CHAPTER 3. HALIFAX COUNTY

GENERAL GEOLOGY

The limestone and dolomite in Halifax County are found in the Windsor Group marine sedimentary rocks. Except for a few small areas around St. Margarets Bay, the Windsor Group sedimentary rocks in the County are found in the Musquodoboit Valley. These Windsor Group sedimentary rocks are flanked to the north and south by Ordovician metamorphic rocks of the Meguma Group and are lapping on the Meguma slates and quartzites.

In the central and northern areas of the Windsor Group sections, very little outcrop is found except in small embankments in the Meguma Group. In the central and northern areas, the recent Pleistocene and Cretaceous sediments (till, clay and silica sand) form a thick cover over the Windsor Group, with some places in the centre of the Valley reaching a thickness of approximately 90-120 m.

Most of the outcrops of the Windsor Group in the Musquodoboit Valley are found along the southern contact of the Windsor Group and underlying Meguma Group. For the most part, the B Subzone is in direct contact with the Meguma. A few locations, however, show a thick conglomerate (Dollar Lake) underlying the B Subzone dolomite. The following is the usual stratigraphic sequence encountered in the Musquodoboit Valley:

Pleistocene	Sand and gravel till	
Cretaceous	Clay and silica sand	
Carboniferous (Windsor Group)	Upper Windsor	shales, siltstones, thin beds of limestone and dolomite
	Lower Windsor	shale, gypsum, dolomite, conglomerate (local)
Cambrian-Ordovician (Meguma Group)	Halifax Formation	slate
	Goldenville Formation	quartzite

Of all the samples taken in this area, 78% are either dolomite or dolomitic limestone. The dolomitic portions appear to be concentrated along the contact with the underlying Meguma Group. Towards the central part of the basin, the Upper Windsor Group rocks appear to have a higher limestone to dolomite ratio. The E Subzone can be found in several areas in the central part of the basin. It is characterized by corals and large brachiopods (Gigantoproductus). Most areas where it is found, E Subzone appears to have an upper section of fossiliferous limestone underlain by a soft, brown, porous dolomite.

The Meaghers Grant area varies a great deal from the Windsor sequence found in the Musquodoboit Valley. In Meaghers Grant the B Subzone dolomite is underlain by Meguma Group rocks, but appears to be overlain by a calcareous sandstone. The sandstone contains crossbedding and a large amount of mica. This sequence is found at several locations in the vicinity of Meaghers Grant.

At Upper Musquodoboit, the dolomite has been quarried extensively for agricultural use by Mosher Limestone Company Limited.

DOLLAR LAKE AREA

DOLLAR LAKE (DL-1-1) (DIAMOND DRILLING)

This occurrence is located on Dollar Lake Brook which is found 7 km southwest of the Village of Elderbank. This dolomite can be found outcropping on the road running from Meaghers Grant to Wyses Corner and can be found south of this road on either side of the Dollar Lake Brook covering a wide area. The main area is, however, east of the Brook. The dolomite can be traced east along the road for 405.4 m. The dolomite is not found outcropping north of the road and is not found on the western side of the Brook until 457 m south of the bridge over Dollar Lake Brook (Fig. 44).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Dollar Lake area.

Description

The occurrence is brown, very hard, slightly fossiliferous, B Subzone, Windsor Group dolomite. The bedding is well developed and thickly bedded, ranging up to 0.6 m in thickness. The weathered surface is light brown, smooth and pitted with what appears to be numerous fossil cavities. No identifiable fossils could be found. The dolomite appears to have been slightly compressed. The dolomite is almost flat lying, and may be dipping slightly towards the northeast.

The dolomite can be traced up Dollar Lake Brook for about 610 m where it is underlain conformably by a conglomerate containing slate fragments from the Halifax Formation in a dolomite matrix. This is a basal Windsor Group conglomerate. The slate clasts vary in size up to very large blocks. The conglomerate is underlain by Meguma Group slate which is unconformable with the dolomite and conglomerate. The slate is striking in a northerly direction and dipping almost vertically towards the west.

The dolomite can be traced up the Brook beyond the dam for a distance of almost 1.6 km. This occurs only on the eastern side of the Brook. The dolomite seems to form a thin covering over the slate with no intervening conglomerate here. There are several minor faults running through the dolomite.

The dolomite appears to be at least 15 m thick. There are 9 m cliffs of dolomite along the Brook with very little overburden. The thickest section appears to be along the eastern side of the Brook with the dolomite thinning out very rapidly to the east and west. The dolomite appears to be either faulted off at the Meaghers Grant-Wyses Corner road or cut off by the Musquodoboit River which appears to have cut a wide channel through this area. The area is wooded, but easily accessible by old woods roads which traverse the area.

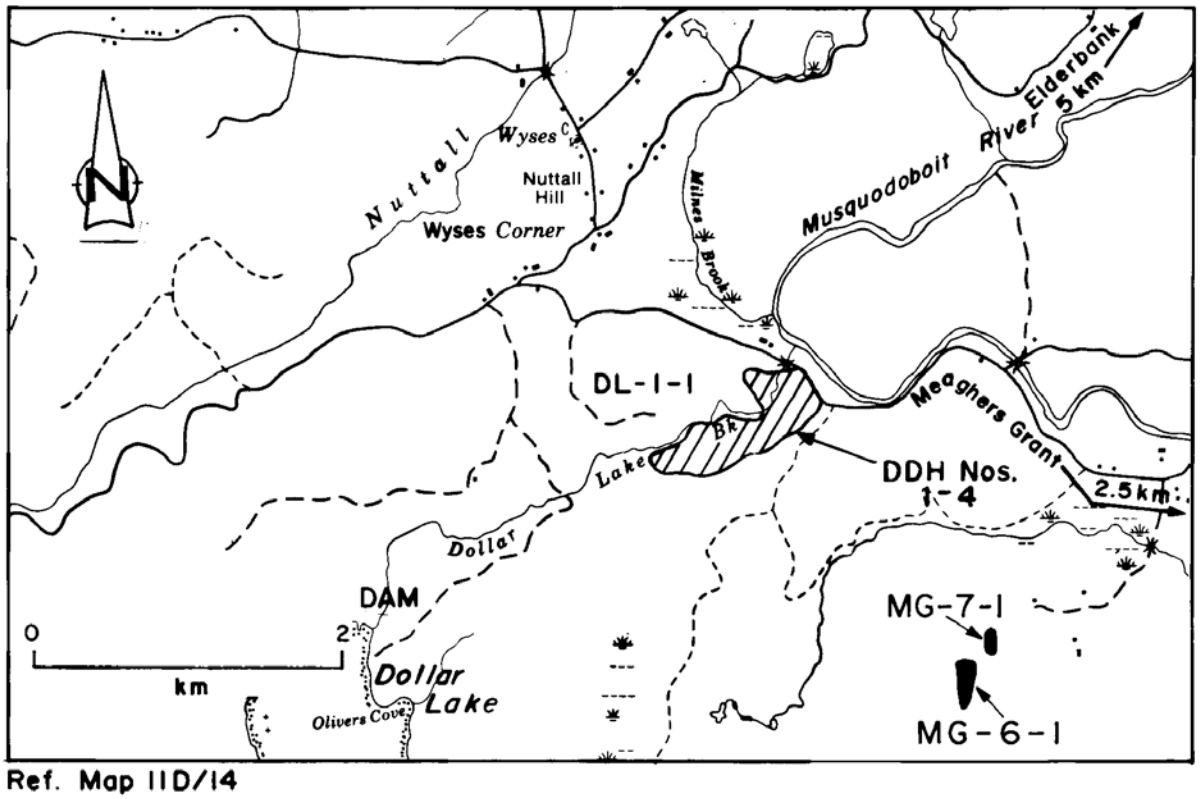


Figure 44. Location map of dolomite occurrences sampled in the Dollar Lake and Meaghers Grant areas, Halifax County (11D/14).

