 2012) and have not been discussed further in this report.

An approximately 500 m length of the site, roughly centred on the ‘avalanche shelter’ is designated as a Site of Special Scientific Interest (SSSI) associated with exposures of structural and metamorphic geology. The site has no other environmental or historical designations. Whilst AECOM is not aware of any ecological constraints affecting the site it should be noted that AECOM personnel have observed white-tailed eagles flying above the hillside above the road in recent years. This presence of ecological constraints should be confirmed during the planning of any physical works.

1.3 Scope of Works

In line with the recommendations of the 2012 inspection report the following inspection regime was implemented between 2012 and 2016:

- Detailed roadside and rope access inspections every 5 years (to include examination of the condition of all the rock faces at the site and examination of the existing remedial works); and
- Supplemented with annual lower resolution inspections using a combination of road-side and targeted rope access inspections of the higher risk rock faces and less accessible upper rock faces, which are not visible from the road.

Following the 2017 inspection, which comprised a ‘detailed inspection’, it was recommended that an annual inspection regime should continue but that reference to ‘detailed’ and ‘lower resolution’ inspections be dropped. It was recommended that each annual inspection should involve the roadside inspection of all slopes and targeted rope access inspections of selected higher risk slopes, particularly where potential hazards have been identified during previous inspections, and less accessible ‘upper’ rock faces that are not visible from the road.

The following provides a summary of the works undertaken during the preparation of this report:

- Review of any maintenance and rock fall protection works carried out since the 2024 annual inspection;
- Review of any significant events that have occurred at the site since the 2024 annual inspection (with reference to THC inspection records);
- Road level inspections of the rock slopes along the A890 between Attadale and Ardnarff (including update of the rock slope geotechnical assessment sheets where necessary);
- Targeted inspections of selected higher risk slopes and less accessible ‘upper’ rock slopes, using rope access where necessary; and
- Identification of areas of potential risk (updated risk assessment) and provision of recommendations for maintenance / remedial works (including recommended timescales).

Whilst the annual inspections of the roadside and upper hillside slopes are carried out to identify and quantify risks to road users from falling materials, it should be recognised that given the size and terrain of the area that only limited locations and areas can be examined in detail. Furthermore, the types of instability and wide range of contributing factors means that block falls and debris flows could occur at almost any location. The specific hazards and risks identified for the various slope sub-divisions should therefore be considered as indicative of the global risks associated with the site as a whole.

2. Rock Fall Risk Assessment Methodology

2.1 Background

The site has historically been divided into a number of sections based on slope geometry and natural features (such as watercourses or gullies) to allow assessment and a relative risk level to be assigned to each section with regard to rock slope stability. AECOM has continued to use the historical slope reference numbers, which have been linked to a local chainage system that begins with chainage (Ch.) 0 (meters) at the road closure gates at Ardnarff (NGR 89063 35689) and ends with Ch. 3892 at the road closure gates at the Attadale end of the site (NGR 91807 38166). Where new slopes have been identified and assessed these have been given a suffix, typically either 'A' or 'Upper' to provide them with a unique reference.

The locations of the various slopes and their reference numbers are shown on the drawings included in Appendix A. THC installed permanent roadside chainage markers at approximately 100 m intervals in early 2017 and the start and end chainages of each slope were revised to tie in with these. Chainages for specific locations have been measured from the nearest permanent chainage marker. During the April 2023 and April 2024 inspections it was observed that many of the chainage markers were either obscured by vegetation, had a missing number plate or had been damaged by grass cutting equipment. This remained the case during the 2025 inspection.

A risk assessment approach has been adopted to rank the relative rock fall risk presented by each slope to the road and its users. The risk assessment used is bespoke to this site and gives a risk level relative to the rest of the slopes at the site. The assessment considers the size of a potential rock fall (the hazard), the potential likelihood of debris from the rock fall reaching the carriageway (the pathway), and the available sighting distance on the carriageway (the receptor). The ratings assigned to each of these criteria are multiplied together to give a risk rating. Further details are provided in Sections 2.2 to 2.5.

The potential consequence of a rock fall will clearly vary depending on the presence/absence of road users beneath or approaching the slope at the specific time. It must be appreciated that due to the number or variables involved this is impossible to predict. It should be recognised that the assigned level of risk takes a conservative approach and assumes the potential presence of road users beneath or approaching the slope at the time of a rock fall. A more likely scenario is that a rock fall occurs when no road users are directly beneath and fallen blocks which have come to rest on the road present a hazard to road users after the event. To differentiate and risk rank the slopes, (e.g., to prioritise remedial works) sightlines and stopping distances are also factored into the assessment to recognise the higher potential for road users to interact with rock fall debris on the road at locations with poorer sightlines as opposed to straight sections of road (see Section 2.4).

Following the initial risk assessment the inspecting geologists reviewed the relative risk rankings and, where necessary, adjusted the scoring to reflect the overall setting (including history and frequency of rock falls) and their professional judgement.

2.2 Hazard Rating

Four categories of hazard rating have been selected based on the main sizes of rock falls (and potential rock falls) identified at the site, as detailed in Table 2-1. During the risk assessment the hazard rating representative of the scale of observed or potential rock falls at each slope was selected.

Table 2-1. Hazard Rating

Hazard Rating	Description
1	Small ravelling type rock falls (typically up to 0.02 m^3).
2	Moderate rock falls (typically between 0.02 m^3 and 1 m^3).
3	Large rock falls (typically between 1 m^3 and 10 m^3).
4	Very large rock falls (typically greater than 10 m^3)

2.3 Pathway Rating

Each slope has been assigned a pathway rating (Table 2-2) based upon a qualitative inspection of the slope form (height, angle, profile/roughness, vegetation cover and presence or absence and suitability of existing remedial measures) between the position of a potential rock fall and the road. The rating also considers the estimated

termination location of failed material. If debris from previous rock falls was evident, the location of this was considered during this assessment.

The design rock fall volume for the passive rock fall 'drape' netting systems installed across many of the rock slopes prior to AECOM's involvement at the site is unknown, however, based on the materials used and current design practices it would be estimated to be < 1 m^3. During the risk assessment it has therefore been assumed that potential rock falls in excess of this volume that have not already been remediated by other means (e.g. rock dowels) could breach the drape netting systems.

Table 2-2. Pathway Rating

Pathway Rating	Description
1	No falling blocks are expected to reach the road (e.g., effective remedial measures and/or a wide verge or rock trap ditch).
2	Most falling blocks are not expected to reach the road (e.g., largely effective remedial measures/verge/rock trap ditch).
3	Approximately half of the falling blocks are expected to reach the road (e.g., partially effective remedial measures/verge/rock trap ditch).
4	Most falling blocks are expected to reach the road (e.g., no or ineffective remedial measures and/or narrow verge/shallow rock trap ditch).
5	All falling blocks are expected to reach the road (e.g., no or ineffective remedial measures and no verge or rock trap ditch - fallen blocks are likely to free fall or bounce directly onto the road).

2.4 Receptor Rating

For slopes with pathway ratings of ≥ 2 (i.e., where at least some blocks are expected to reach the road), a receptor rating is included in the assessment to reflect the potential of a vehicle coming into contact with, or having to take action to avoid, rock fall debris. The minimum sighting distance that a driver would have when driving adjacent to each of the slopes (in good weather conditions and during daylight hours) was estimated based on stopping distances from the Highway Code for cars travelling at 40 mph and 60 mph (36 m and 73 m, respectively).

Table 2-3. Receptor Rating

Receptor Rating	Description
1.0	Sighting distance > 73 m
1.2	Sighting distance 36 to 73 m
1.4	Sighting distance < 36 m

2.5 Rock Fall Risk Rating

The ratings assigned to the hazard, pathway and receptor were multiplied to give a rock fall risk rating for each of the slopes. The relative risk levels are described in Table 2-4, along with the colour coding used to depict these.

Table 2-4. Rock Fall Risk Rating

Rock Fall Risk Rating	Relative Risk Level	Description
< 5	Low	Small to moderate sized rock falls with a low probability of causing damage to or closure of the road and/or injuries to road users. Risk normally tolerable.
5 to < 10	Moderate	Moderate sized rock falls with potential to cause moderate damage to road and short-term road closures (a few hours) but a low probability of causing injuries to road users. Risk likely to be tolerable but client needs to be made aware of hazards and monitor these.
10 to < 15	High	Moderate to large sized rock falls with a higher probability of causing major damage to the road and/or road closures of a few days to a few weeks and potential of causing major injury or loss of life should road users be present beneath (or approaching) slope at time of rock fall. Risk likely to require remedial measures / risk management actions.
> 15	Very High	Large to very large rock falls which have a high probability of causing significant damage to road and/or long-term road closures (weeks to months) and the potential of resulting in major injury or loss of life should road users be present beneath (or approaching) slope at time of rock fall. Risk likely to require remedial measures.

3. Works Since 2024 Inspection

3.1 THC Inspections

The ongoing management of the slopes alongside the A890 involves the completion of daily 'drive through' inspections and more detailed monthly 'walk through' inspections by local THC personnel familiar with the site and the inspection procedure. Any new rock falls or other slope instability hazards are reported directly to AECOM.

Between the completion of AECOM's last annual inspection on 19 April 2024 and the commencement of the 2025 annual inspection on 28 April 2025, THC's routine inspections recorded two landslips and one rock fall at the site, details of which are provided in Table 3-1.

Table 3-1. Summary of events since last AECOM inspection

Date Observed by THC	Location	Event	Comments
27 January 2025	AA4 – Ch. 800	Rock fall	A small stone was found on the road; the source of the rock fall could not be determined by the THC inspector, although inspection of the wider area suggested that "there has been some slight falls in the past." This is evidenced by the presence of other stones within the verge marked with spray paint.
27 January 2025	AA10 – Ch. 2150	Landslip	A section of the slope "quite far up the hillside" has slipped but terminated on the slope and not progress to the road. The THC inspector suspected that the "momentum was stopped by some trees."
01 April 2025	AA20 – Ch. 3200	Landslip	A section of the slope above the retaining wall to the south-west of the avalanche shelter has slipped. A tree has been completely uprooted by the landslip and remains on the slope, held in place by the chain link fence and associated steel cabling. The fence and cables are not under tension following the slip.

AECOM has not carried out any emergency inspections at the site since the April 2024 inspection.

3.2 Scheduled Maintenance/Remedial Works

The Phase 13 construction works (referred to as the Phase 13 Rock Works) were undertaken between 11 November 2024 and 08 January 2025 by Geo-rope Limited, under the part time direction of suitably experienced AECOM engineering geologists. Although the main focus of the works was the installation of rock fall mitigation measures at Mamam Hill slopes M4 and M5, selected high priority maintenance works were also carried out at Stromeferry Bypass slopes AA5, AA6A, and AA7.

Details of the planned maintenance works are included in AECOM technical note ref. GLTN0002 (A890 Stromeferry – Specialist Maintenance Works Specification' with details of the completed works included in the slope-specific Geotechnical Assessment Sheets presented in Sections 4.2.8, 4.2.11, and 4.2.13 of this report. Further details are provided in the Geo-rope Limited 'as built' records (Stromeferry Phase 13 Health and Safety File, Geo-rope Limited, April 2025).

3.3 Drone Survey

The initial 5-year period of repeat photographic drone surveys of the slopes to the east of Frenchman's Burn concluded in 2024 (i.e., 2019 to 2024) and, as such, no drone survey was undertaken as part of the 2025 annual inspection works. The results of the completed drone surveys are included in previous annual inspection reports.

4. 2025 Annual Inspection

4.1 Methodology

The 2025 annual inspection of the roadside rock faces and selected upper slopes was carried out by a team of four AECOM engineering geologists between 28 April and 01 May 2025. The weather was varied, but generally cool and overcast with both prolonged sunny spells and occasional light rain.

All of the roadside rock slopes were inspected from road level with the aim of identifying significant changes and/or potential hazards and areas that would benefit from more detailed rope access inspections. Upslope inspections were limited to the targeted inspection of high-risk features / localities identified during previous inspections. It is noted that Spring 2025 was unusually warm and dry, with a ‘false spring’ leading to vegetation growth / leaf cover being higher than would typically be observed in late April and, in some areas, significantly restricted the view of the rock slopes and existing remedial installations whilst also limiting safe access to the upper slopes.

Traffic management was provided by Geo-rope Limited for the duration of the inspection.

The inspections undertaken provide an indication of the stability/risk but are not considered definitive. Limitations included:

- Due to the extent of the slopes, it was not practical for the inspectors to undertake a systematic inspection of the full extent of each rock face / slope. Assumptions have been made based on the area observed on foot. However, additional hazards that were not identified during the inspections may be present;
- Slopes covered or obscured by vegetation or soil could not be fully inspected; and,
- Rock faces which are covered by netting can be difficult to assess due to restricted vision.

4.2 Summary of Findings: Geotechnical Assessment Sheets

A Geotechnical Assessment Sheet for each slope reference is provided within the following sections of this report. These include the inspection findings and a summary of the slopes rock fall risk rating. Photos references are provided for key observations, with each photo given a unique reference number relating to the slope reference (for example, photos of features from slope reference AA1 have been referenced as ‘AA1-1, AA1-2, AA1-3’ etc.). The photographs are provided after each Geotechnical Assessment Sheet.

4.2.1 Slope Ref. AA1

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA1	**Chainage:** 0000 to 0170	**Start Grid Ref:** NG 89063 35689	**End Grid Ref:** NG 89166 35810	**Elevation:** 17 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:								
Dip (°): 85	Azimuth (°): 302	Height (m): 7	Length (m): 170	Vegetation Cover:	Ch. 0000 to 0100: 50-90% Ch. 0100 to 0146: 30-50% Ch. 0146 to 0163: 10% Ch. 0163 to 0170: 90% Grass, moss, saplings and ferns.	Ditch Details:	0.5 to 1 m deep by 1 m wide. Reduces to 0.15 m deep by 0.3 m wide from Ch. 0060 to 0065 No ditch from Ch. 0053 to 0068	Roughness: Rough	Verge Width (m): 1.5

Engineering Description of Rock:
Very strong thinly foliated dark bluish grey fine to medium grained micaceous SCHIST (PSAMMITE)

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2021	Ch. 0146 to 0163	To check condition of TECCO netting – specifically in waterfall area.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
September 2018	Ch. 0125	Timber in catch pit area of burn
September 2018	Ch. 0160	New rock on verge

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	TECCO mesh installed between Ch. 0146 to 0163.	**2017 Inspection**: Surface corrosion noted on length of bottom anchor cable and eastern terminal cable. **2019 Inspection**: Surface corrosion / discolouration of bottom cable and spike plates noted within waterfall noted. **2020 Inspection**: 3no. spike plates in waterfall showing surface corrosion noted. Very top and bottom of TECCO discoloured and lower cable has surface corrosion. TECCO in waterfall area	No significant changes to netting and components observed from road level during 2025 inspection. Small blocks have accumulated behind the Tecco netting.	

Existing netting or other remedial work details:				
		appears to be in reasonable condition. Accumulation of organic debris behind netting in waterfall. **2021 Inspection:** TECCO netting generally in good condition. Rope access inspection was carried out to allow condition of netting system to be fully assessed. The following observations were made: • Surface corrosion noted on length of bottom anchor cable and eastern terminal cable • 1.5 m wide x 8 m high area of netting within waterfall is discoloured; • Boundary cables locally exhibit surface corrosion (most evident at base of waterfall) • 3no. spike plates in waterfall exhibit surface corrosion • Within the vicinity of the waterfall the rock mass is locally fractured / loose.		
2015 – Phase 8 works	Works included: • Tree stump removed at April 2014 failure area. • Ditch and bund improved. • 2no. dowels installed at Ch.0060.	Anticipated that the ditch and bund will serve as an adequate rock trap for ravelling / small block falls.	No significant changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Throughout AA1	**2012 Inspection:** Upper 2 to 3 m of rock face prone to ravelling (block size typically 0.2 x 0.2 x 0.2 m).	No changes observed during 2025 inspection, ditch remains effective.	
Throughout AA1	**2018 Inspection:** Evidence of ongoing ravelling of small blocks but retained by ditch. Few small blocks retained by TECCO mesh - not currently loading system.	No changes observed during 2025 inspection, ditch remains effective.	
Ch. 0000	**2024 Inspection:** Road closure gate post has fallen. Possibly been struck by a vehicle. Maintenance required.	Gate post has been removed but not replaced; unable to secure the road closure gate when closed (i.e., cannot effectively close road).	AA1-1

Hazards Observed:			
Ch. 0000	N/A	Crash barrier has been struck; appears to have been a front-on collision. Supports sheared. Deformed barrier coned off.	AA1-2
Ch. 0031	**2024 Inspection:** A small tree growing from the rock face, 4 m above the toe, has fallen. At the same location a large block has fallen into the ditch. Dimensions are 1.0 x 0.5 x 0.4 m and the source location was just above the fallen tree. There are no additional hazards on the slope but the ditch capacity is reduced due to the presence of the block.	No changes observed during 2025 inspection.	AA1-3
Ch. 0050	N/A	Upper 1 m of rock face fractured and weathered; potential for ravelling-type failures. Ditch below anticipated to effectively trap falling blocks.	AA1-4
Ch. 0070	**2023 Inspection:** A 0.3 x 0.2 x 0.2 m block in ditch, fallen from 3 m above toe of slope. Area of high water flow, heavily fractured. Smaller size blocks up to 0.1 m also in ditch.	No changes observed during 2025 inspection.	
Ch. 0100	**2024 Inspection:** Numerous small blocks have fallen and been retained in the ditch. Evidence of ditch being effective and reducing the risk of minor rock falls affecting the road.	No changes observed during 2025 inspection.	
Ch. 0127	N/A	Numerous small blocks have fallen and been retained in the ditch. Evidence of ditch being effective and reducing the risk of minor rock falls affecting the road.	
Ch. 0138	**2024 Inspection:** Numerous small blocks have fallen and been retained in the ditch. Evidence of ditch being effective and reducing the risk of minor rock falls affecting the road.	No changes observed during 2025 inspection.	
Ch. 0150	**2021 Inspection:** Small accumulation of blocks on ledge behind TECCO netting c. 8 m above toe of slope. <0.1 m^3 total volume. Not straining or deforming netting so no maintenance requirements at this time.	No changes observed during 2025 inspection.	
Eastern end of AA1	**2016 Inspection:** Small amount of debris accumulating behind TECCO mesh due to ongoing ravelling failures (blocks up to 0.1 m^3). Not currently loading the mesh but this should be monitored during monthly and annual inspections.	No changes observed during 2025 inspection.	
Above AA1	**2023 Inspection:** Unmaintained forestry track above AA1 (disused/overgrown) c. 20 to 25 m above road level. Findings include:	No changes observed during 2025 inspection.	

Hazards Observed:			
	• Upslope box culvert/bridge spanning across small watercourse, slight debris accumulation under bridge (granular cobble/boulder size) at NG 89408 36019. • Downslope of forest road is steeply inclined with small waterfalls and localised accumulations of debris against branches and trees forming debris dams. • Across slope are branches/fallen trees.		
Above AA1 (NG 89184 35776, approx. Ch. 0160)	N/A	Bridge and culvert beneath unmaintained forestry track above AA1 are clear of debris. Debris accumulation, including a small debris dam against fallen branches, within the channel between the upper and lower tracks. This unmapped watercourse is flows over the roadside rock slope within area of Tecco netting (location of previous debris flow / rock fall).	AA1-5

Other Comments
Presence of trees and dense vegetation limits the visibility of the rockface and inhibits the ability to conduct a thorough visual inspection from the roadside. It is understood from discussions during a meeting between THC, AECOM, and Forestry and Land Scotland (FLS) that FLS do not have the capacity to undertake maintenance works along the unmaintained forestry tracks above AA1.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Generally small scale ravelling only. Targeted remedial works were undertaken within AA1 in 2013 and 2015. Increased from 1 to 2 following the 2024 inspection due to the isolated (c. 0.2 m^3) rock fall.
Pathway Rating =	2	1.5 m verge with ditch and bund along length of section. Most blocks not expected to reach the road.
Receptor Rating =	1.2	
Risk Value =	**4.8**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• De-vegetate the slope face;

Recommended Remedial Works / Actions							
					• Monitor build-up of debris in ditch during monthly and annual inspections and undertake clearance works when required to maintain its capacity; • Monitor condition of dowels and netting system during annual inspections – recommended that a rope access inspection be carried out in 2026 to monitor corrosion; • Monitor build-up of debris (i.e. debris dams) in channels above AA1 and undertake clearance works when required; • Carry out repairs to re-instate road closure gate post. • The requirement for the following works that are not related to rock fall risk management was also identified: – Carry out repairs to struck crash barrier.		
Assessed in field by:	SF/MT/PM/CR	**Date:**	29/04/2025, 01/05/2025	**Reviewed by:**	MT	**Date:**	26/06/25

AA1-1	Ch. 0000 2024 observation: Road closure gate post has fallen. Possibly been struck by a vehicle. Maintenance required. 2025 observation: Gate post has been removed but not replaced; unable to secure the road closure gate when required (i.e. cannot effectively close road). Replacement required.	Year First Observed:	2024

AA1-2	Ch. 0000: 2025 observation: Not related to rock fall risk, however it was observed that crash barrier has been struck; appears to have been a front-on collision. Supports sheared. Deformed barrier coned off.	Year First Observed:	2025

AA1-3	Ch. 0031: 2024 observation: A small tree growing from the rock face, 4 m above the toe, has fallen. At the same location a large block has fallen into the ditch. Dimensions are 1.0 x 0.5 x 0.4 m and the source location was just above the fallen tree. There are no additional hazards on the slope but the ditch capacity is reduced due to the presence of the block. 2025 observation: No changes observed in 2025 inspection.	Year First Observed:	2024

AA1-4	Ch. 0050: 2025 observation: Upper 1 m of rock face fractured and weathered; potential for ravelling-type failures. Ditch below anticipated to trap falling blocks.	Year First Observed:	2025

AA1-5	Above AA1 (NG 89184 35776, approx. Ch. 160): 2025 observation: Bridge and culvert beneath unmaintained forestry track clear of debris. Debris accumulation, including a small debris dam against fallen branches, within the channel between the upper and lower tracks.	Year First Observed:	2025

4.2.2 Slope Ref. AA2

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA2	**Chainage:** 0170 to 0335	**Start Grid Ref:** NG 89166 35810	**End Grid Ref:** NG 89213 35870	**Elevation:** 9 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:								
Dip (°): 74	Azimuth (°): 319	Height (m): 20	Length (m): 165	Vegetation Cover: Ranges between 10 to 100% across the slope comprising of moss, heather and occasional fern. Small saplings becoming established. Trees along crest.	Ditch Details: 0.5 to 1.0 m wide by 0.4 m deep	Roughness: Rough	Verge Width (m): 0.8

Engineering Description of Rock:
Very strong thinly foliated dark grey fine to medium grained SCHIST (PSAMMITE)

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2019	Throughout AA2	To inspect the top cable anchors of the drape netting systems.	

THC Monthly Inspection Observations:

Date	Location	Comments
October 2018	Ch. 0300	2no. new stones in ditch.
March 2019	Ch. 0190	Stone found on road in morning inspection. Cleared away to verge.

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
Before AECOM involvement (i.e. pre-2012)	Netting system from Ch. 0170 to 0202 and Ch. 0230 to 0292.	Details of netting system include: • PVC coated double twist • Top cable 16 mm galvanised • c. 5 m anchor spacing (bottom anchor spacing typically 9 m) and 25 mm galvanised bars • Cable-anchor connection: galvanised eye nuts • 4no. cable clamps • Netting lap connections using Spenax rings • No laps on anchors or vertical reinforcing	No significant changes to netting and components observed from road level during 2025 inspection.	AA2-1

Existing netting or other remedial work details:				
		2016 Inspection: Bottom cable noted to be corroded within up chainage section of passive rock fall netting **2019 Rope Access Inspection:** North-eastern terminal anchor exposed and noted to be in good condition. Top rope also in good condition with minor surface corrosion only. One mid-rope eyelet is stainless steel but insulated to avoid bi-metallic corrosion. Note: plastic mesh extends much higher than the Maccaferri netting and is largely buried beneath moss and grass. **2021 Inspection:** Slight surface corrosion of bottom cable around Ch. 0273.		
2013 – Phase 7 works	Trees felled and scaling undertaken at NG 89294 35905.	N/A	N/A	
2015 – Phase 8 works	Works include: • Damaged mesh replaced with Maccaferri double twist netting at Ch. 0180. • Trees felled and light scaling undertaken.	**2021 Inspection:** Slight corrosion of Maccaferri netting and bottom cable around small waterfall.	No significant changes observed during 2025 inspection.	
2021 – Phase 12 works	Works include: • Clearance of roadside ditch from Ch. 0200 to 0230, Ch. 0256. and Ch. 0310 to 0335. • Drainage gully at Ch. 0335 cleaned out at roadside.	**2022 Inspection:** Culvert at Ch. 0335 would benefit from clearance again. **2023 Inspection:** Culvert at Ch. 0335 is c. 50% full. **2024 Inspection:** No changes observed during 2024 inspection. Culvert was clear.	Culvert at Ch. 0335 is completed blocked by organic debris. Required to be cleared.	AA2-2

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 0190	**2024 Inspection:** There is an accumulation of blocks behind the netting. Blocks are small and originate from 5 m above the toe of the slope. The total dimensions of the rock fall debris accumulation is approximately 1.0 x 0.5 x 0.3 m (0.15 m^3).	No changes observed during 2025 inspection.	

Hazards Observed:			
Ch. 0205	**2016 Inspection:** Trees at eastern edge of gully at crest of rock face are overhanging and at risk of falling and dislodging blocks. Whilst the trees themselves are unlikely to reach the road they may dislodge soil/rock as they fall. **2024 Inspection:** No changes observed during 2024 inspection. Less visible than in previous years due to increased vegetation growth on slope below.	No changes observed during 2025 inspection.	
Ch. 0205 to 0230	**2019 Inspection:** No remedial measures over rock face in this area. Almost 70% vegetation cover including small coniferous saplings. Root jacking may become an issue - potential for small block fall <0.1 m^3. Keep under observation.	Almost no visibility of the rock face due to significant immature tree cover. Potential for root jacking. De-vegetation recommended.	AA2-3
Ch. 0232 to 0237	**2023 Inspection:** Ditch width reduced due to vehicle over-run. Not significant issue due to drape netting in this area.	No changes observed during 2025 inspection.	
Ch. 0235 to 0250	**2019 Inspection:** c. 0.3 x 0.3 x 0.3 m debris caught behind drape 1 to 2 m above ditch demonstrating effectiveness of drape netting system.	No changes observed during 2025 inspection.	AA2-4
Ch. 0259	N/A	Small blocks up to 0.25 m^3 retained in netting at slope toe; sources 4 to 5 m above toe from potential wedge failure. Small overhang remaining with the potential for further failure of blocks up to 0.5 m^3; Netting anticipated to be sufficient to retain further rock fall material.	
Ch. 0278	**2017 Inspection:** Debris continues to build up behind netting. Not currently loading system significantly. In 2021, it was noted that some of the material had fallen out of base of netting and into ditch below.	No changes observed during 2025 inspection.	AA2-5
Ch. 0285 to 0315	N/A	Wet surface from water seepage; flow in continuous with build-up of algae; although presence of water can increase potential for rock fall no evidence of slope instability was observed and there is a 1.5 m wide ditch at this location.	
Ch. 0300 to 0335	**2019 Inspection:** Vegetated rock slope with no remedial measures. No significant hazards observed.	No changes observed during 2025 inspection.	
Ch. 0325	N/A	Tree at slope crest leaning by c. 5° from vertical.	AA2-6
Above AA2	**2023 Inspection:** Unmaintained forestry track above AA2 (disused/overgrown) c. 20 to 25 m above road level. Findings include:	NG 89203 35827 (approx. Ch. 210): Fallen tree blocking channel upstream of bridge. Granular material accumulating beneath the bridge. Channel down-slope	AA2-7, AA2-8, AA2-9, AA2-10

Hazards Observed:			
	• Upslope box culvert/bridge spanning across small watercourse, slight debris accumulation under bridge (granular cobble/boulder size) at NG 89199 35816. • Downslope of forest road is steeply inclined with small waterfalls and localised accumulations of debris against branches and trees forming debris dams in water course. • Across slope are branches/fallen trees and there are some leaning trees in watercourse side walls.	towards the road is steep with localised branches and granular debris. NG 89215 35799 (approx. Ch. 200): Former culvert at location of upper forestry track has been washed away. Not recent but debris must have been transported downslope and may still be within channel between here and road posing risk of future debris flow. Rope access inspection to be carried out in 2026 to verify.	

Other Comments
Presence of trees and dense vegetation limits the visibility of the rockface and inhibits the ability to conduct a thorough visual inspection from the roadside. It is understood from discussions during a meeting between THC, AECOM, and Forestry and Land Scotland (FLS) that FLS do not have the capacity to undertake maintenance works along the unmaintained forestry tracks above AA2.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Decreased from 3 to 2 following the 2023 inspections where the end chainage was revised.
Pathway Rating =	2	Decreased from 4 to 2 following the 2023 inspections where the end chainage was revised.
Receptor Rating =	1.2	
Risk Value =	**4.8**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Fell trees at the crest of the slope, in particular at Ch. 0205 and 0325; • De-vegetate the slope face, in particular Ch. 0205 to 0230 where there is no rock fall netting system; • Clear debris from blocked culvert at Ch. 0335; and • Monitor build-up of debris (i.e., debris dams) in channels above AA2 and undertake clearance works when required.

Hazards Observed:							
Assessed in field by:	SF/MT/PM/CR	**Date:**	29/04/2025, 01/05/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA2-1	Netting system from Ch. 0170 to 0202 and Ch. 0230 to 0292 installed before AECOM involvement (i.e., pre-2012). Generally, in good condition, although the bottom cable is corroded around Ch. 0273. Vegetation regrowth increases the potential for rock falls due to root jacking.	Year First Observed:	2012

AA2-2	2021 – Phase 12 works: • Clearance of roadside ditch from Ch. 0200 to 0230, Ch. 0256. and Ch. 0310 to 0335 undertaken in 2021 (Phase 12 works). 50% blocked by 2023 and completely blocked by 2025 with build up of organic debris. Requires clearing out again.	Year First Observed:	2022

AA2-3	Ch. 0205 to 0230: Limited visibility of the rock face due to significant tree cover. Potential for root jacking.	Year First Observed:	2019

AA2-4	Ch. 0235 to 0250: 2019: c. 0.3 x 0.3 x 0.3 m debris caught behind drape 1 to 2 m above ditch demonstrating effectiveness of drape netting system. 2025: No changes observed during 2025 inspection.	Year First Observed:	2019

AA2-5	Ch. 0278: 2017: Debris continues to build up behind netting. Not currently loading system significantly. In 2021, it was noted that some of the material had fallen out of base of netting and into ditch below. 2025: No changes observed during 2025 inspection.	Year First Observed:	2017

AA2-6	Ch. 0325: 2025: Tree at slope crest leaning by c. 5° from vertical.	Year First Observed:	2025

AA2-7	• Above AA2 NG 89203 35827: Fallen tree blocking channel upstream of bridge. Granular material accumulating beneath the bridge. Channel down-slope towards the road is steep with localised branches and granular debris.	Year First Observed:	2023

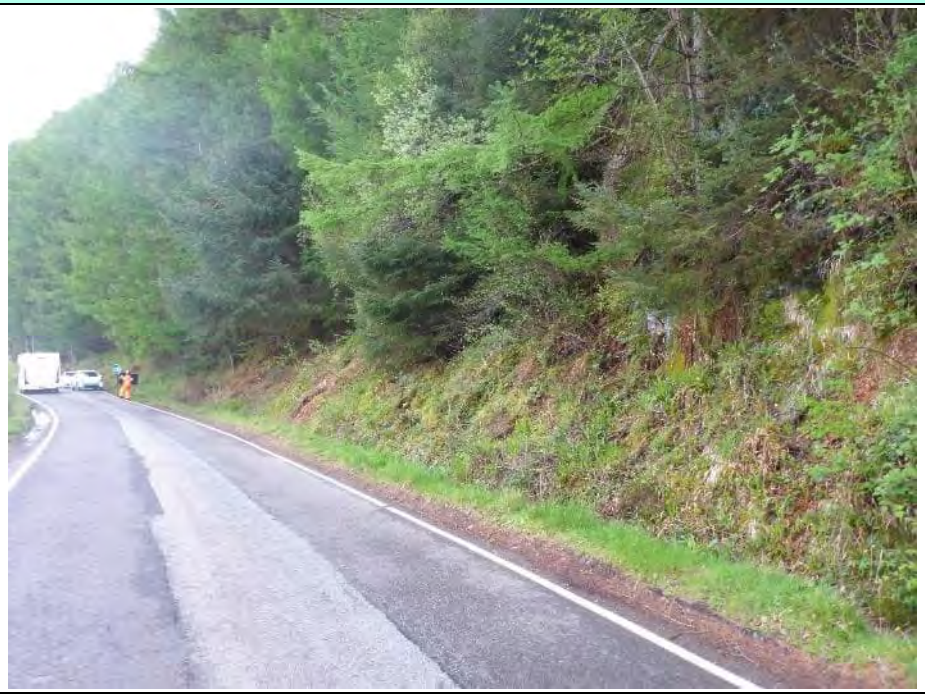
AA2-8	• Above AA2 NG 89203 35827: Fallen tree blocking channel upstream of bridge. Granular material accumulating beneath the bridge. Channel down-slope towards the road is steep with localised branches and granular debris.	Year First Observed:	2023

AA2-9	• Above AA2 NG 89203 35827: Fallen tree blocking channel upstream of bridge. Granular material accumulating beneath the bridge. Channel down-slope towards the road is steep with localised branches and granular debris.	Year First Observed:	2023

AA2-10	• Above AA2 NG 89215 35799: Former culvert beneath unmaintained forestry track (upper track) washed away. Not recent but first time this area has been inspected.	Year First Observed:	2025

4.2.3 Slope Ref. AA2A

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA2A	**Chainage:** 0335 to 0555	**Start Grid Ref:** NG 89213 35870	**End Grid Ref:** NG 89393 36104	**Elevation:** 9 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 50 to 55 From Ch. 0477: 84	Azimuth (°): 290	Height (m): 25 (crags)	Length (m): 220	Vegetation Cover: 100%. Moss, grass, saplings, and bushes. Many tree stumps and locally crags.	Ditch Details: 0.5 to 1.0 m wide by 0.5 m deep; 1.5 m wide by 0.5 to 1.0 m deep from Ch. 0477	Roughness: Rough	Verge Width (m): 0.5 to 0.8; 3.5 from Ch. 0477

Engineering Description of Rock:
Strong thinly foliated dark grey fine to medium grained SCHIST (PSAMMITE)

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
February 2019	Ch. 350 and 400	A 0.3 m x 0.2 m block at Ch. 350 and a 0.1 m x 0.1 m block at Ch. 400.
March 2019	Ch. 420	A 0.2 m x 0.3 m stone on verge.
February 2023	Ch. 425	Small debris flow. A minor watercourse in this area – ditch has been cleared out.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2015 – Phase 8 works	Rock trap ditch cleared out and bund created.		N/A	
2021 – Phase 12 works	Clearance of roadside ditch between Ch. 0335 to 0447.		No significant changes observed during 2025 inspection; ditch remains effective.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Throughout AA2A	**2012 Inspection:** Potential for small scale ravelling/block falls up to 0.125 m^3.	No changes observed during 2025 inspection.	

