



The Government of Sark

DOUZAINE

A COMMITTEE OF THE CHIEF PLEAS OF SARK

Committee Office, La Chasse Marette, Sark, GY10 ISE

Tel: (01481) 832118 | E-mail: douzaine247@sarkgov.co.uk

13th March 2025

INFORMATION FOR MEMBERS OF THE PUBLIC ON CREUX HARBOUR

Geomarine (Jersey) Limited carried out a visual inspection and geotechnical assessment of La Coupée, and selected rock faces surrounding Creux Harbour and La Maseline Harbour in November 2024.

Their report is enclosed.

In relation to **Creux Harbour**, Geomarine advised (page 18, 'Summary of Recommendations from Risk Assessment'):

- That the old tunnel should be closed (n.b. the main tunnel remains open); and
- Risk of rockfall from the cliffs onto persons using the beach, slipway and tunnel - people should not sit under the cliffs on the beach, on the slipway or by the main tunnel entrance.

Thank you for your understanding.

Douzaine

Report for
Chief Pleas of Sark




Visual Inspection & Geotechnical Assessment

Creux/Maseline Harbour & La Coupée, Isle of Sark

Report No. 3265-01

December 2024

© Geomarine Limited 2024

Report Number 3185-01	Status First Revision	Signature	Date of Issue
Prepared by	Marcus Salter Geologist <i>BSc MSc FGS</i>		18.12.24
Reviewed by	Isaac O'Brien Principal Geologist/Consultant <i>BSc (Hons) CGeol FGS EurGeol UK Registered Ground Engineering Professional</i>		18.12.24
Reviewed and approved by	Martin Curd Technical Director <i>BSc MSc CGeol FGS EurGeol UK Registered Ground Engineering Professional</i>		18-12-24

Revision Number	Modifications	Initials	Date of Revision

CONTENTS

1	INTRODUCTION	2
1.1	Contract Information	2
1.2	Previous Works.....	2
1.3	Site Ownership	2
2	LA COUPÉE	0
2.1	The Site	0
2.2	History of La Coupée	0
2.3	Geology of La Coupée.....	0
2.4	Geotechnical Assessment of La Coupée	1
2.4.1	East face – La Coupée	1
2.4.2	West Face – La Coupée	5
2.4.3	Summary	8
3	CREUX/LA MASELINE HARBOUR	10
3.1	The Site	10
3.2	History of Creux/La Maseline Harbour	10
3.3	Geology of Creux/La Maseline Harbour	10
3.4	Geotechnical Assessment of Creux/La Maseline Harbour	11
3.5	Summary of Recommendations from Risk Assessment.....	11
3.6	Additional comments.....	13
4	REPORT LIMITATIONS.....	14

1 INTRODUCTION

1.1 Contract Information

On the instruction of the Chief Pleas of Sark (the “Client”), Geomarine (Jersey) Limited (“Geomarine”) has carried out a visual inspection and geotechnical assessment of La Coupée, and selected rock faces surrounding Creux Harbour and La Maseline Harbour, Isle of Sark.

The inspections were conducted on 15th November 2024 by Geomarine geologists in response to concerns raised by the Chief Pleas of Sark and local residents about the stability of La Coupée and the rock faces around the harbours, following recent rockfalls. Please refer to **Figure 1**.

Regarding La Coupée, the primary issue is that recent and historical rockfalls may have compromised its structural integrity, posing a health and safety risk to users. There is also a risk that the crossing to Little Sark could become unusable if La Coupée deteriorates further. Additionally, an electricity service running across La Coupée supplies power to Little Sark. Any damage to this service due to further failures could leave this part of the island without a mains electricity supply.

At Creux and La Maseline Harbours, several rockfalls in recent years have caused damage to on-site structures, such as storage sheds in Creux Harbour, and impacted the use of one of the access tunnels. These rockfalls have also highlighted safety risks to site users, including local residents, workers, and tourists arriving at La Maseline Harbour and/or using the beach and slipway at Creux Harbour.

1.2 Previous Works

Geomarine are aware of an informal preliminary assessment undertaken by Geomarine (Guernsey) Limited in August 2024, where specific areas of concern were highlighted for assessment by a specialist.

Several reports were also provided by the Chief Pleas of Sark for La Coupée and/or the surrounding rockfaces;

- ARUP - *Proposal Letter*, 1996
- T C White – *Letter Report*, 1996
- Frederick Sherrell - *Letter Report*, 2010
- Aidan J. Flint of the Engineering Geology Group of Newcastle University, Civil Engineering Department – *Geotechnical Appraisal and Risk Assessment of La Coupée Ridge*, 1999

Geomarine has not been instructed by the Client to carry out a detailed review of these documents. However, a brief assessment indicates a general consensus that La Coupée and the surrounding rock faces are at risk of failure. This could, over time, result in La Coupée becoming undermined and potentially unsuitable for use. Each report gives recommendations that measures are taken to stabilise La Coupée to ensure its continued and unrestricted use.

1.3 Site Ownership

It is understood that all areas are currently owned by the Chief Pleas of Sark.

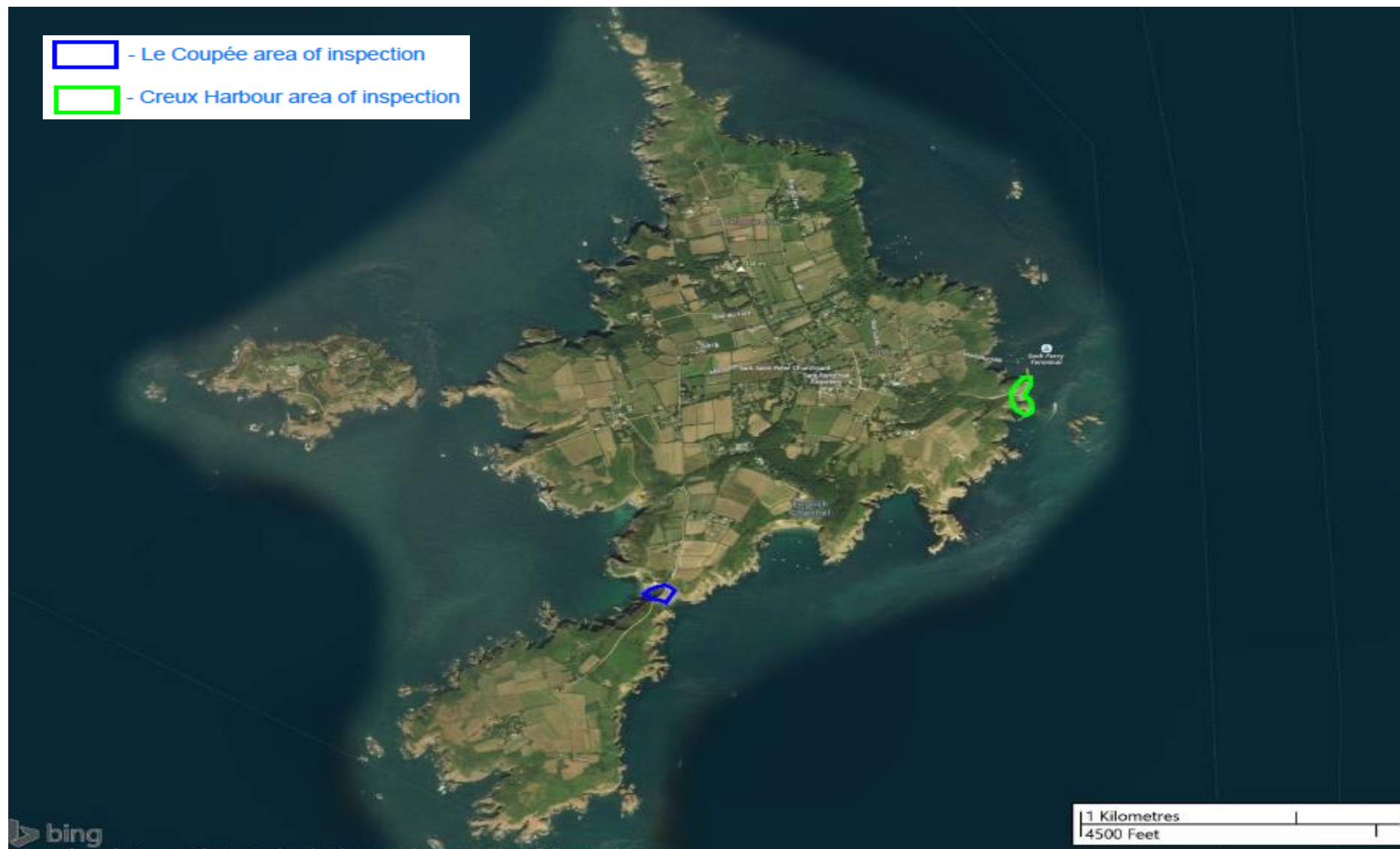


Figure 1 – Location of inspection areas.