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
DL-1-1	45.45%	1.80%	3.82%	31.70%	17.95%

ELDERBANK AREA

ELDERBANK (Eb1-1)

This occurrence is located approximately 1.6 km east of Elderbank on the Elderbank-Murchyville road, 0.24 km east of the Canadian National Railway track. The dolomite outcrops on the southern side of the road in a small 1.8 m high mound. The mound extends back from the road for a distance of 18-21 m. There is very little dolomite outcropping over the area because of the swampy terrain (Figs. 45 and 46).

Description

The occurrence is light grey, very hard, laminated, siliceous, Windsor Group dolomite. The bedding is well developed with a light brown, fairly smooth, weathered surface. This rock is much harder

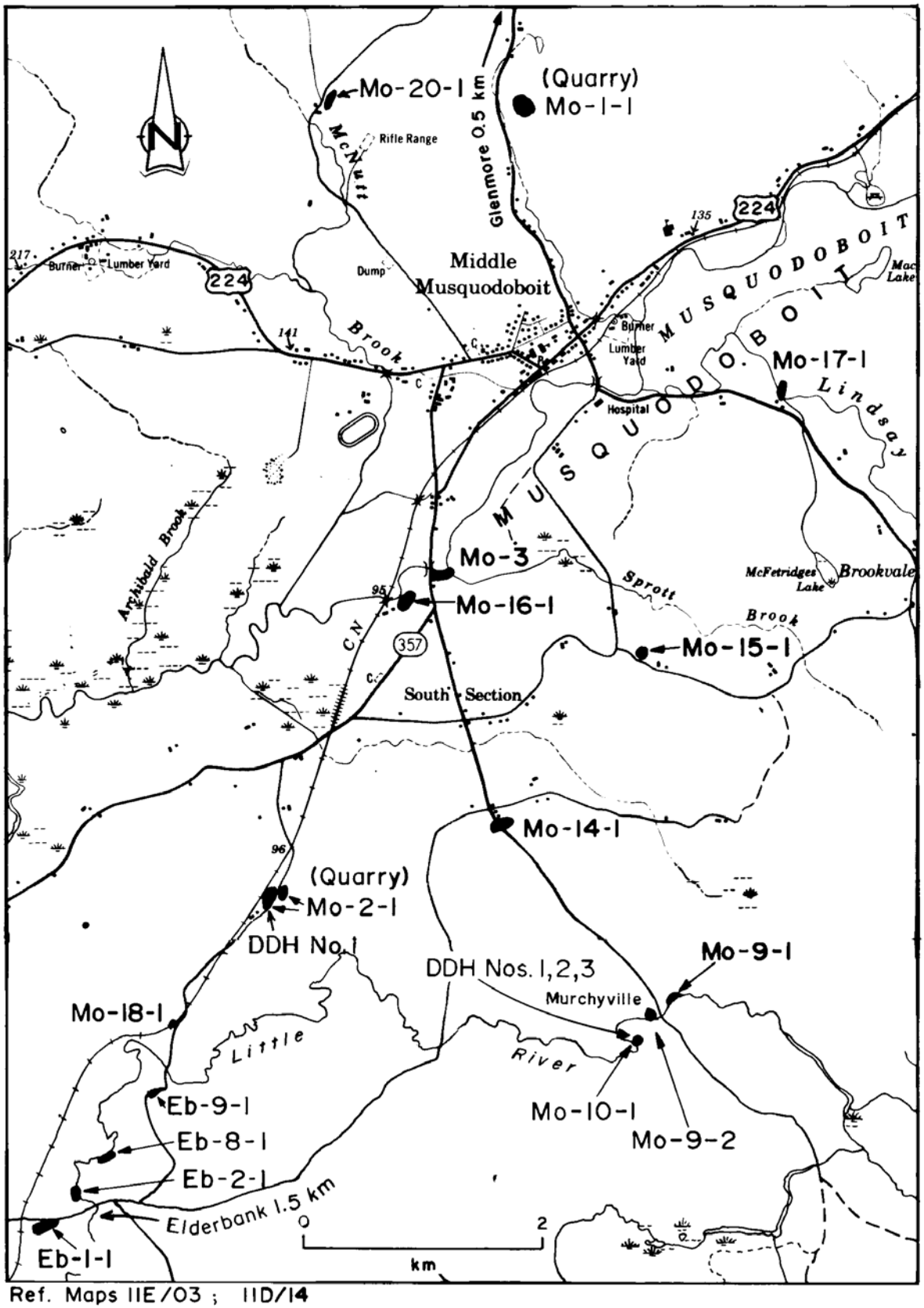


Figure 45. Location map of limestone and dolomite occurrences sampled in the Elderbank and Middle Musquodoboit areas, Halifax County (11E/03; 11D/14).