Hazards Observed:			
Ch. 0335	**2024 Inspection:** Roadside ditch filled with small granular debris. Culvert is also blocked at this location. There is evidence of previous significant water flow (flattened vegetation) beyond the extents of the downslope channel. Recommend for ditch and culvert to be cleared.	No changes observed during 2025 inspection; ditch and culvert remain blocked and require clearance. See entry and photograph recorded for Slope AA2.	
Ch. 0340 to 0447	**2016 Inspection:** Potential for root jacking identified (trees on outcrops adjacent to road). Recommend coppicing trees within 10 m of road.	No changes observed during 2025 inspection.	
Ch. 0350 to 0370	**2019 Inspection:** c. six 0.1 x 0.1 x 0.1 m blocks in roadside ditch. These were not all recent, with spray paint noted on some blocks indicating they had been previously identified during THC monthly inspections (Feb 2019?). Source of blocks likely to be crags 20 to 25 m upslope in forest (see Ch. 0360 notes from 2018 inspection). Upslope crags re-inspected and no major stability issues were identified. Minor ravelling from root jacking was apparent and small blocks may continue to fail, however, ditch is currently considered effective	No changes observed during 2025 inspection.	
Ch. 0360	**2018 Inspection:** Root jacking in crags c. 25 m above road level with the potential for dislodging of blocks.	No changes observed during 2025 inspection.	
Ch. 0390	**2023 Inspection:** Several blocks up to 0.4 x 0.3 x 0.2 m in ditch. Source not obvious, crags c. 20 to 25 m upslope.	No changes observed during 2025 inspection.	
Ch. 0395	**2018 Inspection:** Large blocks with fallen trees in front in a crevasse at c. 15 to 20 m above road level where the main discontinuity is at a 65 degree angle. Blocks currently keyed in.	No changes observed during 2025 inspection.	
Ch. 0400	**2016 Inspection:** Large overhanging boulder 5 m above road level. Weaker / more fractured material near the base of the boulder has preferentially weathered, leaving a 2.5 m overhang. Dilated discontinuities within upper part of boulder form a distinct block (approx. 1.5 x 1.5 x 2.0 m) above the overhang, which is at risk of failure due to loss of support and root jacking (trees growing on boulder have been coppiced in the past but were noted to be re-growing). Passing place beneath potential rock fall. If this block were to fail it would reach the road. In 2020 Inspection, it was noted that a few small blocks have spalled / ravelled from the southern side of the boulder.	No changes observed during 2025 inspection.	AA2A-1, AA2A-2
Ch. 0409	N/A	Boulder resting on / wedged behind a tree ~3 m upslope of road. Dimensions 0.3 x 0.5 x 0.2 m. Source of rock fall appears to be a fallen tree c. 25 m above road level with blocks weathering out of the root ball.	AA2A-3, AA2A-4

Hazards Observed:			
Ch. 0419	**2021 Inspection:** Two small blocks observed in the roadside ditch. No pre-existing paint marks so assumed to be recent. No obvious upslope source but within area where tree falls / root jacking poses a risk.	No changes observed during 2025 inspection; blocks have been spray-painted.	AA2A-5
Ch. 0428	**2024 Inspection:** Roadside location of soil washout. Ditch is filled with small granular debris. Recommend for ditch and feeder pipe to be cleared. No flow observed at road level but water was observed in channel at forest track above. Appears to be ephemeral flow.	No changes observed during 2025 inspection.	
Ch. 0476	**2024 Inspection:** Small downslope watercourse over rockface. Vegetation and small blocks have been stripped and gathered at toe of slope.	No changes observed during 2025 inspection.	
Above AA2A	**2023 Inspection:** Unmaintained forestry track above AA2A (disused/overgrown) c. 20 to 25 m above road level. To inspect source area of soil washout which occurred in Feb 2022. Findings include: • Source area at NG 89385 35998 c. 40 to 50 m above road level. At the crest of the slippage there remains a lobe of soil sitting on rock (c. 4 to 5 m length x 2 m wide x 0.5 m deep) that could wash out in the future. • Downslope of source area, the channel has been stripped down to bedrock which has a stepped profile. • A possible shallow soil slip was observed at NG 89324 35942. **2024 Inspection:** Unmaintained forestry track above AA2A (disused/overgrown) c. 20 to 25 m above road level. To inspect source area of soil washout which occurred in Feb 2022. Findings include: • Last watercourse c. 40 m from end of track (upslope of Ch 0476). Appears to have been dug out beneath track a long time ago with bund on east side. Only concern is that debris dams starting to form on down slope side. Keep under observation and ideally clear out channel. • Road surface waterlogged at second culvert (NG 89399 35932); sitting above steep ground. Recommend creating upslope roadside ditch to divert water into culvert along 50 m length to west of culvert. Also same for creating ditch 30 m to east of culvert. Also recommended cleaning out water course for 10 m beneath track. • Watercourse that was source of 2022 washout. No change from 2023. However, loose scree and soil remains in watercourse at track and above that could mobilise in greater flow (NG 89400 35963). Recommend keeping	No significant change noted to debris flow channel during 2025 inspection along unmaintained forestry track above AA2A.	AA2A-6, AA2A-7

Hazards Observed:			
	roadside ditch clear as a minimum (NG 89369 35995). Could clear out at track level.		

Other Comments
Ground beneath the overhanging block with dilated fractures of the boulder at Ch. 0400 appears to have been partially cleared out and a pile of sticks is present gathered; conjectured to have been human activity. Presence of trees and dense vegetation limits the visibility of the rockface and inhibits the ability to conduct a thorough visual inspection from the roadside. It is understood from discussions during a meeting between THC, AECOM, and Forestry and Land Scotland (FLS) that FLS do not have the capacity to undertake maintenance works along the unmaintained forestry tracks above AA2A.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	Increased from 2 to 3 following the 2023 inspection due to the presence of the potential failure at Ch. 0400; elsewhere within AA2A the hazard rating would be lower.
Pathway Rating =	4	Increased from 1 to 4 following the 2023 inspection due to the presence of the passing place beneath the potential failure at Ch.0400; elsewhere within AA2A the pathway rating would be lower.
Receptor Rating =	1.2	
Risk Value =	**14.4**	
Risk Level =	**High**	Rating specifically applies to passing place centred on Ch. 0400. Throughout remainder of section risk level of low more appropriate.

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	• Heavy scaling / controlled removal of overhang on boulder at Ch. 0400. Likely to require stitch drilling.	• De-vegetate the slope face; • Coppice trees within 10 m of road between Ch. 0340 to 0447; • The build-up of debris within the ditch should be monitored during monthly and annual inspections and clearance works undertaken as required to maintain its capacity; • Monitor build-up of debris (i.e. debris dams) in channels above AA2A and undertake clearance works when required; • Ch. 0335 recommend for ditch and culvert to be cleared; • Ch. 0428 recommend for ditch and feeder pipe to be cleared; and

Recommended Remedial Works / Actions							
					• Above AA2A it is recommended to clean out watercourse at track and above to mobilise greater flow. Drainage improvements also recommended.		
Assessed in field by:	SF/MT/PM/CR	**Date:**	29/04/2025 & 01/05/2025	**Reviewed by:**	MT	**Date:**	26/05/2025

AA2A-1	Ch. 0400: Large boulder above road level at a passing place with a c. 2.5 m overhang. Dilated discontinuities split boulder into two blocks, with the block above the overhang affected by root jacking (coppiced trees regrowing). Historic spalling / ravelling failures noted in 2020 inspection. Should the overhanging block fail, rock fall material would reach the road.	Year First Observed:	2016

AA2A-2	Ch. 0400: Weaker / more fractured material near the base of the overhanging boulder has preferentially weathered, leaving a 2.5 m overhang. Overhanging block approx. 1.5 x 1.5 x 2.0 m. If this block were to fail it would reach the road.	Year First Observed:	2016

AA2A-3	Ch. 0409: 2025: Boulder resting on / wedged behind a tree ~3 m upslope. Dimensions 0.3 x 0.5 x 0.2 m. Source of rock fall a fallen tree c. 25 m above road level with blocks weathering out of the root ball.	Year First Observed:	2025

AA2A-4	Ch. 0409: 2025: Boulder resting on / wedged behind a tree ~3 m upslope. Dimensions 0.3 x 0.5 x 0.2 m. Source of rock fall a fallen tree c. 25 m above road level with blocks weathering out of the root ball.	Year First Observed:	2025

AA2A-5	Ch. 0419: 2021: Two small blocks observed in the roadside ditch. No pre-existing paint marks so assumed to be recent. No obvious upslope source but within area where tree falls / root jacking poses a risk. 2025: No changes observed during 2025 inspection; blocks have been spray-painted.	Year First Observed:	2021

AA2A-6	Above AA2A: 2024: Last watercourse c. 40 m from end of track (upslope of Ch 0476). Loose scree and soil remains in watercourse at track and above that could mobilise in greater flow (NG 89400 35963). Recommend keeping roadside ditch clear as a minimum (NG 89369 35995).	Year First Observed:	2023

AA2A-7	Above AA2A: 2024: Last watercourse c. 40 m from end of track (upslope of Ch 0476). Debris dams starting to form down slope from the unmaintained forestry track. Keep under observation and ideally clear out channel. Recommend keeping roadside ditch clear as a minimum (NG 89369 35995).	Year First Observed:	2023

4.2.4 Slope Ref. AA3

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA3	**Chainage:** 0560 to 0660	**Start Grid Ref:** NG 89397 39107	**End Grid Ref:** NG 89454 36200	**Elevation:** 14 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	80	Azimuth (°):	317	Height (m):	16	Length (m):	100	Vegetation Cover:	20 to 30% Moss and ground cover with occasional trees. Trees along ditch edge partially obscure rockface. Overhanging trees at crest. t
Ditch Details:	2.2 m wide by 1.2 m deep between Ch. 0605 and 0660	Roughness:	Smooth	Verge Width (m):	3.5 to Ch. 0605 13 from Ch. 0605 to 0660				

Engineering Description of Rock:
Medium strong thinly to narrowly foliated light pinkish grey schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 0560 to 0605	**2016 Inspection:** Potential for toppling/block fall up to 2 m^3 originating from 5 to 8 m above road level. There is a relatively flat 3.5 m wide verge between the toe of the rock face and the edge of the road and blocks from previous failures (none recent) were located between the rock face and a deer fence approx. 2 m from the rock face. It is considered unlikely that blocks will reach road in event of a failure.	No changes observed during 2025 inspection. Photos taken at Ch. 0573.	AA3-1, AA3-2

Hazards Observed:			
Ch. 0600	**2021 Inspection:** Large block / slab of rock with dilated fractures and potential for root jacking at crest of rock slope. No significant change since last inspection. Set well back from road with adequate rock trap so low risk to road.	No changes observed during 2025 inspection.	AA3-3
Ch. 0605 to 0660	**2012 Inspection:** Potential for very large toppling/block fall failures although presence of large ditch and very mean these do not pose a risk to the road.	No changes observed during 2025 inspection.	
NG 89467 36164 (Ch. 0612)	**2016 Inspection:** Series of sub-parallel curved tension cracks in upper slope. Considered to represent ancient slope movements prior to road construction. Cracks vary from 1 to 3 m wide and 1 to 3 m deep and are located in a side-long slope length of approximately 30 to 40 m. NE end terminates in area of historic failure (topographic 'bowl'-shape') above NG 89467 36164. **2017 Inspection:** Tension cracks were noted around 50 m below main tree line, around 100 to 150 m NE of watercourse and immediately above the AA3 rock face. No signs of recent movement were observed. Note that Ch. 0612 places this above slope AA3, c. 20 to 30 m above road level.	No changes observed during 2025 inspection.	
Ch. 0622	N/A	Potential toppling failure with large, dilated fracture at crest of slope. View of feature largely obscured by vegetation. Re-inspect 2026, possibly with rope access.	
Ch. 0662	**2024 Inspection:** Loose granular material forming roadside slope. Blocks occasionally moving downslope and coming to rest in ditch.	No changes observed during 2025 inspection.	

Other Comments
Rock face is set back from road with an effective rock trap / bund. No surface or groundwater flows. Presence of trees and dense vegetation limits the visibility of the rockface and inhibits the ability to conduct a thorough visual inspection from the roadside.

ROCK FALL RISK RATING		Comments
Hazard Rating =	4	
Pathway Rating =	1	Presence of wide ditch/verge mean potential failures do not pose a risk to the road.
Receptor Rating =	N/A	Receptor rating only applicable when pathway rating is ≥2.
Risk Value =	**4.0**	
Risk Level =	**Low**	

Hazards Observed:							
Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		N/A			• Coppice overhanging trees at the slope crest; • Build-up of debris in rock trap ditch should be monitored during monthly and annual inspections and clearance works undertaken as required to maintain its capacity; and • Tension cracks on slope above rock face at Ch. 0612 to be kept under observation during annual inspection.		
Assessed in field by:	SF/MT/PM/CR	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA3-1	Ch. 0573: Potential for toppling/block fall up to 2 m^3 originating from 5 to 8 m above road level. There is a relatively flat 3.5 m wide verge and it is considered unlikely that blocks will reach road in event of a failure.	Year First Observed:	2016

AA3-2	Ch. 0573: Potential for toppling/block fall up to 2 m^3 originating from 5 to 8 m above road level. There is a relatively flat 3.5 m wide verge and it is considered unlikely that blocks will reach road in event of a failure.	Year First Observed:	2016

AA3-3	Ch. 0600: Large block / slab of rock with dilated fractures and potential for root jacking at crest of rock slope. No significant change since last inspection. Set well back from road with adequate rock trap so low risk to road.	Year First Observed:	2021

4.2.5 Slope Ref. AA3A

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA3A	**Chainage:** 0600 to 0745	**Start Grid Ref:** NG 89454 36200	**End Grid Ref:** NG 89508 36254	**Elevation:** 14 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 35 to 45	Azimuth (°): 315	Height (m): N/A	Length (m): 85	Vegetation Cover: 100% Grass, trees, and moss	Ditch Details: 0.5 m wide by 0.3 m deep	Roughness: Smooth	Verge Width (m): 0

Engineering Description of Rock:
Medium strong thinly to narrowly foliated light pinkish grey schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 0690	**2019 Inspection:** Isolated rock outcrop c. 30 m above road level with ongoing ravelling / root jacking. Some blocks have reached deer fence 1 to 2 m above road level.	No changes observed during 2025 inspection.	
Ch. 0690	**2019 Inspection:** Accumulation of small blocks on the upslope side of the deer fence. Fence post has fallen down here but appears to have rotted rather than been struck by a block. Debris not recent but scree present upslope with an isolated rock outcrop ~30 m above road level. Failed blocks typically c. 0.1 x 0.1 x 0.1 m. Outcrop inspected to be flat bedded with failures a consequence of ravelling associated with ongoing root jacking. Evidence of roadside deer fence effectively arresting small blocks, however, potential for blocks to reach verge/edge of road exists.	No changes observed during 2025 inspection.	AA3A-1
Ch. 0705 to 0715	**2024 Inspection:** Accumulation of small blocks behind deer fence.	Four fresh rock fall blocks present amongst other blocks, distinguished by not having been overgrown with moss. Dimensions of largest block c. 0.3 x 0.2 x 0.1 m	AA3A-2

Hazards Observed:			
Ch. 0726	**2024 Inspection:** Evidence of water flow down slope. Flow has not stripped vegetation or soil, but it has washed out an accumulation of gravel and silt. Material retained at deer fence and roadside ditch. Clearance recommended.	No changes observed during 2025 inspection.	
Ch. 0737	N/A	One c. 0.25 m^3 block in verge; does not appear to be recent but has slightly moved from previous position. May have been dislodged by a vehicle strike as opposed to a recent rock fall.	AA3A-3

Other Comments
Height recorded as 'N/A' as the slope is comprised of fully vegetated natural slope with isolated rock outcrops.

ROCK FALL RISK RATING		Comments
Hazard Rating =	1	Small scale ravelling / root jacking from isolated outcrops.
Pathway Rating =	2	Most of the failure debris is expected to come to rest on the slope between the outcrop and the road but there is potential for occasional blocks to reach road level.
Receptor Rating =	2	
Risk Value =	**2.0**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		N/A			• Build-up of debris at deer fence to be monitored. At Ch. 0726, material behind the deer fence and in roadside ditch has built up. Clearence is recommended.		
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA3A-1	Ch. 0690: Accumulation of small blocks on the upslope side of the deer fence. Debris not recent but scree present upslope with an isolated rock outcrop ~30 m above road level. Failed blocks a consequence of root jacking. Evidence of roadside deer fence arresting small blocks.	Year First Observed:	2019

AA3A-2	Ch. 0705 to 0715: 2024: Accumulation of small blocks behind deer fence. 2025: Four fresh rock fall blocks present amongst other blocks, distinguished by not having been overgrown with mass. Dimensions of largest block c. 0.3 x 0.2 x 0.1 m	Year First Observed:	2024

AA3A-3	Ch. 0737: 2025: One c. 0.25 m^3 block in verge; does not appear to be recent and may have been moved by a vehicle strike.	Year First Observed:	2025

4.2.6 Slope Ref. AA4

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA4	**Chainage:** 0745 to 0855	**Start Grid Ref:** NG 89508 36254	**End Grid Ref:** NG 89572 36332	**Elevation:** 21 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 80	Azimuth (°): 310	Height (m): 20	Length (m): 110	Vegetation Cover: 75 to 80% Ivy, grass, shrubs, and saplings, some small trees	Ditch Details: 1.0 m wide by 0.6 m deep	Roughness: Rough	Verge Width (m): 1.0

Engineering Description of Rock:
Very strong thinly foliated grey fine grained schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2016	Ch. 776	To inspect wedge of rock beneath overhang at crest. Findings: • Wedge noted as not loose and appears to be reasonably well-bedded in and is no longer a hazard.	
2016	Ch. 788	To inspect overhanging block at crest of slope. Findings: • It was apparent that a release joint was present, and the block was only held in place by a partial overlap on the left-hand side. • Block marked with orange paint. • A holly bush was located immediately to the left, obscuring the rock mass behind. Recommended works: • Scale / dowel overhanging block, coppice adjacent holly tree and inspect rock mass behind.	
2019	Ch. 802	To inspect a block noted at crest of slope with potential pathway to road. Findings: • There is not a block at crest of slope at this location. • The feature observed from road level was a cut birch tree stump that has started to regrow. • Overhanging portion was very rotten and was removed during the inspection and, therefore, is no longer a hazard.	
2021	Ch. 764	To inspect rock mass c. 6 to 8 m above road level with dilated fractures. Recommended works: • Scaling was recommended and completed in 2021 Phase 12 works.	
2021	Ch. 766	To determine source area of a recent failure. Findings: • Source was found to be located c. 4 to 5 m below crest of slope. • Rock fall deemed as a chimney/wedge type failure.	

		• No other loose rocks in source area but indicative of the type / volume of failure that may occur in this section.	

THC Monthly Inspection Observations:

Date	Location	Comments
June 2018	Ch. 0830	New stone in drain (x2).
August 2018	Ch. 0830	More stone in ditch from same location.
April 2021	Ch. 0810	Minor soil slip occurred and was contained by verge/drain. Originated from c. 8 m upslope. Slight overhang of vegetation at crest of failure slope remains.
January 2025	Ch. 800	Small stone found in the road. Source of stone unknown, although surrounding area appears to have a history of rock falls with several other stones (marked with spray paint) lying in the verge.

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
2015 – Phase 8 works	2no. dowels installed at Ch. 0775 and Ch. 0790.		No significant changes to netting and components observed from road level during 2025 inspection.	
2021 – Phase 12 works	Scaling of rock mass at Ch. 0764.	Block c. 1.5 x 0.5 x 0.4 m was scaled. **2023 Inspection:** Note that there is an accumulation of blocks from these scaling works in the roadside ditch (total 0.5 m^3).	No significant changes to netting and components observed from road level during 2025 inspection.	

Hazards Observed:

Location	Description of Hazard(s) from Previous Inspections	2025 Inspection Observations	Photo Reference
Whole slope	**2018 Inspection:** Vegetation is quite well established and trees which were previously coppiced are growing again. Keep under observation during future inspections as root jacking may become an issue. **2024 Inspection:** Sapling regrowth beginning to obscure and prevent visual inspection. Recommend vegetation clearance.	Potential for root jacking as sapling continue to grow and mature.	
Whole slope	**2019 Inspection:** Minor ravelling / root jacking potential. Ditch generally considered to be effective although occasional small block may reach edge of carriageway.	No changes observed during 2025 inspection.	
Ch. 0730	N/A	Seepage with algal growth.	
Ch. 0745	**2018 Inspection:** Root jacking and fractured rock mass 8 m above road level. Potential failure volume 1 m^3. Although most debris would rest on slope or in ditch	No changes observed during 2025 inspection.	AA4-1

Hazards Observed:			
	there is potential for a small volume to reach the road. Scaling recommended to minimise risk. **2024 Inspection:** Less visible due to vegetation growth.		
Ch. 0765	**2018 Inspection:** Evidence of minor ravelling with debris in ditch c. 0.1 m³ (max block size 0.2 x 0.2 x 0.1 m).	No changes observed during 2025 inspection.	
Ch. 0766	**2021 Inspection:** Recent failure observed as accumulation of blocks in ditch and on road verge. Total volume c. 1 m^3. Block size c. 0.3 x 0.2 x 0.1 m and ditch c. 1.5 m wide x 0.5 m deep. Rope access inspection was required to determine source which was found to be located c. 4 to 5 m below crest of slope. Rock fall deemed as a chimney/wedge type failure. No other loose rocks in source area but indicative of the type / volume of failure that may occur in this section.	No changes observed during 2025 inspection.	
Ch. 0788	**2016 Inspection:** Overhanging block at crest of slope with release joint and only partial overlap keying block in place. Holly bush immediately to the left obscuring rock mass.	No changes observed during 2025 inspection.	
Ch. 0800	**2016 Inspection:** Small soil slip noted approximately 5 m above road level (below tree stump). Debris from scar not likely to reach road.	Completely obscured by vegetation. Location of January 2025 THC observation – stone in road.	
Ch. 0810	**2021 Inspection:** Soil wedge slipped and landed in roadside ditch in April 2021, leaving slight overhang of vegetation at crest of failure that could fail in future.	Completely obscured by vegetation.	
Ch. 0817	**2024 Inspection:** Large block present in ditch. Source of block not obvious and rock type does not appear to be native to the site – may have fallen off lorry / trailer and been moved to ditch. Dimensions are 0.5 x 0.4 x 0.2 m.	No changes observed during 2025 inspection.	
Ch. 0826	**2023 Inspection:** A block 0.5 x 0.3 x 0.2 m in ditch. Fallen from 1 m above toe in area of high-water flow. Ditch effective.	No changes observed during 2025 inspection.	AA4-2
Ch. 0842	**2023 Inspection:** Ditch would benefit from clearance	High water flow. Recommendation from 2023 remains.	AA4-3

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1	
Risk Value =	**9.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	• Scale fractured rock mass at Ch. 0745. • Scale / dowel overhanging block at Ch. 0788, coppice adjacent holly tree and inspect rock mass behind.	• Clear out ditch at base of small watercourse at Ch. 0842. • Vegetation clearance is recommended across the whole slope.

Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA4-1	Ch. 0745: Root jacking and fractured rock mass 8 m above road level. Potential failure volume 1 m^3. Potential for a small volume to reach the road. Scaling recommended to minimise risk. 2024: Less visible due to vegetation growth.	Year First Observed:	2019

AA4-2	Ch. 0826: 2023: A block 0.5 x 0.3 x 0.2 m in ditch. Fallen from 1 m above toe in area of high-water flow. Ditch effective. 2025: No changes observed during 2025 inspection.	Year First Observed:	2023

AA4-2	Ch. 0842: 2023: Ditch would benefit from clearance 2025: High water flow. Recommendation from 2023 remains.	Year First Observed:	2023

4.2.7 Slope Ref. AA4 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA4-U	**Chainage:** 0855 to 0952	**Start Grid Ref:** NG 89586 36352	**End Grid Ref:** NG 89626 36422	**Elevation:** N/A

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
March 2021	Ch. 0858	Three blocks have come to rest at deer fence. Appear to have originated from waterlogged slope c. 8 m above road. No imminent risk of further failures. **During 2023 Inspection:** c. 25 to 30 m upslope there are several uprooted trees with boulders in root balls – considered to be most likely source of blocks at fence.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	Boulder removed at NG 89631 36342.		N/A	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
NG 89640 36335	**2016 Inspection:** Boulder 3.2 m high x 1.6 m wide x 1.3 m deep sitting partially embedded in slope. No sign of imminent movement but should be monitored during future inspections.	Not inspected in 2025.	
NG 89616 36364	**2024 Inspection:** An example of a relatively recent block movement on slope. Situated 20 m above road level. Source not obvious. Block dimensions 0.2 x 0.2 x 0.2 m and 0.5 x0.3 x 0.3 m.	Not inspected in 2025.	
Boulder field above tree line	**2018 Inspection:** Boulder field above treeline inspected for first time. Approx. 75 m wide and 200 m high. Slope angles up to approx. 40 degrees. Numerous angular boulders, including some stacked boulders, of varying size (max. 2 m^3) and with isolated trees. Vast majority have a good covering of moss / lichen suggesting they have been in situ for hundreds of years; however, occasional fresher blocks were noted. Currently at angle of repose but should destabilising mechanism (e.g. deer, additional rock falls, root jacking) occur there is a risk of boulders impacting the road.	Not inspected in 2025.	
Crags above boulder field	**2018 Inspection:** Crags above boulder field inspected for first time. Dilated joints and evidence of root jacking from sporadic trees. Spalling of small blocks from toe of crags was observed.	Not inspected in 2025.	

Hazards Observed:			
Ch. 858	**2019 Inspection:** Block c. 0.75 x 0.25 x 0.2 m at edge of deer fence. Spray paint present, indicating it has been previously identified during THC monthly inspections. Source not obvious. **2023 Inspection:** c. 25 to 30 m upslope there are several uprooted trees with boulders in root balls – considered to be most likely source of blocks at fence. Similar events could happen periodically.	No changes observed during 2025 inspection.	
NE of Ch. 925	**2020 Inspection:** Steep slope is well set back from road. 6 m increasing to 20 m. Steeper slope back to deer fence at large stream at Ch. 1035 but no observed hazards.	No changes observed during 2025 inspection.	
Ch. 930	**2024 Inspection:** Evidence of water flow over slope surface. No sign of debris accumulation. Toe of slope is set back from road by c. 6 m.	No changes observed during 2025 inspection.	
NG 8982 3633	**2021 Inspection:** Soil/rock wash out c. 10 m below grid reference. Evidence of channelised spring line upslope. Area below springs showing signs of instability. Hummocky ground surface with saturated tension cracks. Around 300 mm soil cover creeping downslope. Around 20 m below spring line there is a vegetated lobe on slope that may represent previous failure at this location. No immediate risk to road. Potential for further failure/debris flow exists in high rainfall events but debris likely to come to rest on slope before reaching treeline.	Not inspected in 2025.	
Roadside slope	**2021 Inspection:** Roadside slope is fully vegetated with trees. Steep slope (typically c. 40 degrees, locally steeper) was often observed to be waterlogged with numerous fallen trees. Specific observations: • NG 8970 3641: Spring located at top of treeline. Steep slope (c. 40 degrees) below is waterlogged and hummocky with numerous trees down on slope. • NG 8967 3640: Gravel and cobble sized rock debris on slope adjacent to surface water flow. Risk of downslope movement in high rainfall, however, toe of slope is set back from road so not a significant risk. • NG 8963 3630: Numerous fallen trees on slope.	No changes observed from road level during 2025 inspection.	
NG 89535 36201	**2024 Inspection:** Crest of semicircular historic landslide c. 60 m above road level. No evidence of major upslope movement but numerous trees with curvature. Ground is very saturated. Landslide scar has numerous fallen trees within it.	Not inspected in 2025.	

Other Comments
Slope only inspected from road level in 2025. Consider upslope inspection in 2026.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1	
Risk Value =	**9.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
• Install rock fall catch fence along toe of slope.	N/A	• N/A

Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

4.2.8 Slope Ref. AA5

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA5	**Chainage:** 1275 to 1383	**Start Grid Ref:** NG 89799 36709	**End Grid Ref:** NG 89864 36775	**Elevation:** 19 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 70	Azimuth (°): 320	Height (m): 70	Length (m): 98	Vegetation Cover: 90% on lower slope 60% on upper slope Moss (0.15 to 2.0 m thick), bracken, and deciduous trees (only saplings on lower slope)	Ditch Details: 1 m wide by 0.5 m deep	Roughness: Rough	Verge Width (m): 2

Engineering Description of Rock:
Strong to very strong thinly foliated pinkish grey medium grained schist (PSAMMITE).

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2021	Ch. 1370	To inspect a fallen tree c. 10 m above road level. Findings: • The fallen tree and rock mass above do not pose a significant risk to the road.	
2025	NG 89853, 36754 (upslope of Ch. 1360)	To inspect the completed Phase 13 maintenance works. Findings: • Debris hitting deer fence coming from the crags above; generally ravelling-type failure with root jacking of small blocks (no change from findings of roadside inspection); • Scaling works from 2025 (Phase 13) has removed the majority of loose material from the rockface; and • Branches and loose rock debris remains at the toe of the upper slope. This material could be disturbed and move downslope but is considered unlikely to impact road.	

THC Monthly Inspection Observations:

Date	Location	Comments
February 2019	Ch. 1330	A 0.4 x 0.3 m block 10 m above deer fence.
November 2019	Ch. 1350	A 0.5 x 0.3 m rock has pierced fence and is in the roadside drain. This could have happened previously but only now visible due to vegetation die back.

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
2021 – Phase 12 works	Works include: • Drainage pipe between AA5/AA5A was repaired and debris cleared out from sump. • Debris cleared from ditch at base of gully between Ch. 1378 and 1382. • Scaling and coppicing carried out between Ch. 1365 to 1370.	**2023 Inspection:** Ch. 1360 – There is an accumulation of blocks from the scaling works behind the deer fence.	Drainage pipe between AA5 and AA51: Ditch clear, catch pit clear, pipe in good condition	AA5-1
2025 – Phase 13 works	Ch. 1360: • Scaling of fractured rock mass c. 10 to 15 m above road level.		See comments within 2025 rope access inspection.	AA5-2. AA5-3, AA5-4, AA5-5

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Throughout section	**2012 Inspection:** Large number of small-scale potential block falls identified approximately 25 to 45 m above road (typically <0.1 m^3).	No changes observed during 2025 inspection.	
Throughout section	**2016 Inspection:** Presence of trees on/adjacent to isolated rock outcrops may lead to root jacking.	No changes observed during 2025 inspection.	
NG 89808 36661	**2016 Inspection:** Outcrop of fractured rock approximately 40 m above road level	No changes observed during 2025 inspection.	
NG 89828 36663	**2016 Inspection:** Outcrop with detached block (~1 m^3) with potential for additional blocks to fail.	No changes observed during 2025 inspection.	
Ch. 1275	N/A	Lots of small blocks present on the slope; none appear to be recent rock fall material.	
Ch. 1285	**2020 Inspection:** Large (0.75 x 0.5 x 0.4 m) and smaller block in ditch where it has burst through fence	No changes observed during 2025 inspection.	
Ch. 1309	**2018 Inspection:** Numerous small blocks on slope and resting against deer fence (largest 0.4 x 0.3 x 0.2 m).	No changes observed during 2025 inspection.	
Ch. 1314	N/A	Crags observed c. 20 m vertically up from the toe of the slope; set back from the road by c. 50 m.	AA5-6

Hazards Observed:			
Ch. 1323	**2016 Inspection:** Several small blocks (max. 0.2 x 0.2 x 0.2 m) had accumulated at the edge of the deer fence, approx. 1 m above road level. Numerous blocks of a similar size noted on slope above. The source of the blocks was investigated and identified as fractured rock within the root balls of upturned trees.	No changes observed during 2025 inspection.	
Ch. 1328	**2018 Inspection:** Several large blocks in roadside ditch (largest 0.4 x 0.3 x 0.25 m). One block has burst through deer fence and landed in ditch, but other blocks may have landed on road before being moved. Total failure volume is 0.25 to 0.5 m^3. Source is not immediately obvious from road level but following inspection of upper slope crags were identified at c. 50 m above road level. The slope below has an overall angle of 55 degrees and comprises a broad gully containing lots of scree (numerous blocks of up to 0.4 m diameter) and fallen trees (possible debris flow type failure).	No changes observed during 2025 inspection.	
Ch. 1360	**2017 Inspection:** Small accumulation of blocks behind deer fence originating from outcrop 5 to 6 m above road level. Seepage and root jacking noted on rock slope with small blocks being washed out. **2023 Inspection:** Greater accumulation of blocks behind fence as a result of 2021 scaling. **2024 Inspection:** At location NG 89856 36771 (10 to 15 m above road level). To east of area previously scaled a 2 m high by 1.5 m wide by 1.0 m deep area of fractured rock mass requires scaling. Material has already fallen onto ledge at base and scree visible at deer fence at roadside 10 to 15 m below.	Some debris present on the slope and in the ditch at the slope toe; source was a soil slip and uprooted tree, bedrock exposed; not considered to represent a significant hazard to the road / road users.	AA5-7
Ch. 1380	N/A	Large block (0.7 x 0.3 x 0.2) present in ditch, appearing to have struck the roadside edge of the ditch before rolling/bouncing into the ditch. Deer fence broken by the impact and wiring has snapped. A small hollow with shattered rock and a groundwater flow is present slightly upslope of the block, but is likely unrelated. Source of the rock fall is unclear but the slope is steep and vegetated, i.e., potential for further blocks to be present on the slope but unobserved.	AA5-8, AA5-9, AA5-10

Other Comments

N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	Reduced from 4 to 3 following the 2018 inspection due to the size of potential failure material.
Pathway Rating =	4	Increased from 2 to 4 following the 2018 inspection due to probability of a failure impacting the road.
Receptor Rating =	1	
Risk Value =	**12.0**	
Risk Level =	**High**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
• Install rock fall catch fence along toe of slope.		• Light scale outcrops at NG 89808 36661 and NG 89828 36663. (Only required if catch fence not installed.)			• N/A		
Assessed in field by:	SF/MT/PM/CR	**Date:**	20/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA5-1-	Ch. 1383: Ditch clear, catch pit clear, pipe in good condition.	Year First Observed:	2021

AA5-2	• Scaling works from 2025 (Phase 13) has removed the majority of loose material from the crags upslope of Ch. 1360	Year First Observed:	2025

AA5-3	Scaling works from 2025 (Phase 13) has removed the majority of loose material from the crags upslope of Ch. 1360. Potential for future ravelling-type failure with root jacking of small blocks	Year First Observed:	2025

AA5-4	• Branches and loose rock debris remains at the toe of the upper slope. This material could be disturbed and move downslope but is considered unlikely to impact road.	Year First Observed:	2025

AA5-5	• Branches and loose rock debris remains at the toe of the upper slope (below the scaled area). This material could be disturbed and move downslope but is considered unlikely to impact road.	Year First Observed:	2025

AA5-6	Ch. 1314: 2025: Crags observed c. 20 m vertically up from the toe of the slope; set back from the road by c. 50 m.	Year First Observed:	2025

AA5-7	Ch. 1360: Some debris present on the slope and in the ditch at the slope toe, looking upwards towards area of Phase 13 scaling works; source was a soil slip and uprooted tree, bedrock exposed; not considered to represent a significant hazard to the road / road users.	Year First Observed:	2017

AA5-8	Ch. 1380: Large block (0.7 x 0.3 x 0.2) present in ditch, appearing to have struck the roadside edge of the ditch before rolling/bouncing into the ditch. Deer fence broken by the impact and wiring has snapped. A small hollow with shattered rock and a groundwater flow is present slightly upslope of the block, but is likely unrelated. Source of the rock fall is unclear but the slope is steep and vegetated, i.e., potential for further blocks to be present on the slope but unobserved.	Year First Observed:	2025

AA5-9	Ch. 1380: Large block (0.7 x 0.3 x 0.2) present in ditch, appearing to have struck the roadside edge of the ditch before rolling/bouncing into the ditch. Deer fence broken by the impact and wiring has snapped. A small hollow with shattered rock and a groundwater flow is present slightly upslope of the block, but is likely unrelated. Source of the rock fall is unclear but the slope is steep and vegetated, i.e., potential for further blocks to be present on the slope but unobserved.	Year First Observed:	2025

AA5-10	Ch. 1380: Large block (0.7 x 0.3 x 0.2) present in ditch, appearing to have struck the roadside edge of the ditch before rolling/bouncing into the ditch. Deer fence broken by the impact and wiring has snapped. A small hollow with shattered rock and a groundwater flow is present slightly upslope of the block, but is likely unrelated. Source of the rock fall is unclear but the slope is steep and vegetated, i.e., potential for further blocks to be present on the slope but unobserved.	Year First Observed:	2025

4.2.9 Slope Ref. AA5A

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA5A	**Chainage:** 1383 to 1446	**Start Grid Ref:** NG 89864 36775	**End Grid Ref:** NG 89902 36818	**Elevation:** 19 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 70	Azimuth (°): 320	Height (m): 70	Length (m): 83	Vegetation Cover: 90% on lower slope 70% on upper slope Isolated crags Moss, bracken, and deciduous trees	Ditch Details: 0.5 m wide by 0.3 m deep	Roughness: Rough	Verge Width (m): 0.8

Engineering Description of Rock:
Strong to very strong thinly foliated pinkish grey medium grained schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2018	Ch. 1388 to 1450	To refine risk assessment and requirement for remedial works. Findings: • There were numerous fallen trees with lots of dilated root-jacked moss covered on slope. • Scree may be upturned and there is the potential for some to reach road.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Across slope	**2017 Inspection:** Numerous fallen and leaning silver birch trees with lots of dilated root-jacked rocks on slope. Scree may be upturned and there is the potential for some to reach road.	No changes observed during 2025 inspection.	
Ch. 1432	**2017 Inspection:** Fractured rock in upper section of slope with potential root jacking.	Completely obscured by vegetation.	
Ch. 1440	**2017 Inspection:** Fractured rock with potential root jacking 20 m above road level.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows noted.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	
Receptor Rating =	1	
Risk Value =	**6.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
• Install roadside rock fall catch fence.	N/A	N/A

Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**		**Date:**	

4.2.10 Slope Ref. AA6

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA6	**Chainage:** 1446 to 1503	**Start Grid Ref:** NG 89902 36818	**End Grid Ref:** NG 89936 36862	**Elevation:** 10 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:								
Dip (°): 71	Azimuth (°): 310	Height (m): 35	Length (m): 57	Vegetation Cover: 40 to 100% General ground cover and saplings	Ditch Details: 2.3 m wide (at widest point) by 0.8 m deep No ditch from Ch. 1446 to 1452	Roughness: Rough	Verge Width (m): 0.8 to 1.5

Engineering Description of Rock:
Very strong thinly foliated dark grey fine to medium grained schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2023	Ch. 1485	To inspect the potential for planar failure and root jacking. Findings: • Steep planes dipping into slope are dominant. • No signification planar failure risk. • There are overhangs of up to 2 m but basal plane is dominant and these are 'keyed in' to slope. • Potential for occasional small blocks to weather out of slope and this will be accelerated by root jacking (locally dilated fractures with heather growth), but presence of vegetated slope at base of rock sloped reduces risk of these reaching road.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting system on upper part of slope.	Details of netting system include: • Double twist netting • Top cable 16 mm galvanised • c. 5 m anchor spacing and 25 mm galvanised bars • Cable-anchor connection: galvanised eye nuts • 3no. cable clamps • Netting lap connections using Spenax rings • No laps on anchors or vertical reinforcing Note: in 2015, bottom anchors were installed. **2022 Inspection**: netting in good condition	No significant changes to netting observed during 2025 inspection.	