2 LA COUPÉE

A visual inspection of La Coupée was undertaken with a drone on 15th November 2024. As part of the inspection, La Coupée was split into its east and west faces. Each face was then subsequently divided into sections where Geomarine assessed there to be a specific risk.

2.1 The Site

The areas of inspection are shown in **Figure 1** and the site is described below in **Table 1**.

Table 1 Summary of Site Location, La Coupée

Summary of Site Location	
Location	Rue de la Coupée, Isle of Sark
Grid Reference	The approximate centre of the areas of inspection are (GTM Grid Reference): E50675, N41188
What3words	///irritant.figurines.reddens

2.2 History of La Coupée

La Coupée has served as a vital access route to Little Sark for centuries. Over time, it has undergone numerous changes to become what it is today. Photographs from the late 1800s show La Coupée as a narrow pathway for horse-drawn carts, with some low-lying areas built up by blockwork walls. The area has a history of instability, with historic photographs documenting events such as the collapse of blockwork walls and landslips. It wasn't until the German occupation during World War II, when La Coupée was re-built by prisoners of war, installing the concrete supports and handrails seen today.

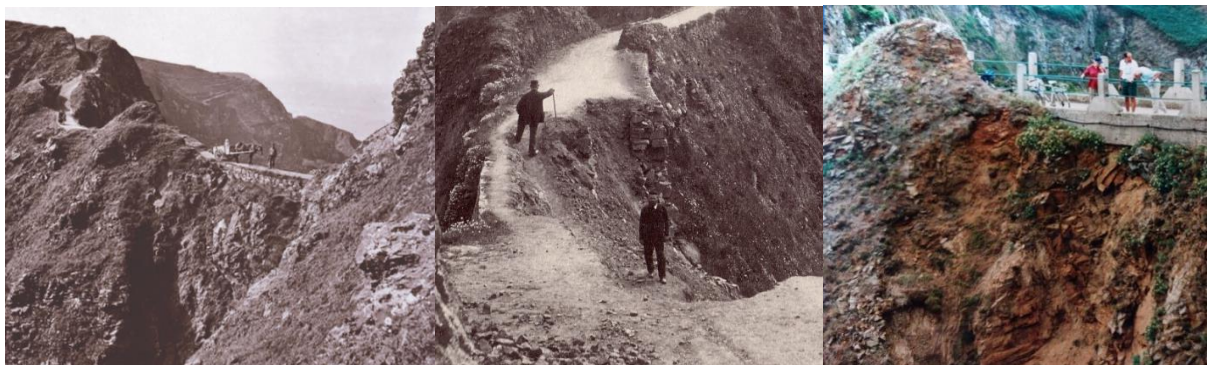


Figure 2 – From left to right. Photograph showing La Coupée as a narrow track for horse and carts, photograph showing a failure of the blockwork wall to the northern extent of La Coupée and a photograph showing a more recent failure circa 1996. (See Appendix C for further photographs – Credit La Société Sercquaise).

2.3 Geology of La Coupée

General

The BGS 1986 Channel Islands Sheet No. 1 'Guernsey' indicates that La Coupée is situated within a fault complex in the Quartz-biotite Gneiss of Sark Type. The quartz-biotite gneiss in Sark is typically a light grey rock with quartz rich streaks and bands. The fine-grained metamorphic rock is composed of three primary minerals, brown biotite-mica, whitish plagioclase feldspar, and quartz.

Quartz-biotite gneiss likely originates from metamorphosed marine sand/mud. The gneiss was

subjected to extreme heat and pressure during metamorphosis creating the banded texture and folded structure observed at outcrops visible today.

The geological map indicates that foliations within the gneiss at La Coupée dip to the southwest in the order of 34 to 50°. This is supported by observations made on site during the visual inspection.

The east face of La Coupée dips to the east at approximately 70°.

The west face dips approximately 60° to the west and much of the slope is vegetated implying the presence of superficial deposits of head or loess covering the face.

Geological Structures

Three northwest to southeast trending faults dissect the area of La Coupée. The most northerly fault was observed approximately 10m to the north of La Coupée dipping near vertical. The central fault was observed at the northern extent of La Coupée dipping to the southwest at approximately 60°. The most southerly fault was observed at the southern extent of La Coupée dipping near vertical to the southwest.

Both the central and southern fault which dissect La Coupée are commonly surrounded by several metres of fault breccia/gouge.

2.4 Geotechnical Assessment of La Coupée

A visual and geotechnical inspection of La Coupée was carried out by Geomarine using a drone to assess the current condition of the structure and the surrounding rockfaces. The inspection aimed to evaluate the likelihood of future failures and their potential impact on the structural integrity of the crossing, which connect Little Sark to the main island. This connection is critical for enabling residents to commute, maintaining the operation of commercial properties and agricultural/horticultural areas, and ensuring overall access between the two areas for local residents, tourists and workers. Services, such as electricity supply also cross to Little Sark at this point.

The assessment focused on identifying zones of potential instability on both the east and west faces of La Coupée. For clarity, the findings have been divided into sections corresponding to the east and west faces, with further subdivisions into specific areas of concern identified during the inspection.

By combining visual observations with drone footage and basic geotechnical principles, the inspection has provided an initial framework to understand the risk posed by the current state of La Coupée. This preliminary evaluation can inform the need for further detailed geotechnical assessment and/or remedial works.

The findings highlight several areas of potential risk requiring attention to ensure the continued stability and safety of this essential crossing and site of importance.

2.4.1 East face – La Coupée

The east face has been divided into ten separate areas of concern for the purpose of this assessment. Please see **Figure 3** for locations of each section. For photographs of each individual section please refer to **Appendix B**.

There is evidence of two fairly recent large rockfalls, as seen on the right and left of the image

in **Figure 3**. These have not directly affected the crossing.

The rock is very blocky, crossed with several faults and fault zones. The regional dip of the foliation in the gneiss is present, however the resultant geological structure is very complex.



Figure 3 – East Face of La Coupée with Location Mark Up (E1-E10)

2.4.1.1 Area E1

Area E1, situated directly beneath the roadway, a wedge of exposed rock of which the crossing is founded upon, has been previously stabilised in the late 1990s using a combination of rockfall netting and rock anchors/dowels. Additionally, a southern section appears to have been stabilised with shotcrete or similar, although the presence of underlying mesh or anchors/dowels is uncertain.

Generally, the stabilisation appears in adequate condition with some localised areas of corrosion evident on the wire ropes and grips. A minor rockfall has caused slight bulging in the netting and partially exposing anchors/dowels in the source area. The shotcrete area exhibits a crack across its lower portion, with a few minor cracks also being observed in other places. Where the larger crack is present, some minor vegetation growth was visible (see **Figure 4**)

No details on the stabilisation have been provided to Geomarine for review and comment. However, the system appears to be holding up well with minimal deterioration noted. Where the minor failure has occurred behind the rockfall netting, the netting appears to be functioning as is assumed to be intended by holding the fallen material in place.



