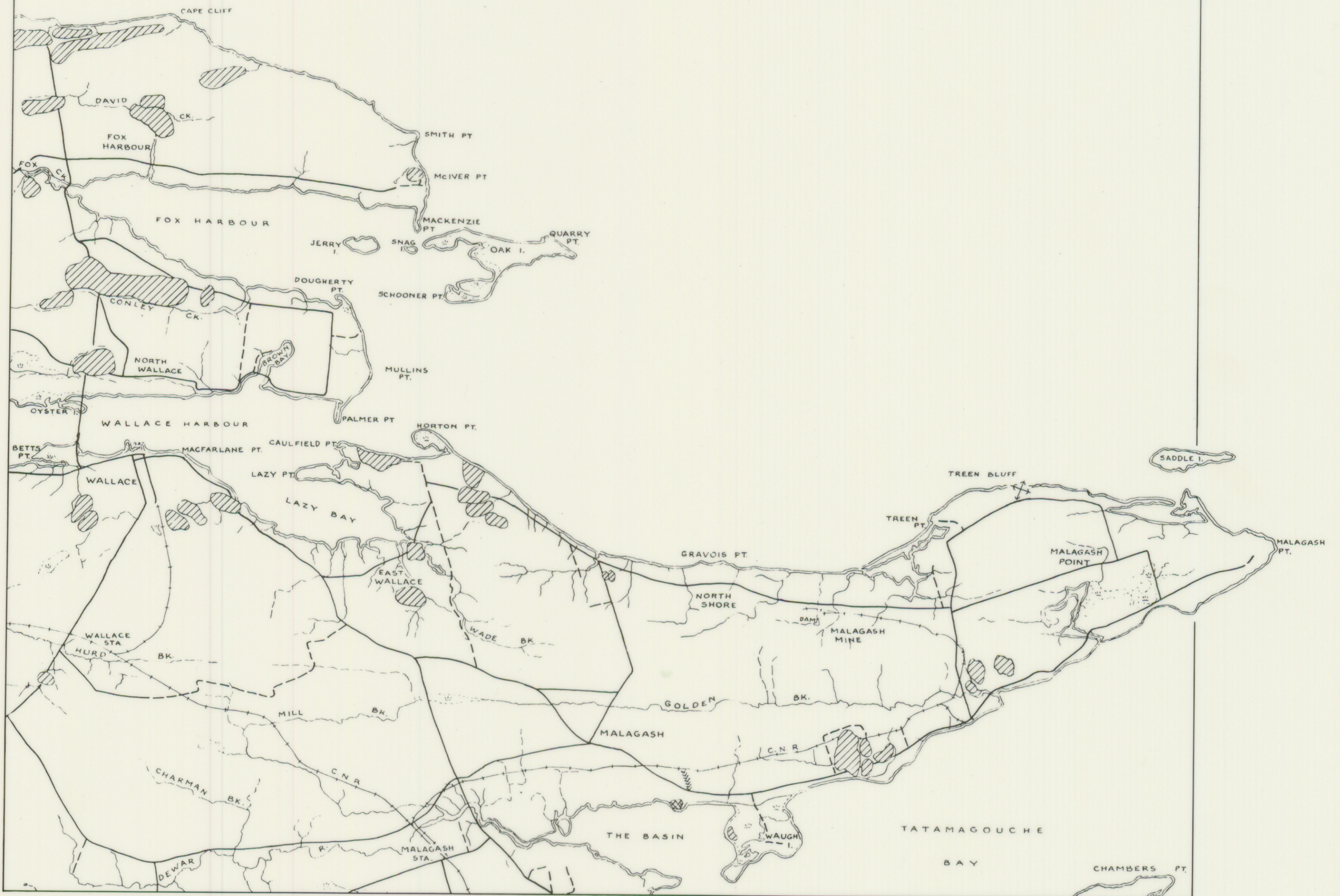
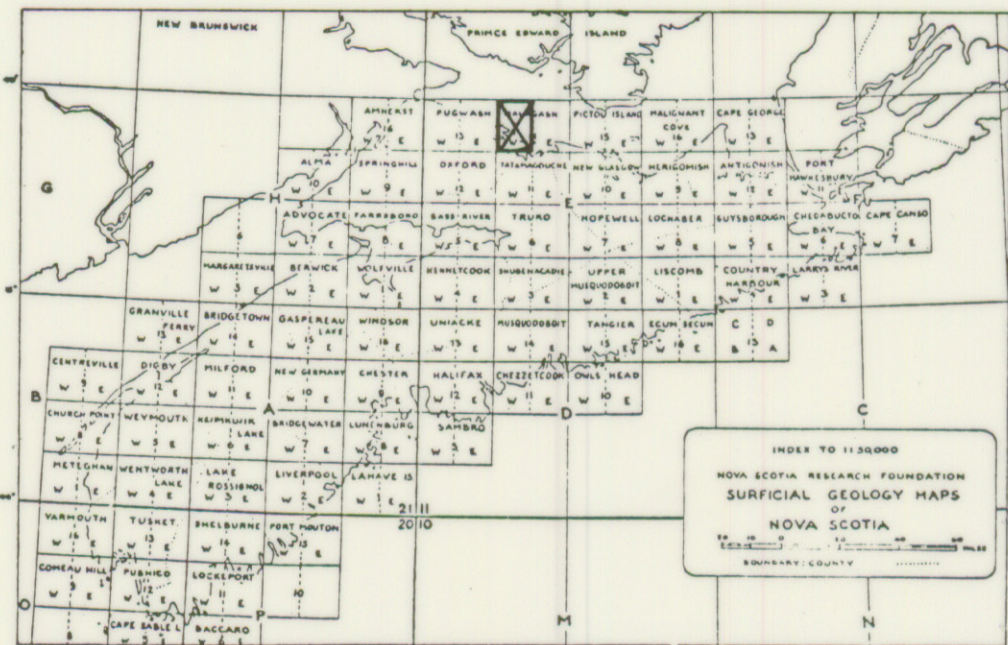