Existing netting or other remedial work details:				
2015 – Phase 8 works	Bottom anchors installed to pre-existing netting system		No significant changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Entire slope	**2019 Inspection:** No significant hazards observed. Potential failures limited to minor ravelling / root jacking. e.g. in May 2021 a small failure was observed at Ch. 1502, with debris in roadside ditch.	No changes observed during 2025 inspection.	
Ch. 1470 – 1500	**2020 Inspection:** Potential for Planar failure and root jacking. Targeted inspection at height recommended (completed 2023).	No changes observed during 2025 inspection.	
Ch. 1502	**2021 Inspection:** c. 0.25 m^3 of vegetation, soil and blocks in roadside ditch. Appear to originate from minor slip c. 6 m above road level. Potential for similar minor soil / rock slippages in this area but unlikely to pose a significant risk to road.	No changes observed during 2025 inspection.	

Other Comments
Vegetation including trees are well established on slope and obscuring large areas from inspection, whilst also increasing root jacking potential.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Increased from 1 to 2 following the 2025 inspection due to the extent of vegetation regrowth and increased potential of failures and rock falls due to root jacking.
Pathway Rating =	2	Reduced following the 2019 inspection due to limited potential failure pathways.
Receptor Rating =	1	
Risk Value =	**4.0**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• The build-up of debris should be monitored and clearance works undertaken as required to maintain its capacity; and

Recommended Remedial Works / Actions							
				• Vegetation clearance is recommended across the whole slope.			
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/05/2025

4.2.11 Slope Ref. AA6A

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA6A	**Chainage:** 1503 to 1606	**Start Grid Ref:** NG 89936 36862	**End Grid Ref:** NG 89995 36943	**Elevation:** 76 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	70	Azimuth (°):	300	Height (m):	35	Length (m):	103	Vegetation Cover:	Fully vegetated slope Trees and ground cover with occasional rock outcrops
Ditch Details:	0.3 m wide by 0.3 m deep to Ch. 1530 2.0 m wide by 0.75 m deep with 0.45 m high bund from Ch. 1530 to 1606	Roughness:	Rough	Verge Width (m):	0.5 to Ch. 1530 0.80 from Ch. 1530 to 1606				

Engineering Description of Rock:
Strong very narrowly banded dark grey crystalline medium grained schist (PSAMMITE/SCHIST). Well defined foliation with schistosity.

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2018	Upper crags	To inspect conditions of upper crags. Findings: • Large buttress (1.5 x 1.5 x 7 m) at c. 50 to 60 m above road level with large, dilated fracture behind. • The rock is thinly bedded and lightly folded with beds also dilated. • To the left of this is a broken, dilated, rock mass siting on a daylighting discontinuity, which is only keyed in at left hand side of the base. • Down slope from this there is another buttress which has moved historically of c. 7 x 2 x 1.5 m size, where the key stone in the rock mass is observed to have been pushed out. • Potential for significant failure, with buttress breaking up and falling down gully. Recommendations: • Catch fences in gully below have retained debris in past but have been damaged. • Uppermost catch fence should be replaced with a higher capacity catch fence. • Risk mitigated by installation of catch fence during Phase 12 (2021) works.	
2025	Ch. 1511	To inspect the condition of the catch fences installed as part of the Phase 12 (2021) remedial works above AA6A. Findings: • Debris flow catch fence in good condition with no obvious signs of corrosion or blocks retained by barrier; uprooted tree resting on top cable on west side, with root ball exposing broken rock mass; and • Lower “temporary” catch fence has caught a small number of small blocks; middle of mesh not interwoven with the top cable and only held on with wire loops.	AA6A-1, AA6A-2, AA6A-3, AA6A-4

Rope Access Inspections:			
		Recommendations: • Remove the tree resting against the debris flow catch fence; and • Consider securing the mesh of the lower “temporary” catch fence to the top cable with shackles.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Catch fences in gully and rock buttress at Ch. 1511.	Note: in 2021 new catch fences were installed.	See comments within 2025 rope access inspection.	
2021 – Phase 12 works	Installation of new upslope debris flow catch fence at Ch. 1511.	Catch Fence is 6 m wide x 6 m height situated in gully c. 25 m above road level. **2023 Inspection:** New catch fence in gully assessed and noted to be in good condition. Three blocks (up to 0.4 x 0.4 x 0.3 m) thought to be recent failures were retained by older upslope catch fence which has punctures in it.	See comments within 2025 rope access inspection.	
2025 – Phase 13 works	Ch. 1505: • Clearance of rock debris that has accumulated against the deer fence.		See comments within Hazards Observed section at Ch. 1505	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 1505	**2023 Inspection:** Accumulation of blocks at roadside deer fence c. 3 m above road level, along 5 m length of slope. Debris height c. 0.4 m. Generally, 0.1 x 0.1 x 0.1 m blocks but maximum 0.3 x 0.3 x 0.3 m. Directly downslope of catch fence but there is a scree slope between catch fence and deer fence so scree has possibly washed	Accumulation of debris partially cleared.	AA6A-5

Hazards Observed:			
	down slope. Clearance recommended as the deer fence is not designed to retain material.		
Ch. 1510	**2019 Inspection:** Two small 0.15 x 0.1 x 0.1 m blocks in ditch. To have landed in ditch they possibly cleared the deer fence though, perhaps reaching the road.	No changes observed during 2025 inspection.	
Ch. 1579	**2017 Inspection:** Accumulation of blocks behind deer fence (approx. 0.3 x 0.3 x 0.3 m)	Debris well set back from the road (c. 5 m) and on flat ground.	
NG 90013 36911	**2016 Inspection:** Crags exhibit naturally dilated joints, with signs of historical movement. However, rock mass structure is favourable (foliation dipping into slope) and only minor issues associated with small overhangs and root jacking were observed.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	4	Increased from 2 to 4 following the 2018 inspection due to the presence of the buttresses at the top of the slopes which have the potential to break out and fall into the gully.
Pathway Rating =	2	Reduced from 4.5 to 2 following the 2022 inspection due to the construction of a catch fence within the gully.
Receptor Rating =	1	Reduced from 1.2 to 1 following the 2018 inspection following confirmation of sightlines beneath potential failures.
Risk Value =	**8.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
• Install roadside rock fall catch fence.	N/A	• Complete clearance of blocks retained behind deer fence at Ch. 1505 • Vegetation clearance is recommended across the whole slope • Removal of the tree resting against the debris flow catch fence upslope of Ch. 1511

Hazards Observed:							
				• Improvement of the “temporary” lower debris flow catch fence upslope of Ch. 1511 by securing the mesh to the top cable with shackles.			
Assessed in field by:	SF/MT/PM/CR	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA6A-1	Ch. 1511: Debris flow catch fence in good condition with no obvious signs of corrosion or blocks in fence; uprooted tree resting on top cable on west side, with root ball exposing broken rock mass	Year First Observed:	2025

AA6A-2	Ch. 1511: Debris flow catch fence in good condition with no obvious signs of corrosion or blocks in fence; uprooted tree resting on top cable on west side, with root ball exposing broken rock mass	Year First Observed:	2025

AA6A-3	Ch. 1511: Downslope view from the debris flow barrier towards temporary catch fences and the roadside. Note the high volume of small blocks on the slope.	Year First Observed:	2025

AA6A4	Ch. 1511: Lower temporary catch fence has caught a small number of small blocks; middle of mesh not interwoven with the top cable and only held on with wire loops.	Year First Observed:	2025

AA6A-5	Ch. 1505: 2023: 0.5 m high accumulation of blocks at deer fence c. 3 m above road. Blocks up to 0.3 x 0.3 x 0.3 m. Source likely scree slope between catch and deer fences. 2025: Accumulation partially cleared.	Year First Observed:	2023

4.2.12 Slope Ref. AA6B

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA6B	**Chainage:** 1606 to 1752	**Start Grid Ref:** NG 89995 36943	**End Grid Ref:** NG 90124 36990	**Elevation:** 100 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 70	Azimuth (°): 300	Height (m): 35	Length (m): 146	Vegetation Cover: 100% No rock outcrops visible; slope completely vegetated	Ditch Details: No ditch	Roughness: N/A	Verge Width (m): No verge

Engineering Description of Rock:
Isolated outcrops only. Very strong thinly foliated dark grey schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Whole slope	**2014 Inspection:** No significant hazards observed. Boulders present on slope and in drainage gulley. No destabilising mechanism identified but likely to be from upturned root balls.	No changes observed during 2025 inspection.	
Ch.1654	**2022 Inspection:** Fallen tree. Does not present risk to road. **2024 Inspection:** Tree has been cut down.	Fallen tree has been coppiced.	AA6B-1
Ch.1708	**2020 Inspection:** Two trees down c. 10 m upslope. Loose rock behind root ball on slope but not posing risk to road. **2024 Inspection:** Tree has been cut down.	Fallen trees have been coppiced.	AA6B-2
Ch. 1714	N/A	0.8 x 0.5 x 0.15 m block resting against deer fence; appears to be an older rock fall.	AA6B-3

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Increased from 1 to 2 following the 2018 inspection due to failed material reaching roadside.
Pathway Rating =	2	
Receptor Rating =	1.2	
Risk Value =	**4.8**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**				**Ongoing Maintenance (Category 1)**	
N/A		N/A				N/A	
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

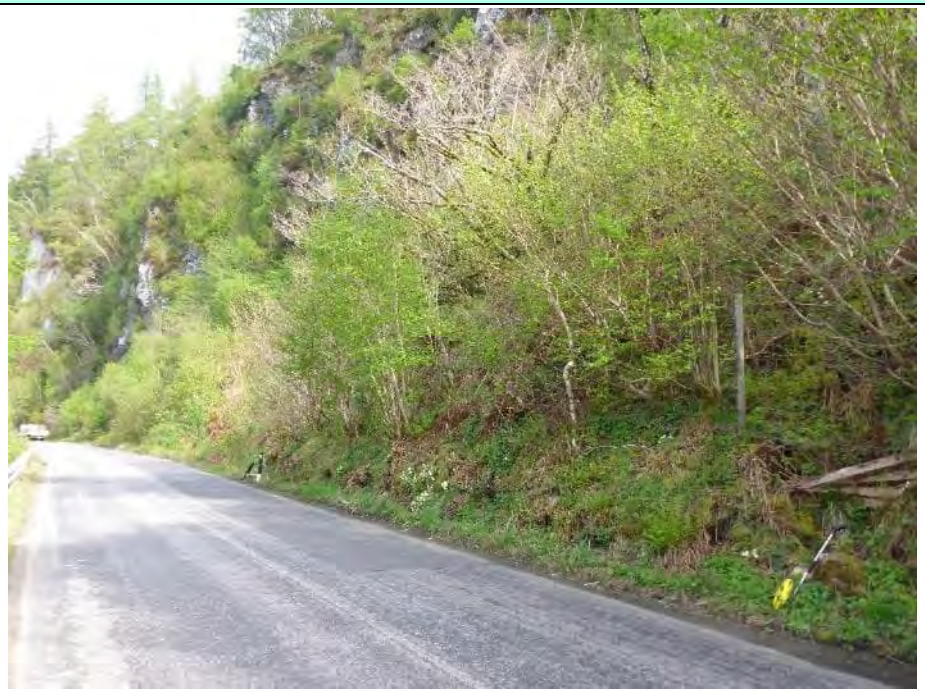
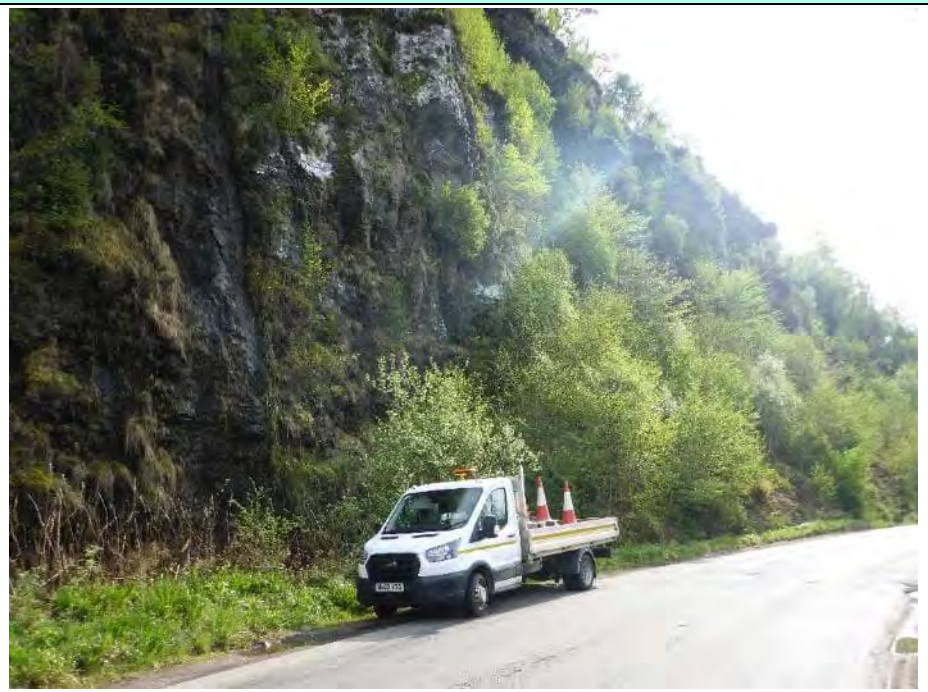
AA6B-1	Ch. 1654: Fallen tree first observed in 2022 and cut back in 2024 has been coppiced.	Year First Observed:	2022

AA6B-2	Ch. 1708: Fallen trees first observed in 2020 and cut back in 2024 have been coppiced, with cut branches distributed across the slope.	Year First Observed:	2020

AA6B-3	Ch. 1714: 2025: 0.8 x 0.5 x 0.15 m block resting against deer fence; appears to be an older rock fall.	Year First Observed:	2025

4.2.13 Slope Ref. AA7

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA7	**Chainage:** 1752 to 1880	**Start Grid Ref:** NG 90124 36990	**End Grid Ref:** NG 90213 37019	**Elevation:** 13 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 75 to 80	Azimuth (°): 336	Height (m): 30	Length (m): 128	Vegetation Cover: 60 to 70% Saplings established on slope	Ditch Details: 1 m wide by 0.75 m deep Bund 0.6 m wide by 0.3 m high	Roughness: Rough	Verge Width (m): No verge

Engineering Description of Rock:
Very strong thinly foliated dark grey schist (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2021	Ch. 1770	To inspect dilated block towards crest of crag c. 30 m above road level. Findings: • Block is keyed in and not at risk of failure.	
2021	Ch. 1775	To inspect gully between AA6B and AA7. Findings: • Material at failure scar noted to be very loose and fractured with potential for blocks to weather out / become dislodged and move downslope. Recommendations: • Although set well back from road there is a risk some blocks could roll downslope for a significant distance so light scaling of the failure scar is recommended (Completed during 2021 Phase 12 works).	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
February 2019	Ch. 1775	Four 0.3 x 0.3 m blocks in culvert catch pit area.
March 2019	Ch. 1800	A 0.5 x 0.4 m block 7 m up.
September 2020	Ch. 1825	After prolonged heavy rain a slip occurred on 13/09/20. A root ball came down, bringing with it detritus, rocks and mud. The slip was some 2 to 3 tonnes and mostly came to rest in ditch verge, with slight overspill to road. Slip originated from c. 5 m above road and came down watercourse. Ditch and culvert cleared 14/09/20.
January 2024	Ch. 1770	0.08 m^3 block present in the verge which has burst through deer fence. AECOM inspections notes: The blocks lithology is gneiss, and it is covered by moss on three sides. Block has possibly been resting on slope and been moved by heavy rainfall, tree fall or animal movements. It is at the base of a drainage channel. No clear source.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2015 – Phase 8 works	Block at Ch. 1780 c. 20 m above road level removed by heavy scaling		No changes observed during 2025 inspection.	
2021 – Phase 12 works	• Scaling of loose / fractured rock between Ch. 1770 to 1775. • Gully cleared of debris at Ch. 1828		No changes observed during 2025 inspection.	
2025 – Phase 13 works	Ch. 1820 to 1826:		Targeted scaling works to be completed at the edge of the gully were descoped as the working area was determined to be very difficult to access and the likelihood of a natural rock fall occurring and debris reaching the road was considered relatively low.	AA7-1

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 1752	N/A	Two blocks, the largest of which c. 1.0 x 0.6 x 0.2 m, have broken through the deer fence. Rock fall not thought to be recent and both blocks are marked with spray paint suggesting previously observed. Source appears to be from an ephemeral stream channel.	
Ch. 1760	N/A	Severely leaning tree c. 8 m above road level. May dislodge boulders if it were to fall.	AA7-2
Ch. 1772	**2018 Inspection:** Two blocks in drainage gully which had passed beneath deer fence above. Additional block resting against deer fence. Source not obvious but given 2014 observation of no rock outcrops likely to be from upturned root ball. Drain not currently blocked but keep under observation.	Four blocks now present in the drainage gully. Not blocked but keep under observation.	
Ch. 1797	N/A	Block on upslope side of ditch (0.3 x 0.4 x 0.3 m); not recent rock fall and below bracken. Source c. 10 m above road level. Possibly the same hazard at Ch. 1803 observed in 2018 as the Ch. 1800 marker is missing making chainages	

Hazards Observed:			
		inaccurate; culvert is at Ch. 1824 in 2025 for relative waypoint.	
Ch. 1803	**2018 Inspection:** Dilated fractures observed c. 15 m above road level but no obvious fractures at base of block and chances of reaching road level if it does failure are low due to large ditch.	No changes observed during 2025 inspection.	
Ch. 1820	**2019 Inspection:** Fractured rock on right hand side of previous washout, low risk due to verge and ditch	No changes observed during 2025 inspection.	
Ch. 1820 to 1826	**2018 Inspection:** Washout of soil from gulley around a third of the way up slope (mixture of angular blocks and topsoil). Overhanging soil/rock mass above failure but unlikely to reach road in event of failure. **2024 Inspection:** More washout present at same location. 10 m above road level accumulations of debris on the slope. Small to medium sized blocks. A slope inspection found the area to have been affected by a small debris flow, with a 3 m wide x 5 m long fan of debris formed of blocks up to 0.5 m. A tree is supporting the toe of the debris. It is recommended the debris be cleared from the slope. There is a potentially hazardous area of rock mass 8 m up from the debris accumulation, on the right-hand edge of the gully. Scaling recommended.	No changes observed during 2025 inspection. Previously recommended scaling de-scoped – see 2025 works description.	
Ch. 1825	**2024 Inspection:** Debris in drainage gully is nearly at full capacity and would benefit from being cleared.	No changes observed during 2025 inspection.	
Ch. 1832	**2024 Inspection:** Debris in drainage gully is nearly at full capacity and would benefit from being cleared.	No changes observed during 2025 inspection.	AA7-3

Other Comments
The Ch. 1800 marker is missing making establishing accurate chainage difficult; culvert is at Ch. 1824 in 2025 for relative waypoint.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Increased from 1 to 2 following the 2018 inspection to reflect potential failure volume.
Pathway Rating =	2	Reduced from 3 to 2 following the 2018 inspection due to decreased likelihood of failure reaching road.
Receptor Rating =	1.2	
Risk Value =	**4.8**	
Risk Level =	**Low**	

ROCK FALL RISK RATING	Comments

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		N/A			• Replace missing marker for Ch. 1800; • Clearance of drainage gullies at Ch. 1824 and 1832; and • Vegetation clearance is recommended across the whole slope.		
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA7-1	Phase 13 Works – Ch. 1820 to 1826: Area proposed to be scaled during Phase 13 works which was de-scoped following review of risk and accessibility; likelihood of a natural rock fall to reach the road is relatively low.	Year First Observed:	2025

AA7-2	Ch. 1760: 2025: Severely leaning tree c. 8 m above road level. May dislodge boulders if it were to fall but poses relatively low risk to road.	Year First Observed:	2025

AA7-3	Ch. 1832: Debris in drainage gully is nearly at full capacity and would benefit from being cleared.	Year First Observed:	2024

4.2.14 Slope Ref. AA8

GEOTECHNICAL ASSESSMENT SHEET											
Site:	A890 Stromeferry Bypass	**Slope Ref:**	AA8	**Chainage:**	1880 to 1945	**Start Grid Ref:**	NG 90243 37019	**End Grid Ref:**	NG 90299 37045	**Elevation:**	20 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:													
Dip (°):	75 to 80	Azimuth (°):	326	Height (m):	25 to 30	Length (m):	68	Vegetation Cover:	60% Ivy, grasses, and saplings	Ditch Details:	0.5 to 1 m deep by 2 to 5 m wide Bund 0.5 m high by 0.4 m wide	Roughness:	Rough	Verge Width (m):	0 to 1

Engineering Description of Rock:
Very strong thinly foliated dark grey schist. Contains occasional thin quartz foliations (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
May 2018	Ch. 1850	Large stones in drain (x2)

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting between Ch. 1895 and 1932.	Details of netting system include: • PVC coated double twist • Top cable 16 mm galvanised • c. 7 m anchor spacing • Bottom anchors are stainless steel • Cable-anchor connection: stainless steel eye nuts and shackles at bottom • Netting lap connections using Spenax rings • No laps on anchors or vertical reinforcing Bimetallic corrosion protection present at bottom anchors but not in full contact. **2021 Inspection**: Netting generally in good condition, although bottom cable is locally slightly corroded. Bottom anchors and shackles are stainless steel. There is a plastic sheathing, however, locally the shackles are in contact with the galvanised cable. PVC coating cracking locally; no corrosion of wire where visible.	No significant changes observed during 2025 inspection.	AA8-1
2015 – Phase 8 works	• Large pillar of rock at Ch. 1920 at risk of toppling removed by		No significant changes observed during 2025 inspection.	

Existing netting or other remedial work details:				
	heavy scaling; the ditch was cleared and roadside bund created. • Tree coppicing and light scaling carried out near crest of rock face.			

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 1880	**2021 Inspection:** Minor accumulations of gravel sized rock at base of gully but still plenty of capacity in ditch. **2022 Inspection:** Soil slip/wash-out from 8 m above ground level. There is a large ditch below with sufficient capacity. **2024 Inspection:** Some additional soil washout and associated debris accumulation, however, ditch still has capacity to retain debris.	No changes observed during 2025 inspection.	
Ch. 1880 to 1885	**2019 Inspection:** No netting. Vegetated. Root jacking potential but large ditch below.	No changes observed during 2025 inspection.	
Ch.1885 to 1932	**2020 Inspection:** Vegetation well established and obscuring parts of the slope.	No changes observed during 2025 inspection.	
Ch. 1944	**2018 Inspection:** Ongoing failure of small blocks from crest. Debris successfully contained by rock trap ditch/bund. Area should be kept under observation in future inspections.	No changes observed during 2025 inspection.	
Ch. 1944	**2021 Inspection:** A lot of overhangs towards crest. Vegetation cover c. 40 to 50% and dilated fractures evident. Some accumulation of gravel to cobble sized rock debris at base of watercourse within a 1 to 2 m wide x 1 m deep ditch with roadside bund. Still capacity and so does not require clearance.	Debris may collect in the upslope portion of the gully.	AA8-2

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	
Pathway Rating =	2	

ROCK FALL RISK RATING		Comments
Receptor Rating =	1	
Risk Value =	**4.0**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		N/A			• De-vegetation / coppicing of entire slope • The build-up of debris within ditch should be monitored and clearance works undertaken as required to maintain its capacity • Potential for bimetallic corrosion of bottom cable at anchor points – keep under observation.		
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA8-1	Netting between Ch. 1895 and 1932: Bottom anchors and shackles are stainless steel. There is a plastic sheathing, however, locally the shackles are in contact with the galvanised cable. PVC coating cracking locally; no corrosion of wire where visible.	Year First Observed:	2012

AA8-2	Ch. 1944: Overhangs towards crest with dilated fractures. Accumulation of small blocks at base of watercourse within a 1 to 2 m wide x 1 m deep ditch. Debris beginning to building within the upslope portion of the gully.	Year First Observed:	2021

4.2.15 Slope Ref. AA9

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA9	**Chainage:** 1945 to 1985	**Start Grid Ref:** NG 90299 37045	**End Grid Ref:** NG 90338 37061	**Elevation:** 12 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 82	Azimuth (°): 350	Height (m): 30	Length (m): 40	Vegetation Cover: 40%; locally >70% Grasses and saplings	Ditch Details: 1 m wide by 0.5 m deep from Ch. 1973 to 1988	Roughness: Rough	Verge Width (m): 1.4

Engineering Description of Rock:
Strong thinly foliated dark grey medium schist. Some foliations are mica rich. Small ‘z’ folds were noted. (PSAMMITE).

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2021	Ch. 1978	To inspect overhanging square blocks near crest with dilated joint at rear. Findings: • Block c. 2 x 1 x 0.5 m and appears to have dilated fracture at right hand side. • Overall appears keyed in but vegetation growth around block could lead to root jacking. Recommendations: • Recommend future inspection at height.	

THC Monthly Inspection Observations:

Date	Location	Comments
N/A		

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
Before AECOM involvement (i.e. pre-2012)	Netting between Ch. 1965 to 1975. No netting on lower 15 m of slope.	Details of netting system include: • PVC coated double twist. • Top cable 16 mm galvanised. • c. 5 m(?) anchor spacing and 25 mm stainless steel bars • Cable-anchor connection: stainless steel eye nuts • 4no. cable clamps (possibly others not identified) • Netting lap connections using Spenax rings • No laps on anchors or vertical reinforcing • A 0.2 to 0.3 m gap between bottom cable and rock face. **2022 Inspection:** Bottom cable showing early signs of corrosion.	No changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Whole slope	**2012 Inspection:** Potential for ravelling and small block falls	No changes observed during 2025 inspection.	
Ch. 1965 to 1975	**2016 Inspection:** Netting noted to be gaping at sides and bottom. Potential for blocks up to 0.5 m^3 to fall out either side or bottom and onto road below. **2024 Inspection:** No debris or blocks accumulated.	No changes observed during 2025 inspection.	
Ch.1978	**2020 Inspection:** Overhanging square blocks near crest with dilated joint at rear observed. Rope access inspection completed in 2021.	No changes observed during 2025 inspection.	AA9-1, AA9-2

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	
Pathway Rating =	3	
Receptor Rating =	1	
Risk Value =	**6.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Vegetation clearance is recommended across the whole slope. • Improve netting system between Ch. 1965 and 1975. • Install vertical cables down either side of netting (25 m each side) with additional anchors installed to secure in place (6no. each side), 2no. lateral cables to profile netting (10 m long), and 1no. additional bottom anchor. • Future rope access inspection recommended to further inspect the overhanging block at Ch. 1978.

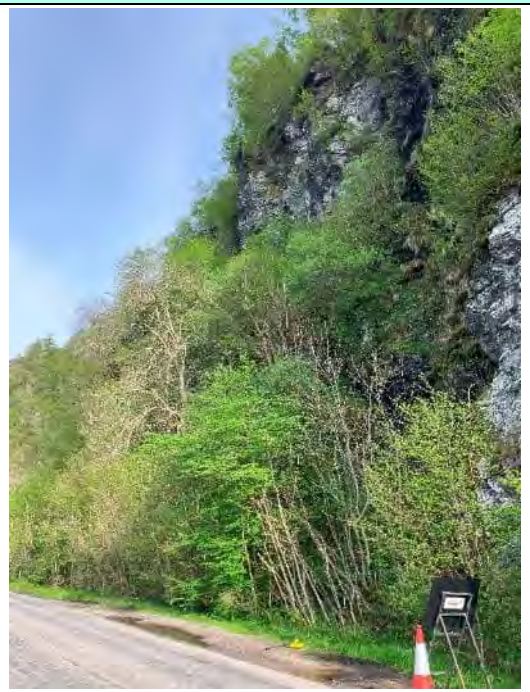
Assessed in field by:	SF/MT	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA9-1	Ch. 1978: 2020: Overhanging square blocks near crest with dilated joint at rear observed. Rope access inspection completed in 2021. 2025: No changes observed during 2025 inspection.	Year First Observed:	2020

AA9-2	Ch. 1978: Zoomed in copy of circled area of photographic plate AA9-2.	Year First Observed:	2020

4.2.16 Slope Ref. AA10

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA10	**Chainage:** 1985 to 2297	**Start Grid Ref:** NG 90338 37061	**End Grid Ref:** NG 90610 37206	**Elevation:** 15 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 85	Azimuth (°): 332	Height (m): 40	Length (m): 312	Vegetation Cover: 70% Grasses, small to medium sized trees, occasional large trees	Ditch Details: 1.7 m wide by 0.4 m deep from Ch. 1985 to 2010	Roughness: Rough	Verge Width (m): 10, locally reduces to 1

Engineering Description of Rock:
Very strong thinly foliated dark grey and white fine to medium schist. Contains thin laminations of quartz. (PSAMMITE)

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2018	Ch. 2130	To inspect wedge c. 15 m above road level with trees growing above to left of block with potential for root jacking.	
2025	NG 90495 37112	To inspect the upslope extent of the debris flow between Ch. 2140 and 2163 (see hazards observed for details of roadside observation). Findings: • 'Amphitheatre' shape of rock at NG 90523 37093 ± 6 m (alt. 78.9 m AOD) with an 8 to 10 m scar suggesting water entering 'amphitheatre' from above, potentially from three different sources; • Likely that material had built up in the 'amphitheatre' prior to being washed downslope; • Debris flow – 20 to 30 m slope length at 35 to 40°; at toe of flow fallen trees have 'locked' into standing trees and created a debris dam; flow stopped c. 10 m from roadside fence, historic debris fan at the toe suggests multiple flow routes; channel has minimal water in but would have been 4 to 5 m wide during flow; and possible for recurrence. Recommendations: • Consider a drone survey upslope of the 'amphitheatre' to determine the source of the slip and potential for recurrence; • Debris dam may burst when inundated – consider clearing; and • Long-term solution would encompass a barrier c. 50 m long, 5 m upslope of the deer fence, or • Construct the barrier where the channel narrows – 6 to 8 m wide barrier, however, increased build, inspection, and maintenance costs.	AA10-1, AA10-2, AA10-3, AA10-4, AA10-5, AA10-6

THC Monthly Inspection Observations:

Date	Location	Comments
April 2013		Falling tree dislodged soil and rock with isolated block landing in road. Note: source of failure inspected in 2014 – no significant hazard identified.
January 2025	Ch. 2150	Recent landslip recorded on 27/01/2025 at approximate Ch. 2150. Source of slip appears to be significantly upslope; toe of slip not reached roadside as momentum of slip was halted by trees. See associated hazard and rope access inspection notes.

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 1995	**2023 Inspection:** Small soil slip has come to rest on slope before deer fence (c. 5 m above toe of slope)	No changes observed during 2025 inspection.	
Ch. 1997	**2019 Inspection:** Potential root jacking of column of rock c. 5 to 8 m above toe. 3 to 4 m wide verge so low risk. **2024 Inspection:** Obscured by vegetation during 2024 inspection.	Completely obscured by vegetation cover.	
Ch. 2000	**2012 Inspection:** Large scale potential wedge failure. Is c. 10 m wide x 10 m high feature at the crest of the rock slope. No evidence of dilated fractures here and mass failure considered unlikely.	No changes observed during 2025 inspection.	AA10-7
Ch. 2030	**2024 Inspection:** Tree has fallen down c. 15 m above road level and washout present. Soil, vegetation, and tree are resting on slope c. 6 m above road. Source area does not pose an increased risk of rock fall.	No changes observed during 2025 inspection.	AA10-8
Ch. 2033-2188	**2016 Inspection:** Noted that slope is well vegetated in this area with uprooted trees. Root jacking evident, with potential to dislodge blocks. Recent failures evident. Specific hazards identified at Ch. 2068 and 2130.	No changes observed during 2025 inspection.	
Ch. 2075	**2012 Inspection:** Potential wedge failure with root jacking identified. **2024 Inspection:** Ivy starting to obscure view.	Completely obscured by vegetation cover.	
Ch. 2110	**2017 Inspection:** Tree down c 8 m above road level. Root ball has soil and rock weathering out but unlikely to be a risk to the road.	No changes observed during 2025 inspection.	
Ch. 2112	**2024 Inspection:** Several moss-covered blocks present in culvert. Do not look recent. Currently are not blocking drainage gully.	No changes observed during 2025 inspection.	
Ch. 2130	**2018 Inspection:** Potential wedge failure observed ~15 m above road level. Potential for root jacking and release joints observed. The trajectory of a potential failure is difficult to predict, with the probable pathway to the left of the roadside outcrop. Potential failure volume is large enough to burst through the deer fence and may either come to rest in the ditch or at the edge of the road.	No changes observed during 2025 inspection.	

