

Raasay 6:

SW Raasay



The arrival point on Raasay is the pier at Clachan in Churchton Bay, protected on the west side by a Paleocene sill. Inverarish is the only village; elsewhere the people of Raasay live in small clachans (settlements) of just a few houses. Raasay House dominates the bay, with superb views towards Skye. It is built on raised beach deposits and has Kennel Wood as a backdrop. The house was rebuilt in the 18th Century, after the original building was burnt to the ground after the Battle of Culloden (1746). Since then, Raasay has had a spectrum of owners, some good, some bad, and some treating the island and its natives with contempt and, at times, cruelty. Fortunately, all of this is history.

Aspects covered: The disused mining plant at the (now disused) pier at [East Suisnish](#); strata of the Lower Jurassic Ardnish Formation and the Pabay Shale Formation; the Raasay Granite sill; the contact between the Raasay Granite sill and the Pabay Shale Formation; the raised beach at Clachan; the Paleocene picrite Oskaig Sill.

Route: [East Suisnish](#) – [Clachan](#) – [Oskaig Point](#). Although this route can be followed on foot, it may be faster/easier to park at the pier at [East Suisnish](#), then at the [Clachan](#) Pier, and then at [Oskaig](#).

Distance: 6 kilometres (4 miles) (each way, if on foot).

Time: 6 hours (on foot); 4 hours (by car).

General comments: This is a low-level coastal excursion, although low tide conditions are not required. Parking is available at the three locations (pier at [East Suisnish](#); pier at [Clachan](#); [Oskaig](#) (limited)). Care should be taken at the roadside localities north of [Suisnish Point](#).

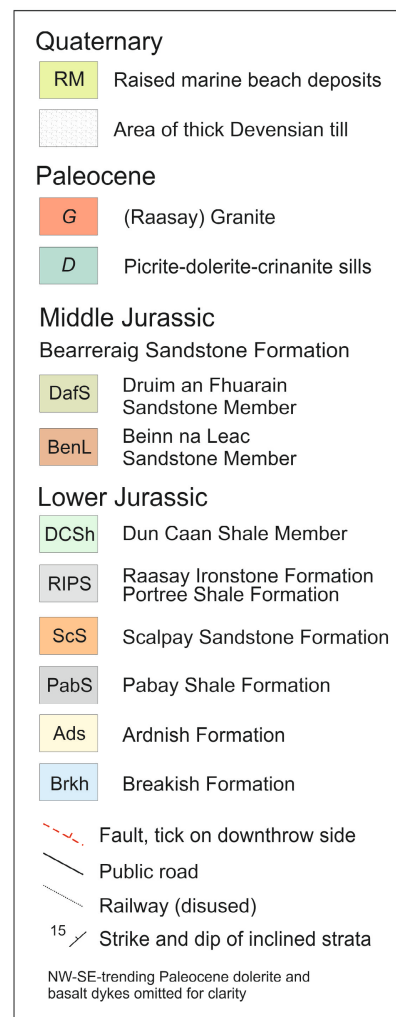
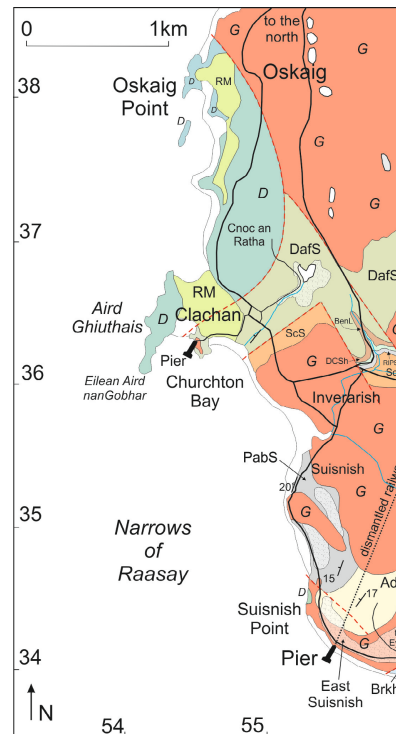


Figure Raasay 6.1: Simplified geological map and key of SW Raasay.