Figure 4 – Close up of cracked shotcrete and several of the corroded element observed on the existing stabilisation

Recommendations

It is recommended a rope access inspection is undertaken in this area to inspect the overall condition of the stabilisation system and the structure above on the stabilisation works as well as on the upper structure to check the foundations and overall condition.

2.4.1.2 Area E2

Area E2 is identified as a potential toppling failure zone due to the near-vertical discontinuities within the rockface. This area currently poses a low risk to the structural integrity of La Coupée crossing as an initial failure is unlikely to directly impact the crossing. However, subsequent failures may propagate backwards, eroding the rockface over time, potential compromising the structural integrity of the crossing in the future.

There is also a secondary risk to human health due to the potential falling material/debris to reach the beach below. As there is no pedestrian access to the beach the risk is considered to be low, however, there remains a small residual risk associated with access via boat.

Recommendations

Annual inspections are recommended to monitor the area's condition, establish erosion rates, and inform a long-term management plan to preserve La Coupée crossing

2.4.1.3 Areas E3, E4, E5, E6, E7 and E8

Areas E3, E4, E5, E6, E7 and E8 are considered at risk of small-scale blocky failure. These areas currently pose a relatively low risk to the structural integrity of La Coupée crossing, as any initial failures are unlikely to directly impact the crossing. However, subsequent failures may propagate/unravel backwards, eroding the rockface over time, potential compromising the structural integrity of the crossing in the future.

There is also a secondary risk to human health due to the potential falling material/debris to reach the beach below. As there is no pedestrian access to the beach the risk is considered to be low, however, there remains a small residual risk associated with access via boat.



Figure 5 – Area 5

Recommendations

Annual inspections are recommended to monitor the area's condition, establish erosion rates, and inform a long-term management plan to preserve La Coupée crossing

2.4.1.4 Area E9

Area E9 was identified as an immediate risk to the structure of la Coupée crossing due to there being evidence of recent failures and its proximity to the crossing. It is deemed that if a large failure was to occur in this area, then it is possible it may remove the supporting ground, the crossing is founded upon and subsequently could lead to failure of the crossing itself.

Recommendations

Geomarine recommend that this is inspected as part of a rope access inspection and risk assessed based on the findings. Details such as discontinuity spacing, orientation, infilling and presence of water seepage need to be recorded and evidence of possible unstable blocks and potential failure mechanisms.

2.4.1.5 Area E10

The area E10 showed some evidence of failure and collapse. This is not thought to yet be undermining the structure of the roadway, but it is thought that further failures may be likely in this in the future, which may cause undermining.

Recommendations

Geomarine recommend that initially, this area is inspected as part of a rope access inspection works to the upper level of the east face with the same information gathered as for E9

2.4.1.1 Groundwater

There was no visible areas of groundwater seepage or wet areas on the slope. However, it was observed that the road drainage appeared to be through drainage holes through the parapet wall discharging directly onto the top of the slope. While there is no evidence of this at La Coupée it is often the case that a contributing factor behind rockfalls is groundwater, or surface water ingress into the rock.

2.4.2 **West Face – La Coupée**

The west face has been divided into seven areas for the purpose of this assessment. See **Figure 6** for the location of each section. For photographs of each individual section please refer to **Appendix B**. This face is heavily vegetated with bracken, brambles, gorse and ivy. It appears that the rock is mantled with a layer of soil (perhaps wind-blown loess or periglacial head).



Figure 6 - West Face of La Coupée, with location mark up (W1-W7)

2.4.2.1 Area W1

Area W1 consists of a blockwork wall under the above concrete structure of La Coupée crossing. The blockwork wall here appears generally to be in good condition with no evidence of failures directly beneath. However, much of the lower parts of the wall is obscured by vegetation.

It is assumed that the blockwork wall was constructed to build up to the road level and retain

backfill materials.

Recommendations

It is recommended that de-vegetation works are undertaken so that the wall can be fully inspected. Additionally, it is recommended that a structural engineer inspects the structure of the crossing and walls below.

2.4.2.2 Area W2, W3, W4 and W5

The inspection of Area W2, W3, W4, and W5, identified significant undermining and exposure of the foundation of the concrete structure. The foundation appears to rest on periglacial head deposits or similar unconsolidated materials, which are inherently less stable. This presents a critical concern for both public safety and the structural integrity of the crossing.

Evidence of fresh debris at on the rockface directly below indicates that failures are occurring regularly. These ongoing failures are likely to continue to undermine the foundation of the crossing, increasing the risk of a collapse of the wall retaining the road. The situation is exacerbated by the frequent passage of heavy agricultural plant over the crossing, which imposes additional dynamic loading.

Should a failure occur, the crossing would become unsafe for use, jeopardising access to Little Sark and potentially damaging the existing electricity supply infrastructure, which is essential for the island.



Figure 7 – Close up image of undermined section of La Coupée at Area W2



Figure 8 – Close up image of undermined section of La Coupée at Area W3



Figure 9 – Close up image of undermined section of La Coupée at Area W5

Recommendations

Urgent stabilisation and mitigation measures are strongly recommended to address these risks, likely to consist of a mix of rock dowels, soil nails, netting, shotcrete and potentially rebuilding of part of the walls

We recommend that a monitoring regime is started without delay, until repairs are undertaken. This should be visual inspection on a weekly basis to check for changes and during times for heavy rainfall, strong winds. Consideration should be given to advising users of the crossing of the risks. Metal road plates can be placed over the areas of concern to spread the loads of passing vehicles.

2.4.2.3 Area W6

Area W6 contains a large volume of rock that appears to be at risk of wedge failure. Observations suggest that the rock is ravelling upwards from the base. The principal concern is that a mass failure in this area could undermine support for the crossing above, potentially affecting the ground underlying the crossing and posing a risk to its structural stability

At the top of the area, multiple sections of rock are assessed to be at risk of toppling failure. However, these are likely to occur independently of the potential wedge failure and are not currently considered an immediate threat to the crossing's structural integrity.

Recommendations

It is recommended that further assessment is undertaken to determine the stability of this area and a long-term management plan established, as, while not posing an immediate threat continued collapses may eventually propagate backwards affecting the crossing.

2.4.2.4 Area W7

This area has been identified as exhibiting signs of slope failure, with the slope seemingly exceeding its safe angle of repose and undergoing slump failure. Given that the coastal path is currently closed, this failure does not pose a low threat to human health. Structurally, the failure is occurring at a sufficient distance from the foundations of La Coupée crossing, and thus, it is not currently considered a threat to the crossing's structural integrity.

2.4.3 **Summary**

The geotechnical assessment of La Coupée rockfaces has identified several areas of concern, divided into zones across the east and west faces. The east face is segmented into ten areas (E1–E10), while the west face comprises seven areas (W1–W7). These areas represent varying levels of risk, with some requiring immediate attention to ensure the structural integrity of the roadway and others needing long-term monitoring and management to prevent gradual deterioration.

Of immediate concern is the undermining, cracking and bulging of parts of the retaining wall on the west face. It is considered, based on the visual assessment, that parts of this wall are at immediate risk of collapse. This would result in undermining or loss of the road. If an alternative access to Little Sark was available, the road should be closed without delay. However, because the road cannot be closed, steel road plates should be placed above these areas to spread vehicle loads, frequent inspection of the wall undertaken and users of the crossing should be informed. Inspection should be at least weekly and during periods of heavy rain or strong wind. Use of a drone should be considered to enable safe access and to obtain photographs to record any changes. Plans to make repairs should be started. The repairs are likely to include dowels, soil nails, mesh and shotcrete and possible partial rebuilding of the wall.