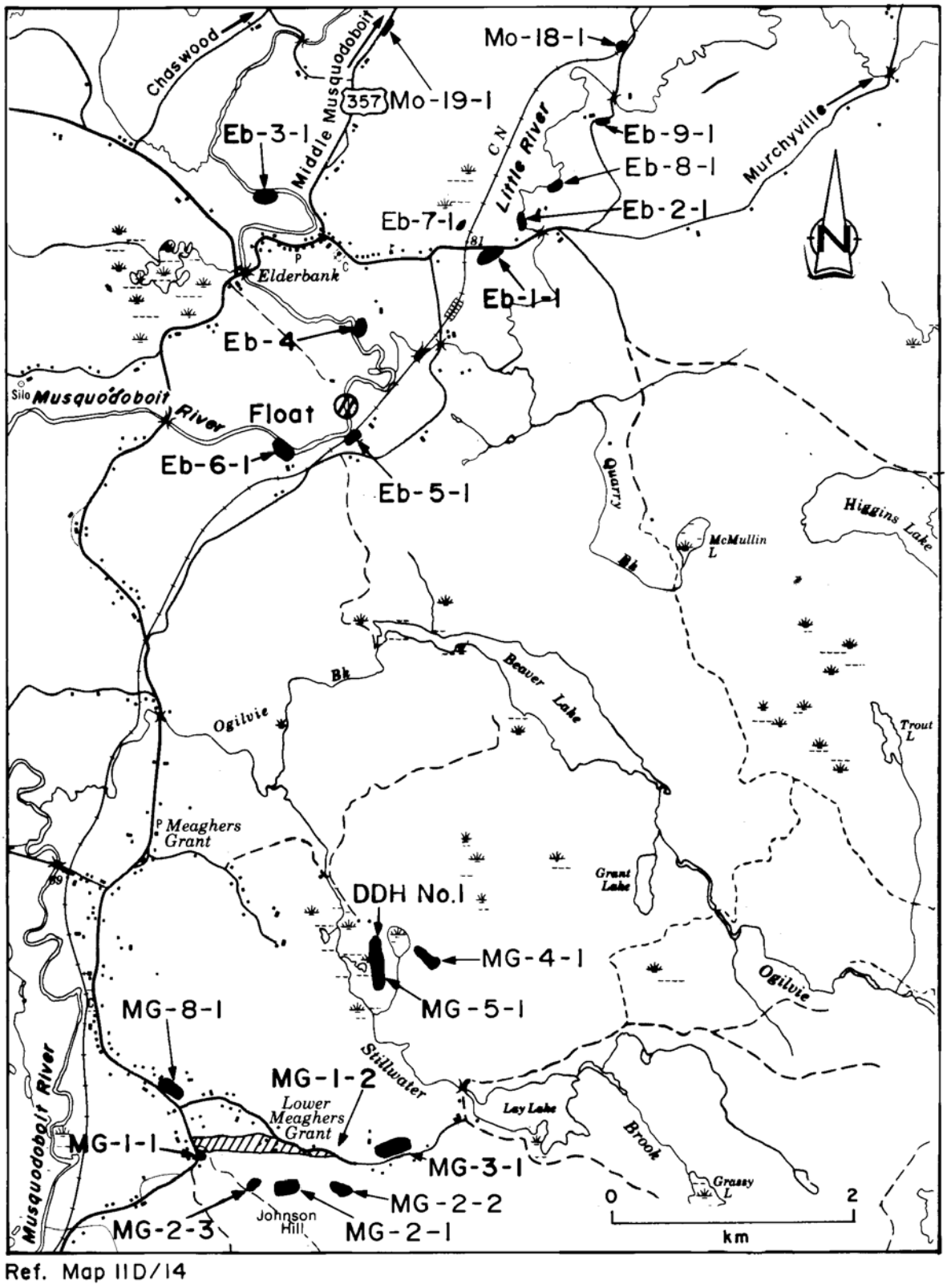


Figure 46. Location map of limestone and dolomite occurrences sampled in the Elderbank and Meaghers Grant areas, Halifax County (11D/14).

than the normal Windsor Group dolomite. No calcite veins or stringers were noticed. Some very thin sandy layers can be seen on the weathered surface due to differential weathering. The dip and strike could not be measured, but the mound is trending N 28° E.

There is no indication of the thickness or areal extent of the occurrence. Overburden does not appear to be heavy in the vicinity of the mound, however, away from the mound, the overburden probably increases rapidly. Several small pits were found from which dolomite had been extracted at one time. The surrounding area is open, flat and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-1-1	42.50%	7.10%	3.20%	29.40%	17.20%

ELDERBANK (Eb-2-1)

This occurrence is located 2 km east of Elderbank along the Elderbank-Murchyville road. The limestone outcrops on Little River, 40.8 m upstream from the bridge on the Elderbank-Murchyville road. This occurrence is 0.4 km east of Eb-1-1. The limestone outcrops along the southern bank and in the River (Figs. 45 and 46).

Description

The occurrence is light grey, hard, dense, slightly oolitic, arenaceous, dolomitic, Windsor Group limestone. The bedding is poorly developed with a light brown, smooth, weathered surface. The limestone contains a large amount of terrigenous material. It strikes N 53° W and dips 23° SW.

There is no indication as to the thickness or areal extent of this occurrence. The overburden is at least 2.4 m thick. This may be a continuation of Eb-1-1.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-2-1	34.20%	23.70%	3.40%	24.90%	13.80%

ELDERBANK (Eb-3-1)

This occurrence is located on the southern bank of the Musquodoboit River northwest of Elderbank (Fig. 47). Limestone outcrops on the bank of the River, 457 m up River from the Middle Musquodoboit-Elderbank road. This area is approximately 610 m northwest of the Village of Elderbank. The limestone outcrops at the edge of the River only and can be traced along the River for a distance of 76.2 m (Fig. 46).

Description

The occurrence is greyish-brown, hard, dense, nodular, algal, dolomitic, Windsor Group limestone. The bedding is well developed with a light brown, nodular, weathered surface. The limestone varies throughout from a nodular to a wavy stromatolitic structure (Fig. 48). No fossils were noted. Some calcite veins were found with small calcite crystals. The upper part of the limestone is thinly laminated and shows ripple marks. It strikes N 80° E and dips 15° NW into the River.

There is no indication as to the areal extent or thickness. Overburden appears to be at least 3 m thick. The surrounding area is open farmland and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-3-1	36.80%	17.0%	10.80%	24.10%	9.85%

ELDERBANK (Eb-4) (FLOAT)

This occurrence is located south of Elderbank, on the eastern bank of the Musquodoboit River. The dolomite does not outcrop, but is found as float along a 3 m embankment along the side of the River. This area is 457 m south of Elderbank in an open field through which the River runs. Float can be seen along the bank for a distance of 18.3 m (Fig. 46).

Description

The occurrence is brownish-grey, very hard, compact, medium grained, Windsor Group dolomite. The weathered surface is light brown and smooth. There is a large amount of small calcite grains mixed with detrital dolomite grains. It has a sugary texture. No fossils or cavities were noticed.

No strike, dip, thickness or areal extent could be determined. The overburden is at least 3 m thick. The surrounding area is open farmland and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-4	46.40%	1.82%	1.62%	32.90%	17.50%

ELDERBANK (Eb-5-1)

Outcrops of this occurrence are located 1.6 km south of Elderbank on the eastern side of the Musquodoboit River. The dolomite outcrops on the bank and on the bottom of the River. Dolomite is found where the bend in the River strikes the Canadian National Railway embankment (Middle Musquodoboit-Meaghers Grant line) (Fig. 46).

Figure 47. Nodular limestone outcropping along the Musquodoboit River, 610 m northwest of Elderbank, Halifax County (Eb-3-1).

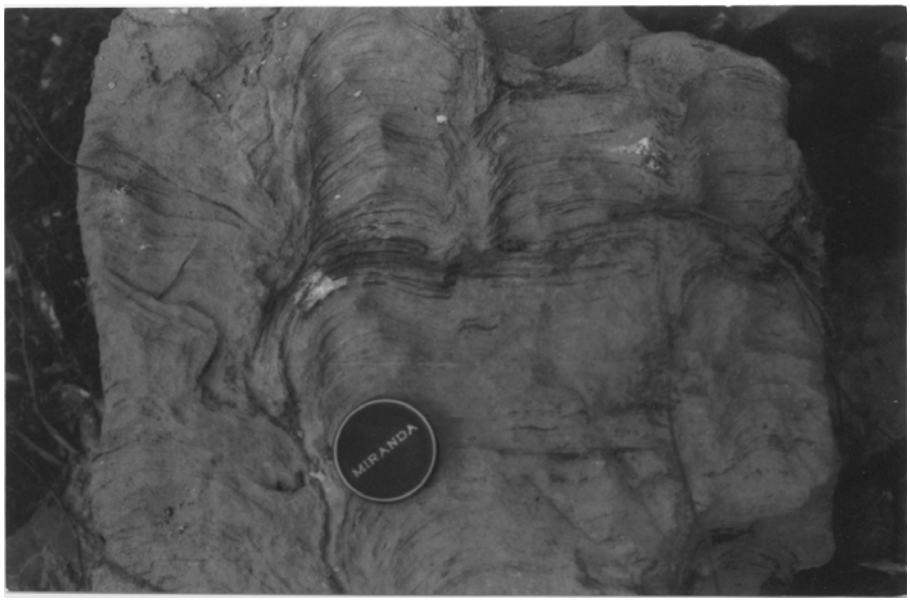


Figure 48. Stromatolitic, dolomitic limestone found in the outcrop shown in Figure 47, Elderbank, Halifax County (Eb-3-1).