Figure Raasay 6.2: Annotated Google Earth® image of SW Raasay.



Figure Raasay 6.3: Annotated oblique Google Earth® image of SE Raasay.

From [Inverarish](#), take the minor road east towards [Eyre](#). Parking is at the (now disused) pier at [East Suisnish](#).

Locality 1 [NG 5548 3418]:

During World War 1, iron ore was mined on Raasay and taken by a cable rail system to the pier at [East Suisnish](#)

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and shipped to the mainland. Details are set out in **Excursion Raasay 4**. Below, are details relating to the now derelict processing plant at the pier.

The processing plant at [East Suisnish](#) was constructed by Robert McAlpine & Sons and comprises a crusher (where coal was added), kilns to calcine (roast, to create a concentrate) the ironstone, and a large hopper to store processed material prior to shipping. Not all the ore was processed on the island, with some shipped directly after passing through the crusher.

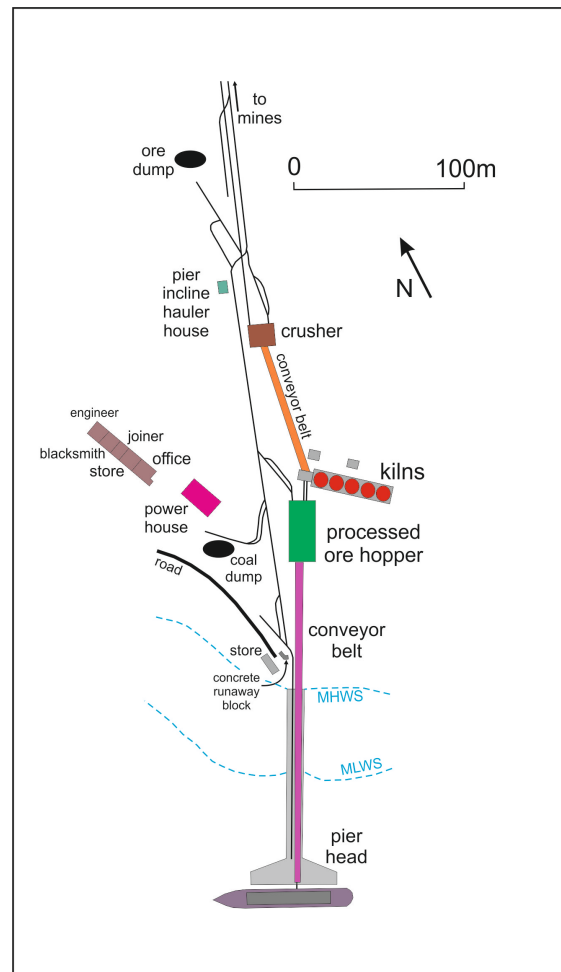


Figure Raasay 6.4: Layout of the processing plant.

Other onsite facilities included an office for administration staff and workshops for joiners, blacksmiths and engineers. Dynamite and detonators were stored in a remote stone building surrounded by a blast bank. There was a lightning conductor on the roof.

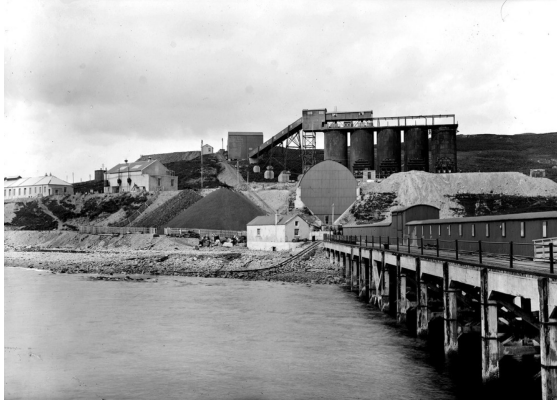


Figure Raasay 6.5: Pier and processing plant at East Suisnish, including five cylindrical calcining kilns, store (to left of pier), coal dump and storage hopper (with arch roof). At the top of the short rail incline is the pier hauler incline house, to the right of which is the crusher with a conveyor to the top of the kilns. Coal was taken to the crusher via the short rail incline, where it was mixed with the unprocessed ore and thence to the kilns. View is towards the north. [BGS P000043]