Hazards Observed:			
Ch. 2140 to 2163	N/A	Observation from road level: Small debris flow (in gully) c. 15 m above road level but set back by c. 40 m. Debris on slope, spray paint marker at road level. One block noted at the deer fence (c. 0.4 m) and a fallen tree is present on the slope. Correlates with location of THC observed landslip reported in January 2025. See additional notes under rope access inspection.	AA10-9
Ch. 2185	**2021 Inspection:** Small accumulation of gravel to cobble sized blocks at fence transported by intermittent waterflow in gully. No rocks past fence and at roadside so risk not considered to be significant **2024 Inspection:** Accumulation of blocks has slightly increased since 2023.	No changes observed during 2025 inspection.	
Ch. 2188 to 2295	**2016 Inspection:** Rock face set further back here and it is considered that most failures within this section would be contained by the existing ditch and verge at the toe of the slope.	No changes observed during 2025 inspection.	
Ch. 2240	**2022 Inspection:** At crest of slope there are a number of trees leaning towards the road. If these fall there is potential for root balls to dislodge blocks, however, these are unlikely to impact the road as slope is set-back from road.	Completely obscured by vegetation cover.	
Ch. 2255	**2024 Inspection:** Large block set back c. 10 m from road. Not a recent fall – moss covered.	No changes observed during 2025 inspection.	

Other Comments
N/A

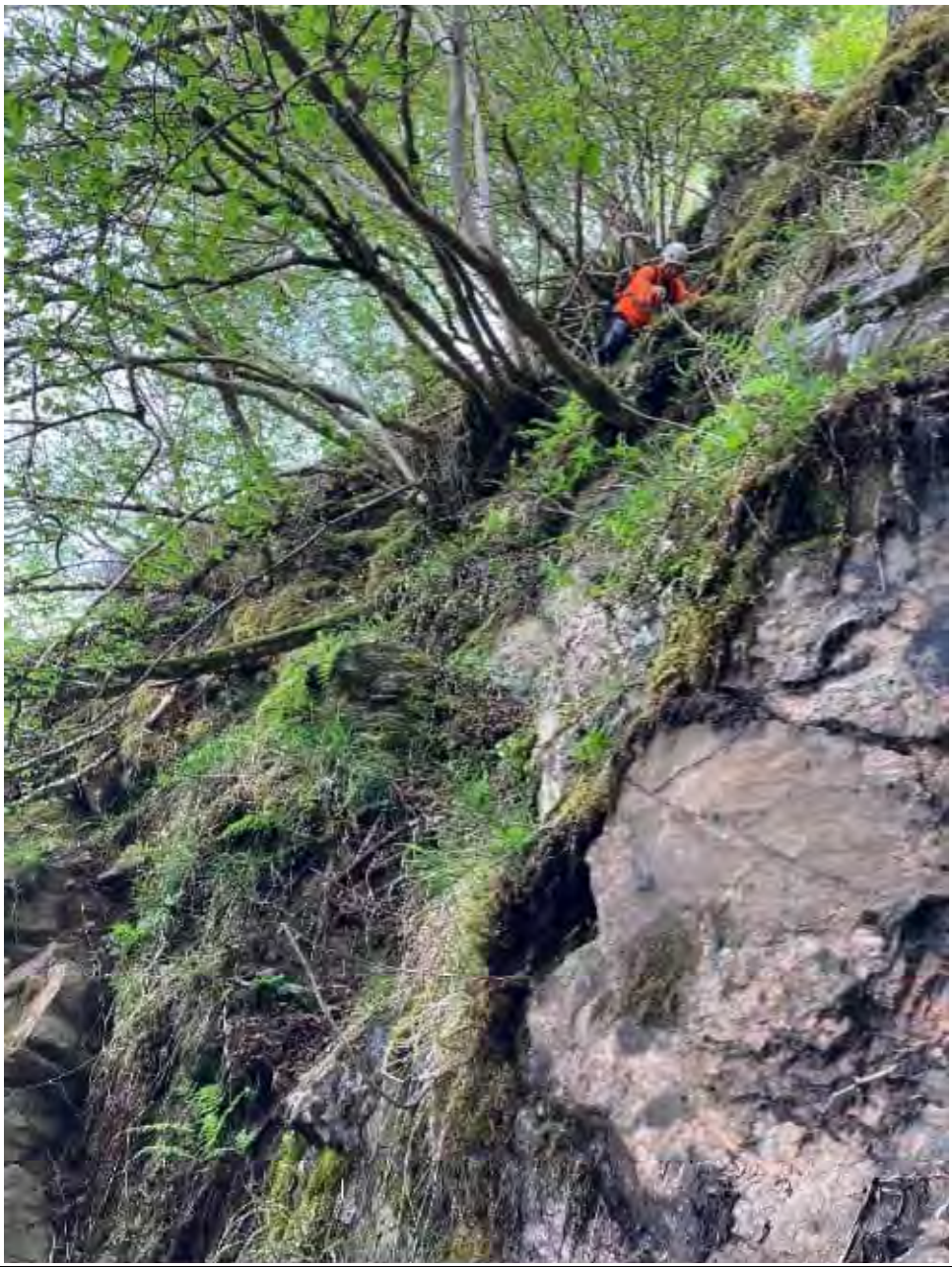
ROCK FALL RISK RATING		Comments
Hazard Rating =	3	Reduced from 4 to 3 following the 2018 inspection due to detailed rope access inspection of wedge failure and accurate determination of potential failure volume.
Pathway Rating =	3	Increased from 2 to 3 following the 2018 inspection due to inspection of failure trajectory.
Receptor Rating =	1	
Risk Value =	**9.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)			**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**	
• Install targeted combination of roadside rock fall / debris flow catch fences and netting, including following specific recommendations centred on approximately Ch. 2150 – – Long-term solution would encompass a barrier c. 50 m long, 5 m upslope of the deer fence, or – Construct the barrier where the channel narrows – 6 to 8 m wide barrier, however, increased build, inspection, and maintenance costs.			• Scale potential wedge failure at Ch. 2130. • Clearance of upslope debris dam at NG 90495 37112.			• Consider a drone survey upslope of the 'amphitheatre' to determine the source of the slip and potential for recurrence • Targeted coppicing of trees growing in rock exposures and light scaling of broken/unstable rock.	
Assessed in field by:	MT/CR	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

AA10-1	Ch, 2140 to 2163: Debris flow – 20 to 30 m slope length at 35 to 40°; at toe of flow fallen trees have 'locked' into standing trees and created a debris dam; flow stopped c. 10 m from roadside fence, historic debris fan at the toe suggests multiple flow routes; channel has minimal water in, but would have been 4 to 5 m wide during flow; and possible for recurrence.	Year First Observed:	2025

AA10-2	Ch. 2140 to 2163: Debris flow – 20 to 30 m slope length at 35 to 40°; at toe of flow fallen trees have 'locked' into standing trees and created a debris dam; flow stopped c. 10 m from roadside fence, historic debris fan at the toe suggests multiple flow routes; channel has minimal water in, but would have been 4 to 5 m wide during flow; and possible for recurrence.	Year First Observed:	2025

AA10-3	'Amphitheatre' shape of rock at NG 90523 37093. 8 to 10 m scar suggesting water entering from above. Likely material had built up to being washed downslope.	Year First Observed:	2025



AA10-4	Fractured rock mass and leaning trees at the edge of the ‘amphitheatre’ at NG 90523 37093.	Year First Observed:	2025

AA10-5	‘Amphitheatre’ shape of rock at NG 90523 37093. 8 to 10 m scar suggesting water entering from above. Likely material had built up to being washed downslope.	Year First Observed:	2025

AA10-6	View downslope towards the road from the ‘amphitheatre’ shape of rock at NG 90523 37093. Loose debris remains in channel and on-slope.	Year First Observed:	2025

AA10-7	Ch. 2000: 2012: Large scale potential wedge failure. c. 10 m wide x 10 m high feature at the crest of the rock slope. No evidence of dilated fractures here and mass failure considered unlikely. 2025: No changes observed during 2025 inspection.	Year First Observed:	2012

AA10-8	Ch. 2030: 2024: Tree has fallen down c. 15 m above road level and washout present. Soil, vegetation, and tree are resting on slope c. 6 m above road. Source area does not pose an increased risk of rock fall. 2025: No changes observed during 2025 inspection.	Year First Observed:	2024

AA10-9	Ch. 2140 to 2163: 2025: Upslope view from the roadside of a small debris flow (in gully) c. 15 m above road level but set back by c. 40 m. Confirmed during upslope inspection.	Year First Observed:	2025

4.2.17 Frenchman's Burn

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** Frenchman's Burn (FB)	**Chainage:** 2315	**Start Grid Ref:** NG 90613 37210	**End Grid Ref:** N/A	**Elevation:** N/A

Upper Basin	Lower Basin
	

Rock Slope Characteristics:							
Dip (°): N/A	Azimuth (°): N/A	Height (m): N/A	Length (m): N/A	Vegetation Cover: N/A	Ditch Details: N/A	Roughness: N/A	Verge Width (m): N/A

Engineering Description of Rock:
N/A

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
November 2020	Ch. 2345	Rock slip c. 50 m east of Frenchman's Burn. Failure occurred c. 8 m above road level in outcrop set back from road behind deer fence.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Formation of debris catch basins		N/A	
2020	Catch basins were cleared out by THC in late 2020		N/A	
2021	THC cleared debris from catch basins in summer 2021		N/A	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2315	**2021 Inspection:** Water levels are low. Both the lower and upper catch pits have good capacity. **2020 Inspection:** Upper basin 50% full and lower basin 25% full but high-water level so harder to visually access. Appears that debris may have been recently cleared out.	Upper catch basin 60 to 70% full; requires clearance. Lower catch basin 25% full.	FB-1, FB-2
Ch. 2340	N/A	Potentially some new blocks present but well set back from the road between Frenchman's Burn and AA11. No significant risk to the road / road users.	FB-3

Hazards Observed:			
Ch. 2345	**2020 Inspection:** Failure reported by THC (between Frenchman's Burn and AA11) inspected. Minor root jacking on face c. 10 m back from road edge. Potential for additional material to fail (c. 1 m^3) but not posing risk to road due to verge width. **2024 Inspection:** Possibly some new blocks present but well set back from the road.	No changes observed during 2025 inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	N/A	
Pathway Rating =	N/A	
Receptor Rating =	N/A	
Risk Value =	**N/A**	
Risk Level =	**N/A**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Clear debris from basins as required to maintain capacity – Upper Basin requires clearance, capacity of the Lower Basin should remain under review.

Assessed in field by:	MT/CR	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	26/06/2025

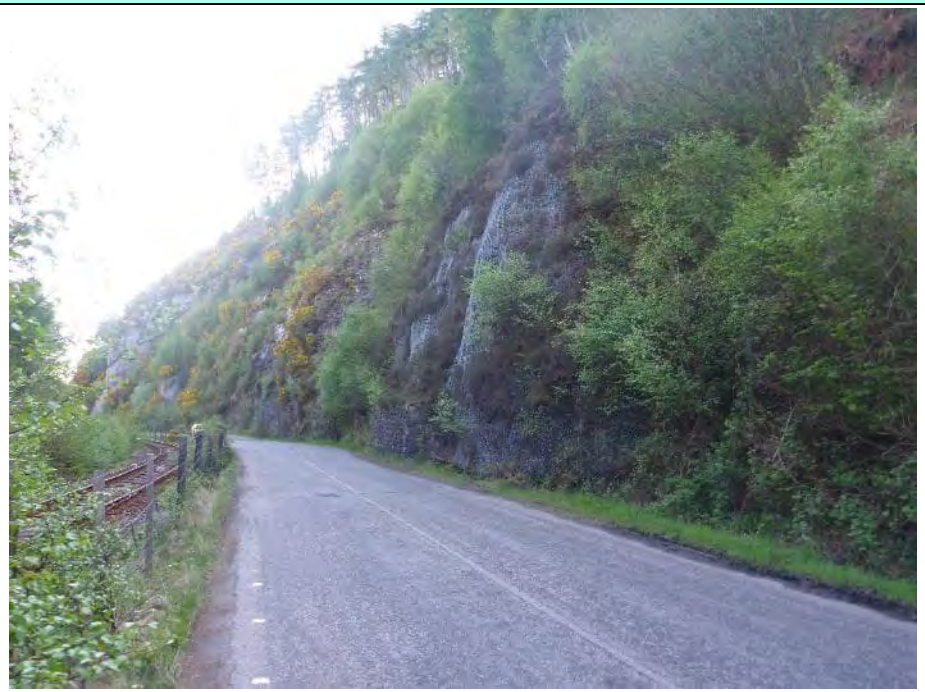
FB-1	Ch. 2315: Upper catch basin 60 to 70% full.	Year First Observed:	2021

FB-2	Ch. 2315: Lower catch basin 25% full.	Year First Observed:	2021

FB-3	Ch. 2340: 2025: Potentially some new blocks present but well set back from the road between Frenchman's Burn and AA11. No significant risk to the road / road users.	Year First Observed:	202 5

4.2.18 Slope Ref. AA11

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA11	**Chainage:** 2360 to 2399	**Start Grid Ref:** NG 90657 37232	**End Grid Ref:** NG 90698 37266	**Elevation:** 10 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 80	Azimuth (°): 332	Height (m): 20	Length (m): 39	Vegetation Cover: 60% Heather, grasses, and saplings	Ditch Details: 0.6 to 1 m wide by 0.4 m deep	Roughness: Rough	Verge Width (m): 0 to 0.3

Engineering Description of Rock:
Extremely strong thinly foliated dark grey and white SCHIST. Foliations comprise quartz. Approximately the same quantity of dark grey and white foliations. (PSAMMITE)

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)		Details of netting system include: • PVC coated double twist. • Top cable 16 mm galvanised. • c. 5 to 6 m anchor spacing (bottom anchors up to 11 m) and 25 mm galvanised bars (2no. platypus anchors). • Cable-anchor connection: stainless eye nuts (M20 thread). • 4no. cable clamps. • Netting lap connections using 2no. staggered rows of Spenax rings every aperture. • No laps on anchors or vertical reinforcing. • No bimetallic corrosion protection between cable and eye nuts. Bottom cable corroded. Top cable secured with combination of direct anchors and corroded dropper cables attached to platypus anchors. **2020 Inspection:** Damaged intermediate bottom anchor (mesh caught and torn by grass cutter, pulling <1 m long corroded anchor from face) at Ch. 2386.	No changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2364	**2018 Inspection:** Wedge failure identified, comprising an overhanging column of rock c. 6 to 8 m above road level. Wedge of rock below has previously failed, possibly during construction but joints are tight and overhang. Not at imminent risk of failure.	No changes observed during 2025 inspection.	
Ch. 2377	**2018 Inspection:** Overhang noted c. 8 m above road level at up chainage end of buttress. Overhang c. 1 m. Dilated fractures and potential for small blocks to free fall c. 2 to 3 m before impacting mesh. Maximum block size c. 0.4 x 0.4 x 0.4 m so likely to be retained by existing netting. **2024 Inspection:** Water seepage present.	No changes observed during 2025 inspection.	

Other Comments
N/A

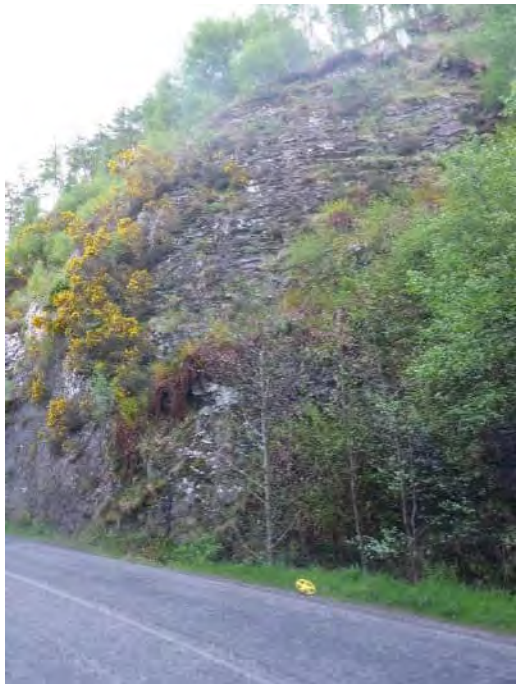
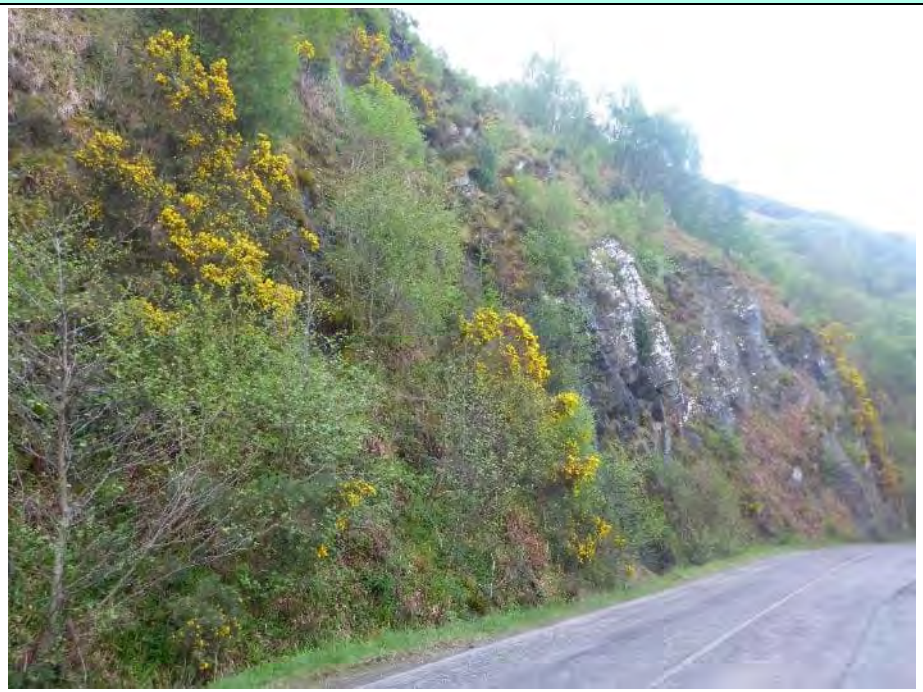
ROCK FALL RISK RATING		Comments
Hazard Rating =	2	
Pathway Rating =	2	
Receptor Rating =	1.4	
Risk Value =	**4.8**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Vegetation clearance is recommended across the whole slope. • Install bimetallic corrosion protection between existing galvanised cable and stainless-steel eye nuts; • Replace bottom cable and install additional bottom anchors; and • Replace dropper cables (allow 10no. 10 m long) and install additional anchors (allow 6no.).

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.19 Slope Ref. AA12

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA12	**Chainage:** 2399 to 2467	**Start Grid Ref:** NG 90698 37266	**End Grid Ref:** NG 90740 37326	**Elevation:** 20 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:								
Dip (°): 80	Azimuth (°): 306	Height (m): 20	Length (m): 98	Vegetation Cover: 20 to 60% Gorse, heather, ferns, and small to medium sized trees	Ditch Details: None to Ch. 2426 2.8 m wide by 1.1 m deep from Ch. 2426 to 2467	Roughness: Rough	Verge Width (m): 0.4 to Ch. 2426

Engineering Description of Rock:
Very strong dark to light grey very narrowly banded crystalline coarse to medium grained SCHIST.

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2023	Ch. 2428	To inspect area where rock fall occurred and to determine if potential for further rock falls. Findings: • Block keyed in at right hand side. Large, dilated fracture at back (block sticking out obliquely). • To left of block there is another block of concern which was loose and removed/scaled during the rope access inspection. • Rest of area is not at imminent risk of failure. Recommendations: • Keep under observation during monthly/annual inspections.	

THC Monthly Inspection Observations:

Date	Location	Comments
March 2023	Ch. 2480 (approx.)	Rock fall event occurred on 10/03/2023. 0.2 m^3 rock fall landed in verge. Source identified as 10 m above road with potential for further instability over ca.1.5 x 1.5 m area of slope. Note – THC recorded this within AA13/14 Upper; however, the chainage is out-with AA13/14 Upper start and end chainage.

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
2015 – Phase 8 works	7no. dowels installed at Ch. 2410, Ch. 2413 and Ch. 2423.		N/A	
2017 – Phase 9 works	• TECCO netting system installed between Ch. 2411 to 2427. • Spider netting system installed at Ch. 2462. • De-vegetation and light scaling.	2020 Inspection: TECCO netting locally has slight light-coloured coating. 2024 Inspection: Slight corrosion on cut bar ends of anchors.	Occasional surface corrosion of nuts and shackles on the cables.	AA12-1, AA12-2

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
NG 90790 37253	**2018 Inspection:** Large gully c. 15 m wide and 4 m deep with watercourse above boundary between AA12/AA13. There is watercourse at risk of being washed out below. On upper slope there are small blocks (up to 0.3 m diameter) presumably dislodged in root balls, and there is limited rock exposure.	No changes observed during 2025 inspection.	
Ch. 2399 to 2411	**2021 Inspection:** Vegetation well established on slope without netting (c. 40% gorse cover). Potential for root jacking to cause small scale ravelling.	No changes observed during 2025 inspection.	
Ch. 2428	**2023 Inspection:** Several blocks in verge (up to 0.3 x 0.2 x 0.15 m). Cumulatively around x10 blocks. Some blocks have come from c. 10 m up and have left overhang. Likely same rock fall as reported by THC at Ch. 2480 in March 2023. Other tabular blocks have possibly come from beneath doweled overhanging block? Additionally, small block in rail boundary c. 0.25 x 0.1 x 0.2 m. No fence damage and slope height here mean it is unlikely block would have cleared fence. Most likely that block impacted road/roadside, and someone has placed it within the railway boundary when clearing it away from the road.	No changes observed during 2025 inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	1	
Pathway Rating =	2	Pathway rating increased from 1 to 2 following the 2019 inspection following re-assessment.
Receptor Rating =	1	
Risk Value =	**2.0**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Vegetation clearance is recommended across the whole slope.

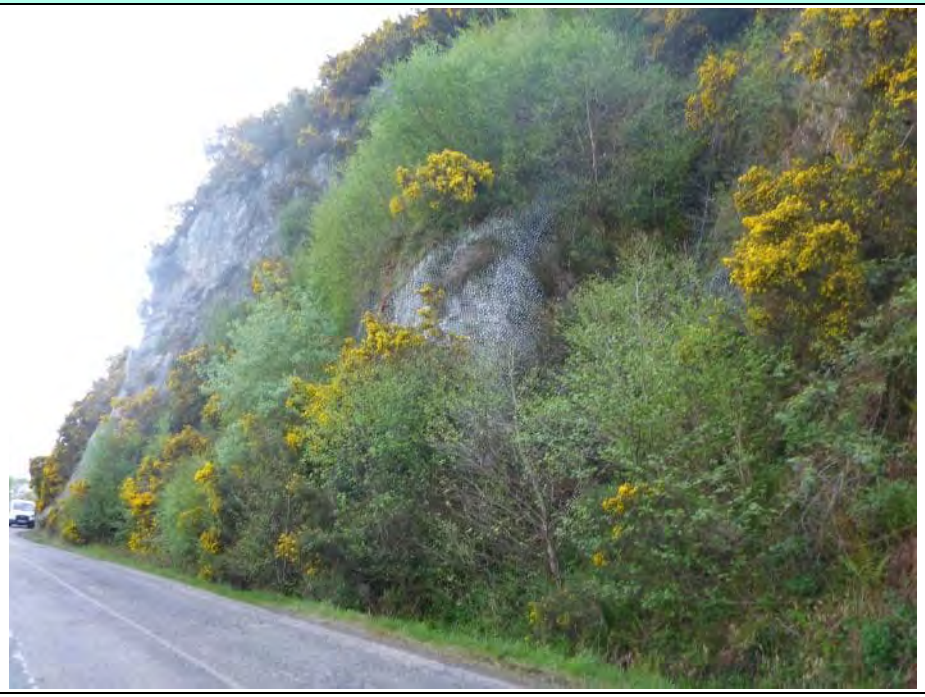
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA12-1	Occasional surface corrosion of nuts and shackles on the cables.	Year First Observed:	2017

AA12-2	Occasional surface corrosion of nuts and shackles on the cables.	Year First Observed:	2017

4.2.20 Slope Ref. AA13

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890	**Slope Ref:** AA13	**Chainage:** 2467 to 2562	**Start Grid Ref:** NG 90740 37326	**End Grid Ref:** NG 90796 37399	**Elevation:** 12 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:													
Dip (°):	70 to 80	Azimuth (°):	301	Height (m):	25 to 30	Length (m):	95	Vegetation Cover:	60 to 70% Gorse and saplings	Ditch Details:	1.5 m wide by 0.5 m deep Locally no ditch Bund halfway along AA13	Roughness:	Rough	Verge Width (m):	0 to 4

Engineering Description of Rock:
Very strong thickly foliated GNEISS with quartz rich bands.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting installed	Details of netting system include: • PVC coated double twist • Top cable 12 mm galvanised • c. 5.5 m anchor spacing and 25 mm stainless steel bars • Cable-anchor connection: stainless steel eye nuts • 3no. cable clamps • Netting lap connections using 3no. rows of Spenax rings every third aperture. • No laps on anchors • Vertical Reinforcing: 8 mm cable at 1 m centres Not all of the face is netted. The following faults have been identified with the netting system: small scale puncturing of mesh; wide spacing of Spenax rings joining vertical reinforcing cables; slack cables; and corroded cable clamps. **2022 Inspection**: Netting has been torn, potentially by grass cutter at Ch. 2515.	No changes observed during 2025 inspection.	AA13-1
2015 – Phase 8 works	• Passive netting system extended across slope between Ch. 2552 to 2562.		No changes observed during 2025 inspection.	

Existing netting or other remedial work details:				
2017 – Phase 9 works	• Damaged netting repaired and slope re-profiled. • Dowel installation • Profiling cable installation • De-vegetation		No changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2535	**2021 Inspection:** Overhanging area c. 12 to 15 m above toe with gaping mesh below. Potentially some dilated fractures around base of overhang. Large verge and ditch at toe mean low risk to road.	No changes observed during 2025 inspection from road level.	
Ch.2552	**2023 Inspection:** Blocks behind netting c. 1.5 m above toe, source c. 5 m above toe (0.5 x 0.3 x 0.1 m). Not extensively straining/deforming netting. No action required.	No changes observed during 2025 inspection.	
Ch. 2558	**2019 Inspection:** Not blocking ditch and so no clearance work required. Keep under observation.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	1	
Pathway Rating =	2	Pathway rating increased following the 2019 inspection following re-assessment.
Receptor Rating =	1.2	
Risk Value =	**2.4**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**

Recommended Remedial Works / Actions							
N/A		N/A			• Vegetation clearance is recommended across the whole slope. • Replace corroded cable clamps, re-tension and install additional Spenax rings on vertical reinforcing cables between Ch. 2513 and 2528. • Replace missing Ch. 2500 marker post.		
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA13-1	2022: Netting has been torn, potentially by grass cutter at Ch. 2515. 2025: No changes observed during 2025 inspection.	Year First Observed:	2022

4.2.21 Slope Ref. AA13-14 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA13/14-U	**Chainage:** 2505 to 2650	**Start Grid Ref:** NG 90830 37319	**End Grid Ref:** NG 90904 37388	**Elevation:** N/A

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	Boulder removed at NG 89631 36342		Not inspected during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	N/A	Accessing the upper slope exposes on-foot inspectors to increased levels of risk and the level of vegetation cover in 2025 was deemed too high for general non-targeted access. In the absence of any rock falls originating from the upper slopes since the previous inspection, on-foot inspections were de-scoped during dynamic risk assessment by the inspection team. Slopes to be prioritised for inspection via drone and/or on-foot in 2026.	
General	**2016 Inspection:** Main risk on this slope is associated with the uprooting of trees and boulders falling from their root balls. As many trees have fallen as are left standing and those that remain are leaning. A potential solution could be to fell the remaining trees leaving a 1 to 2 m high stump and allowing the tree trunks to fall in line with / along the slope. This would form an interlocking barrier that will help to retain boulders on the slope and remove the risk of trees uprooting and exposing/releasing blocks in root balls. As a minimum, area should be surveyed annually by aerial drone,	Not inspected on-foot during 2025 inspection.	

Hazards Observed:			
	with topographic and photographic surveys to monitor condition of trees and frequency of tree falls.		
NG 90850 37349	**2012 Inspection:** Potential for blocks up to approximately 7 m^3 to fail.	Not inspected on-foot during 2025 inspection.	
	2013 Inspection: A tabular boulder 0.9 x 0.7 x 0.2 m lodged between two trees; large tabular boulder 1.7 x 1.2 x 0.35 m undercut by approximately two thirds with boulders resting on top; occasional blocks on rock face at risk of toppling (up to 0.6 x 0.4 x 0.25 m).	Not inspected on-foot during 2025 inspection.	
NG 90846 37351	**2016 Inspection:** Detached tabular boulder (1.6 x 1.0 m x 1.0 m). Not currently at risk of moving downslope, but if adjacent tree uproots this could destabilise it.	Not inspected on-foot during 2025 inspection.	
NG 90900 37380	**2016 Inspection:** Potentially unstable block located 20 m above this location on an outcrop beneath a fallen tree. Estimated to be 2 x 1 x 1 m.	Not inspected on-foot during 2025 inspection.	
NG 90807 37277	**2018 Inspection:** Risk of fallen trees with upturned root balls dislodging blocks remains high.	Not inspected on-foot during 2025 inspection.	
NG 90840 37318	**2018 Inspection:** At c. 100 m above road level tree has slid down slope root ball first dislodging blocks in root ball and underlying crag. It appears the debris has all be caught by fallen trees on the slope below.	Not inspected on-foot during 2025 inspection.	
0-20 m NW of above	**2018 Inspection:** Risk of wedge failure from wedge with tree growing out of top. Blocks beneath are observed to have been dislodged by around 20 mm. Blocks which fail would free fall and tumble down slope below, but due to fallen trees would be unlikely to reach road.	Not inspected on-foot during 2025 inspection.	
20 m NW of above	**2018 Inspection:** Large block (3 m long x 1.5 m deep x 2.5 m wide) with dilated fracture behind, which has been root jacked from the tree growing above. There is risk that the block could topple out, but it is unlikely to reach the road due to the presence of fallen trees on the slope below.	Not inspected on-foot during 2025 inspection.	

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1.2	
Risk Value =	**10.8**	
Risk Level =	**High**	

Hazards Observed:

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		• Controlled removal or retention of unstable blocks.			• Consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.		
Assessed in field by:	N/A	**Date:**	N/A	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.22 Slope Ref. AA14W

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA14W	**Chainage:** 2562 to 2630	**Start Grid Ref:** NG 90796 37399	**End Grid Ref:** NG 90846 37438	**Elevation:** 12 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:								
Dip (°): 75	Azimuth (°): 324	Height (m): 15	Length (m): 85	Vegetation Cover:	Up to 100% on upper half c. 10% on lower half Primarily gorse	Ditch Details: 1 m wide by 0.3 m deep	Roughness: Rough	Verge Width (m): 0.4

Engineering Description of Rock:
Extremely strong to very strong grey and pink medium banded crystalline coarse grained GNEISS.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017	Ch. 2615 to 2625	To inspect area (above buttress). This area has since been remediated in 2019.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Maccaferri Netting	Details of netting system include: • PVC coated double twist. • Top cable 12 mm galvanised • Up to 15 m anchor spacing and 15 mm bars. • Cable-anchor connection: D shackle (connected with locking nuts on one side only)/Threaded eye nuts. • 3/4 cable clamps • Netting lap connections using 2 row of cable twist connections every fourth aperture. • No laps on anchors or vertical reinforcing Note**:** in 2013 new top cable and anchors were installed.	No significant change to netting observed in 2025 inspection.	
2013 – Phase 7 works	New top cable and anchors installed between Ch. 2566 to 2576 and Ch. 2622 to 2627.	Anchor Type: 25 mm GEWI bars	No significant change to netting components observed in 2025 inspection.	
2019 – Phase 11 works	Active TECCO netting system installed between Ch. 2576 and 2633 to replace Maccaferri drape	**2021 Inspection:** TECCO netting in good condition. No defects observed other than very minor corrosion of some cut end bars.	No significant change to netting observed in 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	**2023 Inspection:** Localised small blocks (ravelling) behind TECCO c. 15 to 20 m upslope above buttress. No action required.	No changes observed during 2025 inspection.	AA14W-1

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	
Pathway Rating =	1	
Receptor Rating =	N/A	Receptor rating only applicable when pathway rating is ≥2.
Risk Value =	**2.0**	Formerly very high risk. Re-assessed following Phase 11 works and hazard and pathway ratings reduced. Re-assessed during the 2022 inspection following changes to receptor rating. Risk value reduced from 2.4.
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Vegetation clearance is recommended across the whole slope.

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA14W-1	2023: Localised small blocks (ravelling) behind TECCO c. 15 to 20 m upslope above buttress. 2025: No changes observed during 2025 inspection.	Year First Observed:	2023

4.2.23 Slope Ref. AA14E

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** A114E	**Chainage:** 2630 to 2664	**Start Grid Ref:** NG90846 37438	**End Grid Ref:** NG 90871 37455	**Elevation:** 11 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	86	Azimuth (°):	347	Height (m):	30	Length (m):	33	Vegetation Cover:	10 to 20% on rock slope Grass with gorse and occasional saplings at crest
Ditch Details:	1 to 1.2 m wide by 0.8 m deep	Roughness:	Rough	Verge Width (m):	0 to 0.8 at roadside, 20 m from roadside to toe slope				

Engineering Description of Rock:
Strong thinly foliated dark grey fine to medium grained SCHIST. Contains occasional thin foliations of quartz. Some laminations were noted to be mica rich. (PSAMMITE)

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2017	Ch. 2620	To inspect crest of rock face where potential failures may occur (existing catch fence my not prevent these reaching road). Findings: • It was noted that there were overhangs with dilated joint sets at the crest of the rock slope behind low catch fence with green posts. • If failure were to occur it would likely exceed capacity of catch fence: fence is only 1.5 m height with no break rings. Recommendations: • Recommend TECCO netting with face pattern bolts on upper half of rock face and TECCO drape on lower half of rock face. • Alternatively, an appropriately designed catch fence could be considered.	

THC Monthly Inspection Observations:

Date	Location	Comments
N/A		

Existing netting or other remedial work details:

Year of Works	Description of Works	Comments	2025 Inspection Observations	Photo Reference
Before AECOM involvement (i.e. pre-2012)	Catch fence positioned mid-slope, c. 1.5 m high	Posts at 6 m centres (140 mm diameter, 8 mm thick steel tubes). Fence constructed from double twist netting with 16 mm horizontal stainless steel reinforcing cables at 0.4 m vertical spacing. No brake rings. **2024 Inspection:** Fence in good condition. Only surface corrosion on galvanised cable clamps. Upslope supports cables and clamps are stainless steel. No blocks in fence. No obvious change in cliffs above. Scree area between fence and cliff is very moss covered suggesting been there a long time. However, area at base of cliff up from 3rd fence post from the right behind leaning tree has an accumulation of scree blocks that are free of moss or only slightly covered indicating more activity. No immediate action. Proposed remedial solution still relevant. Keep under observation.	No significant changes noted during 2025 inspection; previous recommendation to install improved remedial measures remains. Two options: 1. TECCO netting across the rock face. 2. Install new appropriately designed catch fences. Two overlapping barriers envisaged: • Rock fall barrier along the line of the current fence, plus • In-channel debris flow barrier upslope of the proposed rock fall barrier at the base of the waterfall.	AA14E-1, AA14E-2, AA14E-3, AA14E-4

Existing netting or other remedial work details:				
			Optioneering required to consider constructability and maintenance requirements and costs prior to selecting preferred solution.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Crest of slope	**2012 Inspection:** Large overhang with dilated joints and potential for failures to exceed catch fence capacity/height.	No change noted during 2025 inspection.	
Ch. 2647	N/A	Leaning tree growing within scree slope between rock face and catch fence. Potential for scree to be destabilised if tree falls.	AA14E-5

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1.4	
Risk Value =	**12.6**	
Risk Level =	**High**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
Optioneering required to consider constructability, maintenance and costs. Options include: • Install TECCO netting with face pattern bolts on upper half of slope with TECCO drape on lower half; or • Install appropriately designed catch fence(s). Likely to require two overlapping barriers: – Rock fall barrier along the line of the current fence, plus	N/A	• Accumulation of debris behind existing catch fence to be monitored and clearance works undertaken in the event of a failure. • Vegetation clearance is recommended across rock slope. • Leaning tree growing on scree slope to be felled.