Description

The occurrence is dark grey, hard, dense, medium grained, arenaceous, detrital, Windsor Group dolomite. The bedding is well developed with a light brown, smooth, weathered surface. There are numerous arenaceous bands standing out on the weathered surface which show the bedding. This is a detrital dolomite with a large amount of terrigenous material. The limestone is slightly laminated in sections. It strikes N 29° E and dips 20° SE.

The dolomite is at least 3-4.6 m thick with at least 3 m of overburden. There is no indication of the areal extent. The surrounding area is wooded to the west and open farmland to the east, making the area easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-5-1	43.25%	6.05%	4.20%	28.00%	17.75%

ELDERBANK (Eb-6-1)

This occurrence is located 1.6 km south of Elderbank on the southern bank of the Musquodoboit River (Fig. 49). This dolomite outcrops 457.2 m downstream from Eb-5-1 and is found in a 4.6 m embankment. This occurrence is behind a farmhouse. The dolomite dips into the River (Fig. 46).

Description

The occurrence is dark grey, hard, very compact, fine grained, siliceous, Windsor Group dolomite. The dolomite is thickly bedded with the bedding being well developed. The weathered surface is light brown and smooth. It strikes N 10° W and dips 10° NE.

Although the dolomite can be traced along the Musquodoboit River for 152.4 m, the thickness and areal extent could not be determined because the strike parallels the River and only one individual bed can be seen. The overburden is at least 3-4.6 m thick. The surrounding area is open farmland to the south and wooded to the north of the River.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-6-1	40.75%	9.56%	4.70%	26.70%	16.90%

Figure 49. Outcrop of dolomite found along the Musquodoboit River, Elderbank, Halifax County (Eb-6-1).

ELDERBANK (Eb-7-1)

This occurrence is located 1.1 km east of Elderbank along the western side of the Canadian National Railway track. Dolomite outcrops in a small knoll in an open field approximately 152.4 m north of the Elderbank-Murchyville road at the last rail crossing before Elderbank. The dolomite is 30 m west of the railroad track and occurs as small patches of isolated outcrop in the field (Fig. 46).

Description

The occurrence is greyish-brown, hard, dense, thinly bedded, Upper Windsor Group dolomite. The bedding is well developed with a light brown, smooth, weathered surface. No fossils or cavities were found. The dolomite is flat lying.

Thickness and areal extent could not be determined due to the limited extent of the outcrop area. There is little or no overburden; the dolomite outcrops on the surface. The surrounding area is open and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-7-1	44.65%	3.28%	2.65%	30.65%	18.25%

ELDERBANK (Eb-8-1)

This occurrence is located up Little River from the bridge on the Elderbank-Murchyville road,

2.4 km east of Elderbank. The dolomite can be found outcropping in the River and on the eastern bank, 503 m up the River from the bridge. This area is behind the farm of Roy Rhino. Most of the dolomite shows up as rubble with very little outcrop (Figs. 45 and 46).

Description

The occurrence is brown, hard, dense, Upper Windsor Group dolomite. No bedding is shown, but rubble indicates that the bedding is well developed with a light brown, smooth, weathered surface with a few cavities containing calcite. This occurrence may be a continuation of Eb-2-1. Strike and dip could not be measured.

Areal extent and thickness could not be determined due to lack of outcrop. Overburden appears to be slight. The surrounding area is mainly open farmland and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-8-1	44.25%	3.40%	2.52%	30.15%	18.45%

ELDERBANK (Eb-9-1)

This occurrence is located 3.2 km northeast of Elderbank along the back road between Middle Musquodoboit and Elderbank. Dolomite outcrops along the southern side of the road across from the farm of J. E. Castle. Very little outcrop can be seen, but a large amount of rubble can be found in the ditch. This area is 3.4 km south of the main Middle Musquodoboit-Elderbank Route 357 on the back road (Figs. 45 and 46).

Description

The dolomite is brown, hard, dense, thickly bedded and belongs to the Upper Windsor Group. It appears that the bedding is well developed with a smooth, light brown, weathered surface. A few cavities were found lined with calcite crystals. The strike and dip could not be measured.

There is no indication as to thickness or areal extent. The overburden appears to be at least 3 m thick. The surrounding area is open farmland and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Eb-9-1	44.60%	3.40%	2.12%	31.50%	17.605%

GAYS RIVER AREA

GAYS RIVER (GR-1-1)

This occurrence is located south of Gays River, 1107.6 m up the South Branch Gays River from where it empties into the main branch of the Gays River. Dolomite can be found outcropping on the eastern bank and on the bottom of the River. The dolomite can be traced along the River for a distance of 53 m. The dolomite is resting unconformably on quartzite of the Goldenville Formation which can be seen outcropping downstream from this occurrence (Fig. 50).

Description

The occurrence is light brown, hard, highly fossiliferous, slightly massive, B Subzone, Windsor Group dolomite. The bedding is not well developed and the weathered surface is light brown and pitted. The fossils found are gastropods, brachiopods and pelecypods. Some mineralization is associated with the dolomite (mainly galena which is found only as small blebs). Some sections of the dolomite are more fossiliferous than others.

The dolomite appears to be almost flat lying with an apparent strike of N 72° W and a slight dip to the southwest. The dolomite generally forms the basal Windsor Group contact with the Meguma Group quartzite in the area and can be traced in various locations along the Meguma contact.