Figure Raasay 6.8: Processing plant at East Suisnish, viewed towards the east. At the top of the short rail incline is the pier hauler incline house, to the right of which is the crusher (arched roof) and conveyor to the top of the kilns. Coal was taken to the crusher via the short rail incline, where it was mixed with the unprocessed ore and thence to the kilns. The white building, to right, comprised offices, stores and workshops for joiners, blacksmiths and engineers. [BGS P000044]



Figure Raasay 6.6: Pier at East Suisnish with conveyor belt and loading elevator. View is towards the SE. [BGS P000045]



Figure Raasay 6.9: The derelict processing plant above the East Suisnish pier. The row of roofed buildings to the left are the remnants of the kilns (removed when the operation closed in 1919) and the unroofed terrace on the right was offices, stores and workshops for joiners, blacksmiths and engineers.



Figure Raasay 6.7: Pier at East Suisnish with conveyor belt and loading elevator. Ore is being loaded onto a ship for transport to the mainland. View is towards the west. [BGS P000046]



Figure Raasay 6.10: Remnants of the kilns at East Suisnish, used to calcine the ore prior to shipping.



Figure Raasay 6.11: The pier hauler incline house of the processing plant at East Suisnish. In the distance, on Skye, is the twin summit Red Hill, Glamaig.



Figure Raasay 6.12: Ore hopper, with remnants of kilns behind, within the processing plant, East Suisnish. View is towards the NE.

Gain the high ground above and to the NE of the processing plant, where the course of the cable railway forms an obvious cutting. Here, on the east side of the cutting, Lower Jurassic Ardnish Formation strata crop out.

Locality 2 [\[NG 5557 3441\]](#):

Ardnish Formation strata were deposited in a shallow/nearshore marine environment. The dominant lithologies are limestones, calcareous micaceous sandstones, some of which are massive, and laminated siltstones and mudstones. Changes from carbonate-dominated beds to siliciclastic sediment-dominated beds can be attributed to sea level changes, influencing sediment supply into the basin, together with climatic changes.

Here, the dominant lithologies are grey, massive limestones with distinctive careous weathering characteristics, interbedded with brown beds ranging between shale and laminated silty/sandy limestone and typified with abundant fossils of the oyster, *Gryphaea arcuata*. Complete specimens are rare and comprise two articulated (connected with a flexible joint) shells, the larger colloquially referred to as 'Devil's toenails' and the smaller forming a lid. In life position, the larger shell

rested on the sediment substrate. In these beds, many of the specimens are preserved only as fragments.



Figure Raasay 6.13: Lower Jurassic Ardnish Formation strata in the disused cable railway cutting at East Suisnish. The dominant lithologies are massive grey limestone, interbedded with brown laminated beds containing siliciclastic sediment. The dominant fossils are the oyster, *Gryphaea arcuata*. Pole c. 1m long.



Figure Raasay 6.14: Detail of the Lower Jurassic Ardnish Formation strata in the disused cable railway cutting at East Suisnish. The dominant lithologies are massive grey limestone, interbedded with brown laminated beds containing siliciclastic sediment. The dominant fossils are the oyster, *Gryphaea arcuata*. Ruler 30cm long.



Figure Raasay 6.15: Detail of the Lower Jurassic Ardnish Formation strata in the disused cable railway cutting at East Suisnish. Ruler 30cm long.

Return to the road and continue on foot to the western end of the pebble beach, where the Raasay Granite forms clean jointed exposures.