Existing netting or other remedial work details:							
– In-channel debris flow barrier upslope of the proposed rock fall barrier at the base of the waterfall							
Assessed in field by:	SF/MT/PM/CR	**Date:**	30/04/2025, 01/05/2025	**Reviewed by:**		**Date:**	

AA14E-1	Catch fence installed pre-2012 positioned mid-slope, c. 1.5 m high.	Year First Observed:	2012

AA14E-2	Base of waterfall – view along possible line of in-channel debris barrier.	Year First Observed:	2012

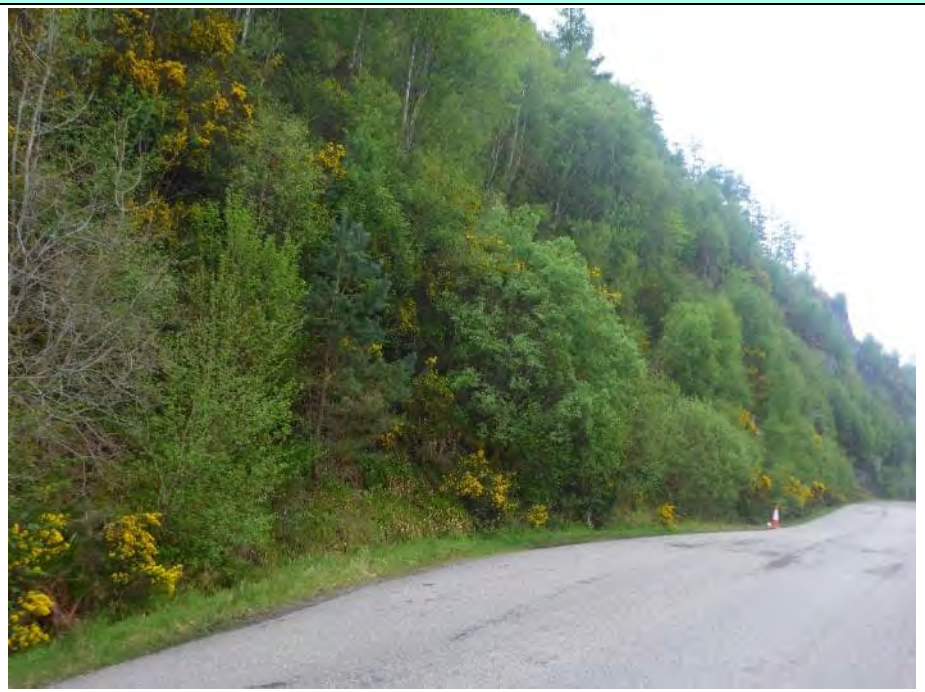
AA14E-3	View along pre-2012 low height catch fence looking down towards road.	Year First Observed:	2012

AA14E-4	General view of rock slope above AA14W – blocky overhangs common.	Year First Observed:	2012

AA14E-5	Leaning tree growing within scree slope between rock face and catch fence. Potential for scree to be destabilised if tree falls.	Year First Observed:	2012

4.2.24 Slope Ref. AA15

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA15	**Chainage:** 2664 to 2851	**Start Grid Ref:** NG 90871 37455	**End Grid Ref:** NG 91005 37551	**Elevation:** 18 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	75	Azimuth (°):	335	Height (m):	25 to 30	Length (m):	171	Vegetation Cover:	Up to 90% of the slope obscured by vegetation (in leaf) Saplings, gorse, heather
Ditch Details:	No ditch from Ch. 2690 to 2698; 2 m wide by 0.3 m deep from Ch. 2698 to 2705; 2 m wide by 0.5 m deep from Ch. 2705 to 2800	Roughness:	Rough	Verge Width (m):	0.5 to 2				

Engineering Description of Rock:
Very strong thickly foliated dark GNEISS with pinkish quartz bands.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting installed.	Details of netting system include: • PVC coated double twist • Top cable 12 mm galvanised • 4 to 7 m anchor spacing at crest (but only terminal anchors at toe) and 25 mm(?) stainless bars and occasional platypus anchors (6 mm stainless steel cable) • Cable-anchor connection: Stainless eye nuts (bar machined to M20 thread) and 150 mm stainless faceplates • 3no. cable clamps • Netting lap connections using 2no. rows of Spenax rings • No laps on anchors • 8 mm cable at 1 m spacing (3no. cable clamps)	No significant changes to netting observed in 2025 inspection.	

Existing netting or other remedial work details:				
		2016 Inspection: Noted that there are only bottom anchors at either end of the passive rock fall netting system (true drape). Presence of 2 to 3 m wide verge with ditch between Ch. 2713 and 2774 means debris is unlikely to reach road in this section but there is a potential for debris to reach road between Ch. 2663 and 2713. Top anchors noted to be infrequent and those that are visible are platypus type soil anchors.		
2015 – Phase 8 works	• Passive netting extended so now present between Ch. 2664 to 2773. • Active high strength netting (SPIDER mesh) installed over potential failure at Ch. 2680		No significant changes to netting observed in 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2700	**2024 Inspection:** Chainage marker 2700 is missing.	No changes observed during 2025 inspection.	
Ch. 2790	**2016 Inspection:** Root jacking recorded beyond end of netting approximately 10 m above road level and may have associated hazards.	No debris noted to have fallen. Ditch is of reasonable dimensions in this area and would reduce the potential for falling blocks to reach the roadside.	
Ch. 2807 to 2810	**2018 Inspection:** Numerous blocks in roadside ditch originating from failure c. 4 to 5 m above road level, the largest is 0.5 x 0.4 x 0.2 m. Total failure volume of c. 0.5 to 0.75 m^3. Root jacking is evident as the cause. Dilated fracture observed to left hand side of failure scar with the potential for similar size failures to occur in the future but the 2 m wide x 0.3 m deep ditch/verge should contain these failures. No remedial measures determined to be required.	No changes observed during 2025 inspection.	
Ch. 2817	**2017 Inspection:** Large block approximately 0.5 m^3 was noted on the verge. Block appears to be recent. The source of the block has not been confirmed but an uprooted tree 20 m above road noted as a possible source.	No changes observed during 2025 inspection.	

Hazards Observed:			
	2024 Inspection: Block not identified in 2024 inspection.		
Ch. 2820	**2019 Inspection:** Two broken posts observed on post and wire fence between road and railway. Appear to have been struck by vehicle.	No changes observed during 2025 inspection.	
Ch. 2843	**2024 Inspection:** Block present in ditch. Unclear if block is recent or not. Dimensions are 0.6 x 0.5 x 0.3 m. The source of the block is not clear but there are crags present above. There are also a few other smaller blocks around too and potential for further blocks to fall.	No changes observed during 2025 inspection.	
General	**2016 Inspection:** Vegetation (particularly gorse) becoming well established on rock slope obscuring rock mass and introducing potential for root jacking. **2024 Inspection:** Vegetation has grown and now obscuring view of slope inspection. Vegetation also adds weight to netting and is growing through the netting. Recommend de-vegetation of slope.	No changes observed during 2025 inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	Increased from 2 to 3 following the 2021 inspection to reflect increased root jacking risk,
Pathway Rating =	2	Reduced from 3 to 2 following the 2018 inspection following re-assessment of potential for failures to reach road.
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Vegetation clearance is recommended across the whole slope.

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.25 Slope Ref. AA15 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA15-U	**Chainage:** 2710 to 2733	**Start Grid Ref:** NG 90955 37420	**End Grid Ref:** NG 90971 37437	**Elevation:** N/A

Rope Access Inspections:		
Year of Rope Access Inspection	**Location**	**Purpose**
2018	20 m upslope from NG 90969 37395	To inspect condition of slope. Findings: • Upper crag with large wedge sticking out c. 85 m above road level. • No obvious dilation of joints but if failure were to occur may move significant distance downslope. • Keep under observation for evidence of dilation. • All elements of the strapping and cabling of the boulder undertaken as part of the Phase 7 works in 2013 are in a good condition.

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	Block 100 m above road level was strapped in place	**2018 Inspection:** All elements of the strapping and cabling are in a good condition. **2021 Inspection:** All elements of the strapping and cabling are good conditions, slight surface corrosion on cable only.	Not inspected on foot during 2025 Inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	N/A	Accessing the upper slope exposes on-foot inspectors to increased levels of risk and the level of vegetation cover in 2025 was deemed too high for general non-targeted	

		access. In the absence of any rock falls originating from the upper slopes since the previous inspection, on-foot inspections were de-scoped during dynamic risk assessment by the inspection team. Slopes to be prioritised for inspection via drone and/or on-foot in 2026.	
General	**2021 Inspection:** Two or three protrusions of rock sticking out but look to be well wedged into rock mass. Small trees are giving the potential for root jacking, but nothing is dilated or showing signs of imminent failure.	Not inspected on--foot during 2025 Inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		**Comments**
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1.2	
Risk Value =	**10.8**	
Risk Level =	**High**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Fell trees; consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.26 Slope Ref. AA16

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA16	**Chainage:** 2851 to 2923	**Start Grid Ref:** NG 91005 37551	**End Grid Ref:** NG 91069 37601	**Elevation:** 18 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:															
Dip (°):	60 to 75	Azimuth (°):	332	Height (m):	15 to 20	Length (m):	72	Vegetation Cover:	70% Gorse, grass, saplings	Ditch Details:	2 m wide by 1 m deep between Ch. 2890 to 2920	Roughness:	Rough	Verge Width (m):	1

Engineering Description of Rock:
Very strong thinly foliated dark grey schist. (PSAMMITE)

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017	Ch. 2910	To inspect overhanging area of rock between 10 to 15 m above road level. Findings: • Overhanging blocks at crest of slope are generally keyed in with the exception of some small blocks. Joint sets were not noted to be dilated. • A verge of 1.5 m and ditch (2 m wide and 0.5 m deep) was recorded at roadside and considered adequate to contain small failures. • Ditch capacity increased during Phase 12 works.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
August 2018	-	New stones in drain (x4)
March 2020	Ch. 2890	Large rock in drain
July 2020	Ch. 2860	Large rock in ditch (c. 0.5 x 0.4 x 0.3 m). First observed 03/07/20. Originated from c. 3 m upslope.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting present between Ch. 2872 to 2899.	Details of netting system include: • PVC coated double twist • Top cable 16 mm galvanised • 4 to 5 m anchor spacing and 2 5 mm galvanised bars • Cable-anchor connection: Galvanised eye nuts • 3no. cable clamps • Netting lap connections using 3no. rows of galvanised Spenax rings • No laps on anchors and possibly no vertical reinforcing At each top anchor on the top cable an additional dowel is located approximately 2 m above and connected to the main cable with a 16 mm dropper cable.	No significant change to netting observed.	

Existing netting or other remedial work details:				
2021 – Phase 12 works	Capacity of ditch at Ch. 2890 to 2920 has been increased.		No change – ditch remains effective.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2851 to 2872	**2023 Inspection:** Vegetation very well established (gorse, grass, large saplings). No netting, no ditch. Slope set back from road edge c. 0.5 to 0.8 m. Some dilated fractures evident but slope largely obscured. Potential for root jacking to cause block falls up to 1 x 0.4 x 0.4 m. Most expected to reach road.	No changes observed during 2025 inspection.	
Ch. 2865	N/A	Dilated fracture with root jacking c. 5 m above road level. Long axis of the slab is c. 0.7 m. Not considered to pose a significant hazard to the road.	AA16-1
Ch. 2888	**2016 Inspection:** Broken section of rock mass 5 to 10 m above road level with potential to fail if root jacking continues. Block size typically ~0.1 m^3 but total failure volume could be 2 to 3 m^3. May exceed capacity of mesh if all fails at same time. Verge quite narrow so could reach road.	No changes observed during 2025 inspection.	
Ch. 2904	N/A	Boulder c. 0.2 x 0.2 x 0.1 m at base of gully on the verge. Block possibly not native and appears to be gneiss with quartz veins; possibly fallen from upper slope.	AA16-2
Ch. 2910	**2016 Inspection:** Overhang noted at the crest of the slope, however, 2017 rope access inspection indicated generally keyed in with no obvious dilation of joints. Area to be kept under observation in future inspections for signs of deterioration.	No changes observed during 2025 inspection.	
Ch. 2920	N/A	Boulder present on the verge; appears to be old and is marked with spray paint.	
Ch. 2922	**2023 Inspection:** 3x small blocks in verge (0.25 x 0.15 x 0.15 m) – reported by THC to have occurred within 'the last few days'. Not known if landed here or moved here. Source not apparent from road level. Vegetated rock slope above but no fresh surfaces. Doesn't appear to have originated from roadside rockface. Upslope inspection carried out. AA16-17 Upper crags directly above but no evidence of recent rock fall. Blocks observed to be resting on slope and against trees with lots of evidence of deer activity. Possible that block was dislodged by a deer.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	Increased form 2 in 2021 to reflect increased root jacking risk.
Pathway Rating =	2	
Receptor Rating =	1	
Risk Value =	**6.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		• Coppice tree growing within broken rock mass at Ch. 2888.			• Vegetation clearance / tree coppicing across slope. • Build-up of debris in ditch should be monitored, and clearance works undertaken as required to maintain its capacity.		
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA16-1	Ch. 2865: Dilated fracture with root jacking c. 5 m above road level. Long axis of the slab is c. 0.7 m. Not considered to pose a significant hazard to the road.	Year First Observed:	2025

AA16-2	Ch. 2904: Boulder c. 0.2 x 0.2 x 0.1 m at base of gully on the verge. Block possibly not native and appears to be a gneiss with quartz veins; possibly fallen from upper slope.	Year First Observed:	2025

4.2.27 Slope Ref. AA16-17-18 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA16-17-18-U	**Chainage:** 2766 to 3050	**Start Grid Ref:** NG 91016 37460	**End Grid Ref:** NG 91199 37660	**Elevation:** N/A

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	Unstable blocks removed and some strapped which were at risk of toppling 60 to 100 m above road level at NG 91054 37487	Total estimated failure volume 3 m^3.	Not assessed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	N/A	Accessing the upper slope exposes on-foot inspectors to increased levels of risk and the level of vegetation cover in 2025 was deemed too high for general non-targeted access. In the absence of any rock falls originating from the upper slopes since the previous inspection, on-foot inspections were de-scoped during dynamic risk assessment by the inspection team.	

Hazards Observed:			
		Slopes to be prioritised for inspection via drone and/or on-foot in 2026.	
General	**2014 Inspection:** A number of blocks have been removed or strapped. However, a large number of potentially loose blocks remain on small rock outcrops or within the root balls of uprooted trees.	Not inspected on-foot during 2025 inspection.	
General	**2016 Inspection:** The main risk is associated with fallen trees dislodging small boulders. Larger scale failures from the natural rock outcrops are likely to be infrequent (every 20 to 30 years)	Not inspected on-foot during 2025 inspection.	
High above AA16/17	**2018 Inspection:** Crags with fallen trees, including a large fallen tree at crest, and blocks which have been dislodged, including one 0.75 m^3 block that has come to rest on fallen trees below where the slope is at a 45-degree angle. Crags centred around NG 91040 37525 and extending to NG 91131 37596. **2023 Inspection:** A further example of this hazard was noted at NGR NG 91103 37585 ±5 m, alt. 50 ±5 m. Block is 1.0 x 0.5 x 0.5 m and resting against fallen tree trunk.	Not inspected on-foot during 2025 inspection.	
General	**2021 Inspection:** Lower cliffs/crags are quite slabby in nature - not much is obviously as an immediate risk. Possibly one wedge c. 1 m^3 at south-west end near crest warrants further inspection. Upper crags are fairly massive structure and no obvious blocks that could fail. Smoothish profile, >50 m high. To fully assess a drone survey inspection is recommended as terrain means that safe access to crest is not possible.	Not inspected on-foot during 2025 inspection.	
General	**2023 Inspection:** Lots of evidence of deer – potential cause of rock fall observed at road level Ch. 2922 (AA16).	Not inspected on-foot during 2025 inspection.	
General	**2023 Inspection:** No evidence of source of block recently reported by THC but general condition of upper slope is poor with frequent fallen trees and blocks resting on slope and against tree trunks.	Not inspected on-foot during 2025 inspection.	
High above AA18 at NGR NG 91189 37608	**2023 Inspection:** Hazards noted in this area include: • Loose block lying on ground amongst fallen long tree trunks. Block is elongate and 1.2 m max dimension.	Not inspected on-foot during 2025 inspection.	

Hazards Observed:			
	• Debris 'dams' of blocks and branches in water course that flows into AA18/19 – Likely source of some block falls. • Scree area cleared in September 2022 emergency works – scree is re-accumulating needs to be cleared again.		
High above AA18 at NGR NG 91206 37613	**2023 Inspection:** Hazards noted in this area include: • A 0.7 x 0.5 x 1.2 m boulder on slope • There are several fallen trees with elevated root balls containing blocks/hanging blocks • A very tall tree leaning at 20° (bearing 290° from NGR location, c. 30 to 35 m away) at risk of falling.	Not inspected on-foot during 2025 inspection.	

Other Comments
N/A

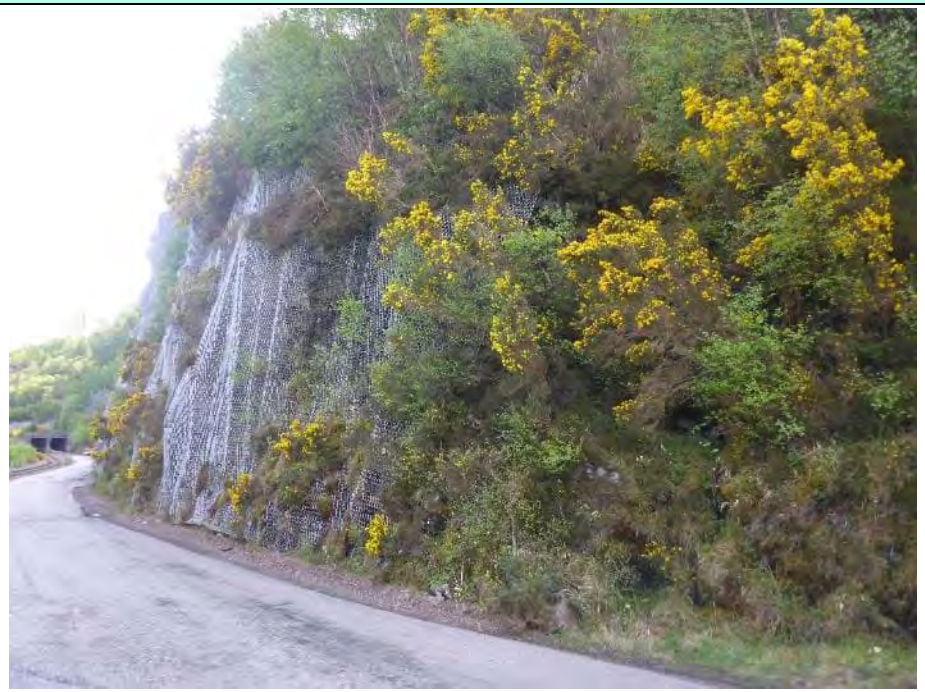
ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1.2	
Risk Value =	**10.8**	
Risk Level =	**High**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
• Install rock fall catch fence along crest of roadside rock face.	N/A	• Consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.28 Slope Ref. AA17

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA17	**Chainage:** 2923 to 2987	**Start Grid Ref:** NG 91069 37601	**End Grid Ref:** NG 91123 37630	**Elevation:** 11 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 80	Azimuth (°): 322	Height (m): 64	Length (m):	Vegetation Cover: 20% Moss, ferns, heather, gorse, and saplings	Ditch Details: No ditch	Roughness: Rough	Verge Width (m): 1 to 3

Engineering Description of Rock:
Extremely strong to very strong dark grey narrowly banded crystalline medium grained GNEISS.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017	Ch. 2935	To inspect area of potential wedge failure and netting. Findings: • Area noted to be very blast damaged between Ch. 2933 and Ch. 2946. • Joint sets are noted to be very dilated with failure potential that could exceed capacity of Maccaferri (with one and locally two layers of chain link below). • Rock mass is very broken and therefore an active netting system (e.g. TECCO) is not considered to be an appropriate option as drilling pattern bolts would dislodge material. Recommendations: • Recommend opening mesh and scaling area before re-assessing. • Existing mesh to be re-instated on completion.	
2017	Ch. 2965	To inspect large wedge approximately 10 m above road level. Findings: • Blocks are keyed in but condition should be monitored during future inspections.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)	Netting installed	Details of netting system include: • PVC coated double twist • Top cable 16-20 mm galvanised • 2.5 m anchor spacing at crest (but up to 12 m at toe) and 25 mm galvanised bars • Cable-anchor connection: None	Almost all anchors points for reinforcing cables are now visibly corroded; cables and cable grips are not corroded and appear to be in good condition. Carry out rope access inspection in 2026 if possible to assess anchor corrosion further.	AA17-1

Existing netting or other remedial work details:				
		• 2 cable clamps • Netting lap connections: Netting joined with cable twists and lacing wire, with additional Spenax rings installed in 2015 • No laps on anchors and no vertical reinforcing (but numerous lateral/diagonal reinforcing cables - note that many of the anchors for these appear corroded). **Note:** in 2015 top cable, anchors and additional Spenax jointing were installed. **2016 Inspection:** Inspection of existing passive rock fall netting system identified the following faults: • Bottom anchors at a spacing of 8-12 m between Ch. 2894 and 2935. Up chainage of this the bottom of the mesh is buried by coarse gravel in ditch, but appears to be well secured. • Many of the anchors for the reinforcing cables in the upper portion of the slope are corroded. **2017 Inspection:** Wide spacing of bottom anchors (up to 12 m) with partially buried mesh and corroded eyelets observed **2022 Inspection**: Some localised corrosion on bottom cable noted.		
2015 – Phase 8 works	New top cable, anchors, and additional Spenax jointing installed		No significant change to netting components observed in 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 2933 to 2946	**2017 Inspection:** Large area of blast damaged rock mass with potential to exceed capacity of mesh in event of failure.	No changes observed during 2025 inspection.	AA17-2
Ch. 2957	N/A	Large tree on in rock face, potential root jacking of the block below; block dowelled in place but the length of the dowel is not known. Consider carrying out rope access inspection here during future annual inspection.	AA17-3

Hazards Observed:			
Ch. 2965	**2017 Inspection:** Large wedge approximately 10 m above road level, with smaller wedge above. Rope access inspection in 2017 confirmed blocks are currently keyed in but condition should be monitored during future inspections.	Eye nut almost completed rusted over.	
Ch. 2970	**2024 Inspection:** Netting has a small tear present. Likely to be caused by a passing vehicle. No signs of rock fall at this location.	No changes observed during 2025 inspection.	
General	**2020 Inspection:** Trees becoming well established at crest, with gorse present on cutting face.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	Reduced from 3 to 2 in 2023 following re-assessment of pathway. Most blocks not expected to reach road due to netting system.
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		• Ch. 2933 to 2946: Open up Maccaferri netting and carry out scaling before re-assessing. Netting to be reinstated on completion.			• Vegetation clearance is recommended across the whole slope. • Replace corroded anchor points on reinforcing cables.		
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

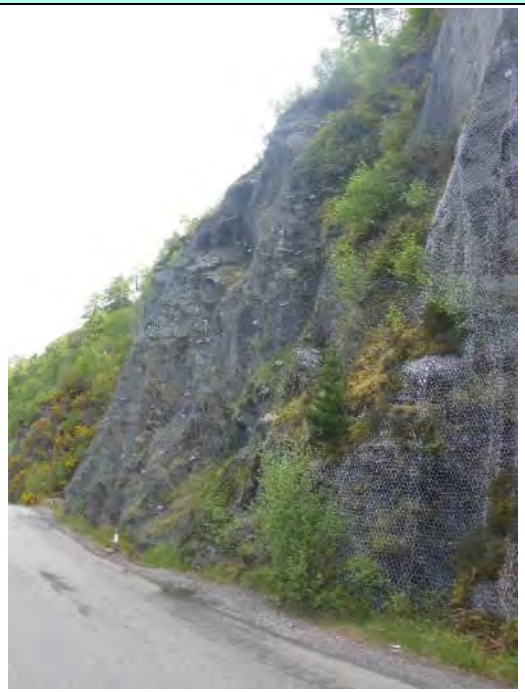
AA17-1	• Almost all of the anchors for the reinforcing cables in the upper portion of the slope are visibly corroded.	Year First Observed:	2012

AA17-2	Ch. 2933 to 2946: Large area of blast damaged rock mass with potential to exceed capacity of mesh in event of failure.	Year First Observed:	2017

AA17-3	Ch. 2957: Large tree on ledge in rock face, potential root jacking of the block below; block dowelled in place but the length and capacity of the dowel(s) is not known.	Year First Observed:	2025

4.2.29 Slope Ref. AA18

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA18	**Chainage:** 2987 to 3059	**Start Grid Ref:** NG 91123 37630	**End Grid Ref:** NG 91186 37649	**Elevation:** 10 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 76	Azimuth (°): 346	Height (m): 15	Length (m): 72	Vegetation Cover: 10 to 15% Grass, moss, and heather	Ditch Details: No ditch	Roughness: Rough	Verge Width (m): 1.2

Engineering Description of Rock:
Extremely strong thinly foliated dark grey SCHIST. Contains occasional thin foliations of quartz.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2023	Ch. 2990	To inspect condition of the netting/spike plates in waterfall area. Findings: • TECCO netting is in good condition	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2013 – Phase 7 works	A block removed (was caught in top of netting where it spans a small gully) and netting repaired		No significant changes to netting observed in 2025 inspection.	
2018 – Phase 10 works	• Maccaferri drape netting removed and replaced by active TECCO netting system • Installation of spot dowels • De-vegetation and scaling • A sprayed concrete buttress installed	Netting system in good condition but installation of incorrect spike plate / nut combination has not been resolved. **2020 Inspection:** At Ch. 2990 (waterfall area), TECCO showing greenish discolouration. Spike plate grey discoloured. **2022 Inspection:** Potential corrosion of netting mid-slope, mid-slope profiling cable and bottom cable observed at Ch. 3032. **2023 Inspection:** Rope access inspection completed to assess netting condition – netting is in good condition. **2024 Inspection:** Wire rope grip bolts and threaded ends are showing signs of local corrosion. Also, some cut bar ends are starting to show signs of corrosion.	• Spike plates in waterfall at Ch. 2990 are discoloured. • Cut bar ends corroded. • Mid-slope profiling cable at Ch. 3032 highly discoloured – corrosion level to be assessed in future annual inspections.	AA18-1, AA18-2, AA18-3

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	**2013 Inspection:** Many uprooted trees and associated boulders were present upslope of the rock face.	No changes observed during 2025 inspection.	
Ch.2990	**2021 Inspection:** Some loose blocks behind netting near crest. One block c. 0.15 x 0.15 x 0.15 m caught behind netting and pulling netting out slightly from slope. Several smaller blocks resting on slope adjacent to spike plate. Would be beneficial to move block down behind the netting. Source is likely to be the slight overhang at crest. Keep under observation for additional debris.	No changes observed during 2025 inspection.	
Ch.3012	**2021 Inspection:** A few small blocks sitting on ledge of rock face c .7 m from toe. Not straining or deforming mesh so removal not required.	Small block c. 12 m height, detached from the rock face and resting on the netting. Not straining or deforming the mesh so removal not required.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	1	
Pathway Rating =	1	
Receptor Rating =	N/A	
Risk Value =	**1.0**	• Rating reduced to 1.2 following Phase 10 Remedial Works (2018). Previously very high risk. • Re-assessed during the 2022 inspection following changes to receptor rating. Risk value reduced from 1.2.
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	N/A

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA18-1	At Ch. 2990 (waterfall area), TECCO showing greenish discolouration. Spike plate discoloured.	Year First Observed:	2018

AA18-2	At Ch. 2990 (waterfall area), TECCO showing greenish discolouration. Spike plate discoloured.	Year First Observed:	2018

AA18-3	Mid-slope profiling cable at Ch. 3032 highly corroded.	Year First Observed:	2018

4.2.30 Slope Ref. AA18-19

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA18-19	**Chainage:** 3059 to 3070	**Start Grid Ref:** NG 91186 37649	**End Grid Ref:** NG 91199 37660	**Elevation:** 10 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 76	Azimuth (°): 346	Height (m): 15	Length (m): 11	Vegetation Cover: 60% Grass	Ditch Details: Ditch (slopeside): 1 to 6 m wide by 1.5 to 2 m deep Bund (roadside): 2 to 3 m wide by 0.5 to 1.5 m high	Roughness: Rough	Verge Width (m): 2 to 4

Engineering Description of Rock:
Strong thinly foliated dark grey SCHIST.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2024	Ch. 3055	To check the condition of the netting and the rock fall that has occurred to see if there is potential for further rock fall.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
May 2018	N/A	Small washout of stones on road and verge from natural crag above AA18 & AA19. July 2018 – More small stones washed out.
May 2022	Ch. 3065	Rock fall impacting road and railway at AA18/AA19 on 25/05/2022. Block originated from AA19 Upper and travelled down AA18/19 passing over the drape netting system. This has caused some minor damage, with several tears up to 0.2 m observed. This damage is not considered to pose a significantly increased risk. An emergency inspection was carried out by AECOM on 27 May 2022 after a rock fall originating from the upper crags within AA19 Upper occurred on the 25 May 2022. The inspection concluded that whilst no imminent risk of further failure was observed, there is potential of future failure from the ongoing weathering and degradation of the material, particularly during and/or following periods of inclement weather. Scaling works were recommended to be completed as soon as possible. Works completed late 2022. Further details reported under AA19 Upper.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2014	Maccaferri netting installed as emergency works following failure.	Details of netting system include: • PVC coated Maccaferri double twist • Top cable 16 mm galvanised • 2 m top and bottom anchor spacing and 25 mm GEWI bars • Cable-anchor connection: galvanised eye nuts • 4no. cable clamps • Netting lap connections: 3no. rows of Spenax rings • No laps on anchors or vertical reinforcing	Cable clamps in waterfall showing significant degrees of corrosion.	

Existing netting or other remedial work details:				
		2016 Inspection: It was noted that the cable clamps on the boundary ropes were corroded, although the non-threaded parts were not. The specification for the 2014 emergency works required the whole clamp system to be hot dip galvanised, but it appears the ones installed were not. **2017 Inspection:** It was noted that the non-threaded parts of cable clamps were also now corroded. **2020 Inspection:** Cable clamps well corroded and cables beginning to exhibit surface corrosion, particularly in waterfall. **2022 Inspection:** A rock fall in May 2022 has caused some minor damage to netting, with several tears up to 0.2 m observed. **2023 Inspection:** Netting locally damaged by rock falls from upper slope. c. 5 to 10no. torn holes (max 10 apertures tall x 5 wide). Recommend patch netting at tears.		
September 2022 Urgent Works	• Clearing out the roadside catch pit and increasing its capacity. • Light scaling to remove loose material from the source area (AA19 Upper) and accumulation scree.	**2023 Inspection:** Scree is accumulating on mid-slope ledge (AA19 Upper) – needs to be cleared again.	No significant changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	**2019 Inspection:** Slope continues to weather and ravel but debris retained by mesh – monitor build up.	Debris accumulation is beginning to load the mesh. Requires clearance.	AA18-19-1
Ch. 3052	**2018 Inspection:** Minor debris accumulation at bottom right of mesh but not loading system.	Debris accumulation is beginning to load the mesh. Requires clearance.	AA18-19-2
Ch. 3052	**2021 Inspection:** In waterfall areas there is a slab of rock c. 0.75 x 0.75 x 0.2 m. Source not immediately clear but possibly from the rock slope west of the gully.	No changes observed during 2025 inspection.	

Hazards Observed:			
Ch. 3059	**2024 Inspection:** Wash out present at the base of the waterfall and mid slope c. 10 m above road level. Exposed subvertical face of weathered scree 1 to 2 m high and 3 to 4 m wide. Potential for this to slip down slope. As there is a large catch basin below there is no increased risk.	No changes observed during 2025 inspection.	
Ch. 3059	**2024 Inspection:** Large block 5 m down slope from the top netting. Dimension 0.5 m wide. Weathered out from soil.	No changes observed during 2025 inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	1	
Pathway Rating =	1	
Receptor Rating =	N/A	
Risk Value =	**1.0**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	N/A	• Replace corroded components of netting system (c. 80 clamps) with appropriate, suitably galvanised replacements. • Tears in netting from rock falls to be repaired. • (AA19 Upper) Scree area cleared in September 2022 urgent works is refilling – would benefit from clearance. • Clear out debris accumulating in the bottom-right (west) corner of the mesh.

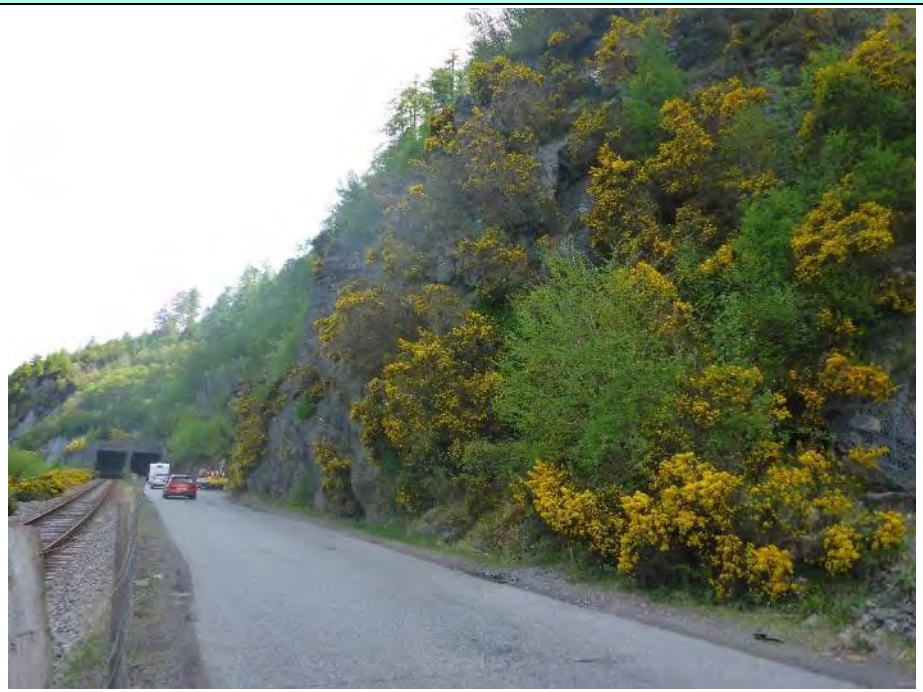
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA18-19-1	Debris accumulation is beginning to load the mesh. Requires clearance.	Year First Observed:	2019

AA18-19-2	Ch. 3052: Debris accumulation is beginning to load the mesh. Requires clearance.	Year First Observed:	2018

4.2.31 Slope Ref. AA19

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA19	**Chainage:** 3070 to 3157	**Start Grid Ref:** NG 91199 37660	**End Grid Ref:** NG91274 37698	**Elevation:** 10 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 74	Azimuth (°): 341	Height (m): 25	Length (m): 87	Vegetation Cover: 10 to 20% Grass, gorse	Ditch Details: 0.9 m wide by 0.4 m deep	Roughness: Rough	Verge Width (m): 0

Engineering Description of Rock:
Very strong thinly foliated dark grey fine to medium grained SCHIST. Contains occasional thin foliations of quartz. (PSAMMITE).