Close up, visual, inspection (by roped access and further drone survey) is recommended for

several areas of the east and west face. This will provide information for a numerical stability assessment of these areas: E1, E9, E10, W1, W6 and W7. A detailed understanding of where surface water from the road is discharged, and the impact of this on the stability of the cliffs is required.

Overall, La Coupée will continue to be exposed to erosion from the rain, wind and waves and rockfalls, large and small, will continue. Eventually this will lead to loss of the road. While the findings of this report does not consider there to be an immediate risk of large scale collapses it is important that work is started to assess the long-term stability and erosion rates of both sides. This work should comprise:

- Detailed review of all historical photographs, maps, aerial photographs, newspaper reports and technical reports to pull together all available information into one place. This should attempt to provide a timeline of collapses as well as repairs and maintenance
- Annual drone inspection/record of both sides of La Coupée to provide video and stills and production of an annual report on changes and records of collapses and maintenance
- Installation of fixed erosion markers (i.e. concrete plinths) with known GPS coordinates to enable more accurate measurement of erosion.
- Periodic reports summarising the annual records giving estimates of annual erosion rates, identification of areas at greater risk of collapse and updating a likely timeline for loss of the road
- Once more information of erosion rates and a better understanding of the modes and causes of failure are known a feasibility study should be undertaken to consider how to protect, or replace, the crossing at La Coupée and provide budget costs to enable the island to start long term planning.

3 CREUX/LA MASELINE HARBOUR

3.1 The Site

The areas of inspection are shown in **Figure 1** and the site is described below in **Table 2**.

Table 2 Summary of Site Location, Creux/La Maseline Harbour

Summary of Site Location	
Location	Creux/La Maseline Harbour – Harbour Hill, Isle of Sark
Grid Reference	The approximate centre of the areas of inspection are (GTM Grid Reference): E52348, N42344
What3words	///prefaces.scheduler.depict

3.2 History of Creux/La Maseline Harbour

Creux Harbour has existed as usable natural bay since the 16th century when the initial entrance was blasted. The main entrance and harbour wall present today were not constructed until 1866. Construction of La Maseline Harbour began in 1939. Due to the occupation during World War II the harbour was not finished until 1948. In early 1954 a timber platform was constructed over the outer set of steps. It is currently used today as the ferry port for the island.

3.3 Geology of Creux/La Maseline Harbour

General

The BGS 1986 Channel Islands Sheet No. 1 ‘Guernsey’ indicates that La Coupée is situated within a fault complex in the Foliated granodiorite of Creux Harbour Type.

The Foliated granodiorite of the Creux Harbour type is a prominent geological feature on Sark, one of the Channel Islands. It represents a medium- to coarse-grained intrusive igneous rock, primarily composed of quartz, plagioclase, biotite, and hornblende. The foliation in this rock is a key characteristic, defined by the alignment of mafic minerals, giving it a layered or planar appearance. This feature likely resulted from tectonic deformation during or after the rock's emplacement, making it a valuable subject for understanding Sark's dynamic geological history.

This granodiorite unit is named after its exposure near Creux Harbour, where it forms rugged and resistant outcrops. The foliation patterns, often planar to slightly wavy, suggest moderate ductile deformation, likely associated with the regional tectonic activity of the Variscan orogeny, approximately 350–300 million years ago. This event, a result of the collision between tectonic plates, significantly shaped the bedrock geology of Sark and the broader region.

In terms of composition, the rock displays a grey to light-grey matrix interspersed with darker bands created by aligned biotite and hornblende. Accessory minerals such as apatite and zircon are also present. The texture and mineral alignment indicate that the granodiorite crystallized under conditions of active tectonic stress, providing evidence of simultaneous magmatic and deformational processes during its formation.

The Creux Harbour granodiorite is not only a distinctive lithological unit on Sark but also a geological record of the island's tectonic and magmatic evolution. Its resistance to weathering makes it a notable feature in the island's landscape, and its structural characteristics offer

insights into the regional deformation history.

Geological Structures

There are several faults observed in Creux harbour principally in the location of the old tunnel observed at H1 and between areas H2 and H3 (see below). All faults observed are near vertical and often surrounded by several metres of fault breccia/gouge.

3.4 Geotechnical Assessment of Creux/La Maseline Harbour

Please refer to **Appendix A** for the risk assessment produced from our visual assessment.

Please refer to **Figure 8** below for the locations of each area assessed.

For photographs of each individual section please refer to **Appendix B**.



Figure 4 – Markup of locations inspected within the Creux/La Maseline harbour area (H1 – H14).

3.5 Summary of Recommendations from Risk Assessment

Geomarine has identified several areas requiring mitigation measures to address risks to public safety and structural integrity.

Area	Location	Description	Key Risks	Recommendations
H1	Tunnel to Creux Harbour	Largely unlined tunnel through a fault zone in the cliffs	Tunnel roof collapse, and cliff fall above the tunnel entrances.	Close the tunnel and cordon off areas around the entrances or install a structural lining and stabilise the rock faces at tunnel entrances
H2	Beach at Creux Harbour	Cliffs above the beach and small cave	Risk of rockfall from the cliffs onto persons using the beach	Install signs warning the public of the danger or rockfall and advising not to sit under the cliffs. Place barriers or rocks to discourage people sunbathing under the cliffs Ongoing monitoring and inspections
H3	Slipway into Creux Harbour	Rock faces above slipways	Risk of rockfall from the cliffs onto persons using the slipway	Install signs warning the public of the danger or rockfall and advising not to sit under the cliffs. Ongoing monitoring and inspections
H4 & H5	Slipway and tunnel entrance into Creux Harbour	Rock faces above slipway and around tunnel entrance. Area at the top of the slip used for storage of lobster pots	Risk of rockfall from the cliffs onto persons using the slipway and tunnel	Install signs warning the public of the danger or rockfall and advising not to sit under the cliffs. Ongoing monitoring and inspections Fence off storage area to restrict access
H6	Storage areas at Creux Harbour	Rock faces above storage area and sheds used by fishermen	Rock falls have damaged sheds and equipment in this area and there is an ongoing risk of further rockfall	Undertake rockfall assessment, install rock catch fence and buffer zone at the base of the cliff and move all storage units outside the buffer zone.
H7	Norther tunnel entrance to Creux Harbour	Rock faces around the main (lined) tunnel to Creux Harbour.	Minor rock falls from the upper part of the slope directly above and around the entrance	Installation of rock fall netting to prevent rockfall
H8	Rock face behind incinerator building	Rock face above incinerator building and waste management areas	Risk of rockfall damaging building, occupants and users of the site	Drape netting to control rock falls, possible localised stabilisation with dowels and confirming net
H9, H10 & H11	Access road and trailer parking	Rock faces along edge of road and trailer parking area	Low risk of large rock falls causing significant impact, however there is a risk of injury / damage from smaller rock falls or isolated rocks	Combination of warning signs, installation of 2m high twist wire mesh fence and localised stabilisation/drape netting
H12 & H13	Tunnel entrances to Maseline Harbour	Rocky cliff above tunnel entrance	Risk of damage to vehicles and injury to persons from small rock falls or isolated falling rocks	Installation of rock stabilisation netting or catcher fence over tunnel entrance
H14	Maseline Harbour	Rock face along southern edge of harbour, adjacent to terminal building	Overhanging and fragmented rock at risk of falling. Area is used by the public when waiting for the ferry.	Scaling the rock face to remove loose rocks and installation of a barrier / fence to keep the public from the base of the cliff

3.6 Additional comments

It should be noted that the invasive species of plant Sour Fig (Binomial name: *Carpobrotus Edulis*) was observed on the grass to the south of **Area H9**.

4 REPORT LIMITATIONS

This report is confidential and non-assignable by the Client. Geomarine shall not be responsible for any use of the report or its contents for any purpose other than that for which it was prepared and provided.