Locality 3 [NG 5538 3428]:

This small outcrop has the granite's typical mineralogy, comprising its two key minerals, quartz and alkali feldspar, in a distinctive granophyric intergrowth, or texture. Quartz and alkali feldspar are also present as phenocrysts, typically up to 5mm, and the main ferromagnesian mineral is the alkali-rich amphibole, riebeckite, blue when fresh, but typically weathered to a rusty brown on most surfaces.

In the distance, to the west, is [Ben Tianavaig](#), south of Portree (not visible from here). This dramatic summit is composed of Paleocene basaltic lavas of the Beinn Edra Group. On the east (seaward) side of the hill, late Quaternary to Holocene landslips are strikingly illustrated, and are part of a landslip system that runs the length of the inland escarpment of Trotternish in north Skye.



Figure Raasay 6.16: Coastal exposure of the Raasay Granite at East Suisnish. In the distance is Ben Tianavaig, composed of basaltic lavas with a distinctive landslipped area along the coast of the Narrows of Raasay.

Continue NW along the road to where a track on the landward side of the road exposes strata of the Pabay Shale Formation.

Locality 4 [NG 5536 3460]:

Here, friable brown shales form an unstable embankment, with thin calcareous bands that help to define the attitude of the stratification. These fine-grained micaceous strata developed in a deeper part of the Hebrides Basin, essentially further offshore than the underlying Ardnish Formation.



Figure Raasay 6.17: Fractured and faulted Pabay Shale Formation strata in the embankment of the track off the coastal public road at [NG 5536 3460].

Continue on foot along the coastal road past the old sign locating where the original cable telephone came onshore on Raasay from Skye in the early 1900s.



Figure Raasay 6.18: The bay north of Suisnish Point where the original cable telephone came onshore from Skye in the early 1900s.



Figure Raasay 6.19: Cable telephone sign on the coast north of Suisnish Point.

Continue north along the public road towards [Suisnish](#). Where a steep embankment occurs on the landward side of the road, the Raasay Granite overlies Pabay Shale Formation strata, clearly indicating the granite's overall sill-like character.

Locality 5 [\[NG 5520 3506\]](#):

The upper part of the exposure is composed of granite, forming a protective cap to the shale and effectively responsible for the shale's good exposure. The grey-weathering granite has near-vertical prismatic joints indicating the essentially horizontal orientation of the overall mass of granite at this location. It has the same mineralogy as that described for Locality 3, above.

The exposure of the underlying shale thickens towards the SE, where the crag trends inland. Here, the granite sill has a transgressive relationship with the shale, cutting up-sequence. One possibility is that the sill was emplaced as discrete lobes at its leading edge, which coalesced, each at a slightly different stratigraphic level, but overall conformable to the stratification of the shale. The escarpment formed by the granite overlying the shale can be traced inland, with a talus of scree at its base.

The contact of the granite and shale is particularly well exposed and, with care, can be examined on the slope above the road. There are slight discordances between the contact and the bedding of the shale, but, overall, they are parallel. The margin of the granite has a slightly bulbous geometry along the contact, with small cusps of the shale 'projecting' into the margin of the sill. Close to the margin of the sill, locally, it has a weakly-developed banded character, possibly reflecting the magma's viscous character during emplacement. Dolerite dykes and sills that have been emplaced into the shale are typically older than the granite; the granite has planed off a dyke-shale contact, demonstrating the relative ages of the dykes and the granite. Contact metamorphism of the shale appears to be minimal, with no significant development of a zone of hornfels.



Figure Raasay 6.20: Slightly transgressive pale Raasay Granite (sill) 'overlying' dark Pabay Shale Formation strata north of Suisnish Point, forming an escarpment that can be traced, inland, to the SE.



Figure Raasay 6.21: Contact of pale Raasay Granite sill with underlying dark Pabay Shale Formation strata in roadcut north of Suisnish Point. Pole c. 1m long.