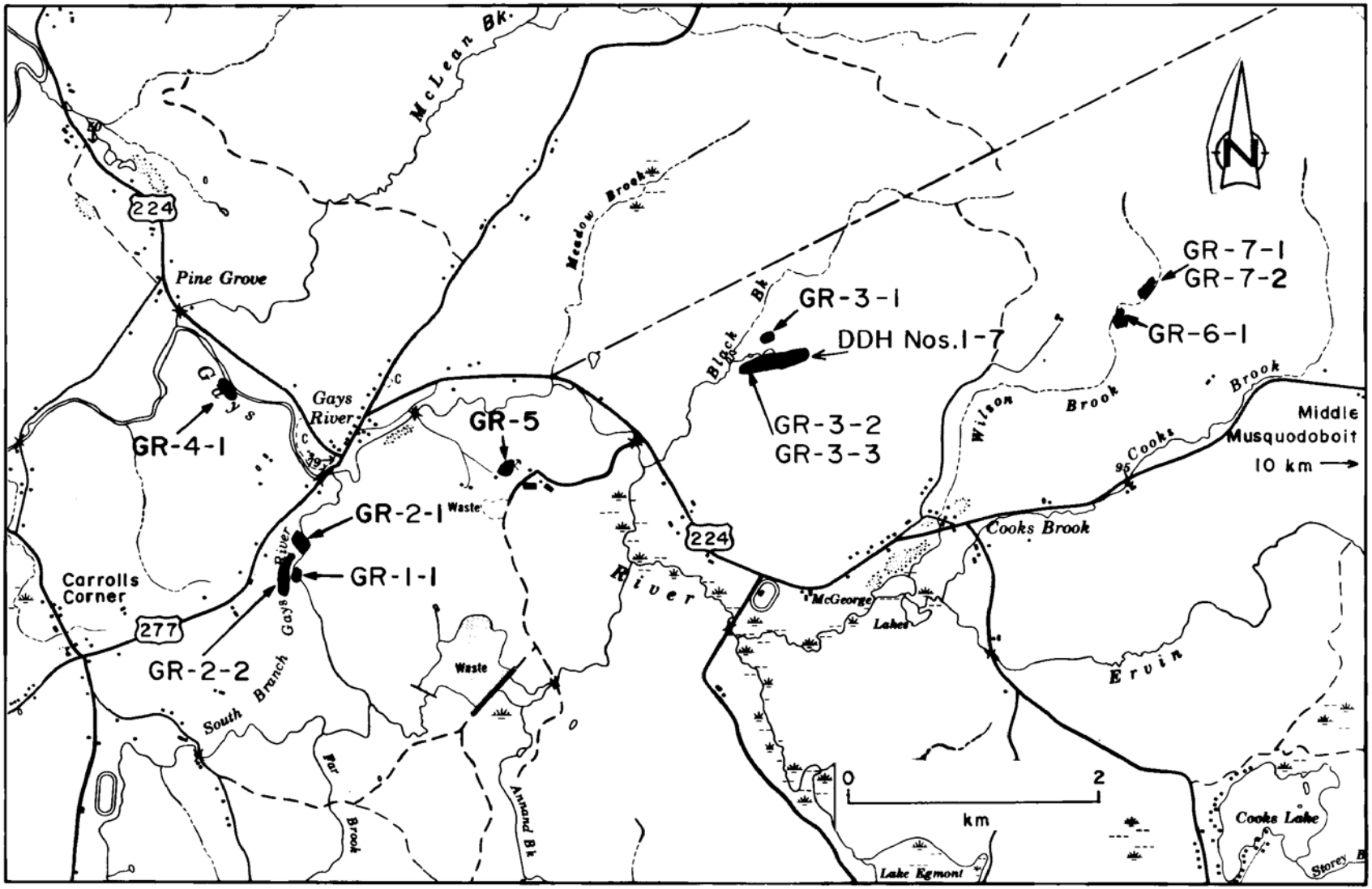
There is no indication as to the thickness or areal extent. Away from the South Branch Gays River, the dolomite is drift covered, although the overburden does not appear to be very thick in this immediate area. The surrounding area is fairly flat with open fields to the west and wooded areas to the east.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-1-1	46.60%	0.60%	1.85%	32.55%	18.50%

GAYS RIVER (GR-2-1)

This occurrence is located south of Gays River. Dolomite can be found outcropping 844.3 m up the South Branch Gays River from where it empties into the Gays River and 262 m downstream from GR-1-1. These two occurrences are separated along the River by Goldenville Formation quartzite which underlies the dolomite. The dolomite can be traced in and on both sides of the River for a distance of 56 m. All of the dolomite outcrops in this area are controlled by the underlying Meguma Group in that the dolomite follows the contact and dips basinward where it is overlain by gypsum and anhydrite (Fig. 50).



Ref. Map 11E/03

Figure 50. Location map of limestone and dolomite occurrences sampled in the Gays River area, Halifax County (11E/03).

Description

The occurrence is light grey, soft, slightly fossiliferous, clayey, massive, Windsor Group dolomite. The bedding is very poorly developed with a light brown, pitted, weathered surface. The fossils found are bryozoans and brachiopods. It appears to be almost flat lying, but could possibly strike towards the northwest with a slight dip to the southwest.

Away from the outcrop area, the dolomite is drift covered so that no indication of thickness or areal extent could be found. The surrounding area is mainly open land and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-2-1	46.85%	0.35%	1.67%	31.10%	20.40%

GAYS RIVER (GR-2-2)

This occurrence is located on the western side of South Branch Gays River, just south of the Village of Gays River. Dolomite outcrops in various locations in an open field and in the woods, 304.8 m southeast of Route 227. These outcrops are a continuation of the dolomite at GR-1-1 and GR-2-1 (Fig. 50).

Description

The occurrence is brown, slightly porous, fossiliferous, mineralized, B Subzone, Windsor Group dolomite. The bedding is poorly developed with a light brown, rough, weathered surface. The associated mineralization consists mainly of galena with minor amounts of sphalerite being found. A white staining is usually found when any mineralization is present. The fossils found consist of brachiopods, gastropods, conularias and bryozoans. Most of the shells have been destroyed by dolomitization. Numerous cavities are found with a large amount of calcite filling these cavities. Galena is disseminated as small blebs throughout. It strikes N 30° W and dips 24° NE.

There is no indication as to the total thickness. The overburden is very slight. A large amount of drilling and trenching has been carried out at various times to determine the lead-zinc content of the dolomite. The dolomite is found along the Windsor-Meguma contact and unconformably overlies the Meguma Group.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-2-2	43.00%	5.00%	1.90%	29.10%	18.00%

GAYS RIVER (GR-3-1)

This occurrence is located approximately 3.4 km northeast of Gays River, near Black Brook. This dolomite has been quarried by Mosher limestone and is accessible by the quarry road. The dolomite outcrops in a small brook 213.4 m up from the ponds (Fig. 50).

Description

The occurrence is brown, soft, slightly porous, fossiliferous, massive, B Subzone, Windsor Group dolomite. The bedding is very poorly developed with a light brown, pitted, weathered surface. The fossils found are mainly brachiopods with a few *Conularia planicostata*. There are some calcite stringers and some stylolites with dark carbonaceous material along the seams. There is no indication as to strike or dip because of the lack of outcrop area and massive nature of the dolomite.

No indications could be found for thicknesses or areal extent of the dolomite. The overburden appears to be light in this area. The area is wooded and not easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-3-1	46.80%	0.30%	1.92%	32.40%	18.90%

GAYS RIVER (GR-3-2) (GR-3-3) (DIAMOND DRILLING)

This occurrence is located east of Black Brook. This deposit of dolomite is in the vicinity of GR-3-1 and is located along the same old woods road. The first outcrop shows up in the clearing where the saw mill was located (see location for GR-3-1). This area is 1050 m northeast of Route 224 between Middle Musquodoboit and Gays River. The dolomite is found on the northern part of this clearing and can be traced along the side of the hill in a N 65° E direction for 746.8 m. The dolomite runs along the southern side of a bank of gypsum with a string of water filled sinkholes. The dolomite is resting unconformably on Goldenville Formation quartzite which outcrops to the south of the dolomite. This area is a small embayment into the older Meguma Group rocks (Fig. 50).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Gays River area.

Description

The occurrence is brown, slightly porous, massive, fossiliferous, B Subzone, Windsor Group dolomite. The bedding is very poorly developed with a brown, smooth, weathered surface. The fossils found are brachiopods, bryozoans and a few gastropods. There are numerous cavities throughout. GR-3-2 was taken from the western end of the dolomite, and GR-3-3 was taken from the eastern end. The dolomite is overlain by gypsum to the north and by quartzite to the south.