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
March 2023	Ch. 3100	Rock fall (c. 0.25 m^3) originating from AA19 Upper and impacting road at AA19 on 02/03/2023.
March 2023	Ch. 3100	Rock fall (c. 0.1 m^3) originating from AA19 Upper and impacting road at AA19 on 29/03/2023.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2012	TECCO netting installed as emergency works following failure.	Details of netting system include: • TECCO • Top cable 12 mm galvanised • 2.5 to 3.5 m anchor spacing and 25/28 mm solid galvanised and 32 mm hollow galvanised bars • Cable-anchor connection: eye nuts • 4no. cable clamps • Netting lap connections using T3 clips • No laps on anchors • Vertical and diagonal reinforcing/profiling cables (12 mm galvanised) • 37no. dowels also installed. **2019 Inspection:** Very localised corrosion of TECCO where touching old, corroded anchor installation. No other defects observed. **2022 Inspection:** Some of the cable clamps on the bottom cable are showing early signs of corrosion at Ch. 3100. Otherwise netting is in good condition.	Cut bar ends showing signs of corrosion Rear and top of gabion mesh damaged by rock falls and area behind requiring clearance.	AA19-1, AA19-2

Existing netting or other remedial work details:				
		2023 Inspection: TECCO in good condition. Gabions – parts of mesh are damaged. Would be beneficial to clear out debris behind the gabions.		

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch.3100	**2018 Inspection:** Failure of c. 0.25 m^3 observed 6 to 8 m above road level and has been retained by mesh. Fractured overhanging block of c. 0.5 m^3 could also fail in future but would be retained by mesh. Debris is not currently overloading the system so no remedial works are required at this stage. Keep under observation during future inspections.	No changes observed during 2025 inspection.	
Ch. 3130	N/A	Small block resting on top of the Gabion having fallen from the upper slopes.	AA19-3
Ch. 3145 (above gabions and TECCO netting)	**2023 Inspection:** Rope access identified sporadic areas of rock exposure with occasional dilated joints and root jacking potential. Risk of occasional block falling (max. 0.5 x 0.5 x 0.5 m).	No changes observed during 2025 inspection.	

Other Comments
Some standing water retained within ditch

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	Increased from 1 to 2 following the 2018 inspection following a failure – failed material retained by mesh.
Pathway Rating =	1	
Receptor Rating =	N/A	
Risk Value =	**2**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**

Recommended Remedial Works / Actions							
N/A		N/A		• Clear debris from behind gabions			
Assessed in field by:	SF/MT/PM/CR	**Date:**	30/04/2024	**Reviewed by:**	MT	**Date:**	27/06/2025

AA19-1	Rear and top of gabions are damaged. Has worsened since 2023 with additional debris present. Would be beneficial to clear out debris behind the gabions	Year First Observed:	2023

AA19-2	Rear and top of gabions are damaged. Has worsened since 2023 with additional debris present. Would be beneficial to clear out debris behind the gabions.	Year First Observed:	2032

AA19-3	Rear and top of gabions are damaged. Has worsened since 2023 with additional debris present. Would be beneficial to clear out debris behind the gabions	Year First Observed:	2025

4.2.32 Slope Ref. AA19 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA19-U	**Chainage:** 3050 to 3157	**Start Grid Ref:** NG91199 37660	**End Grid Ref:** NG 91274 37698	**Elevation:** N/A

Photo at Crest (looking downslope)	
	

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2022	Ch. 3100	Emergency rope access inspection to assess source area of rock fall after 02/03/2023 event. Inspection found scree on mid-slope ledge which was cleared in the September 2022 urgent works.	
2023	Ch. 3145 (above gabions)	To inspect area above TECCO netting.	

Rope Access Inspections:			
		Findings: • Sporadic areas of rock exposure with occasional dilated joints and root jacking potential. • Risk of occasional block falling.	
2023	Drop 1	To inspect condition of upper crags. Findings: • NG 91280 37656 ±5 m, alt. 56.5 ±3 m AOD – possible source of large block on road beside gabions. • Generally upper area affected by root jacking. • Upper crags generally massive but there are areas where exposed faces have dilated joints and blocks could be released. • Evidence of blocks lying on slope.	
2023	Drop 2	To inspect condition of upper crags. Findings: • NG 91273 37654 ±6 m, alt. 43 ±5 m AOD – area of Maccaferri mesh strapped around rock protrusion 2 m high and 4 m wide secured by two cables. • Missing block and fresh surface at top of the Maccaferri mesh – again possible source of block at road. • Loose blocks noted in area around Maccaferri mesh and cables which are at risk of falling (currently only held in place by cables).	
2024	Drop 1	To inspect condition of upper craigs and TECCO netting. Findings: • Scree at top of mesh – not noticeably worse. • One large block 0.4 x 0.3 x 0.15 m. Scratched with 'A' for future reference. Photos compared with 2023 and this block appears to be new.	
2025	Drop 1	To inspect the condition of the upper crags and TECCO netting: Findings: • Scree at top of mesh, not noticeably worse.	AA19-U-1, AA19-U-2

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
May 2022	Ch. 3065	Rock fall originating from AA19 Upper and impacting road at AA18/19 on 27/05/2025.
March 2023	Ch.3100	Rock fall (c. 0.25 m^3) originating from AA19 Upper and impacting road at AA19 on 02/03/2023.

THC Monthly Inspection Observations:		
March 2023	Ch.3100	Rock fall (c. 0.1 m^3) originating from AA19 Upper and impacting road at AA19 on 29/03/2023.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM Involvement (i.e. pre-2012)	Mesh around block at NG 91273 37654	**2023 Inspection:** Area of Maccaferri mesh strapped around rock protrusion 2 m high and 4 m wide secured by two cables. Loose blocks noted in this area.	No changes observed during 2025 inspection.	
2013 – Phase 7 works	Tree stump removed which was previously retained by cable straps.		No changes observed during 2025 inspection.	
2015 – Phase 8 works	Uprooted trees and associated root balls and loose blocks were removed		No changes observed during 2025 inspection.	
September 2022 Urgent Works	(AA18-19) Clearing out the roadside catch pit and increasing its capacity; Light scaling to remove loose material from the source area (AA19 Upper) and accumulation scree.	**2023 Inspection:** Scree is accumulating on mid-slope ledge (AA19 Upper) – needs to be cleared again.	No significant changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	**2012 Inspection:** Potential for numerous block falls approximately 60 m above road due to root jacking. Block size up to 1 m^3.	No changes observed during 2025 inspection.	
NG 91276 37645	**2013 Inspection:** Developing toppling / root jacking failures (block size up to 1.5 x 2 x 1.5 m) approximately 50 m above road; 4no. blocks (typically 1.5 x m x 0.4 m) prone to toppling failure approximately 20 m above TECCO mesh in slight gully on face (directly above left hand end of the gabions)	No changes observed during 2025 inspection.	
General	**2023 Inspection:** A number of loose blocks are lying on slope.	No changes observed during 2025 inspection.	AA19-U-3

Hazards Observed:			
	2024 Inspection: More loose blocks apparent lying on the slope, including, a large block 5 m down from the crest of the slope.		

Other Comments
N/A

ROCK FALL RISK RATING		**Comments**
Hazard Rating =	3	Increased from 2 to 3 to reflect the observed frequency of rock falls at this location.
Pathway Rating =	4	
Receptor Rating =	1	
Risk Value =	**12.0**	
Risk Level =	**Very High**	**Increased to Very High to reflect recent increase in rock fall frequency at this location.**

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
• Install rock fall catch fence above roadside cutting.		N/A			• Scree area cleared in September 2022 urgent works is refilling – would benefit from clearance		
Assessed in field by:	PM/CR	**Date:**	29/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA19-U-1	Loose blocks / scree remain on the slope between crags and top of AA18-19 netting system.	Year First Observed:	2023

AA19-U-2	Loose blocks / scree remain on the slope between crags and top of AA18-19 netting system.	Year First Observed:	2023

AA19-U-3	Loose blocks / scree remain on the slope between crags and top of AA18-19 netting system. Larger block (5 m down from the crest) has been present since the 2024 rope access inspection..	Year First Observed:	2023

4.2.33 Slope Ref. AA20

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA20	**Chainage:** 3157 to 3215	**Start Grid Ref:** NG 91274 37698	**End Grid Ref:** NG 91322 37727	**Elevation:** 13 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking west)
	

Rock Slope Characteristics:							
Dip (°): 80	Azimuth (°): 326	Height (m): 10	Length (m): 58	Vegetation Cover: 40 to 50% Grass, heather, gorse, saplings	Ditch Details: No ditch	Roughness: Rough	Verge Width (m): 0 to 1.5

Engineering Description of Rock:
Lower slope adjacent to the road - very strong to strong dark grey mottled pink narrowly banded crystalline coarse grained GNEISS.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
August 2018	Ch. 3175	Small stones on road (x4).
April 2025	Ch. 3155	Landslip noticed above retaining wall to east of avalanche shelter recorded on 01/04/2025. Fencing in area appears to have moved and is no longer under tension.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre-2012)		Details of works include: • 4no. rock dowels adjacent to the avalanche shelter. Bar approx. 20 mm diameter, 150 x 150 mm face plate. Bar length etc. unknown • Concrete and steel retaining wall/debris trap between Ch.3157 & Ch.3160, 3.4 m high x 33 m long. 'I' beams noted to be corroded. • Concrete block with 10no, ground anchors on upper slope, details unknown. Below this is temporary works that have been left in place and consist of a catch fence of Maccaferri double twist netting between 2no. tall tree stumps supported by cable to nearby rock outcrop and a catch fence of railway sleepers between 2no. tree stumps. **2017 Inspection:** I beams that form part of retaining wall are noted as being corroded.	Tree to which the temporary cable restraints (for the temporary catch fence) were affixed has fallen. Cables now slack and no longer effective but there is no increased risk to the road due to downslope presence of retaining wall at base of gully	
2015 – Phase 8 works	1no. rock dowel installed	Rock dowel is 4 m long, 25 mm GEWI bar	No significant changes observed during 2025 inspection.	
2019 – Phase 11 works	Ch. 3205 - Rock dowel (originally a test anchor)		No significant changes observed during 2025 inspection.	

Existing netting or other remedial work details:				
2021 – Phase 12 works	N/A	2022 Inspection: A block rotated out during the drilling of the temporary catch fence anchor during the Phase 12 works for AA20U. The block landed on a flat area above retaining wall in AA20 at Ch.3185 and is not at risk of moving downslope.	No significant changes observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 3165 (above retaining wall)	**2016 Inspection:** Potential failures identified within rock outcrop immediately above wall (toe of blocks 4 m above road level). Dilated discontinuities were evident and several blocks ranging in size from 0.1 to 0.5 m^3 (total failure volume around 2 m^3) are considered at risk of failure. Although the outcrop is set back from the top of the wall by around 1.5 m, the ground is sloping and there is potential for blocks to reach the road.	No changes observed during 2025 inspection.	
Ch. 3170	**2022 Inspection:** In September 2021, a block rotated out during drilling of an anchor for the temporary catch fence installed during the Phase 12 works. The block came to rest on a flat area above the retaining wall and is not at risk of moving further down slope.	No changes observed during 2025 inspection.	
Ch. 3155	N/A	Soil slip above the retaining wall c. 10 to 12 m above road level within the eastern sidewall of the gully. Debris retained in gully. Fall appears to have started with a tree fall; cables of the temporary catch fence (pre-2012) now slack. The temporary cable restraint is no longer effective, however, future soil slips / falling debris not considered to pose a significant risk to the road; due to downslope presence of retaining wall at base of gully.	AA20-1, AA20-2
Ch. 3182	**2021 Inspection:** Root jacking observed. Potential for occasional small block fall. Limited verge width so may land on road.	No changes observed during 2025 inspection.	
Ch. 3205 (between wall and avalanche shelter)	**2017 Inspection:** Large potential wedge failure located approximately 2 m above road level. Verge at this location is ~0.5 m with no ditch.	No changes observed during 2025 inspection.	
Ch.3200 to 3205 (between wall and avalanche shelter)	**2016 Inspection:** Ongoing ravelling type failures. Block size typically small (0.2 x 0.2 x 0.2 m) but occasional larger blocks (0.1 m^3). Debris from previous failures in narrow verge (no ditch). Although some blocks could be removed by scaling, passive rock fall netting would offer a longer-term solution.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	2	
Pathway Rating =	3	
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	• Install passive rock fall netting system over rock face prone to ravelling at Ch. 3200 to 3205. • Light scale and dowel blocks above wall at Ch. 3175.	N/A

Assessed in field by:	SF/MT/PM/CR	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA20-1	Ch. 3155: Soil slip above the retaining wall c. 10 to 12 m above road level within the eastern sidewall of the gully. Debris retained in gully. Fall appears to have started with a tree fall; cables of the temporary catch fence (pre-2012) now slack. The temporary cable restraint is no longer effective, however, future soil slips / falling debris not considered to pose a significant risk to the road; due to downslope presence of retaining wall at base of gully.	Year First Observed:	2025

AA20-2	Ch. 3155: Soil slip above the retaining wall c. 10 to 12 m above road level within the eastern sidewall of the gully. Debris retained in gully. Fall appears to have started with a tree fall; cables of the temporary catch fence (pre-2012) now slack. The temporary cable restraint is no longer effective, however, future soil slips / falling debris not considered to pose a significant risk to the road; due to downslope presence of retaining wall at base of gully.	Year First Observed:	2025

4.2.34 Slope Ref. AA20 Upper

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA20-U	**Chainage:** 3157 to 3215	**Start Grid Ref:** NG 91274 37698	**End Grid Ref:** NG 91322 37727	**Elevation:** N/A

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
August 2018	Ch. 3175	Small stones on road (x4).

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2021 – Phase 12 works	Rock fall catch fence installed between Ch. 3170 to 3215	Catch fence is 30 m wide x 6 m high situated c. 15 m above road level. **2023 Inspection:** New catch fence assessed and noted to be in good condition. There is some surface corrosion evident on shackle bolts. Additionally, there are a few small blocks which have been retained behind the fence. **2024 Inspection:** Catch fence pins in large shackles along bottom rope of catch fence exhibiting surface corrosion.	Surface corrosion of bottom rope shackle bolts; otherwise fence and all attachments in good condition. A small number of small blocks have been caught in the base of the fence.	AA-20-U-1, AA-20-U-2, AA-20-U-3

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
General	**2014 Inspection:** Numerous loose blocks caused by root jacking and toppling failure were observed on the slope. Individual block size up to 0.125 m^3 and total failure volume is approximately 1 m^3.	No changes observed during 2025 inspection.	
Ch. 3172	**2016 Inspection:** 0.25 m^3 block approximately 12 m above road level.	No changes observed during 2025 inspection.	
Ch. 3175	**2017 Inspection:** ~40 m above road level, large area of fractured rock mass with dilated cracks between 50 and 200 mm, with concave joint curving at 70 down to 25° and area approximately 5 m high, 2 m deep, and 5 m wide. Rock mass is noted as overhanging at base and left-hand side. It is considered that if any of these blocks were to fail they are likely to reach road and railway. Unstable boulders were also noted beside uprooted tree on left hand side.	No changes observed during 2025 inspection.	
Ch. 3190	**2016 Inspection:** 0.5 m^3 block approximately 15 m above road level. Potential for root jacking.	No changes observed during 2025 inspection.	

Hazards Observed:			
Ch. 3195	**2017 Inspection:** 20 m above road level. Partially unstable 4 m^3 block identified.	No changes observed during 2025 inspection.	
Ch. 3198	**2016 Inspection:** 1 m^3 block approximately 15 m above road level. Potential for root jacking.	No changes observed during 2025 inspection.	
Ch. 3210	**2017 Inspection:** Rock mass 30 m above road level is very fractured with open fractures. Noted at least 3no. blocks (dimensions 0.5 x 0.5 x 0.5 m) with clay infilled cracks on right hand side and base. Base is on an approximately 35° plane. Block is also supporting a 1.0 to 1.5 m^3 detached block with two trees and root jacking above.	No changes observed during 2025 inspection.	
NG 91361 37572	**2021 Inspection:** Boundary fence at edge of treeline above AA20 Upper has been severely damaged by fallen trees.	No changes observed during 2025 inspection.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	Reduced from 5 to 2 following the 2022 inspection following the catch fence installation (Phase 12 works).
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		• Selected controlled removal of unstable blocks.			• Coppice trees growing on rock face.		
Assessed in field by:	PM/CR	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA20-U-1	Phase 12 works: Rock fall catch fence installed between Ch. 3170 to 3215: Catch fence pins in large shackles along bottom rope of catch fence exhibiting surface corrosion.	Year First Observed:	2021

AA20-U-2	Phase 12 works: Rock fall catch fence installed between Ch. 3170 to 3215: Surface corrosion is evident on exposed cut bar ends on post base foundations.	Year First Observed:	2021

AA20-U-3	Phase 12 works: Rock fall catch fence installed between Ch. 3170 to 3215: A small number of small blocks have been caught in the base of the fence.	Year First Observed:	2021

4.2.35 Slope Ref. AA21

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA21	**Chainage:** 3280 to 3386	**Start Grid Ref:** NG 91381 37761	**End Grid Ref:** NG 91451 37842	**Elevation:** 18 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 75	Azimuth (°): 320	Height (m): 15	Length (m): 106	Vegetation Cover: 10 to 15% Saplings and shrubs	Ditch Details: No ditch along majority of slope section 1 m wide by 0.5 m deep at end of slope section	Roughness: Rough	Verge Width (m): 0.5

Engineering Description of Rock:
Very strong thinly foliated dark grey GNEISS with white quartz banding.

Rope Access Inspections:

Year of Inspection	Location	Purpose	Photo Reference
2017	Ch. 3305	To inspect large wedge of rock at crest behind gap in mesh (2 m deep, 5 m wide, 5-6 m high). Findings: • Wedge area is blast damaged with dilated joints at the rear. • Big gap behind drape which would allow block to gain energy and potentially exceed capacity of passive netting system. • Verge only 1 m wide and no ditch present at this location, so likely to reach road in event of failure.	
2023	Ch. 3350	To inspect area where overhanging/fractured block is; to check if the remediation in place is adequate. Findings: • Overhanging rock mass c. 1.5 m. • Gape below is 2 m. • Block is at least 1 m^3 up to 1.5 m^3, with dilated release joint. • Keyed in at bottom right. • Block at crest has a dowel in it but positioning isn't optimal. • Similarly block with cable restraint has a dowel at a sub-optimal position and orientation. • Cable clamps on cable restraint are rusted. Recommendations: • Install active netting system (TECCO) 5 m width (between buttress) and then 2no. panels of TECCO beyond this, profiled into face. • Problem area is between 5 to 10 m above toe so could drape lower half of slope. • No ditch or verge at this location.	

THC Monthly Inspection Observations:

Date	Location	Comments
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre 2012)	Netting between Ch. 3280 to 3370.	Details of netting system include: • PVC coated double twist • Top cable 16 mm galvanised • c. 5 to 5.5 m anchor spacing and 25 mm(?) galvanised bars • Cable-anchor connection: stainless steel eye nuts (bar machined to M20 thread) • 4no. cable clamps • Netting lap connections using 2 rows of staggered Spenax rings • Laps on anchors: Yes, every fourth anchor. 2no. cable clamps on each side • Vertical Reinforcing: 8 mm cable at 1 m spacing (2no. cable clamps) Several faults noted within netting system, which is generally in poor condition: • PVC coating is brittle and cracked in places, corrosion of wire noted. • Lateral reinforcing cables are very slack with rare Spenax jointing to netting. • Cable clamps are corroded. **2016 Inspection:** PVC coating on netting is brittle and locally broken. Some corrosion of wire noted. Lateral reinforcing cables are very slack, with rare Spenax jointing to netting. Cable clamps noted to be very corroded on both lateral and vertical reinforcing cables. **2023 Inspection:** 7no. stainless dowels face plates engraved 2002, 1no. cable restraint and 16 mm galvanised bars with corrosion protection at stainless dowels at Ch. 3350.	No significant changes to netting observed during 2025 inspection.	
2015 – Phase 8 works	• Scaling and 5no. dowels installed • Additional bottom anchor installed to pre-existing netting		No significant changes to observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 3300 to 3303	N/A	Few small blocks resting against the netting. No significant risk to the road; no requirement for clearance in the short-term. Blocks 0.4 x 0.2 x 0.1 m and 0.4 x 0.5 x 0.1 m.	AA21-1
Ch. 3305	**2016 Inspection:** Large wedge at crest of rock slope (2 x 5 x 5 to 6 m high). Rock mass blast damaged and dilated discontinuities present. Big gap between drape mesh and rockface would allow failure to gain energy and potentially exceed capacity of netting, impacting road below.	No changes observed during 2025 inspection.	AA21-2
Ch. 3310	**2016 Inspection:** Root jacking evident approximately 3 m above road level. No immediate risk of failure but would be worth coppicing.	No changes observed during 2025 inspection.	AA21-3
Ch. 3322	**2016 Inspection:** Potential wedge failure approximately 5 m above road level. Multiple blocks, total volume 1.5 m^3.	No changes observed during 2025 inspection.	AA21-4
Ch. 3346	N/A	Blast damage crack observed with potential to form wedge failure at 3 to 4 m height. Block likely to be within design capacity of netting so no significant risk at present.	AA21-5
Ch. 3350	**2019 Inspection:** Rock mass at crest with dilated release plane. Numerous dowels, but only in one block, and a cable present c. 15 m above road level. 3 x 2 x 1.5 m.	No changes observed during 2025 inspection.	AA21-6
Ch. 3363	**2016 Inspection:** Broken rock mass at crest. Root jacking an issue. Potential failure volume around 1 m^3 (multiple blocks). Mesh should contain but would benefit from coppicing and light scaling.	No changes observed during 2025 inspection.	AA21-7
Ch. 3371 to 3374	**2021 Inspection:** Some dilated fractures on face of rock slope in area of water flow; freeze-thaw could lead to deterioration of some blocks.	Recent rock fall of 0.3 x 0.3 x 0.2 m block – beyond edge of netting system. Block has come to rest within ditch. Source c. 4 to 5 m above road level. Potential for failure of further material present across lower half of rock slope; most would likely land in the ditch. Long-term, suggest extension of rock netting.	AA21-8
Ch. 3380	**2024 Inspection:** Culvert blocked. Recommend clearing out.	Culvert has now been cleared.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	3	
Receptor Rating =	1	
Risk Value =	**9**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**		**Ongoing Maintenance (Category 1)**			
• Ch. 3305: Open existing drape and install 10 m high x 8 m wide panel of active netting (e.g. TECCO). Re-join drape netting on completion. • Ch. 3350: Replace current passive netting with active netting system (TECCO)		• Install dowels in potential failure at Ch. 3322 (4 m long). • Coppice tree at crest at Ch. 3366 and light scale broken rock mass. • Extend drape netting across region of potential failure at waterfall (Ch. 3371 to 3374)		• Coppice tree at Ch. 3310. • Remove 3 to 4no. cut logs trapped under top netting cable. • Re-tension lateral reinforcing cables and install additional Spenax rings. • Replace corroded cable clamps on lateral and vertical reinforcing cables.			
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA21-1	Ch. 3300 to 3303: Few small blocks resting against the netting. No significant risk to the road; no requirement for clearance in the short-term. Blocks 0.4 x 0.2 x 0.1 m and 0.4 x 0.5 x 0.1 m.	Year First Observed:	2025

AA21-2	Ch. 3305: Large wedge at crest of rock slope (2 x 5 x 5 to 6 m high). Rock mass blast damaged and dilated discontinuities present. Big gap between drape mesh and rockface would allow failure to gain energy and potentially exceed capacity of netting, impacting road below. No change in condition 2025.	Year First Observed:	2016

AA21-3	Ch. 3310: Root jacking evident approximately 3 m above road level. No immediate risk of failure but would be worth coppicing. No change to condition in 2025.	Year First Observed:	2016

AA21-4	Ch. 3322: Potential wedge failure approximately 5 m above road level. Multiple blocks, total volume 1.5 m^3. No change in condition 2025.	Year First Observed:	2016

AA21-5	Ch. 3346: Blast damage crack observed with potential to form wedge failure at 3 to 4 m height. Block likely to be within design capacity of netting so no significant risk at present.	Year First Observed:	2025

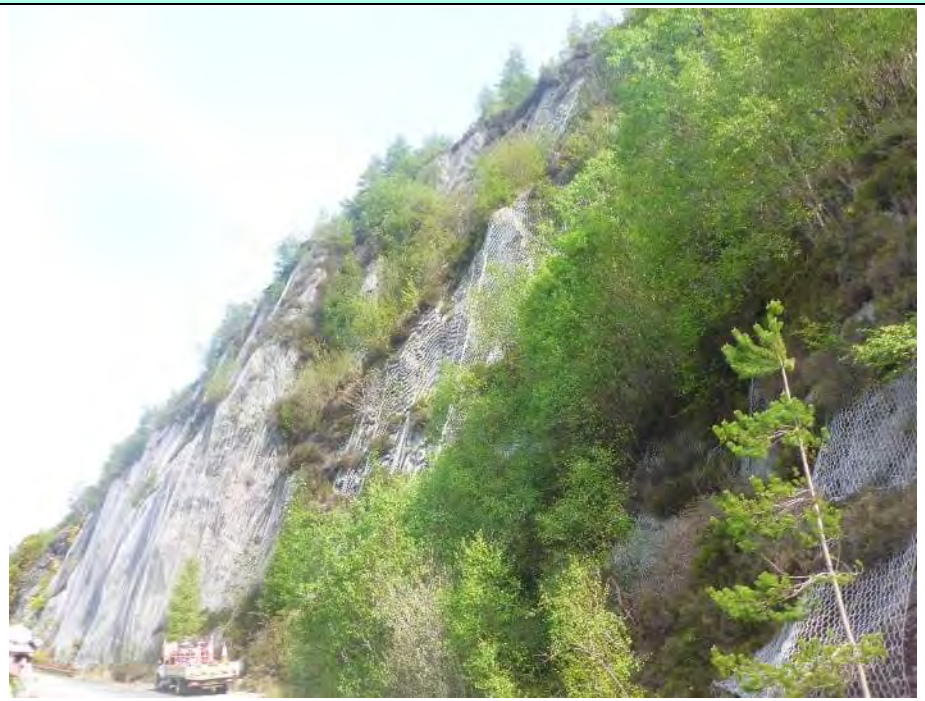
AA21-6	Ch. 3350: Rock mass at crest with dilated release plane. Numerous dowels, but only in one block, and a cable present c. 15 m above road level. 3 x 2 x 1.5 m. No change in condition 2025.	Year First Observed:	2019

AA21-7	Ch. 3363: Broken rock mass at crest. Root jacking an issue. Potential failure volume around 1 m^3 (multiple blocks). Mesh should contain but would benefit from coppicing and light scaling. No change in condition 2025.	Year First Observed:	2016

AA21-8	Ch. 3371 to 3374: Dilated fractures on face of rock slope in area of water flow; freeze-thaw could lead to deterioration of some blocks. In 2025 a recent rock fall of 0.3 x 0.3 x 0.2 m block was observed in ditch with a source c. 4 to 5 m above road level. Potential for failure of further material present across lower half of rock slope; most would likely land in the ditch. Long-term, suggest extension of rock netting.	Year First Observed:	2021

4.2.36 Slope Ref. AA22A

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA22A	**Chainage:** 3386 to 3415	**Start Grid Ref:** NG 91451 37842	**End Grid Ref:** NG 91483 37882	**Elevation:** 17 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 75 to 80	Azimuth (°): 310	Height (m): 30	Length (m): 29	Vegetation Cover: 60% Heather and saplings	Ditch Details: 1 m wide by 0.3 m deep	Roughness: Rough	Verge Width (m): 1

Engineering Description of Rock:
Very strong thinly to thickly foliated dark grey GNEISS with thin pink and white quartz bands.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017	Ch. 3390	To inspect overhanging blocks at crest. Findings: • Rock mass noted to be particularly blast damaged (~8 wide x 1 m deep x 2 to 3 m high) with large gap between mesh and rock slope. Recommendations: • Installation of 8no. 5 m long dowels recommended.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre 2012)	Netting installed	Details of netting system include: • PVC coated double twist • Top cable 12 mm galvanised • c. 5.5 to 10 m anchor spacing and 25 mm(?) stainless bars and occasional old 18 mm machine threaded bars • Cable-anchor connection: stainless steel eye nuts (bar machined to M20 thread) • 3no. cable clamps • Netting lap connections using 2no. rows of cable twists every fourth aperture • No anchor laps • Vertical Reinforcing: 8 mm cable at 1 m spacing (3no. cable clamps) in some areas Note: Western terminal anchor loose	No significant changes to netting observed in 2025.	

Existing netting or other remedial work details:				
		2016 Inspection: Bottom anchors at a spacing of 10 m. Bottom cable locally corroded (associated with water flow).		
2015 – Phase 8 works	Areas were de-vegetated. 11no. dowels were installed.		No significant changes observed during 2025 inspection.	
2021 – Phase 12 works	Ditch/bund between Ch.3385 to 3425 has been cleared and reinstated.		No change – ditch remains effective in 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 3388	**2019 Inspection:** A 0.3 x 0.3 x 0.1 m block retained at base of netting 1.5 m above road level.	No changes observed during 2025 inspection.	
Ch. 3390	**2016 Inspection:** Overhanging blocks noted within blast damaged area at crest (~8 m wide x 1 m deep x 2 to 3 m high). Large gap between mesh and rock slope at this location.	No changes observed during 2025 inspection.	
Across section	**2021 Inspection:** Vegetation obscuring large proportions of rock face and potential increasing failure potential through root jacking	Top of slope completely obscured from vegetation during road level inspections.	

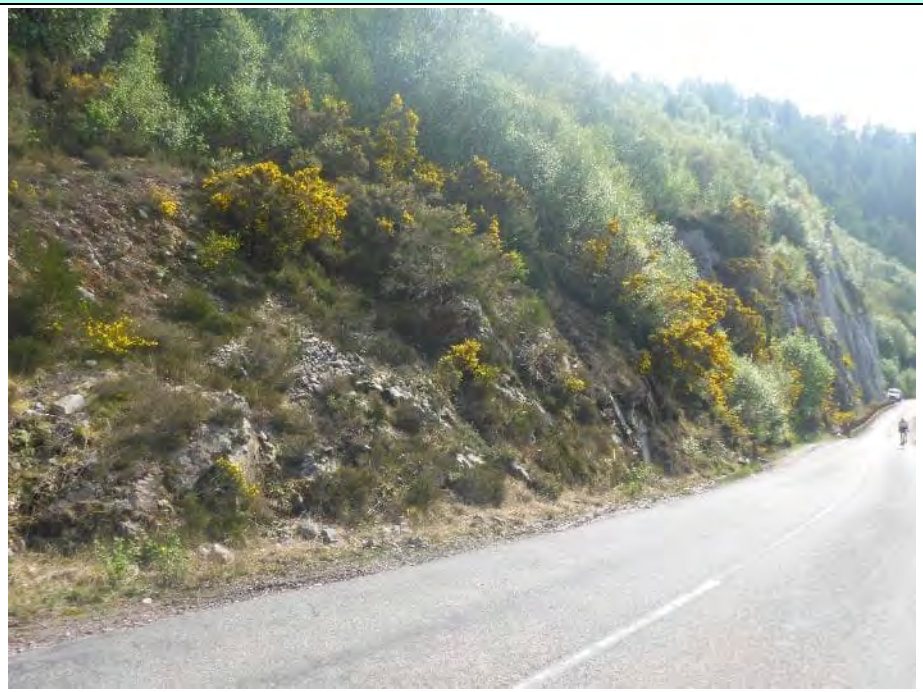
Other Comments
No surface or groundwater flows.

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	
Receptor Rating =	1	
Risk Value =	**6.0**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**			**Ongoing Maintenance (Category 1)**		
N/A		• Ch.3390 – Install eight 5 m dowels to secure overhanging blocks at crest.			• De-vegetation / coppicing (approx. 60% cover) and inspection of previously obscured rock mass. • Install additional bottom anchors.		
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	25/06/2025

4.2.37 Slope Ref. AA22B

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA22B	**Chainage:** 3415 to 3592	**Start Grid Ref:** NG 91483 37882	**End Grid Ref:** NG 91561 38016	**Elevation:** 11 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	85	Azimuth (°):	296	Height (m):	20	Length (m):	177	Vegetation Cover:	20% on main rock slope 60% on upper third of slope face Saplings, heather, gorse
Ditch Details:	No ditch Armco barrier acts as a rock trap	Roughness:	Rough	Verge Width (m):	1.5 from Ch. 3415 to 3445 1 from Ch. 3445 to Armco				

Engineering Description of Rock:
Extremely strong dark grey and white irregular narrow banding crystalline coarse grained GNEISS. Particularly massive along this section of road.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017 (re-inspected in 2019)	Ch. 3465	To inspect overhang c. 7 m above road level. Findings: • Overhanging rock mass ~7 m above road with dilated fractures at rear with releasing block beneath overhang. • Fractured rock mass is approximately 5 m high x 5 m wide with 1.8 m overhanging from rock slope. Recommendations: • Heavy scaling recommended. • (Completed in 2019)	
2017 (and again in 2019)	Ch. 3475	To inspect overhang c. 15 m above road level. Findings: • Old chain link is present across slope and often burst with reinforcing (Maccaferri) mesh over chain link. • Although rock mass is fractured, there are no obvious dilated joints.	
2017	Ch. 3500	To inspect column of blast damaged rock c. 2 to 8 m above road level. Findings: • Rock mass is fractured with visible dilated release joint visible at rear on the west side (~4 m high x 3.5 m wide, overhanging of 1.2 m). Recommendations: • Scaling is recommended. • (TECCO netting installed in 2019 remediating risk)	
2017	Ch. 3510	To inspect large recess behind netting c. 10 to 15 m above road level. Findings: • Upper 8 m of rock slope is highly fractured and overhanging. • There is a large gap between netting and rock face at this location, which would allow falling blocks to gain energy and potentially burst through existing drape netting. Recommendations:	

Rope Access Inspections:			
		• It is recommended existing inadequate drape netting be removed over an 8 m width. • Scaling of upper 8 m of slope required prior to installation of active netting system (e.g. Tecco), which should continue over lower half of rock face as a high strength drape. • (Remedial works completed in 2019)	
2023	Ch. 3530	To inspect possible rotated block and overhang at crest. Findings: • The possible rotated block is in-situ. • 1 m deep x 0.3 m wide x 1 m high – protrudes at 45° to right. • Gape in mesh. • No sign of dilated fractures. • Has not rotated out/hasn't moved. • It is not considered a significant hazard. • The overhang at crest has a slight dilated fracture but it is not fresh/new.	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
November 2020	Ch. 3530 – 5 m NW of end of road barrier	Possible rotated block from overhang at crest behind mesh – not posing significant risk but recommend rope access inspection to confirm if loose or in situ. (Rope access completed in 2023)

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
Before AECOM involvement (i.e. pre 2012)	Netting system between Ch. 2415 to 3542	Details of netting system include: • PVC coated double twist • Top cable 8 mm galvanised, later reinforced with a 12 mm galvanised cable connected with cable clamps every 1 to 2 m • c. 5.5 m anchor spacing and 25 mm(?) stainless bars and occasional old 18 mm machine threaded bars • Cable-anchor connection: stainless eye nuts (bar machined to M20 thread) • 3no. cable clamps • Netting lap connections using 2no. rows of cable twists every fourth aperture • No anchor laps	No significant changes to netting observed during 2025 inspection.	

Existing netting or other remedial work details:				
		• Vertical Reinforcing: 8 mm cable at 1 m spacing (3no. cable clamps) in some areas Netting systems noted to be in poor condition: • PVC coating cracked and brittle; • Limited number of bottom anchors • Reinforcing cables slack, poorly attached and with corroded clamps • Bottom cable corroded.		
Before AECOM involvement (i.e. pre 2012)	Netting system between Ch. 3543 to 3497 and Ch. 3515 to 3567	Details of netting system include: • PVC coated double twist • Top cable 12 mm galvanised • c. 8 m anchor spacing and 18 mm machined threaded bars • Cable-anchor connection: D shackle (connected with locking nuts on one side only) • 2no. cable clamps • Netting lap connections using 2no. rows of cable twists every fourth aperture • No anchor laps or vertical reinforcing Netting systems noted to be in poor condition: • PVC coating cracked and brittle; • Limited number of bottom anchors • Reinforcing cables slack, poorly attached and with corroded clamps • Bottom cable corroded.	No significant changes to netting observed during 2025 inspection.	
2013 – Phase 7 works	Heavy scaling of overhang at Ch. 3425		No significant changes to netting observed during 2025 inspection.	
2019 – Phase 11 works	• Heavy scaling of overhanging rock mass at Ch. 3465 • Replacement of Maccaferri drape netting with active TECCO netting system between Ch. 3497 to 3515.	• Overhang at Ch. 3465 was significantly reduced during heavy scaling works. Although a small overhang remains c. 5 m above road level, the presence of a rock trap below means the residual risk to the road is low. **2022 Inspection:** Cut end bars as part of the TECCO netting system are corroded.	No significant changes to netting observed during 2025 inspection.	