If passed to other parties, this report should only be copied in its entirety. No professional liability or warranty shall be extended to other parties by Geomarine without explicit written agreement by Geomarine.

This report should be considered in the light of any changes in legislation, statutory requirement or industry practices that may have occurred subsequent to the date of issue. The opinions and recommendations expressed in this report are based on the information obtained during the research, the results of field observation and the author's site interpretation.

Geomarine have not been commissioned to look at the stability of other soil slopes or rockfaces outside those highlighted within this report.

APPENDICES

APPENDIX A
Risk Assessment of Creux/La Maseline Harbour



RISK ASSESSMENT - Creux/La Maseline Harbour, Sark

		JOB NUMBER	SHEET NUMBER
SHEET NUMBER	RA	3265	1
PERSON COMPLETING ASSESSMENT	M Salter		
DATE	12.11.24		

<u>RISK PROCESSING</u>									
<u>Likelihood of rock fall occurring coincident with site user or building being present</u>		<u>Hazard Severity</u>		<u>Infrastructure</u>	<u>Human Health</u>	<u>Risk Rating</u>		<u>Action</u>	
1	Very unlikely	1	Negligible	No significant damage to services, infrastructure or building - mostly decorative.	Very minor injuries such as cuts, bruises and/or minor shock	1 to 3	Very low	No specific action, monitoring suggested	
2	Unlikely	2	Slight	Easy repairable any damage infrastructure or building	Minor injury such as cuts or shock requiring medical attention.	>3 to 5	Low	Monitoring required	
3	Possible	3	Moderate	Damage requiring repair such as brickwork replacement,	Serious non life threatening injury requiring medical attention	>5 to 7	Moderate	Action required	
4	Likely	4	High	Major damage requiring extensive repair work such as breaking out and replacing sections of structures.	Single death or major injury such as loss of limb or disablement	>7 to 10	High	Urgent action required	
5	Very likely	5	Very High	Irreparable damage involving partial or complete rebuild. Severe damage to services or infrastructure.	Multiple deaths or major injuries	Above 10	Very High	Immediate/emergency action required	

Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
	Persons using tunnel i.e. tourists/residents Reputation of the Isle of Sark	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	2	5	10	Unlikely - With the current condition of the tunnel being located on a heavily fractured faulted boundary gives rise to the possibility for large section of the tunnel to collapse. The possibility of this occurring whilst people are present within the tunnel is considered unlikely as people only momentarily pass through. Very high - Mass failure of the tunnel has the potential to cause multiple deaths. Additionally, a large scale collapse will likely cause a high amount of reputational damage for the island. Risk is High	Complete closure of tunnel making it inaccessible. (It should be noted that with this option, reputational damage is still likely to occur if collapse on this scale does occur.)	1	5	5
							Installation of structural canopy inside of tunnel and netting across the faces above and adjacent to each entrance.	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	3	5	15	Possible - With the current condition of the interior of the tunnel and the rockfaces surrounding the entrances there is a possibility of blocky failures occurring when someone is present. Especially within peak tourist season. Very high severity - large blocks falling from the tunnels interior and or surrounding rock faces surrounding the entrance have the ability to cause multiple deaths. Reputationally, the collapse would likely cause slight damage due to the areas location. Risk is high.	Complete closure of tunnel making it inaccessible.	1	5	5
							Installation of structural canopy inside of tunnel and netting across the faces above and adjacent to each entrance.	1	5	5

Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
H1		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	3	4	12	Possible - Due to the highly fractured nature of rock inside of the tunnel and the unstable nature of the rock faces surrounding the entrance to the tunnel it is considered possible small rock falls may make contact with persons using the tunnel or stood near the entrances. Especially in peak tourist season. High severity - being struck by small rock fragments from height has the potential to cause serious injury or death. Risk is high.	Complete closure of tunnel making it inaccessible.	1	4	4
							Installation of structural canopy inside of tunnel and netting across the faces above and adjacent to each entrance.	1	4	4
	Structure of the tunnel	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	3	5	15	Possible - due to the observed integrity of the tunnel it is considered possible that the tunnel may collapse. Very high - Mass failure of the tunnel will likely cause irreparable damage to the tunnel structure. Risk is Very High	Complete closure of tunnel making it inaccessible.	3	5	15
							Installation of structural canopy inside of tunnel and netting across the faces above and adjacent to each entrance.	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	4	3	12	Possible - With the current condition of the interior of the tunnel it is considered likely that blocky failures of moderate volume will occur. Moderate severity - Failures of this size will likely block access to the tunnel and require plant to remove. Risk is Very High.	Complete closure of tunnel making it inaccessible.	4	3	12
							Installation of structural canopy inside of tunnel and netting across the faces above and adjacent to each entrance.	1	3	3
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	5	1	5	Possible - Due to the highly fractured nature of rock inside of the tunnel it is considered very likely that failures of this scale are occurring, this is further demonstrated by the debris present on the floor of the tunnel. Very low severity - Failures of this scale are considered very unlikely to affect the structural integrity of the tunnel by themselves. Risk is Low.	Periodic monitoring of the tunnel structure	3	1	3
H2		Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very Unlikely - no areas at risk of mass failure were identified during the inspection Very high - The consequence of a mass failure occurring during peak tourist season could be multiple deaths. Reputationally, a large scale collapse on the beach would likely cause significant reputational damage to the island. Risk is Low.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface.	1	5	5
							Stabilisation of rock face	1	5	5
	Persons using beach Reputation of the Isle of Sark to visitors	Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - Rock face in this section has multiple areas where loose blocks are observed. People will also likely be below this point for extended periods of time in the summer months, however no historical instances of this have been reported. High severity - debris is able to cause serious injury or death. Blocky failures by themselves are unlikely to cause reputational damage to the island. Risk is High.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface. Discourage sunbathing under the cliff with barriers/rocks etc	1	4	4
							Stabilisation of rock face	1	4	4

Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - Although areas of loose cobble sized material was observed during the inspection, Geomarine are not aware of any historical instances of debris striking people. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Small sized debris is not likely to cause any reputational damage to the island. Risk is Moderate.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface. Discourage sunbathing under the cliff with barriers/rocks etc	1	3	3
							Stabilisation of rock face	1	3	3
H3	Persons using slip road Structure of the slip road Reputation of the Isle of Sark to visitors	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - No evidence of potential large scale failures were identified during the walkover, or are Geomarine aware of any historic mass failures. Very high - Mass failure of the slope could lead to multiple serious injuries or deaths. A large scale failure would cause a large mass of material to be moved to make the slip road serviceable again. Due to its location, a large failure in this area would negatively impact the islands reputation. Risk is Low.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface.	1	5	5
							Stabilisation of rock face	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - Rock face in this area identified some blocky areas which were at risk of falling. If blocks do fall, lack of historical instances of injuries occurring from this suggest likelihood of causing injury is low. High severity - debris is able to cause serious injury or death. Blocky debris falling is unlikely to damage the structure of the slip road but may require clearing with large plant. Reputationally, blocky failures will cause little effect on the islands reputation. Risk is High.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface.	1	4	4
							Stabilisation of rock face	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and relatively short periods people spend on the slip. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Risk is Moderate.	Periodic monitoring of the rockface to identify any signs of potential mass failures. Signage should be erected to warn people of the dangers of being present below the rockface.	1	3	3
							Stabilisation of rock face	1	3	3
		Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - No potential large scale failures were identified during the walkover, or are Geomarine aware of any historic mass failures in the area. Very high - Mass failure of the slope could lead to multiple serious injuries or deaths. Large scale failures would be unlikely to cause damage to the slip way structure but would require clearance of a large volume of material with large plant. Due to the location, a large scale failure would cause damage to Sark's reputation. Risk is Low.	Monitoring of rock face for any signs of mass failure.	1	5	5
		Small scale rock fall - blocky mass -	2	4	8	Unlikely - Rock face in this area identified some blocky areas which were at risk of falling. However, lack of historical instances of injuries occurring from this suggest it is unlikely to strike people. Evidence of some fallen blocks at the base. High severity - debris of this size is able to cause serious injury or death. A failure of this size would only be able to cause superficial	Signage erected along cliff face to discourage people from standing directly below the face for extended periods. Geomarine also recommend that a fence is put up to stop fishermen storing equipment directly below the face.	1	4	4




Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
H4	Persons using slip road Structure of the slip road Reputation of the Isle of Sark to visitors	individual boulders falling				damage to the slip way but would likely require clearance with plant. If a failure of this size occurred during the summer months, it may cause minor damage to Sark's reputation due to its location. Risk is High.	Stabilisation of rock face	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and relatively short periods people spend on the slip. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Debris of this size is likely to cause negligible damage to the slip ways structure. Reputationally, falls of this size are likely to have a negligible impact. Risk is Low.	Signage could be erected along cliff face to discourage people from standing directly below the face for extended periods. Geomarine also recommend that a fence is put up to stop fishermen storing equipment directly below the face.	1	3	3
							Stabilisation of rock face	1	3	3
H5	Persons using tunnel Structure of the tunnel Reputation of the Isle of Sark to visitors	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - No evidence of potential large scale failures were identified during the walkover, or are Geomarine aware of any historic mass failures in the area. Very high - Mass failure of the slope could lead to multiple serious injuries or deaths. Structurally a mass failure would be likely to cause major damage to the tunnel requiring extensive repair works. Due to its location, A large scale failure here would likely cause very high damage to Sark's reputation. Risk is Low.	Periodic monitoring of rock face.	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	1	4	4	Very unlikely - Rock face in this area identified some blocky areas which were at risk of falling. However, lack of historical instances of injuries occurring from this suggest it is unlikely to strike people. Additionally, the structure of the tunnel itself is likely to deflect and shield people from falling debris. High severity - debris is able to cause serious injury or death. Blocky failures have the potential to cause slight easily repairable damage to the structure of the tunnel. Reputationally, blocky failures in this location are unlikely to have a major impact on Sark reputation. Risk is Low.	Periodic monitoring of rock face.	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	1	3	3	Very Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and the fact that the structure of the tunnel will shelter from any falling debris. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Debris of this size will cause negligible damage to the tunnels structure. The would likely be no reputational damage from this size of failure. Risk is Very Low.	No Action required	1	3	3
H6	Persons using storage units Structure of the storage units Reputation of the Isle of Sark	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	4	4	16	Likely - Evidence of a recent mass wedge failure which has crushed a shed below along side additional areas of concern identified on rock face. As these sheds are likely to have people in them for short amounts of time and no historic evidence of serious injury or death the likelihood has been classified as unlikely. Very high - Mass failure of the slope could lead to serious injuries or death. Structurally, large scale failure is like to need require extensive repair of the below structures. Reputationally, due to its location a failure of this size would possibly cause slight damage. Risk is Very High.	Relocation of structures away from rock face and installation of fence to catch debris and keep people away from the face.	1	4	4
							Stabilisation of rockface	1	4	4
		Small scale rock fall - blocky mass -	2	4	8	Unlikely - Overhanging boulder sized masses observed on rockface above. However as these sheds/areas below the face are likely to have people in them for short amounts of time and no historic evidence of serious injury or death the likelihood has been classified as unlikely.	Relocation of structures away from rock face and installation of fence to catch debris	1	4	4




Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	S	R			L	S	R
		individual boulders falling	2	4	8	High - Debris of boulder size could lead to serious injuries or death. Additionally, boulders of this size are likely cause moderate damage to the below structures. Boulder sized material falling here is unlikely to cause reputational damage to the island. Risk is High.	Stabilisation of rockface	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	1	3	3	Very Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and if persons present in the sheds they would be protected by the roofs. Moderate severity - being struck by small rock fragments is likely to cause serious non life threatening injury and require medical attention. Structurally debris of this size will only likely be able to cause superficial or very minor damage. Risk is Very Low.	No action required	1	3	3
H7	Persons using tunnel/structures below Structure of the tunnel Reputation of the Isle of Sark	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - No indication of areas at risk of mass failure during the walkover, additionally no evidence of historical mass failures in the area. Very high - Mass failure of the slope could lead to multiple serious injuries or deaths in the summer months. Structurally, a large scale failure in this area may cause extensive damage to the below structures and tunnel. Reputationally, a large scale failure in this area would cause significant damage to the islands reputation. Risk is Low.	Periodic monitoring of slope	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - Overhanging boulder sized masses observed on rockface above the tunnel. Tunnel will provide cover for persons below. Additionally, Geomarine are aware of no historic instances of boulder sized material falling from the rockface above. Very high - Debris of boulder size could lead to serious injuries or death. Debris of boulder size would be likely to cause minor damage to the tunnel. Reputationally boulder sized material falling in this area may have a minor effect on the Isle of Sark's reputation. Risk is High.	Installation of netting on upper section of slope	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - It is considered unlikely that small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and the presence of the concrete tunnel extending past the face of the slope. . Moderate severity - being struck by small rock fragments would cause serious injury and require medical attention. Structurally small cobbles would be likely to cause negligible structural damage. Risk is Very Low.	Installation of netting on upper section of slope	1	3	3
H8	Persons using structure Structure below rock face Reputation of the Isle of Sark to visitors	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	4	4	Very unlikely - no obvious potential mass failures were identified in the walkover, there is also no historical evidence of mass failures occurring in this area. Very high - Mass failure of the slope could lead to multiple serious injuries or deaths. A large scale failure could additionally cause damage requiring extensive repairs. Reputationally, a large scale failure here could cause slight damage to Sark's reputation based on its visible location. Risk is High.	Periodic monitoring of the rockface to identify any signs of potential mass failures.	1	4	4
		Small scale rock fall - blocky mass - individual boulders falling	3	4	12	Possible - The rock face was assessed to be at risk of failure regarding boulder sized debris due to its blocky texture. Based on this it is considered possible that a failure of this scale could occur. High severity - debris is able to cause serious injury or death. Blocky debris falling is likely to cause moderate damage to the structure located below requiring replacement of brickwork and or roofing panels. Risk is Very High.	Stabilisation of rock face	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and relatively short periods people spend below the face. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. It is assessed that small cobble sized debris will have negligible impact on the structure below. Risk is Moderate.	Stabilisation of rock face	1	3	3
		Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	4	4	Very unlikely - no potential mass failures were identified in the walkover, there is also no historical evidence of mass failures occurring in this area. High severity - Mass failure of the slope could lead to serious injury or death. Reputationally, a large scale failure here could cause slight damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface	1	5	5




Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
H9	Persons below rockface Reputation of the Isle of Sark to visitors	Small scale rock fall - blocky mass - individual boulders falling	1	4	4	Very unlikely - Due to the short amount of time that is spent below the rockface and no historical evidence of debris striking people, it is considered very unlikely to occur. High severity - debris is able to cause serious injury or death. Blocky debris falling is likely to cause moderate damage to the structure located below requiring replacement of brickwork and or roofing panels. Risk is Low.	Periodic monitoring of the rockface	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	1	3	3	Unlikely - It is considered unlikely that the small rocks falling from the face would strike a person due to the lack of historic instances of this occurring and relatively short periods people spend below the face. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Risk is Very Low.	Periodic monitoring of the rockface	1	3	3
H10	Persons below rockface Trailers below rockface Reputation of the Isle of Sark to visitors	Large scale landslide i.e. major rock fall, large volume of deep seated failure in soil	1	4	4	Very unlikely - no potential mass failures were identified in the walkover. Due to the height of the rockface, failures of significant volumes are considered very unlikely. High severity - Mass failure of the slope could lead to serious injury or death. Trailer below would likely be significantly damaged/destroyed by a failure of this size. Reputationally, a large scale failure here could cause slight damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	1	4	4	Very unlikely - During the inspection, no boulder sized material was identified as at risk of falling. High severity - debris is able to cause serious injury or death. Material of this size falling is likely to cause moderate damage to the trailers below. Risk is Low.	Periodic monitoring of the rockface	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - It is assessed there is a chance that tourists may sit for extended periods under the rock face, however, due to the lack of historic instances of this occurring it is considered unlikely. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Risk is Moderate.	Signage erected to discourage pedestrians from loitering below.	1	3	3
H11	Persons below rockface Trailers below rockface Reputation of the Isle of Sark to visitors	Large scale landslide i.e. major rock fall, large volume of deep seated failure in soil	1	4	4	Very unlikely - no potential mass failures were identified in the walkover. No historical instances of mass failure have been recorded in this area. High severity - Mass failure of the slope could lead to serious injury or death. Reputationally, a large scale failure here could high damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - During the inspection some areas of concern were identified on the rock face however due to no evidence of failures of this type being present it is considered unlikely. High severity - debris is able to cause serious injury or death. Any boulder sized material is likely to moderate damage to the trailers. Risk is High.	Installation of a circa 2m high fence the length of the section to capture any falling debris and keep pedestrians away from the base of the slope.	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Unlikely - Debris of this size was observed at the base of the slope. Additionally, there is a chance that tourists may sit for extended periods under the rock face, however, due to the lack of historic instances of this occurring it is considered unlikely. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. Material of this size is only likely to cause superficial damage to any trailers below. Risk is Moderate.	Installation of a circa 2m high fence the length of the section to capture any falling debris and keep pedestrians away from the base of the slope.	1	3	3
H12	Persons below rockface Vehicles travelling below Reputation of the Isle of Sark to visitors	Large scale landslide i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - no potential mass failures were identified in the walkover. No historical instances of mass failure occurring. High severity - Mass failure of the slope could lead to serious injury or death. A large scale failure in this location could cause catastrophic damage to vehicles travelling. Reputationally, a large scale failure here could cause high damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - During the inspection some areas of concern were identified on the rock face however due to no evidence of failures of this type being present it is considered unlikely. High severity - debris is able to cause serious injury or death. Any boulder sized material is likely to moderate damage to the trailers. Risk is High.	Stabilisation of the rockface	1	4	4




Area	PERSONS/ITEMS AFFECTED	HAZARDS	RISK			Assessment of Risk	Suggested remedial actions	Residual RISK		
			L	x	S = R			L	x	S = R
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	3	3	9	Possible - During the inspection material of this size was identified as at risk of falling. In the summer months footfall below this area is high due to the ferry terminal, it is therefore considered possible. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. It is considered that debris of this size is likely to cause moderate damage to vehicles travelling below e.g. smashed window screens or dented bodywork. Reputationally, even debris of this size falling can cause slight reputational damage to Sark due to its high footfall location. Risk is High.	Stabilisation of the rockface	1	3	3
H13	Persons below rockface Vehicles traveling below Reputation of the Isle of Sark to visitors	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - no potential mass failures were identified in the walkover. No historical instances of mass failure occurring. High severity - Mass failure of the slope could lead to serious injury or death. A large scale failure in this location could cause catastrophic damage to vehicles travelling. Reputationally, a large scale failure here could cause high damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	2	4	8	Unlikely - During the inspection some areas of concern were identified on the rock face however due to no evidence of failures of this type being present it is considered unlikely. High severity - debris is able to cause serious injury or death. Any boulder sized material is likely to moderate damage to the trailers. Risk is High.	Stabilisation of the rockface	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	3	3	9	Possible - During the inspection material of this size was identified as at risk of falling. In the summer months footfall below this area is high due to the ferry terminal, it is therefore considered possible. Moderate severity - being struck by small rock fragments is likely to cause serious injury and require medical attention. It is considered that debris of this size is likely to cause moderate damage to vehicles travelling below e.g. smashed window screens or dented bodywork. Reputationally, even debris of this size falling can cause slight reputational damage to Sark due to its high footfall location. Risk is High.	Stabilisation of the rockface	1	3	3
H14	Persons below rockface Reputation of the Isle of Sark to visitors	Large scale landslip i.e. major rock fall, large volume of deep seated failure in soil	1	5	5	Very unlikely - no potential mass failures were identified in the walkover. Previous stabilisation works were identified on the upper soil slope in this area. The stabilisation appeared to be in adequate condition generally, however, at least one of pins holding the netting was identified as loose. High severity - Mass failure of the slope could lead to multiple serious injuries or death. Reputationally, a large scale failure here could cause high damage to Sark's reputation based on its visible location. Risk is Low.	Periodic monitoring of the rockface and inspection of previous stabilisation works.	1	5	5
		Small scale rock fall - blocky mass - individual boulders falling	3	4	12	Possible - During the inspection, areas of overhanging boulder sized material were identified on the face. During summer months this area is used as a queuing area for the ferry's, therefore it is considered likely people may spend extended periods of time below this face. High severity - debris is able to cause serious injury or death. Any boulder sized material falling is likely to cause a high amount reputational damage to Sark due to its location. Risk is Very High.	Scaling of the rockface and installation of a fence/railing to keep people away from the rockface whilst queuing.	1	4	4
		Minor rock fall - gravels and small cobbles coming loose from rock face and falling intermittently	2	3	6	Possible - During the inspection, gravel/cobble sized material was identified below the face, highlighting that failures of this type were happening relatively frequently. During summer months this area is used as a queuing area for the ferry's, therefore it is considered likely people may spend extended periods of time below this face. High severity - debris is able to cause serious injury or death. Any boulder sized material falling is likely to cause a high amount reputational damage to Sark due to its location. Risk is Moderate.	Scaling of the rockface and installation of a fence/railing to keep people away from the rockface whilst queuing.	1	3	3

APPENDIX B
Photographs of Areas Inspected



<div></div> <div><h1>Inspection Photographs</h1></div>		<div>H1</div>
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 1 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24



<div></div> <div><h1>Inspection Photographs</h1></div>		<div>H2</div>
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 2 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24



<div></div> <div>Inspection Photographs</div>		H3
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 3 of 12
Client	Chief Pleas of Sark	
<div></div> <div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24



		<h1>Inspection Photographs</h1>		<h2>H4 & H5</h2>
Contract Name	Sark-Inspect			
Contract Number	3265			
Engineer	N/A			Page 4 of 12
Client	Chief Pleas of Sark			
<p>H4:</p> 				
<p>H5:</p> 				
Photographed by		Date photographed		
MS/IOB		15.11.24		



<div></div> <div><h1>Inspection Photographs</h1></div>		<div>H6</div>
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 5 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by MS/IOB		Date photographed 15.11.24



<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H7
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 6 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by MS/IOB		Date photographed 15.11.24


<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H8
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 7 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by MS/IOB		Date photographed 15.11.24


<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H9 & H10
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 8 of 12
Client	Chief Pleas of Sark	
<div>H9:</div> <div></div> <div>H10:</div> <div></div>		
Photographed by MS/IOB		Date photographed 15.11.24



<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H11
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 9 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24



<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H12
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 10 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24

<div><div><div>GEOMARINE</div></div></div>		<div>Inspection Photographs</div>		<div>H13</div>	
Contract Name		Sark-Inspect			
Contract Number		3265			
Engineer		N/A		Page 1 1 of 12	
Client		Chief Pleas of Sark			
<div><div></div><div></div></div>					
Photographed by			Date photographed		
MS/IOB			15.11.24		

<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		H14
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 12 of 12
Client	Chief Pleas of Sark	
<div></div>		
Photographed by MS/IOB		Date photographed 15.11.24


<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		East Face
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 1 of 7
Client	Chief Pleas of Sark	
		