The strike and dip could not be measured because of the massive nature of the rock, however it appears to be striking N 65° E and dipping towards the north.

There is very little overburden covering the dolomite as outcrop and rubble can be seen along most of the 0.8 km strike length of the deposit. The gypsum found north of the dolomite is extensive and covers a wide area. The area is heavily wooded and is not easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-3-2	46.65%	0.33%	1.73%	32.90%	18.70%
GR-3-3	46.35%	0.68%	1.98%	32.20%	18.85%

GAYS RIVER (GR-4-1)

This occurrence is located on Gays River, midway between the Village of Gays River and where McLean Brook empties into the Gays River. The limestone can be found outcropping mainly along the southwestern side and on the bottom of the River, 792.5 m upstream from where McLean Brook empties into Gays River. The outcrop area along the bank of Gays River is very limited. Limestone can be traced along the River for a distance of 45.7 m (Fig. 50).

Description

The occurrence is light brown, very porous, fairly soft, massive, Windsor Group limestone (Fig. 51). There are numerous cavities throughout. The bedding is very poorly developed with a light brown, pitted, weathered surface. There are a few small calcite stringers. The limestone contains a brownish-yellow, powdery substance on the fresh surface (probably limonite). Gypsum is found associated with the limestone and outcrops 9 m away from the limestone. It is difficult to determine which overlies which because of the lack of bedding in each. Brachiopods are the only recognizable fossils. The strike and dip, as well as the thickness and areal extent, could not be determined.

Away from the River, the overburden appears to be at least 12 m thick. The area is wooded and not easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-4-1	41.10%	3.84%	3.10%	49.75%	1.16%

Figure 51. Massive, porous Windsor Group limestone found in an outcrop on Gays River, Halifax County (GR-4-1).

GAYS RIVER (GR-5) (FLOAT)

Dolomite float is located 1.3 km due east of the Gays River intersection. The dolomite is found as float at the edge of the woods 122 m east of a farmhouse. Dolomite can be found in the rock pile at the edge of the field. These rocks have been taken off the field (Fig. 50).

Description

The float is hard, brownish-grey, massive, fossiliferous, B Subzone, Windsor Group dolomite. This rock is similar to that found at GR-2-1 and GR-2-2, except that no galena was found. The fossils noticed are pelecypods and brachiopods. There are numerous fossil cavities, but very little infilling of calcite has taken place. The weathered surface is brown and pitted.

On the old geology map of this area, Faribault (1907) indicated outcropping behind the farmhouse, but no outcrop could be found.

Note: This area is now the site of the Gays River lead-zinc mine (inactive).

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-5	48.80%	1.20%	1.45%	31.40%	19.30%

GAYS RIVER (GR-6-1)

This occurrence is located northeast of Cooks Brook, approximately 1.6 km north of Route 224. The dolomite can be found outcropping on Wilson Brook, 2.4 km up the Brook from Route 224 at Cooks Brook. Dolomite is found on the southeastern bank of the Brook in a 7.6 m high embankment. The dolomite is resting unconformably on Meguma Group quartzite (Figs. 50 and 52).

Description

The occurrence is greyish-brown, hard, thinly bedded limestone at the bottom grading into a more massive, fossiliferous, B Subzone, Windsor Group dolomite at the top. Bedding is well developed with a smooth, light brown, weathered surface. The fossils found include conularia, which are very large, very abundant and distorted, similar to those found in the Upper Musquodoboit dolomite quarry. Pelecypods are also abundant with some brachiopods. Calcite is very abundant, replacing some of the conularia and the brachiopods. There are no fossils in the bottom 0.5-1 m and the dolomite contains numerous fragments of the underlying quartzite up to 3 m into the dolomite from the contact. Towards the top the dolomite becomes very fossiliferous. It strikes N 62° W and dips 39° SW.

The dolomite is 6-7.6 m thick with very little overburden. The dolomite cannot be found outcropping away from the Brook. This area was apparently quarried at one time for agricultural uses. The area is heavily wooded and is not easily accessible. An old road once serviced the quarry, but cannot be followed now.

The following analysis is a channel sample and the analysis is more indicative of the lower section of the limestone which contains the quartzite fragments. Near the top, the dolomite has a much lower SiO_2 content.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-6-1	28.20%	34.00%	5.80%	25.80%	4.60%

GAYS RIVER (GR-7-1) (GR-7-2)

This occurrence is located 152.4 m up Wilson Brook from GR-6-1 and outcrops on the northwestern bank of the Brook. This area is located 2.4 km north of Cooks Brook. The dolomite outcrops in a 6-7.6 m embankment and is north of the Meguma-Windsor contact. The dolomite only outcrops along the Brook (two locations), but the hill can be traced down the Brook (Fig. 50).

Description

The occurrence is dark brown, porous, slightly fossiliferous, massive, Windsor Group dolomite. It appears to be lying directly on Meguma Group quartzite. The bedding is very poorly developed with

Figure 52. Contact zone between the overlying Windsor Group dolomite and the underlying quartzite of the Meguma Group, found near Gays River, Halifax County (GR-6-1).

a rough, pitted, dark brown, weathered surface. Calcite is quite abundant, filling the cavities. The strike and dip could not be measured because of the massive nature of the rock. This occurrence is located north of the Meguma-Windsor contact and appears to be a Windsor outlier in the Meguma Group. There is no indication as to thickness or amount of overburden. The area is heavily wooded and not easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
GR-7-1	45.60%	1.20%	2.17%	31.60%	19.00%
GR-7-2	46.00	1.34	2.40	30.90	19.05

LANTZ AREA

LANTZ (Lz-1-1)

This occurrence is located along the eastern side of the Shubenacadie River at Lantz. The limestone outcrops on the bank and on the bottom of the River, 243.8 m downstream from the bridge which crosses the Shubenacadie River on Route 277. The limestone can be traced along the River for a distance of 114.3 m (Figs. 53 and 54).

Description

The occurrence is grey, hard, fossiliferous, massive, Windsor Group limestone (Fig. 55). The bedding is poorly developed with a rough, light brown, weathered surface. It contains small cavities,