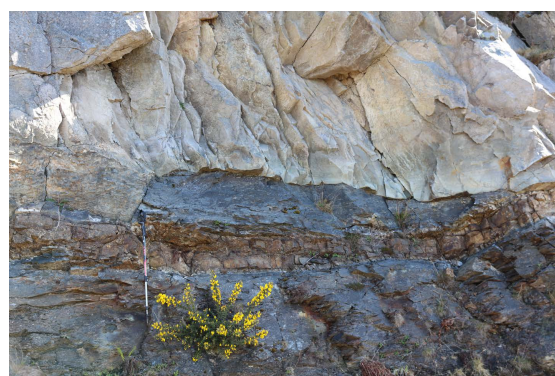


Figure Raasay 6.22: Detail of contact of pale Raasay Granite sill with bulbous margin, with underlying dark Pabay Shale Formation strata, roadcut north of Suisnish Point. The granite-shale contact is locally transgressive (above pole). Within the shales is a rusty-brown bedding-parallel basaltic sheet. Pole c. 1m long.



Figure Raasay 6.23: Vertical rusty-brown dyke within Pabay Shale Formation strata cut off by younger Raasay Granite sill, roadcut north of Suisnish Point. Pole (on margin of dyke) c. 1m long.

Either: Return to the pier at [East Suisnish](#) and proceed by car to the [pier](#) on the west side of Churchton Bay and park at the [head of the pier](#) (c. 3km; c. 2 miles).

Or: Continue on foot north to [Suisnish](#) and, at the [telephone boxes](#), turn left (NW) following the road

signposted 'The NORTH / Clachan' past the playing field (on the left; south), towards [Raasay House](#) at [Clachan](#), to the pier on the west side of [Churchton Bay](#) (c. 2.5km; c. 1.5 miles).



Figure Raasay 6.24: Inverarish playing fields.

Locality 6 [\[NG 5469 3635\]](#):

[Raasay House](#) is built on a raised beach platform, comprising cemented cobble and sand grade material, between [Churchton Bay](#) and the [small \(unnamed\) bay](#) NW of Raasay House. The platform, best viewed from the latter, is of Holocene age, and attributed to a relative sea level change due to glacial isostatic adjustment (unloading/melting of ice at the end of the Pleistocene Epoch glaciation(s)) and eustatic ('ocean volume') changes.

The cobbles within the deposit include basalt, crinanite and picrite from the Oskaig Sill (see Locality 7, below), and less common granite from the Raasay Granite, all set in a sand grade matrix. The matrix is dominated by grains of olivine, clinopyroxene and plagioclase from the sill, set in a cement of carbonate and zeolites. This sandy matrix is essentially the product of weathering and erosion of the picritic (i.e., olivine-rich) facies of the Oskaig Sill (see below), with the olivine remaining remarkably fresh, although somewhat rounded.



Figure Raasay 6.25: Raasay House, situated on the Holocene raised beach platform north of Churchton Bay.



Figure Raasay 6.26: The Holocene raised beach platform NW of Raasay House.

Proceed either by foot or by vehicle, c. 2km north on the minor coastal public road from behind (north of) [Raasay House](#), to [Oskaig](#). Immediately north of the cattle grid at the bend in the road at [Oskaig](#), very limited parking is available in a [small \(now disused\) roadside quarry](#). Continue north on foot for c. 150m to the [minor road](#) on the west side of the main road that leads to the row of houses at [Oskaig](#). Skirt north around the houses, across the raised beach deposits to the obvious coastal crags that form [Oskaig Point](#).