Existing netting or other remedial work details:				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 3418	N/A	Maccaferri gaping towards top of the slope and not tight to rock face – no specific hazards observed but risk factor as suggest overhang is present and that falling blocks could strike netting with significant momentum. Small blocks present in the gully feature at 3 and at 8 m height. Netting undamaged. Cable in gully (dry at time of inspection) corroded; possibly an ephemeral watercourse.	AA22B-1, AA22B-2
Ch. 3425	**2021 Inspection:** Failure in 2021 originating c. 6 m above road level where blocks (c. 0.25 m^3) have slid along a steep release plane and have come to rest at toe of slope behind netting. Water seepage in the area gives potential for further rock fall. It is likely that this would be a volume of c. 0.4 m^3 and a maximum block size of c. 0.3 x 0.3 x 0.3 m. Any future failure likely to be within the design capacity of netting but accumulation of further debris at toe of slope should be monitored. **2024 Inspection:** Location of previous rock fall re-inspected. Continuous water seepage but no additional rock fall observed behind netting.	No changes observed during 2025 inspection.	
Ch.3434	**2024 Inspection:** Several small blocks behind toe of netting. Appear to originate from c. 8 m upslope. There is water seepage present along steeply inclined planes. Netting sits 2 m away from rock slope. There is a ditch present with a small bund to road. Debris unlikely to reach road.	Large overhangs at top of slopes; small rock falls to date but there remains the potential for larger failures in future.	AA22B-3
Ch. 3445	N/A	Corroded nuts and cables observed.	
Ch. 3454	**2022 Inspection:** Block (c. 0.3 x 0.2x 0.2 m) positioned approx. 2 m above ground level is being held by netting. Has fallen 5 m to current position.	No changes observed during 2025 inspection.	
Ch. 3475 to 3478	**2021 Inspection:** Minor rock fall with small blocks at base of netting system. Largest block c. 0.4 x 0.1 x 0.1 m. Seems to have originated from righthand-side base of previously observed overhang. No damage to netting. Fractured rock with dilated joints apparent along base of overhang indicating potential for further failures in this	Blocks up to 0.4 x 0.5 x 0.2 m on ledge.	

Hazards Observed:			
	area. At this location there is a 2 m wide ditch behind Armco barrier which is likely to act as an effective rock trap. Risk to road from this hazard is therefore considered to be low to moderate but should be kept under observation during future inspections.		
Ch. 3479	**2021 Inspection:** 3 to 4no. cobble sized blocks sitting on ledge behind netting c. 7 m above road level. No damage to netting observed. Source likely to be overhanging blocks near crest.	No changes observed during 2025 inspection.	
Ch. 3483	**2024 Inspection:** Two blocks retained behind netting, along with numerous small blocks. Dimensions up to 0.5 x 0.5 x 0.5 m. No significant damage to netting but there is a minor distortion 2 m above the toe of the slope. Source of rock fall not immediately obvious and greater than 8 m above the toe of the slope. There is a ditch present with a small bund to road. Debris unlikely to reach road.	No changes observed during 2025 inspection.	
Ch. 3592	N/A	Cobbles weathering out of exposed soil and falling onto the verge.	
General (upper half of slope)	N/A	Large gapes visible within netting system. Cannot inspect from road level due to slope height and netting and vegetation cover obscuring view. Consider targeted drone / rope access inspections during future annual inspections.	

Other Comments
N/A

ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	
Receptor Rating =	1	
Risk Value =	**6.0**	Re-assessed following completion of Phase 11 works and risk level reduced from high.
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works	**Localised Targeted Rock Fall Protection Works**	**Ongoing Maintenance**

Recommended Remedial Works / Actions							
(Category 3)		**(Category 2)**			**(Category 1)**		
N/A		N/A			• Replace corroded bottom anchors and install additional anchors to achieve maximum spacing of 5 m. • Replace bottom cable between Ch. 3462 and 3500. • Replace corroded cable clamps on lateral and vertical reinforcing cables. Re-tension and install additional Spenax rings. • Apply anti-corrosion paint on cut end bars as part of the TECCO netting system to prevent further corrosion. • De-vegetation of the slope		
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA22B-1	Ch. 3418: Maccaferri gaping towards top of the slope and not tight to rock face – no specific hazards observed but risk factor as suggest overhang is present and that falling blocks could strike netting with significant momentum. Small blocks present in the gully at 3 and at 8 m height. Netting undamaged.	Year First Observed:	2025

AA22B-2	Ch. 3418: Maccaferri gaping towards top of the slope and not tight to rock face – no specific hazards observed but risk factor as suggest overhang is present and that falling blocks could strike netting with significant momentum. Small blocks present in the gully feature at 3 and at 8 m height. Netting undamaged. Cable in gully (dry at time of inspection) corroded; possibly an ephemeral watercourse.	Year First Observed:	2025

AA22B-3	Ch. 3434: Large overhangs at top of slopes; small rock falls to date but there remains the potential for larger failures in future.	Year First Observed:	2024

4.2.38 Slope Ref. AA23N

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA23N	**Chainage:** 3640 to 3690	**Start Grid Ref:** NG 91589 38050	**End Grid Ref:** NG 91626 38084	**Elevation:** 26 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 60	Azimuth (°): 230	Height (m): 6	Length (m): 50	Vegetation Cover: 60%, locally up to 90% Gorse, saplings, and trees	Ditch Details: 1 m wide by 0.2 m deep	Roughness: Rough	Verge Width (m): 0.5

Engineering Description of Rock:
Very strong very thinly banded grey and white GNEISS.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
N/A				

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Northern end of slope	**2017 Inspection:** Localised root jacking, however, small blocks will be retained by ditch.	No changes observed during 2025 inspection.	
Ch. 3669	**2022 Inspection:** Block fall c. 0.4 x 0.4 x 0.3 m has landed in the ditch. Block originated c .2 m up rock slope.	No changes observed during 2025 inspection.	

Other Comments
No surface or groundwater flows

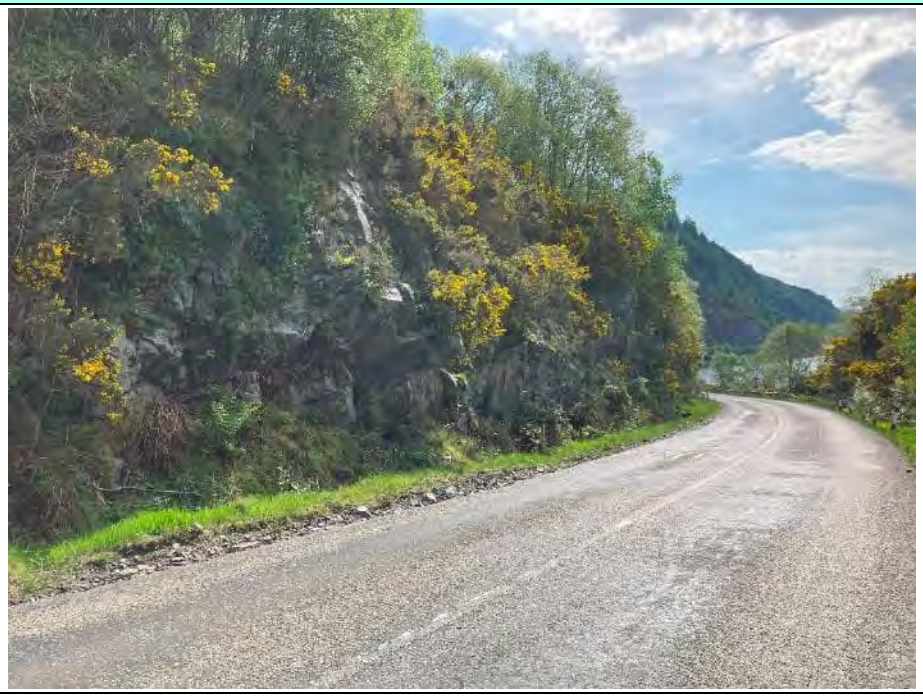
ROCK FALL RISK RATING		Comments
Hazard Rating =	1	
Pathway Rating =	2	
Receptor Rating =	1.2	

Risk Value =	**2.4**	
Risk Level =	**Low**	

Recommended Remedial Works / Actions							
Large Scale Rock Fall Protection Works (Category 3)		**Localised Targeted Rock Fall Protection Works (Category 2)**		**Ongoing Maintenance (Category 1)**			
N/A		N/A		• De-vegetation of the rock slope			
Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

4.2.39 Slope Ref. AA23S

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA23S	**Chainage:** 3630 to 3708	**Start Grid Ref:** NG 91586 38039	**End Grid Ref:** NG 91643 38087	**Elevation:** 25 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:							
Dip (°): 70	Azimuth (°): 324	Height (m): 8	Length (m): 78	Vegetation Cover: 50%, locally 100% Grass, gorse, saplings	Ditch Details: 1 m wide by 0.5 m deep from Ch. 3664	Roughness: Rough	Verge Width (m): 1

Engineering Description of Rock:
Extremely strong very thinly banded grey and white GNEISS.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
N/A			

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
N/A		

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**
2021 – Phase 12 works	Debris cleared from ditch at Ch. 3691 and between Ch. 3630 to 3650.	During the Phase 12 works in late 2021, a rock fall occurred which on impacting the ditch fragmented into small blocks at Ch 3671. Block originated c. 7 m above toe of slope. Volume of material c. 0.25 m^3. Material was cleared out from ditch during the Phase 12 works	No change – ditch remains effective.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch. 3655	N/A	Overhanging block (0.5 x 0.75 x 0.4 m) at 3 to 4 m above road level. Separated from face by blast induced fractures. If it were to fall it would most likely land on the verge.	AA23S-1
Ch. 3655 to 3672	**2016 Inspection:** Potential for small blocks (max 0.05 m^3) to fail due to ravelling and root jacking. The verge here is flat and approx. 1.5 m wide and should retain most blocks but some may reach road. There is no ditch here and no scope for adding one - buried drainage pipe and on corner (evidence of vehicles using verge). Placing some form of fence/barrier here would prevent debris reaching road. If this is not possible then passive rock fall netting will be required.	No changes observed during 2025 inspection.	
Ch. 3680	**2019 Inspection:** Boulders and cobbles weathering out of exposed soil slope and landing in ditch below.	Established vegetation completely obscuring slope from view here – cannot inspect.	

Ch. 3681	**2024 Inspection:** Small block landed in ditch. No significant risk.	No changes observed during 2025 inspection.	
Ch. 3697	**2024 Inspection:** Ditch is filled with debris over a 3 m wide area. Not recent falls. This area would benefit from a clearance.	No changes observed during 2025 inspection.	
Whole section	**2016 Inspection:** Presence of trees immediately above rock face may lead to root jacking / failures associated with uprooted trees.	In general, the ditch contains numerous small blocks throughout the section, suggesting ongoing small scale ravelling and/or root jacking failures.	

Other Comments

ROCK FALL RISK RATING		**Comments**
Hazard Rating =	2	
Pathway Rating =	3	
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

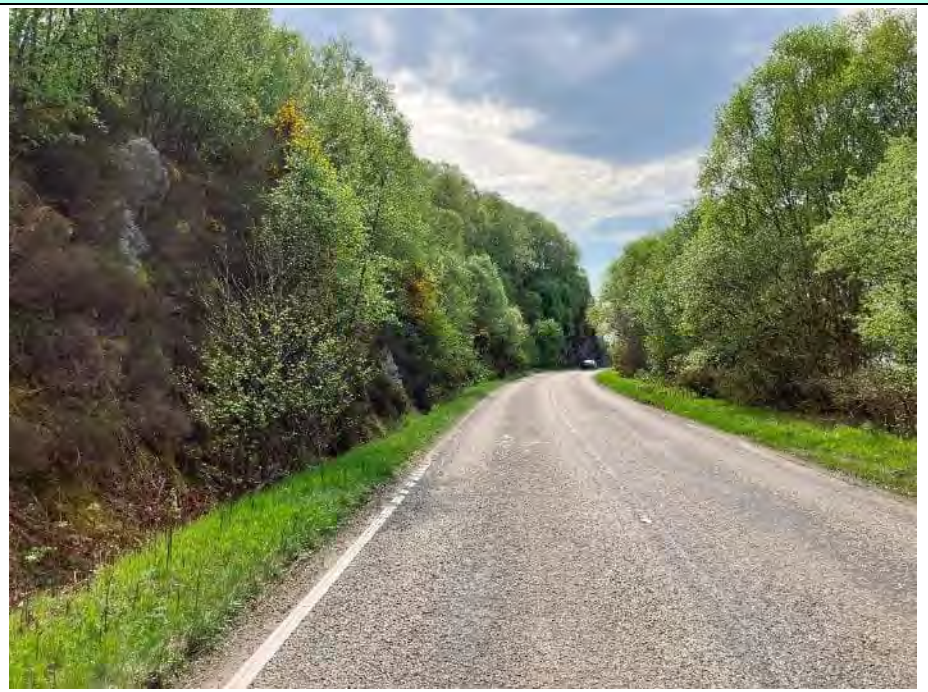
Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N/A	• Install fence/barriers on verge between Ch. 3665 to 3687 (e.g. concrete barriers currently stored at compound area). If this is not feasible then install passive rock fall netting.	• De-vegetate and light scale rock face. • Coppice trees within 5 m of crest of rock face. • Build-up of debris in ditch should be monitored and clearance works undertaken as required to maintain its capacity.

Assessed in field by:	SF/MT	**Date:**	30/04/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA23S-1	Ch. 3655: Overhanging block (0.5 x 0.75 x 0.4 m) at 3 to 4 m above road level. Separated from face by blast induced fractures. If it were to fall it would most likely land on the verge.	Year First Observed:	2025

4.2.40 Slope Ref. AA24

GEOTECHNICAL ASSESSMENT SHEET					
Site: A890 Stromeferry Bypass	**Slope Ref:** AA24	**Chainage:** 3708 to 3892	**Start Grid Ref:** NG 91643 38087	**End Grid Ref:** NG 91807 38166	**Elevation:** 32 m AOD

Photo at Start Chainage (looking west)	Photo at End Chainage (looking east)
	

Rock Slope Characteristics:									
Dip (°):	80	Azimuth (°):	340	Height (m):	12	Length (m):	184	Vegetation Cover:	30% at highest slope 80% towards northern end of slope section Grass, ferns, gorse
Ditch Details:	0.5 m wide by 0.3 m deep from Ch. 3708 to 3790 2 m wide by 0.6 m deep from Ch. 3790	Roughness:	Rough	Verge Width (m):	0.5 from Ch. 3708 to 3790 1.5 from Ch. 3790				

Engineering Description of Rock:
Very strong very thinly banded grey and white GNEISS with occasional quartz foliation.

Rope Access Inspections:			
Year of Inspection	**Location**	**Purpose**	**Photo Reference**
2017	Ch. 3747 to 3755	To inspect rock mass at crest of slope (above Maccaferri netting). Findings: • Rock mass is not considered to pose a risk to the road at this time but should remain under observation during future inspections.	
2021	Ch. 3740	To inspect area around source location of the large block failure observed by THC in 2020. Findings: • The block originated from the crest of the slope c. 10 m above road level, with evidence of root growth along the failure plane. • The failure has left a small soil overhang at the crest, and a few small loose blocks may fall down behind the netting. • However, overall, there is no significant hazard.	
2024	Ch. 3745	To inspect area of rock fall which has occurred and been caught by the netting. Findings: • Netting is now under tension. • Light scaling is recommended to take place	

THC Monthly Inspection Observations:		
Date	**Location**	**Comments**
October 2020	Ch. 3740	Large rock has fallen down behind netting and come to rest in verge. First observed 08/10/2020. Small puncture in netting c. 5 m above road and tear in netting at toe. Source not obvious.

Existing netting or other remedial work details:				
Year of Works	**Description of Works**	**Comments**	**2025 Inspection Observations**	**Photo Reference**

Before AECOM involvement (i.e. pre-2012)	Netting (only present across highest area of the rock slope between Ch. 3720 to 3760)	Details of netting system include: • PVC coated double twist • Top cable 8 mm galvanised • c. 5 m anchor spacing and 18 mm machine threaded bars (top anchors visibly corroded) • Cable-anchor connection: D shackle (connected on one side only) • 3no. cable clamps • Netting lap connections using cable twists • No laps on anchors or vertical reinforcing **2021 Inspection:** At Ch. 3730 - Three dowels numbered D07, D08 and D09 (dated 2002) located close to crest are supporting rock mass in front of clay filled / weathered rock joint (blast fracture). Not a significant hazard due to existing remedial measures. The top cable diameter is c. 8 mm; corrosion visible on top anchors; mesh secure with cable ties. **2024 Inspection:** PVC coating is cracking and exposed wire is locally corroded. Maccaferri netting eastern terminal anchor and top rope is in good condition, no visible corrosion. Top cable has visible localised corrosion, but no fraying is noticeable.	No significant changes to netting observed during 2025 inspection.	
2015 – Phase 8 works	- Netting panels re-connected with Spenax rings - New top cable and anchors installed to pre-existing netting		No significant changes to netting observed during 2025 inspection.	

Hazards Observed:			
Location	**Description of Hazard(s) from Previous Inspections**	**2025 Inspection Observations**	**Photo Reference**
Ch.3740 to 3745	**2021 Inspection:** Several blocks with dilated fractures and/or root jacking potential have been identified that are likely to fail in the future but should be contained by the Maccaferri netting.	No changes observed during 2025 inspection.	

Ch. 3745	**2024 Inspection:** A rock fall has occurred which has been caught by the netting. Netting is now under tension but there is no damage to netting. Debris dimensions are 2 x 0.7 x 0.7 m. The source of the rock fall is c. 5 to 6 m above the toe of the slope from the base and side of an overhang. Recommend for light scaling to take place at the source and for the debris to be cleared.	No changes observed during 2025 inspection.	
Ch. 3745 to 3755	**2024 Inspection:** The Maccaferri netting does not extend to the crest of the slope but stops at a small ledge c. 3 to 4 m down from the crest. Rock exposures above netting inspected and no concerns over stability.	No changes observed during 2025 inspection.	
Ch. 3753	**2021 Inspection:** Small accumulation of debris at toe of slope behind netting c. 1 x 0.4 x 0.2 m. Source c. 4 m above toe. Material not loading net. Keep under observation.	No changes observed during 2025 inspection.	AA24-1
Ch. 3762 to 3800	**2016 Inspection:** Trees at crest of slope could cause block fall associated with root jacking / uprooted trees.	Active root jacking noted across the slope; failing blocks would likely land in the ditch.	AA24-2
Ch. 3783 to 3792	**2016 Inspection:** Exposed soil slope 4 m above road level with boulders in back scar of previous failure which could weather out and reach road. Slumping is also noted upslope from back scar.	No changes observed during 2025 inspection.	AA24-3
Ch. 3783 to 3892	**2017 Inspection:** Potential for ravelling of small blocks, however, ditch below sufficiently wide/deep to retain.	No changes observed during 2025 inspection.	
Ch. 3790	**2017 Inspection:** Broken rock at crest of slope. Likely to be caught by ditch but should remain under inspection.	Evidence of root jacking.	
Ch. 3810	**2019 Inspection:** 0.4 x 0.3 x 0.2 m block in ditch. Source not obvious but recent (no paint).	No changes observed during 2025 inspection.	
Ch. 3870	**2017 Inspection:** Potential planar failure 3 m above road. Small tabular blocks likely to be contained by ditch below. **2023 Inspection:** A new block has landed in the ditch, confirming this ongoing planar failure mechanism.	No changes observed during 2025 inspection.	AA24-4
Ch. 3892	**2024 Inspection:** Phone number on the sign by the road closure gates is starting to weather off.	Phone number has deteriorated further. Consider replacing before number become illegible.	AA24-5

Other Comments
No surface or groundwater flows.

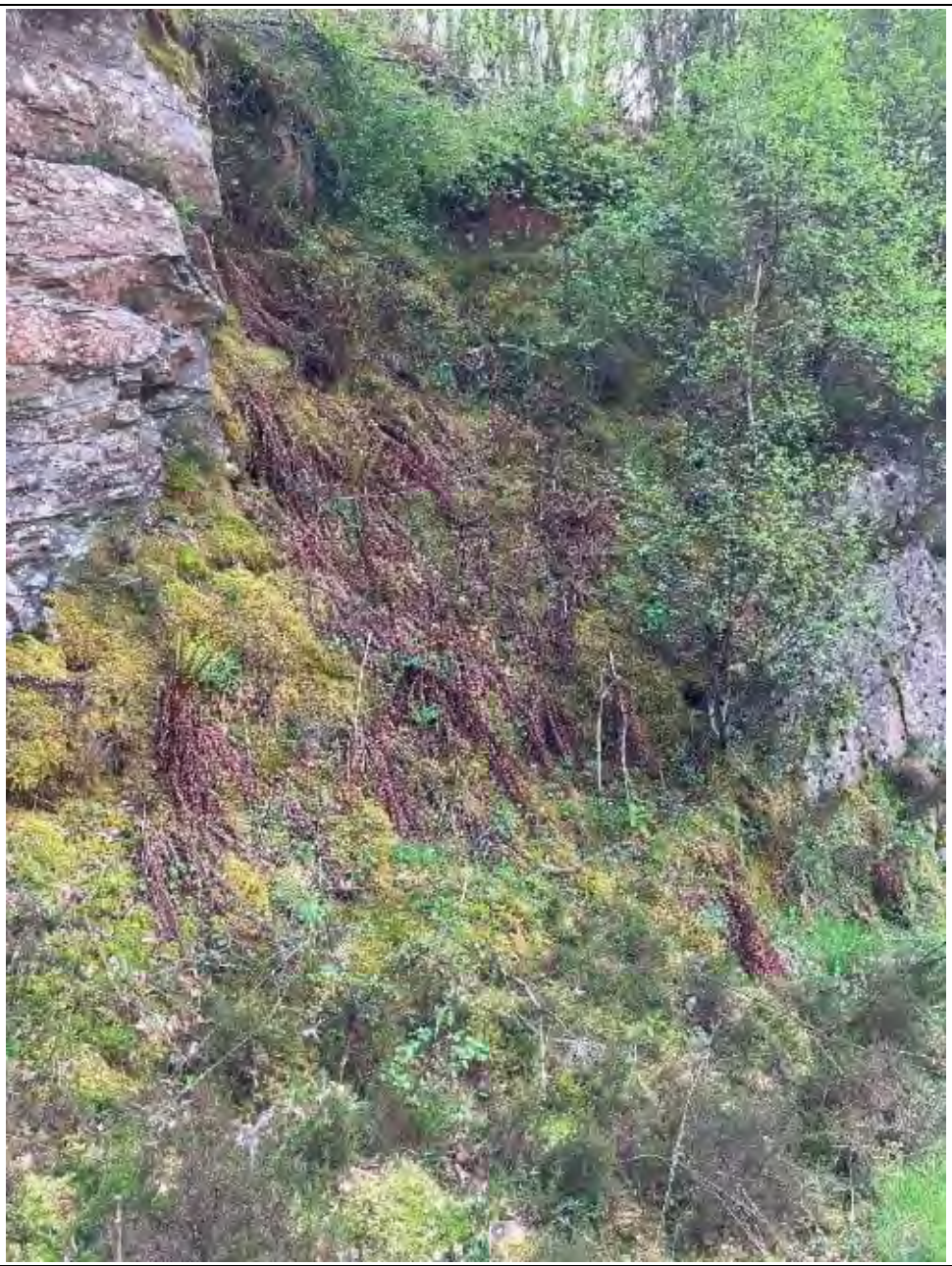
ROCK FALL RISK RATING		Comments
Hazard Rating =	3	
Pathway Rating =	2	
Receptor Rating =	1.2	
Risk Value =	**7.2**	
Risk Level =	**Moderate**	

Recommended Remedial Works / Actions		
Large Scale Rock Fall Protection Works (Category 3)	**Localised Targeted Rock Fall Protection Works (Category 2)**	**Ongoing Maintenance (Category 1)**
N//A	• Ch.3783 to 3790: Re-profile vertical soil slope and install erosion control matting.	• Coppice trees within 5 m of crest of rock face between Ch. 3762 and 3800. • Build-up of debris in ditch should be monitored and clearance works undertaken as required to maintain its capacity. • At Ch. 3745 light scaling and debris clearance from rock fall recorded in 2024 inspection. • Ch. 3892 – consider replacing the sign with phone number to call in case of a rock fall before it becomes illegible.

Assessed in field by:	SF/MT	**Date:**	30/05/2025	**Reviewed by:**	MT	**Date:**	27/06/2025

AA24-1	Ch. 3753: Small accumulation of debris at toe of slope behind netting c. 1 x 0.4 x 0.2 m. Source c. 4 m above toe. First observed 2021 and no significant change since.	Year First Observed:	2021

AA24-2	Ch. 3762 to 3800: In 2016 trees at crest of slope were highlighted as having potential to cause block fall associated with root jacking / uprooted trees. In 2025 root jacking was observed locally; failing blocks would likely land in the ditch.	Year First Observed:	2016



AA24-3	Ch. 3783 to 3792: Exposed soil slope 4 m above road level with boulders in back scar of previous failure which could weather out and reach road. Slumping is also noted upslope from back scar. First observed 2016. No significant change 2025.	Year First Observed:	2016

AA24-4	Ch. 3870: Potential for planar failure of rock first noted in 2017 3 m above the road, with small tabular blocks likely to be contained within the ditch below. A small block was noted in the ditch during the 2023 annual inspection, with the size and shape confirming failure was planar. No change in condition was recorded in 2025.	Year First Observed:	2017

AA24-5	Ch. 3892: Phone number on the sign by the road closure gates is starting to weather off and has deteriorated since the previous (2024) inspection. Consider replacing before number become illegible.	Year First Observed:	2024

4.3 Summary of Findings: Rock Fall Risk Ratings

The relative rock fall risk associated with each of the slopes is summarised in Table 4-1 below, ranked from highest to lowest risk. It is important to note that the risk ratings are relative and that a risk of 'Low' does not mean that a rock fall will not occur, but that it is considered that the likelihood and/or consequences of a rock fall is lower than at other locations.

The 2025 annual inspection did not identify any hazards or features considered to pose an immediate risk of rock fall affecting the operation of the road nor did it identify any hazards or features considered to pose an immediate risk of failure affecting the operation of the road. However, the need for maintenance works was identified at several locations. The scope of these works is discussed further in 6.2.

Table 4-1: Relative Risk Level of Slopes

Risk Ranking	Slope Ref.	Rock Fall Risk Rating	Relative Risk Level	Changes to 2024 Rock Fall Risk Rating
1	AA19 Upper	12.0*	Very High	None
2	AA2A	14.4	High	None
3	AA14 East	12.6	High	None
4	AA5	12.0	High	None
5	AA13 / 14 Upper	10.8	High	Risk rating as per 2022 inspection (last time inspected on foot).
	AA15 Upper	10.8	High	Risk rating as per 2022 inspection (last time inspected on foot).
	AA16-17-18 Upper	10.8	High	Risk rating as per 2022 inspection (last time inspected on foot).
6	AA4	9.0	Moderate	None
	AA4 Upper	9.0	Moderate	None
	AA10	9.0	Moderate	None
	AA21	9.0	Moderate	None
7	AA6A	8.0	Moderate	None
8	AA15	7.2	Moderate	None
	AA17	7.2	Moderate	None
	AA20	7.2	Moderate	None
	AA20 Upper	7.2	Moderate	None
	AA23S	7.2	Moderate	None
	AA24	7.2	Moderate	None
9	AA5A	6.0	Moderate	None
	AA9	6.0	Moderate	None
	AA16	6.0	Moderate	None
	AA22A	6.0	Moderate	None
	AA22B	6.0	Moderate	None
10	AA1	4.8	Low	None
	AA2	4.8	Low	None
	AA6B	4.8	Low	None
	AA7	4.8	Low	None
	AA11	4.8	Low	None
11	AA3	4.0	Low	None
	AA6	4.0	Low	Risk rating increased from 2.0 (Low) in 2025.
	AA8	4.0	Low	None
12	AA13	2.4	Low	None
	AA23N	2.4	Low	None

Risk Ranking	Slope Ref.	Rock Fall Risk Rating	Relative Risk Level	Changes to 2024 Rock Fall Risk Rating
13	AA3A	2.0	Low	None
	AA12	2.0	Low	None
	AA14W	2.0	Low	None
	AA19	2.0	Low	None
14	AA18	1.0	Low	None
	AA18-19	1.0	Low	None

* Risk rating equates to High risk level; however, it has been increased to Very High to reflect the recent increase in rock fall frequency at this location.

5. Debris Flow Risk

Debris flows are mass movements of soil or rock debris suspended in a liquid matrix. Debris flows are often channelised but can also occur on open hillsides. They are high energy dynamic events generally characterised by high rainfall and rapid erosion and can have long run out paths.

AECOM is aware of several occasions in the past where the road has been blocked / partially blocked by saturated soil and rock debris. Locations of previous debris flow events, which have also been referred to by THC as 'wash outs' or 'landslides' include AA2, AA4, the boundary between AA5 and AA5A, AA7, Frenchman's Burn, AA13, AA18-19, and AA20. The continued downslope movement of scree at AA18-19 is also considered to have a debris flow component, associated with overtopping of the adjacent hillside drainage channel. The 2025 inspection also identified a debris flow within AA10 that came to rest c. 10 m upslope of the road but has the potential to remobilise during or following periods of intense rainfall.

Following the events at Frenchman's Burn and AA5/AA5A, which pre-date AECOM's involvement at the Stromeferry Bypass, targeted remedial works in the form of debris catch basins and improved slope drainage were installed respectively.

Recorded debris flow events along the Stromeferry Bypass have predominantly originated from existing watercourses or drainage channels, resulting in channelised debris flows that pose a short-lived or episodic risk to the road below, generally during or following periods of high / intense rainfall. Although often thought of as seasonal in nature it is important to recognise that debris flows can occur at any time of year and in summer can occur when high / intense rainfall follows a prolonged dry period.

The potential for this type of geohazard is exacerbated by the presence of 'debris dams' within many of the watercourses and drainage channels on the slopes above the A890 (e.g., AA1, AA2, AA2A, AA7, and AA16/17 Upper). Debris dams are a result of loose debris collecting against fallen trees and/or branches and impede water flow. During high rainfall events the channels become inundated, and the combined weight of water and debris can result in the 'dam' bursting. As the saturated material moves down slope at speed, additional debris is stripped from the sidewalls of the watercourse.

The combination of water and high sediment loads in channelised debris flows has substantial erosive power and can cause significant damage to the slope and result in localised blockages at road level. The potential impact of a debris flow will clearly depend on its size and location, and whether a road user is located within the immediate vicinity at the time of the event. The size and condition of roadside ditches and culverts or channels beneath the road and railway is also of relevance. If ditches or culverts are of inadequate size or operating at reduced capacity due to debris accumulation, then the potential for debris over-topping increases.

To provide some context on the level of debris flow risk relative to that of rock falls (as discussed in Section 4) the rock fall risk assessment methodology outlined in Section 2 has been applied to debris flows. Carrying out a location by location risk assessment for debris flow is not considered practical or appropriate and instead, it is considered more helpful to consider the site as a whole. The resulting risk rating is **High to Very High**, assuming a debris volume of volume >10 m^3 and that greater than half the debris is expected to reach the road.

Although a High to Very High risk would generally require some form of risk reduction, the episodic and typically weather dependant nature of debris flows means the risk is often tolerated subject to appropriate management protocols and monitoring of channels and culverts. Debris accumulation on the road is relatively straightforward to remove and, additionally, once a channelised debris flow has occurred the risk at that location is usually reduced for a number of years as the debris accumulation has cleared.

To reduce debris flow risk:

- The obstruction of existing downslope drainage channels and associated catch basins, ditches, and culverts must be avoided. Culverts below the road (and railway) should be inspected on a regular basis (annually as a minimum) paying particular attention to debris accumulation or blockages on their upslope side. Debris clearance should be undertaken as required and where practical this should include clearance of debris from upslope channels.
- Consideration should be given to creating debris basins upslope of the road and/or railway where the potential for channelised debris flow exists and topography allows. Enlarged catchments would retain water and entrained material in the event of drainage channels becoming overwhelmed.

- Consideration should be given to targeted installation of debris flow barriers where significant ongoing risk is identified that cannot be appropriately managed by either of the above mitigation measures.

6. Discussion and Recommendations

Whilst the annual inspections of the roadside and upper hillside slopes are carried out to identify and quantify risks to road users from falling materials, it should be recognised that given the size and terrain of the area that only limited locations and areas can be examined in detail. Furthermore, the types of falls and wide range of contributing factors means that block falls and debris flows could occur at almost any location. The specific hazards and risks identified for the various slope sub-divisions should therefore be considered as indicative of the global risks associated with the site as a whole.

The Phase 6, 7, 8, 9, 10, 11, 12, and 13 works, which were carried out in 2012, 2013, 2015, 2017, 2018, 2019, 2021, and 2024/2025, respectively, have addressed a significant proportion of the rock fall hazards identified during AECOM's previous inspections. In particular, these remedial works have significantly reduced the risk associated with a number of formerly 'High' and 'Very High' risk potential hazards following works including scaling and the installation of catch fences, restraining cables, spot dowels, and active rock fall netting systems. Improvements to existing passive (drape) rock fall netting systems (e.g., replacing corroded elements and installing additional anchors) have also served to reduce the risk of relatively small scale rock falls reaching the road.

The most recent Phase 13 (2024/2025) works were limited to high priority maintenance works at three slopes assessed as 'High' (AA5), 'Moderate' (AA6A), and 'Low' (AA7) risk. Due to the nature of the works completed the residual risk level for the road beneath these slopes remains unchanged from the level determined following the 2024 annual inspection.

The updated 2025 risk assessment identified one 'Very High' risk slope at AA19 Upper and six slopes were assessed to pose a relatively 'High' risk to road users. However, it should be noted that the risk of rock falls occurring throughout the site still remains. Additionally, the site-wide risk of debris flows (particularly channelised debris flows) affecting the road is assessed as 'High' to 'Very High'.

The occurrence of small to moderate scale rock falls (e.g., a few brick- to breezeblock-sized rocks landing on the road) potentially occurring every few months to years and large to very large scale rock falls (e.g., rock falls similar in scale to the December 2011 / January 2012 rock fall at AA19) potentially occurring every few years to decades will be ongoing due to the degradation of the near-surface rock mass from weathering, root action, etc. Guidance on the management of risk is given in the following sections and should include regular inspection of the slopes, maintenance of existing remedial systems, and, where appropriate and budget permits, the completion of remedial works.

6.1 Ongoing Risk Management

The following approach is recommended to manage the level of risk within the site.

6.1.1 Continued weekday drive through of the site by THC:

THC staff familiar with the site and inspection procedure should continue to drive along the road each weekday morning with the aim of identifying any rock falls or debris flows. Observations should be reported internally within THC, with specialist geotechnical advice sought where appropriate.

6.1.2 Continued monthly inspections by THC:

For the monthly inspections to continue to provide an appropriate management tool it is important they are carried out on by personnel with knowledge of the site (preferably by the same inspector(s)) and an understanding of the aims and objectives of the inspections.

The main aims of the monthly inspections are to:

- Identify any new rock falls (including behind netting systems) and, where possible, mark associated blocks with spray paint. A record should be made of the size and location of rock falls (small rock falls can be a precursor to larger rock falls and it is, therefore, important to record all newly identified blocks in the verge and ditch);
- Identify any new debris flows. Record location (road level and source where possible) and estimate volume of transported material;
- Identify any areas of the roadside ditch where debris build up has reduced capacity to less than 50%;

- Identify any significant accumulations of debris behind netting systems that may require clearance; and
- Identify any damage to existing installations by rock falls, vehicles, theft of metal components, etc.