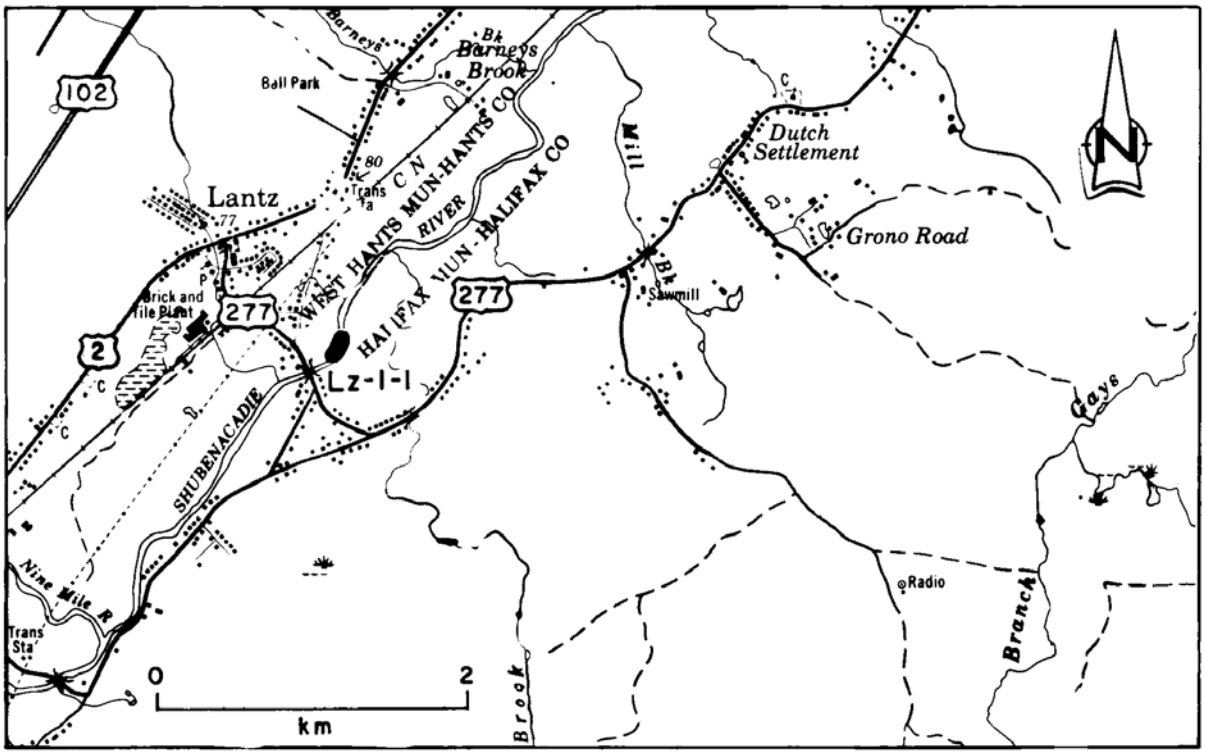


Figure 53. Location map of limestone occurrence sampled in the Lantz area, Halifax County (11E/03).

some filled with calcite. The fossils are scarce or have been destroyed. The only ones found are brachiopods. The rock contains some iron staining. In places, the limestone is very compact. It strikes N 10° W and dips gently (10°-15°?) to the southwest. The jointing is fairly pronounced and is at right angles at N 65° E and N 25° W.

There is no indication as to areal extent or thickness of the limestone. The overburden is only slight on the eastern side of the Shubenacadie River and becomes increasingly thicker on the western side. The surrounding area is wooded to the east with open fields to the west.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Lz-1-1	43.25%	1.08%	0.40%	54.50%	0.65%

MEAGHERS GRANT AREA

MEAGHERS GRANT (MG-1-1)

This occurrence is located at Lower Meaghers Grant along Route 357 running from Middle Musquodoboit to Musquodoboit Harbour. It outcrops in a 4.6 m embankment on the eastern side of

Figure 54. Limestone outcropping along the Shubenacadie River, southeast of Lantz, Halifax County (Lz-1-1)..

Figure 55. Limestone found in the outcrop in Figure 54, Shubenacadie River, Halifax County (Lz-1-1).

the road with a small outcrop on the western side, 0.32 km south of the Lower Meaghers Grant to Lay Lake road. The limestone occurs at a right angle turn in the highway (Fig. 46).

Description

The occurrence is very hard, grey, compact, detrital, medium grained, arenaceous, Pennsylvanian(?) limestone. The limestone contains sand grains and muscovite flakes. The sandy layers stand out on the weathered surface and show the differential weathering of the sandstone and limestone. Underlying the limestone is a calcareous sandstone interlayered with shale. The sandstone contains small plant fossils which are characteristic of the Pennsylvanian(?) period. The bedding is well developed with a light brown, weathered surface. There is some calcite along the jointing planes. It is striking N 70° W and dipping 8° NE. The jointing is striking N 20° E and dipping 90°.

A 6 m section can be seen along the eastern side of the road. Away from the road, the limestone outcrops very little so that the total thickness cannot be seen. There is very little overburden. The surrounding area is hilly and mainly cleared land.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-1-1	31.10%	24.90%	3.47%	39.05%	0.71%

MEAGHERS GRANT (MG-1-2)

This outcrop appears to be a continuation of MG-1-1 which is found along Route 357. Outcroppings of this limestone can be found in various places along strike, in the fields and along the Lay Lake road. This limestone outcrops on the southern side of the Lay Lake road, 1.6 km east of Route 357 (Fig. 46).

Description

The occurrence is dark grey, very hard, compact, detrital, medium grained, arenaceous, Pennsylvanian(?) limestone. The sandy layers show differential weathering. The weathered surface is light brown.

There is no indication as to the strike or dip, however the limestone can be traced eastward for a distance of 1.1 km from MG-1-1 to MG-1-2. The various outcrop areas are small. It appears to be dipping in a northerly direction.

There is no indication as to the actual thickness, however it appears to be at least 6 m thick. The occurrence appears to be continuous over a 1.6 km distance.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-1-2	30.45%	28.60%	2.17%	38.30%	0.50%

MEAGHERS GRANT (MG-2-1)

MG-2-1 is located south of MG-1-2 and appears to be underlying MG-1-2. Limestone outcrops in a wooded area, 447.4 m on a bearing of 155° from the Post Office on the Lay Lake road. The Post Office is 1 km east of Route 357. The limestone outcrops at the northern base of Johnson Hill (Fig. 46).

Description

The occurrence is grey, hard, massive, slightly fossiliferous, Windsor Group limestone. The bedding is very poorly developed with a light brown, smooth, rounded, weathered surface. There are a large number of calcite blebs throughout the limestone. The limestone appears to be striking N 55° E and dipping 30°-35° NW.

No indication of thickness or areal extent can be found. The surrounding area is hilly and heavily wooded, but is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-2-1	40.65%	5.43	1.49%	51.10%	0.90%

MEAGHERS GRANT (MG-2-2)

MG-2-2 is found approximately 304.8 m east of MG-2-1 and appears to be the same type of limestone. Limestone can be found outcropping in a cut-out area approximately 335.3 m south of the Lay Lake road (Fig. 46).

Description

This is a grey, hard, massive, slightly fossiliferous, Windsor Group limestone. The weathered surface is light grey and rounded. The bedding is very poorly developed. The fossils noted are brachiopods. There is no indication as to strike or dip, however it appears to be flat lying. This outcrop appears to be a continuation of the limestone found at MG-2-1.

There is very little indication of the areal extent or thickness of the limestone. There appears to be very little overburden. The area is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-2-2	41.80%	2.50%	2.74%	51.50%	0.84%

MEAGHERS GRANT (MG-2-3)

This outcrop of dolomite appears to be a continuation of the limestone found at MG-2-1 and MG-2-2. The outcrop is located at Lower Meaghers Grant, along the road which runs to the fire tower on Johnson Hill. Outcrops are found on the northern side of this road, 737.3 m from Route 357. The dolomite can be traced for a distance of 122-152.4 m in a northeasterly direction along the base of Johnson Hill (Fig. 46).