NORTHUMBERLAND STRAIT



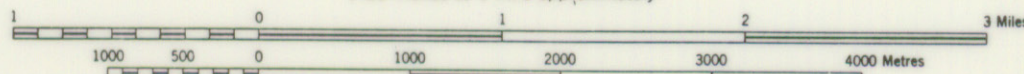
Geology by R.H. MacNeill, 1956



MALAGASH 11E/14W
SURFICIAL GEOLOGY

SCALE 1:50,000

1.25 inches to 1 mile approximately



NOVA SCOTIA RESEARCH FOUNDATION CORPORATION

LEGEND

- DRUMLIN & MORAINES
- KAME
- ESKER
- DELTA
- TILL AREAS (undiff.)
- SWAMP
- ROADS & TRAILS
- STREAMS
- GLACIAL STRIAE

DESCRIPTIVE NOTES

TOPOGRAPHY AND DRAINAGE

The Malagash West map area, with gently rolling topography and slight relief, is topographically within the Cumberland Lowland which has developed on easily eroded Carboniferous sedimentary rocks.

Elevations are low, ranging from sea level along Northumberland Strait and its extremities, to slightly over 250 feet one mile southwest of East Wallace. The majority of streams are generally less than six miles in length. A crude rectangular drainage pattern has developed. Golden Brook, south of Malagash Mine, is an example where the main stream flows east, while to the north consequent tributaries flow south off a resistant con-

SEDIMENTARY GEOLOGY

The area is underlain by about equal areas of three sedimentary rock assemblages, the Windsor Group of Mississippian age and the Riversdale and Pictou Groups of Pennsylvanian age. The Windsor Group includes limestone, gypsum, anhydrite, shale, sandstone, conglomerate, and salt members. The Riversdale and Pictou Groups include conglomerate, sandstone, shale, coal (minor in Riversdale), and limestone (minor in Pictou).

The Malagash anticline is the most important structural feature, as the oldest Windsor rocks have been exposed along its axial zone with younger Riversdale and Pictou rocks overlapping to the north and south. Rock outcrops are most plentiful along the coast. Wave-cut rock cliffs

are usually present but outcrop in some places is exposed only along the beach at low tide. Inland, a generally thin till cover masks bedrock throughout most of the area.

At two localities, 0.9 miles southwest of East Wallace and 1.3 miles northeast of Malagash, the Riversdale conglomerate is overlain by one to two feet of till and, once exposed, this conglomerate readily disintegrates. It has therefore been easily exploited as a source of gravel.

PLEISTOCENE GEOLOGY

Drumlins and Till
There are few, if any, true drumlins. Land forms that at first glance would appear to be drumlins are till-covered bedrock knobs. Glacial ice smoothed the topography by round-

ing the hills and filling the pre-glacial valleys. Postglacial erosion has slightly modified this surface. Erosion is greatest along the coast, particularly on headlands where storm action is most pronounced. As a result, the best exposures of bedrock and till are generally found along these exposed shores.

Till is relatively thin over most of the area. An average depth to bedrock is 5 to 8 feet, although this is known to vary from zero to 25 feet as seen in coastal exposures.

The till is light to dark brown in colour, with a clay to fine sand matrix (depending on the composition of the local bedrock), and containing locally derived sandstone, siltstone, claystone, and conglomerate rock fragments. Compactness varies from loose and friable in the sand till to massive and tough in the clay

till.

Large boulders are rare as the sedimentary rocks were rapidly abraded during transport. Erratic pebbles, and the occasional cobble, including vari-coloured granite, diorite, quartz, greenstone, and rhyolite constitute less than 10 per cent of the rock fragments. Their source may have been the New Brunswick Highlands or the Cobequid Hills. Fragments derived from local conglomerates can usually be identified by a reddish coating which is lacking on the erratics.

Ice Movement

Glacial striae are not plentiful as the generally friable sedimentary rocks crumble rather than polish under glacial ice action, and most of the rocks once exposed to weathering soon disintegrate, thus destroy-

ing any striated surfaces that might have been present. Those striae observed were on a grey, massive, fine-grained sandstone. Not enough striae have been recorded for a definite conclusion but ice-flow was probably southeasterly parallel to Northumberland Strait but in a more southerly direction inland.

Glaciofluvials

A small area of ice-contact stratified drift is located one mile southeast of Malagash. It contains an esker, the south end of which has been removed for road construction material, exposing a face of interbedded silts to fine gravels overlying a till core. The sand and gravel is not good quality, as it is contaminated with silt, and the rock fragments are too soft to withstand abrasion or to withstand any appreciable pressure.