For this method of risk management to be effective, the records of the monthly inspections should be reviewed monthly by AECOM geologists with knowledge of the site to assess the significance of any findings and identify the requirement for emergency inspections. This is particularly important when THC has identified a new rock fall or debris flow.

6.1.3 On-going annual inspections by suitably qualified and experienced Engineering Geologists / Geotechnical Engineers:

This should involve the roadside inspection of all slopes and targeted rope access inspections of selected higher risk slopes, particularly where potential hazards have been identified during previous inspections, and less accessible 'upper' rock faces and slopes that are not visible from the road. These annual surveys may be supplemented by drone surveys where appropriate (e.g. for 'upper slopes' and high rock faces that cannot be fully viewed from road level). For maximum benefit, annual inspections should ideally be carried out in April, following the deleterious effects of winter and prior to the growth of vegetation.

A priority list of hazards and features to be reinspected during the 2026 annual inspection, based on the observations made during the 2025 annual inspection, is presented in Table 6 to aid planning of the inspection works:

Table 5. Priority Features and Hazards for Inspection in 2026

Slope	Chainage	Hazard / Feature	Recommended Action
AA4	0788	Rock mass behind holly tree 6 to 8 m above road level with dilated fractures	Rope access inspection
AA8	1944	Overhangs at the crest of the slope with dilated fractures	Rope access inspection
AA9	1978	2 x 1 x 0.5 m block with a dilated fracture (possibly keyed in) but at risk of root jacking	Rope access inspection
AA13/14-U	N/A	Slopes not inspected on foot in 2025 inspection	On-foot and/or drone inspection of slope
AA14E	2620	Overhangs with dilated joint sets at crest	Rope access inspection
AA15-U	N/A	Slopes not inspected on foot in 2025 inspection	On-foot and/or drone inspection of slope
AA16-17-18-U	N/A	Slopes not inspected on foot in 2025 inspection	On-foot and/or drone inspection of slope
AA22A	N/A	Rock mass at Ch. 3390 noted to be particularly blast damaged with a gap between the netting and slope face, with vegetation cover inhibiting inspection of the crest (whole slope) since 2021	Rope access inspection
AA22B	N/A	Large gapes are present in the netting, however, unable to inspect from roadside due to slope height, netting, and vegetation	Rope access / drone inspection

6.2 Recommended Remedial Works

It is understood that THC is considering a new road scheme that will bypass the section of the A890 between Ardnarff and Attadale to permanently reduce the risk of ongoing rock falls and associated disruption to road operations.

THC should carefully consider whether the ongoing risk posed by rock falls and debris flows whilst the current road remains in use is acceptable, considering the potential for injury to road users and the potential disruption due to road closures. Consideration should also be given to the period of time that the current road will remain in use and that road users will continue to be exposed to the risk of rock falls and debris flows.

Taking cognisance of the above, AECOM recommends that THC continues to carry out scheduled remedial and maintenance works on at least a biennial basis in addition to the monthly and annual inspections, to reduce the risk posed by rock falls and debris flows to an acceptable level while the current road remains in use.

Recommendations for remedial / maintenance works are given in the Geotechnical Assessment Sheets in Section 4 of the report. The recommended works have been split into three categories as described below:

- Category 1 – Ongoing maintenance:

  Recommended maintenance work is required to maintain the current condition of the rock faces and slopes (including drainage) and existing rock fall protection installations. Examples of required maintenance include repair of damaged or corroded netting, clearing of existing ditches or drainage channels, and ongoing removal of loose rock and/or vegetation. Undertaking the maintenance work will not necessarily reduce the risk posed by the rock faces but instead aims to prevent existing protection measures from deteriorating further and the risk increasing. Some of these works can be undertaken directly by THC (e.g. clearing out ditches – see Section 7.3), whilst others will require specialist contractors (e.g. replacing damaged or corroded elements or coppicing trees). These works are generally of low to moderate cost.

- Category 2 – Localised targeted rock fall and debris flow protection works:

  Targeted rock fall protection works are recommended to address the risk posed by individual hazards that have been identified during the inspections in the longer term. Examples of these works include dowelling/strapping/netting, removal of a small number of individual blocks or clearance of isolated debris dams within watercourses. These works will reduce the risk associated with the specific hazard but may not reduce the risk posed by the rock face or slope as a whole due to the presence of other hazards that have not been addressed. These works will involve specialist contractors and are generally of moderate cost.

- Category 3: Large scale rock fall and debris flow protection works:

  These are recommended to address the hazard posed by the entire rock face or slope in the long term. Examples of these works include installing new rock fall or debris flow barriers (catch fences), rock fall netting systems and associated spot dowels, cable strapping and areas of high strength netting. These works are generally high cost and will involve specialist contractors, but they would offer a significant level of risk reduction. Additional detailed inspection of the individual rock faces and slopes may be required to enable detailed design and pricing of Category 3 works.

It is recognised that THC has a limited budget for remedial works and to achieve the maximum level of risk reduction it is recommended that works are prioritised to address the highest risk slopes and hazards in the first instance (typically Category 2 and 3 works). Where the budget allows, lower priority works focussing on upgrading and maintaining existing rock fall protection installations (typically Category 1 and 2 works) should be undertaken. On occasion, the prioritisation of Category 1 works may be appropriate to ensure existing remedial systems remain functional and continue to offer the desired level of risk reduction. The 2025 inspection identified a number of high priority Category 1 and 2 works to be included within the next phase of rock works – see Section 6.5 for further details.

AECOM is in regular discussions with THC in relation to the budget and timing of planned remedial works such that an appropriate scope of remedial work can be selected.

6.3 Maintenance of Roadside Rock Traps / Drainage Ditches

Roadside rock trap ditches are present along the toe of many of the slopes and these must remain clear of significant debris accumulations to offer a continued level of risk reduction to the road and road users from small to moderate scale rock falls originating from the slopes above. During the 2025 inspection debris was noted in the roadside ditches at several locations and it is recommended that these be cleared to re-establish their original capacity at the earliest opportunity. These are non-specialist works and can be undertaken from road level by THC or a standard civil engineering contractor. Blocked drainage gullies were also identified, and these will also require to be cleared to maintain drainage beneath the road. The build-up of debris within the roadside ditches should be monitored during THC's monthly inspections and clearance works undertaken as required to maintain their capacity. As a guide, THC should allow for annual clearance works.

6.4 Debris Flow Risk Reduction

Many drainage channels leading to the road from the upper slopes were noted to contain debris (rock and trees). Clearance of these could be undertaken to prevent alteration to the hydrological regime and reduce the potential for channelised debris flows.

Consideration could also be given to creating debris basins upslope of the road and/or railway where the topography allows. Enlarged catchments would retain water and entrained material in the event of drainage channels becoming overwhelmed.

6.5 High Priority Category 1 and Category 2 Works

The following table provides a summary of high priority Category 1 (ongoing maintenance) and Category 2 (targeted rock fall / debris flow protection works) that were identified during the 2025 annual inspection. Consideration should be given to the completion of these works as soon as practicable, and ideally before the 2026 annual inspection.

Table 6-1. High Priority Category 1 and 2 Works

Slope Ref.	Chainage	Category	Description of Works
General	N/A	1	A significant time period has elapsed since systematic vegetation clearance was last undertaken along the slopes adjacent to the A890 Stromeferry Bypass in 2012. Significant regrowth of grass, heather, gorse, saplings, and semi-mature trees has occurred over this period. The density of vegetation on the slopes created a significant obstruction to the 2025 annual inspection, completed largely on-foot from the roadside, in part due to the 'false spring' which occurred in 2025 leading to early vegetation regrowth and a greater degree of leaf cover than would typically be observed in late April. As the degree of vegetation regrowth has now reached a point in which it is obscuring a significant proportion of the majority of slopes, it is recommended that de-vegetation of the roadside rock slopes ideally be undertaken prior to conducting the 2026 annual inspection, improving slope visibility and access for rope access inspections (where required). These works would also act to reduce the likelihood of future rock falls by minimising further root jacking of the rock mass.
AA2A	N/A	1	Above AA2A it is recommended to clean out watercourse at un-maintained forestry track. Drainage improvements along track also recommended.
AA6A	1511	1	Removal of the tree resting against the debris flow catch fence upslope
	1511	1	Improvement of the "temporary" lower debris flow catch fence upslope by securing the mesh to the top cable with shackles
AA14E	2645	1	Leaning tree growing on scree slope to be felled.
AA19	3130	1	Clear debris accumulation from behind gabions
AA24	3745	1	Light scaling and debris clearance from rock fall. Associated minor netting repairs.

6.6 Additional Recommendations

During inspections of the slopes, both in 2025 and in previous years, AECOM has identified several additional hazards that are not directly related to the condition of the roadside slopes. Considerations should be given to addressing these issues, which are summarised below:

- Trees on upper slopes –

  A plantation of mature coniferous trees is present on the steep hillside above slopes AA12 to AA22A. The superficial deposits on the slope are thin and the trees are consequently poorly anchored and prone to falling in high winds. A large percentage of the trees has already fallen and remains on the slope. These trees have generally come to rest against the remaining live trees or dead tree stumps. Numerous rocks dislodged when the trees fell have come to rest against these fallen trees which are acting as a natural catch feature. It is, however, known that rocks originating from the root balls of uprooted trees have occasionally rolled downslope and reached the road. The live trees that remain on the slope will continue to fall and there is a risk that dislodged rocks could roll downslope and reach the road or railway. Photographic drone surveys of the site were carried out in 2019, 2020, 2023, and 2024 allowing for a comparison to be undertaken to better quantify the risk associated with tree falls. An annual reduction in the number of standing trees of 0.9 to 3% has been identified over this time period, suggesting a relatively low rate of tree fall, however, it should be recognised that such events will be largely weather dependant, and a single storm event could fell many trees. Ultimately it is recommended that remaining standing trees be felled, and all trees be removed. If removal is not deemed possibly, consideration could be given to felling trees to

fall along slope and leave stumps 1 to 2 m high to form barrier to down slope movement. It is recommended that a specialist in forestry clearance is consulted on potential clearance methods.

- Future drone surveys –

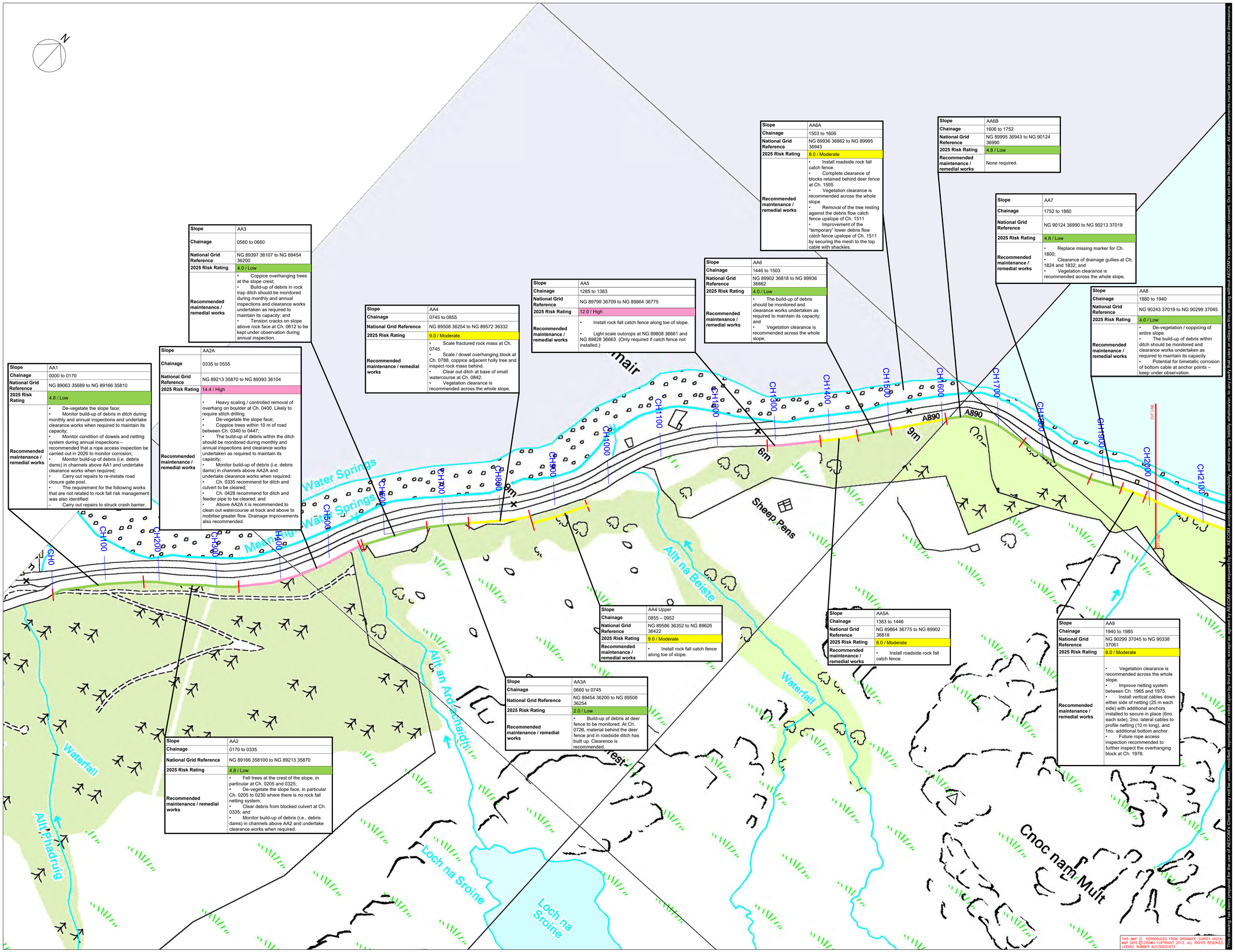
  The drone surveys carried out at the site between 2019 and 2024 have proved a useful tool in the remote inspection of the upper slopes of the site, allowing tactile inspections to be targeted towards areas of change or concern and reducing the need for access to areas of challenging terrain. It is therefore recommended that photographic drone surveys of the slopes to aid and supplement the annual inspections. Drone surveys should be carried out in March / April, when vegetation cover is at a minimum.

- Culverts –

  The inspection of culverts crossing beneath the road and railway was outside AECOM's inspection scope, however, localised blockages were noted. Where considered to be associated with an increased potential for transported material to impact the road the clearance of blockages has been included in the high priority works detailed in Section 7.5. Periodic inspection of the culverts by THC is recommended, along with clearance of accumulated debris when required to maintain the flow capacity of culverts.

- Many of the chainage markers installed in 2017 were either obscured by vegetation or had been damaged by grass cutting equipment. It is recommended that the chainage markers be replaced with markers on higher posts prior to the 2026 inspection.
- Re-instate the road closure gate post at Ardnarff (Ch. 0000), which appears to have been removed following damage by a vehicle strike.
- Replace the sign that provides the phone number to call in case of a rock fall at the Attadale end of the site (Ch. 3892) before it becomes fully illegible.
- Carry out repairs to the crash barrier at Ardnarff (Ch. 0000), which appears to have been damaged by a vehicle strike.

Appendix A – Location and Risk Rating Plans



Slope	AA1
Chainage	0000 to 0170
National Grid Reference	NG 89063 35689 to NG 89166 35810
2025 Risk Rating	4.8 / Low
Recommended maintenance / remedial works	• De-vegetate the slope face; • Monitor build-up of debris in ditch during monthly and annual inspections and undertake clearance works when required to maintain its capacity; • Monitor condition of dowels and netting system during annual inspections – recommended that a rope access inspection be carried out in 2026 to monitor corrosion; • Monitor build-up of debris (i.e. debris dams) in channels above AA1 and undertake clearance works when required; • Carry out repairs to re-instate road closure gate post. • The requirement for the following works that are not related to rock fall risk management was also identified: - Carry out repairs to struck crash barrier.

Slope	AA2A
Chainage	0335 to 0555
National Grid Reference	NG 89213 35870 to NG 89393 36104
2025 Risk Rating	14.4 / High
Recommended maintenance / remedial works	• Heavy scaling / controlled removal of overhang on boulder at Ch. 0400. Likely to require stitch drilling. • De-vegetate the slope face; • Coppice trees within 10 m of road between Ch. 0340 to 0447; • The build-up of debris within the ditch should be monitored during monthly and annual inspections and clearance works undertaken as required to maintain its capacity; • Monitor build-up of debris (i.e. debris dams) in channels above AA2A and undertake clearance works when required; • Ch. 0335 recommend for ditch and culvert to be cleared; • Ch. 0428 recommend for ditch and feeder pipe to be cleared; and • Above AA2A it is recommended to clean out watercourse at track and above to mobilise greater flow. Drainage improvements also recommended.

Slope	AA3
Chainage	0560 to 0660
National Grid Reference	NG 89397 36107 to NG 89454 36200
2025 Risk Rating	4.0 / Low
Recommended maintenance / remedial works	• Coppice overhanging trees at the slope crest; • Build-up of debris in rock trap ditch should be monitored during monthly and annual inspections and clearance works undertaken as required to maintain its capacity; and • Tension cracks on slope above rock face at Ch. 0612 to be kept under observation during annual inspection.

Slope	AA4
Chainage	0745 to 0855
National Grid Reference	NG 89508 36254 to NG 89572 36332
2025 Risk Rating	9.0 / Moderate
Recommended maintenance / remedial works	• Scale fractured rock mass at Ch. 0745. • Scale / dowel overhanging block at Ch. 0788, coppice adjacent holly tree and inspect rock mass behind. • Clear out ditch at base of small watercourse at Ch. 0842. • Vegetation clearance is recommended across the whole slope.

Slope	AA5
Chainage	1285 to 1383
National Grid Reference	NG 89799 36709 to NG 89864 36775
2025 Risk Rating	12.0 / High
Recommended maintenance / remedial works	• Install rock fall catch fence along toe of slope. • Light scale outcrops at NG 89808 36661 and NG 89828 36663. (Only required if catch fence not installed.)

Slope	AA6
Chainage	1446 to 1503
National Grid Reference	NG 89902 36818 to NG 89936 36862
2025 Risk Rating	4.0 / Low
Recommended maintenance / remedial works	• The build-up of debris should be monitored and clearance works undertaken as required to maintain its capacity; and • Vegetation clearance is recommended across the whole slope.

Slope	AA6A
Chainage	1503 to 1606
National Grid Reference	NG 89936 36862 to NG 89995 36943
2025 Risk Rating	8.0 / Moderate
Recommended maintenance / remedial works	• Install roadside rock fall catch fence. • Complete clearance of blocks retained behind deer fence at Ch. 1505 • Vegetation clearance is recommended across the whole slope • Removal of the tree resting against the debris flow catch fence upslope of Ch. 1511 • Improvement of the "temporary" lower debris flow catch fence upslope of Ch. 1511 by securing the mesh to the top cable with shackles.

Slope	AA6B
Chainage	1606 to 1752
National Grid Reference	NG 89995 36943 to NG 90124 36990
2025 Risk Rating	4.8 / Low
Recommended maintenance / remedial works	None required.

Slope	AA7
Chainage	1752 to 1880
National Grid Reference	NG 90124 36990 to NG 90213 37019
2025 Risk Rating	4.8 / Low
Recommended maintenance / remedial works	• Replace missing marker for Ch. 1800; • Clearance of drainage gullies at Ch. 1824 and 1832; and • Vegetation clearance is recommended across the whole slope.

Slope	AA8
Chainage	1880 to 1940
National Grid Reference	NG 90243 37019 to NG 90299 37045
2025 Risk Rating	4.0 / Low
Recommended maintenance / remedial works	• De-vegetation / coppicing of entire slope • The build-up of debris within ditch should be monitored and clearance works undertaken as required to maintain its capacity • Potential for bimetallic corrosion of bottom cable at anchor points – keep under observation.

Slope	AA2
Chainage	0170 to 0335
National Grid Reference	NG 89166 358100 to NG 89213 35870
2025 Risk Rating	4.8 / Low
Recommended maintenance / remedial works	• Fell trees at the crest of the slope, in particular at Ch. 0205 and 0325; • De-vegetate the slope face, in particular Ch. 0205 to 0230 where there is no rock fall netting system; • Clear debris from blocked culvert at Ch. 0335; and • Monitor build-up of debris (i.e., debris dams) in channels above AA2 and undertake clearance works when required.

Slope	AA3A
Chainage	0660 to 0745
National Grid Reference	NG 89454 36200 to NG 89508 36254
2025 Risk Rating	2.0 / Low
Recommended maintenance / remedial works	• Build-up of debris at deer fence to be monitored. At Ch. 0728, material behind the deer fence and in roadside ditch has built up. Clearence is recommended.

Slope	AA4 Upper
Chainage	0855 – 0952
National Grid Reference	NG 89586 36352 to NG 89626 36422
2025 Risk Rating	9.0 / Moderate
Recommended maintenance / remedial works	• Install rock fall catch fence along toe of slope.

Slope	AA5A
Chainage	1383 to 1446
National Grid Reference	NG 89864 36775 to NG 89902 36818
2025 Risk Rating	6.0 / Moderate
Recommended maintenance / remedial works	• Install roadside rock fall catch fence.

Slope	AA9
Chainage	1940 to 1985
National Grid Reference	NG 90299 37045 to NG 90338 37061
2025 Risk Rating	6.0 / Moderate
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope. • Improve netting system between Ch. 1965 and 1975. • Install vertical cables down either side of netting (25 m each side) with additional anchors installed to secure in place (6no. each side), 2no. lateral cables to profile netting (10 m long), and 1no. additional bottom anchor. • Future rope access inspection recommended to further inspect the overhanging block at Ch. 1978.

AECOM

Project

STROMEFERRY
2025 INSPECTION

Client

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Notes

Do not scale from this drawing. Work to figured dimensions only.

1. THIS DRAWING SHOULD BE CONSULTED IN CONJUNCTION WITH AECOM DRAWING 60685712-GEO-0002C.
2. FOR FURTHER DETAILS OF THE RISK ASSESSMENT AND RECOMMENDED REMEDIAL WORKS PLEASE REFER TO THE AECOM 'A890 STROMEFERRY BYPASS - ANNUAL SLOPE INSPECTION 2025 REPORT.
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KEY

APPROXIMATE CHAINAGE FROM GATES AT ARDNARFF — CH1000

APPROXIMATE LOCATION AND RISK RATING OF ROCK FACES

LOW

MODERATE

HIGH

VERY HIGH

ISSUE/REVISION

Rev	Date	Description	Drn/Chk/Appr
C	22/07/25	UPDATED FOR 2025 INSPECTION	SF/MT/PLM
B	19/07/24	UPDATED FOR 2024 INSPECTION	SB/MT/PLM
A	05/07/23	UPDATED FOR 2023 INSPECTION	JG/MT/PLM

Key Plan

Purpose Of Issue

FOR INFORMATION

Project Number

60685712

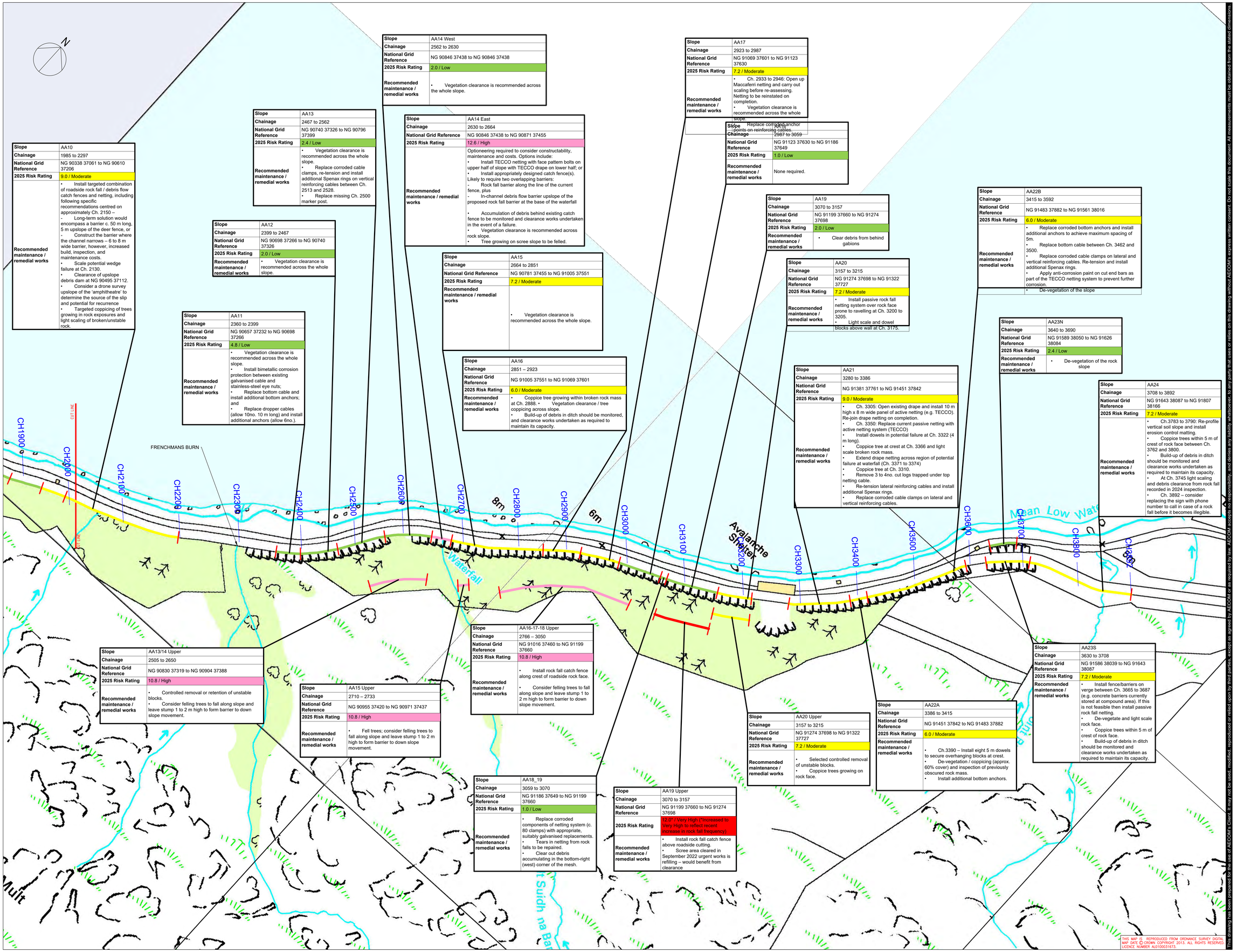
Sheet Title

STROMEFERRY
2025 INSPECTION
SHEET 1 OF 2

Sheet Number

60685712- 0001C

Scale: @A0 **Rev:** C



Slope	AA10
Chainage	1985 to 2297
National Grid Reference	NG 90338 37061 to NG 90610 37206
2025 Risk Rating	9.0 / Moderate
Recommended maintenance / remedial works	• Install targeted combination of roadside rock fall / debris flow catch fences and netting, including following specific recommendations centred on approximately Ch. 2150 – - Long-term solution would encompass a barrier c. 50 m long, 5 m upslope of the deer fence, or - Construct the barrier where the channel narrows – 6 to 8 m wide barrier, however, increased build, inspection, and maintenance costs. • Scale potential wedge failure at Ch. 2130. • Clearance of upslope debris dam at NG 90495 37112. • Consider a drone survey upslope of the 'amphitheatre' to determine the source of the slip and potential for recurrence • Targeted coppicing of trees growing in rock exposures and light scaling of broken/unstable rock.

Slope	AA13
Chainage	2467 to 2562
National Grid Reference	NG 90740 37326 to NG 90796 37399
2025 Risk Rating	2.4 / Low
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope. • Replace corroded cable clamps, re-tension and install additional Spenax rings on vertical reinforcing cables between Ch. 2513 and 2528. • Replace missing Ch. 2500 marker post.

Slope	AA12
Chainage	2399 to 2467
National Grid Reference	NG 90698 37266 to NG 90740 37326
2025 Risk Rating	2.0 / Low
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope.

Slope	AA11
Chainage	2360 to 2399
National Grid Reference	NG 90657 37232 to NG 90698 37266
2025 Risk Rating	4.8 / Low
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope. • Install bimetallic corrosion protection between existing galvanised cable and stainless-steel eye nuts; • Replace bottom cable and install additional bottom anchors; and • Replace dropper cables (allow 10no. 10 m long) and install additional anchors (allow 6no.).

Slope	AA14 West
Chainage	2562 to 2630
National Grid Reference	NG 90846 37438 to NG 90846 37438
2025 Risk Rating	2.0 / Low
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope.

Slope	AA14 East
Chainage	2630 to 2664
National Grid Reference	NG 90846 37438 to NG 90871 37455
2025 Risk Rating	12.6 / High
Recommended maintenance / remedial works	Optioneering required to consider constructability, maintenance and costs. Options include: • Install TECCO netting with face pattern bolts on upper half of slope with TECCO drape on lower half; or • Install appropriately designed catch fence(s). Likely to require two overlapping barriers: - Rock fall barrier along the line of the current fence, plus - In-channel debris flow barrier upslope of the proposed rock fall barrier at the base of the waterfall • Accumulation of debris behind existing catch fence to be monitored and clearance works undertaken in the event of a failure. • Vegetation clearance is recommended across rock slope. • Tree growing on scree slope to be felled.

Slope	AA15
Chainage	2664 to 2851
National Grid Reference	NG 90781 37455 to NG 91005 37551
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Vegetation clearance is recommended across the whole slope.

Slope	AA16
Chainage	2851 – 2923
National Grid Reference	NG 91005 37551 to NG 91069 37601
2025 Risk Rating	6.0 / Moderate
Recommended maintenance / remedial works	• Coppice tree growing within broken rock mass at Ch. 2888. • Vegetation clearance / tree coppicing across slope. • Build-up of debris in ditch should be monitored, and clearance works undertaken as required to maintain its capacity.

Slope	AA17
Chainage	2923 to 2987
National Grid Reference	NG 91069 37601 to NG 91123 37630
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Ch. 2933 to 2946: Open up Maccaferri netting and carry out scaling before re-assessing. Netting to be reinstated on completion. • Vegetation clearance is recommended across the whole slope. • Replace corroded anchor points on reinforcing cables.

Slope	AA18
Chainage	2987 to 3059
National Grid Reference	NG 91123 37630 to NG 91186 37649
2025 Risk Rating	1.0 / Low
Recommended maintenance / remedial works	None required.

Slope	AA19
Chainage	3070 to 3157
National Grid Reference	NG 91199 37660 to NG 91274 37698
2025 Risk Rating	2.0 / Low
Recommended maintenance / remedial works	• Clear debris from behind gabions

Slope	AA20
Chainage	3157 to 3215
National Grid Reference	NG 91274 37698 to NG 91322 37727
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Install passive rock fall netting system over rock face prone to ravelling at Ch. 3200 to 3205. • Light scale and dowel blocks above wall at Ch. 3175.

Slope	AA21
Chainage	3280 to 3386
National Grid Reference	NG 91381 37761 to NG 91451 37842
2025 Risk Rating	9.0 / Moderate
Recommended maintenance / remedial works	• Ch. 3305: Open existing drape and install 10 m high x 8 m wide panel of active netting (e.g. TECCO). Re-join drape netting on completion. • Ch. 3350: Replace current passive netting with active netting system (TECCO) • Install dowels in potential failure at Ch. 3322 (4 m long). • Coppice tree at crest at Ch. 3366 and light scale broken rock mass. • Extend drape netting across region of potential failure at waterfall (Ch. 3371 to 3374) • Coppice tree at Ch. 3310. • Remove 3 to 4no. cut logs trapped under top netting cable. • Re-tension lateral reinforcing cables and install additional Spenax rings. • Replace corroded cable clamps on lateral and vertical reinforcing cables.

Slope	AA22B
Chainage	3415 to 3592
National Grid Reference	NG 91483 37882 to NG 91561 38016
2025 Risk Rating	6.0 / Moderate
Recommended maintenance / remedial works	• Replace corroded bottom anchors and install additional anchors to achieve maximum spacing of 5m. • Replace bottom cable between Ch. 3462 and 3500. • Replace corroded cable clamps on lateral and vertical reinforcing cables. Re-tension and install additional Spenax rings. • Apply anti-corrosion paint on cut end bars as part of the TECCO netting system to prevent further corrosion. • De-vegetation of the slope

Slope	AA23N
Chainage	3640 to 3690
National Grid Reference	NG 91589 38050 to NG 91626 38084
2025 Risk Rating	2.4 / Low
Recommended maintenance / remedial works	• De-vegetation of the rock slope

Slope	AA24
Chainage	3708 to 3892
National Grid Reference	NG 91643 38087 to NG 91807 38166
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Ch.3783 to 3790: Re-profile vertical soil slope and install erosion control matting. • Coppice trees within 5 m of crest of rock face between Ch. 3762 and 3800. • Build-up of debris in ditch should be monitored and clearance works undertaken as required to maintain its capacity. • At Ch. 3745 light scaling and debris clearance from rock fall recorded in 2024 inspection. • Ch. 3892 – consider replacing the sign with phone number to call in case of a rock fall before it becomes illegible.

Slope	AA13/14 Upper
Chainage	2505 to 2650
National Grid Reference	NG 90830 37319 to NG 90904 37388
2025 Risk Rating	10.8 / High
Recommended maintenance / remedial works	• Controlled removal or retention of unstable blocks. • Consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.

Slope	AA15 Upper
Chainage	2710 – 2733
National Grid Reference	NG 90955 37420 to NG 90971 37437
2025 Risk Rating	10.8 / High
Recommended maintenance / remedial works	• Fell trees; consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.

Slope	AA16-17-18 Upper
Chainage	2766 – 3050
National Grid Reference	NG 91016 37460 to NG 91199 37660
2025 Risk Rating	10.8 / High
Recommended maintenance / remedial works	• Install rock fall catch fence along crest of roadside rock face. • Consider felling trees to fall along slope and leave stump 1 to 2 m high to form barrier to down slope movement.

Slope	AA18_19
Chainage	3059 to 3070
National Grid Reference	NG 91186 37649 to NG 91199 37660
2025 Risk Rating	1.0 / Low
Recommended maintenance / remedial works	• Replace corroded components of netting system (c. 80 clamps) with appropriate, suitably galvanised replacements. • Tears in netting from rock falls to be repaired. • Clear out debris accumulating in the bottom-right (west) corner of the mesh.

Slope	AA19 Upper
Chainage	3070 to 3157
National Grid Reference	NG 91199 37660 to NG 91274 37698
2025 Risk Rating	12.0* / Very High (*Increased to Very High to reflect recent increase in rock fall frequency)
Recommended maintenance / remedial works	• Install rock fall catch fence above roadside cutting. • Scree area cleared in September 2022 urgent works is refilling – would benefit from clearance

Slope	AA20 Upper
Chainage	3157 to 3215
National Grid Reference	NG 91274 37698 to NG 91322 37727
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Selected controlled removal of unstable blocks. • Coppice trees growing on rock face.

Slope	AA22A
Chainage	3386 to 3415
National Grid Reference	NG 91451 37842 to NG 91483 37882
2025 Risk Rating	6.0 / Moderate
Recommended maintenance / remedial works	• Ch.3390 – Install eight 5 m dowels to secure overhanging blocks at crest. • De-vegetation / coppicing (approx. 60% cover) and inspection of previously obscured rock mass. • Install additional bottom anchors.

Slope	AA23S
Chainage	3630 to 3708
National Grid Reference	NG 91586 38039 to NG 91643 38087
2025 Risk Rating	7.2 / Moderate
Recommended maintenance / remedial works	• Install fence/barriers on verge between Ch. 3665 to 3687 (e.g. concrete barriers currently stored at compound area). If this is not feasible then install passive rock fall netting. • De-vegetate and light scale rock face. • Coppice trees within 5 m of crest of rock face. • Build-up of debris in ditch should be monitored and clearance works undertaken as required to maintain its capacity.

AECOM

Project

STROMEFERRY
2025 INSPECTION

Client

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Notes

Do not scale from this drawing. Work to figured dimensions only.

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SHEET 2 OF 2

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60685712- 0002C

Scale: @A0 **Rev:** C