Photographed by MS/IOB		Date photographed 15.11.24



		Inspection Photographs		E1
Contract Name		Sark-Inspect		
Contract Number		3265		
Engineer		N/A		Page 2 of 7
Client		Chief Pleas of Sark		
				
Photographed by		Date photographed		
MS/IOB		15.11.24		

		Inspection Photographs	E2
Contract Name	Sark-Inspect		
Contract Number	3265		
Engineer	N/A		Page 3 of 7
Client	Chief Pleas of Sark		
			
Photographed by		Date photographed	
MS/IOB		15.11.24	

<div></div> <div>Inspection Photographs</div>		E3
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 4 of 7
Client	Chief Pleas of Sark	
		
Photographed by		Date photographed
MS/IOB		15.11.24

		Inspection Photographs	E4 & E6
Contract Name	Sark-Inspect		
Contract Number	3265		
Engineer	N/A		Page 5 of 7
Client	Chief Pleas of Sark		
			
			
Photographed by		Date photographed	
MS/IOB		15.11.24	

<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		E8 & E9
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24

<div></div> <div><h1>Inspection Photographs</h1></div>		<div>E10</div>
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 7 of 7
Client	Chief Pleas of Sark	
<div></div>		
Photographed by		Date photographed
MS/IOB		15.11.24

Inspection Photographs

West Face

Contract Name	Sark-Inspect
Contract Number	3265
Engineer	N/A
Client	Chief Pleas of Sark


Page 1 of 6



Photographed by
MS/IOB

Date photographed
15.11.24

<div><div>GEOMARINE</div><div>Inspection Photographs</div></div>		W1 & W2
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 2 of 6
Client	Chief Pleas of Sark	
<div>W1:</div> <div></div> <div>W2:</div> <div></div>		
Photographed by MS/IOB		Date photographed 15.11.24

<div></div> <div>Inspection Photographs</div>		W3
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 3 of 6
Client	Chief Pleas of Sark	

W3:



W4:



Photographed by	Date photographed
MS/IOB	15.11.24

Inspection Photographs

W4

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 4 of 6





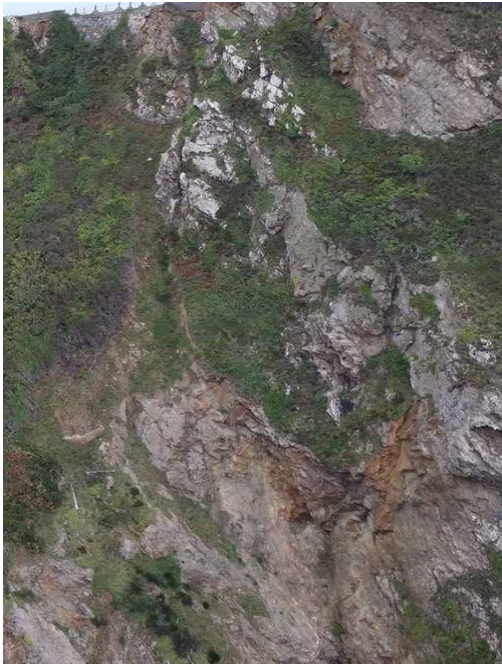
Photographed by

MS/IOB

Date photographed

15.11.24

		Inspection Photographs	W5
Contract Name	Sark-Inspect		
Contract Number	3265		
Engineer	N/A		Page 5 of 6
Client	Chief Pleas of Sark		
			
Photographed by		Date photographed	
MS/IOB		15.11.24	

<div></div> <div>Inspection Photographs</div>		W6 & W7
Contract Name	Sark-Inspect	
Contract Number	3265	
Engineer	N/A	Page 6 of 6
Client	Chief Pleas of Sark	
<div>W6:</div> <div></div> <div>W7:</div> <div></div>		
Photographed by MS/IOB		Date photographed 15.11.24

APPENDIX C
Historical Photographs of La Coupée

Historical Photographs

La Coupée - Circa. 1996

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 1



Photos provided by:

La Société Sercquaise

Historical Photographs

La Coupée - Circa. 1996

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 2



Photos provided by:

La Société Sercquaise

Historical Photographs

**La Coupée - Circa. Early
20th Century**

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 3



Photos provided by:
La Société Sercquaise

GEOMARINE

Historical Photographs

**La Coupée - Circa. Early
20th Century**

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 4



Photos provided by:

La Société Sercquaise

Historical Photographs

**La Coupée - Circa. Late
19th Century**

Contract Name

Sark-Inspect

Contract Number

3265

Engineer

N/A

Client

Chief Pleas of Sark

Page 5



Photos provided by:

La Société Sercquaise

Historical Photographs

**La Coupée - Circa. Late
19th Century**

Contract Name

Sark-Inspect

Contract Number

3265

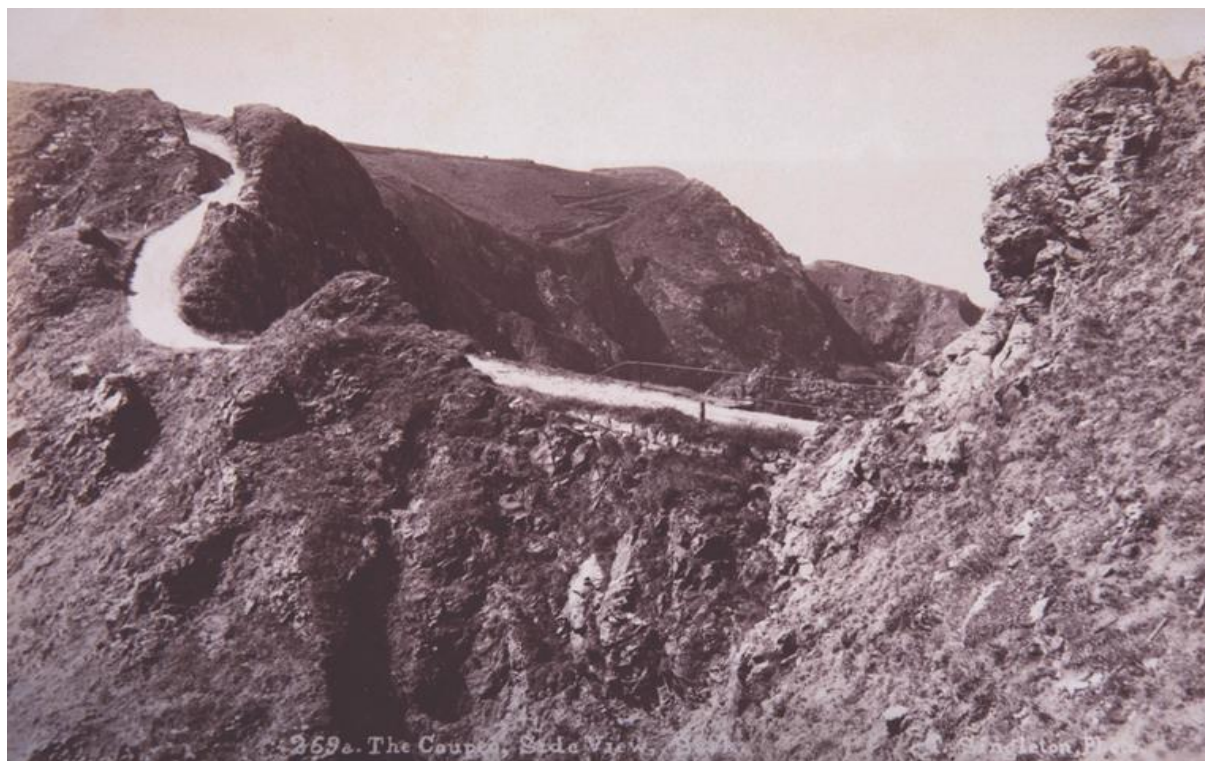
Engineer

N/A

Client

Chief Pleas of Sark

Page 6



Photos provided by:

La Société Sercquaise

END OF REPORT