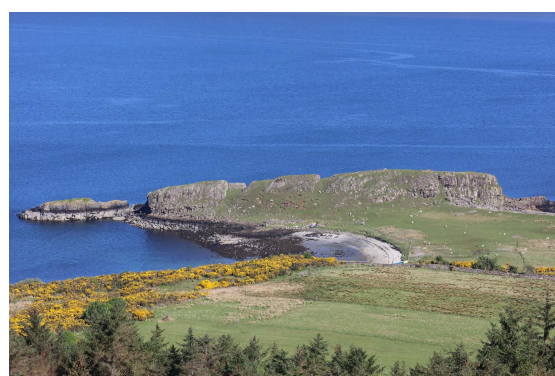


Figure Raasay 6.27: Exposure of the Oskaig Sill, viewed towards the NW. Raised beach deposits form the low ground in the mid ground.

Locality 7 [\[NG 5452 3814\]](#):

The Oskaig Sill ranges in composition between picrite and alkali olivine dolerite (crinanite of some literature). This alkaline sill is part of the Paleocene Little Minch Sill Complex, much better and more widely developed on Trotternish in north Skye, west, opposite Raasay.

The sill is exposed on the peninsula at [Oskaig](#) and, further south, on the high ground of [Àird Ghiuthais](#), on the west side of the pier at [Clachan](#). Its eastern margin is not exposed but, based upon the sill's topographic expression and that of the Raasay Granite to the east, has a curved outcrop, concave to the west, from NW of [Oskaig](#), through a point east of [Cnoc an Ratha](#) near the Cemetery in the [Oskaig Plantation](#), to a point adjacent to the pier at [Clachan](#). It is at least 100m thick, with a dip of c. 30° towards the NW. NW-SE -trending dolerite and basalt

dykes of the Paleocene Skye regional swarm cut the sill, best seen along the coastline at [Oskaig](#).

The structurally lowest part of the sill comprises a picrite facies that is typically weathered and easily eroded, although the olivine is surprisingly fresh. The most degraded material has a nodular appearance. This unusual, weathered characteristic of the sill may be the result of post-intrusion hydrothermal alteration. The picrite is typically layered, although not obviously so everywhere. Seen in isolation, it might be mistaken for a stratified sedimentary deposit.

Internal complexities include sharply defined veins and pegmatites of gabbroic and more evolved material, together with material that has undergone hydrothermal alteration, rich in carbonate and zeolites. Some form of internal segregation of the crystallising sill may explain their development. Crystals within the pegmatites, especially the clinopyroxenes, can be several centimetres in length.

Above the picrite, with a gradational transition involving a reduction in the overall olivine content of the sill, is an olivine-rich dolerite-gabbro facies. The most evolved facies of the sill is an alkali-rich (zeolite-rich) and olivine-poor dolerite ('crinanite'), also developed in the outcrop further south at [Àird Ghiuthais](#), NW of the [Clachan pier](#). These more evolved facies contain veins and pegmatites, some dominated by feldspar and alkali-rich pyroxene.



Figure Raasay 6.28: Typical jointed Oskaig Sill at the northern end of the main exposure. View is towards the west.



Figure Raasay 6.29: Gabbro pegmatite within the Oskaig Sill. Ruler 30cm long.

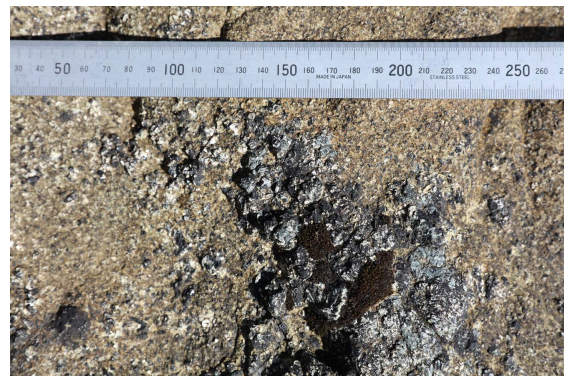


Figure Raasay 6.30: Detail of gabbro pegmatite within the Oskaig Sill. Ruler for scale.



Figure Raasay 6.31: Evolved (plagioclase-rich) vein within olivine dolerite facies of the Oskaig Sill. Ruler 30cm long.

End of excursion.

Retire to Raasay House for a refreshment.