Description

The occurrence is greyish-brown, hard, fossiliferous, massive, Windsor Group dolomite. The bedding is very poorly developed with a rough, light brown, weathered surface. The fossils found are gastropods and cephalopods(?) and long, rounded structures which may be corals(?). These structures are composed of calcite. Brachiopods are also common.

The dolomite is lapping up on the northern flank of the underlying Moose River Anticline which belongs to the Meguma Group. There is no indication as to strike or dip of the dolomite. It appears, however, to be trending in a N 55° E direction along the base of the hill.

There is no indication as to areal extent or thickness of the dolomite. The overburden does not appear to be very thick because of the small outcrop areas all along the base of the hill.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-2-3	45.60%	1.18%	2.82%	32.10%	18.50%

MEAGHERS GRANT (MG-3-1)

This occurrence is located at Lower Meaghers Grant along the Lay Lake road, 1.8 km east of Route 357. The limestone outcrops in a 10.7 m high mound on the eastern side of a branch of Ogilvie Brook, 91.4 m north of where this brook crosses the Lay Lake road. Outcrops can be seen in the field and on the eastern side of a farm road (Fig. 46).

Description

This limestone ranges from brown, hard, slightly porous, massive, dolomitic material on the bottom

grading into dark grey, very hard, compact, fossiliferous, massive, Windsor Group limestone towards the top of the section. The bedding is very poorly developed with a light brown, rough, weathered surface. The only fossils noted are brachiopods and these are not abundant. The limestone is overlain by a thinly bedded Pennsylvanian(?) sandstone and a calcareous sandstone showing differential weathering of the calcareous and siliceous parts.

There is no indication as to the strike or dip of the limestone because of its massive nature. The overlying material is striking N 53° W and dipping in a northeasterly direction. Nowhere can the limestone be seen in contact with the sandstone.

There is no indication as to the thickness of the limestone, but the occurrence does not appear to be very extensive. There is very little overburden and the surrounding area is open and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-3-1	44.15%	0.95%	1.93%	44.46%	8.10%

MEAGHERS GRANT (MG-4-1)

This occurrence is located approximately 2.6 km southeast of Meaghers Grant. The dolomite is found in a mound on the eastern side of a small pond which is located just east of the abandoned W. Grant farm at the end of the Grant road. This mound can be seen outcropping near the old road which runs around the southern end of the pond, 823 m from the Grant farm. The mound strikes N 45° W towards the pond. The dolomite can be found outcropping 134 m east of the road, up a gully where it comes in contact with quartzite of the Goldenville Formation. The water in a brook crosses the quartzite and then disappears into the dolomite at the contact (Fig. 46).

Description

The occurrence is dark brown, hard, slightly fossiliferous, massive, Windsor Group dolomite. Where the dolomite comes in contact with the quartzite, the dolomite is much harder and more compact with no fossils. Gastropods are the only fossils noted. The bedding is very poorly developed with a rough, dark brown, weathered surface. The dolomite appears to be flat lying.

The dolomite is found in a mound which stands approximately 4.6-6 m above the surrounding ground. The mound varies from 15-30 m wide across the top and is 243.8 m long. Very little overburden is covering the dolomite along the top of the mound.

There is no indication as to the thickness of the dolomite. The surrounding area is wooded, but has been cut out to some extent making the area accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-4-1	45.95%	0.67%	2.68%	32.40%	18.65%

MEAGHERS GRANT (MG-5-1) (DIAMOND DRILLING)

This occurrence is located 2.6 km east of Route 357, at the end of the Grant road. Dolomite outcrops in various locations on the abandoned farm of W. Grant. The dolomite is found in a mound which strikes N 45° W and can be seen outcropping along this mound southward from the house for a distance of 280.4 m. Dolomite can also be found outcropping to the east of the farmhouse, along the western side of the pond (Fig. 46).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Meaghers Grant area.

Description

The occurrence is brown, hard, massive, fossiliferous, Windsor Group dolomite, similar in appearance to that found on the eastern side of the pond (MG-4-1). The fossils found are gastropods. The bedding is very poorly developed with a dark brown, rough, weathered surface. The underlying Meguma Group can be seen outcropping along this mound in various location, indicating that the dolomite forms only a thin covering over the Meguma rock. The dolomite is flat lying.

The surrounding area is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-5-1	45.85%	0.94%	3.20%	30.70%	19.30%

MEAGHERS GRANT (MG-6-1)

This occurrence is located approximately 2.5 km west of Meaghers Grant on a small brook which runs eastward and joins the Musquodoboit River at Meaghers Grant. This brook crosses a farm road 0.97 km south of the Meaghers Grant-Wyses Corner road. The farm road turns off the Meaghers Grant-Wyses Corner road 1.85 km west of Meaghers Grant. The dolomite can be found outcropping in a mound trending north along the side of this brook. It outcrops in various places along the brook, 579.1 m up from the farm road and again, 1219.2 m up from the farm road (Fig. 44).

Description

The occurrence is grey, very hard, highly fractured, slightly siliceous, Windsor Group dolomite. The bedding is very poorly developed because of the extensive fracturing. The weathered surface is rough, showing some differential weathering. There is a large amount of black carbonaceous material on the stylolites. The dolomite can be seen outcropping for a distance of approximately 610 m. There is no indication as to the strike or dip, but the mound is trending north-south.

The mound in which the dolomite is found ranges up to 9.1 m in height and can be traced in a southerly direction. There is no indication as to the thickness or areal extent except in the vicinity of the mound. The farthest extension of the dolomite is 1219.2 m up the brook. Here the dolomite is very hard and oolitic. It is conformably underlain here by a medium grained, grey, micaceous greywacke. This greywacke probably belongs to the Horton Group. Farther up the brook this greywacke is underlain by Goldenville Formation quartzite.

The area is easily accessible by numerous old woods roads which crisscross the area.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-6-1	43.50%	5.86%	3.00%	29.99%	17.60%

MEAGHERS GRANT (MG-7-1)

This occurrence is located approximately 2.5 km west of Meaghers Grant, on a small brook which runs eastward and joins the Musquodoboit River at Meaghers Grant. Dolomite outcrops on both sides of this small brook. This occurrence is 152.4 m downstream from MG-6-1. The dolomite outcrops at the edge of the woods (Fig. 44).

Description

This is a very hard, grey, fine grained, Windsor Group dolomite. The bedding is well developed and the weathered surface is light brown and smooth. Calcite is found as stringers. This dolomite varies greatly from that found at MG-6-1, 152.4 m up the brook. It strikes N 10° E and dips 9° NW.

There is no indication as to the thickness or areal extent because the dolomite outcrops only in the brook. There is probably at least 6 m of overburden covering the dolomite. The area is only lightly wooded and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-7-1	45.50%	1.92%	2.57%	30.10%	19.45%

MEAGHERS GRANT (MG-8-1)

This occurrence is located at Meaghers Grant along the eastern ditch of Route 357. Limestone can be found outcropping in the ditch 0.3 km north of the Lay Lake road. This area is found in the most heavily populated area of Meaghers Grant (Fig. 46).

Description

The occurrence is grey, very hard, dense, Windsor Group limestone. The bedding is well developed with a light grey, smooth, weathered surface. The upper part of the limestone is more massive and purer than the lower section. The bottom section becomes very arenaceous with a well developed bedding. There are some calcite stringers. It is flat lying.

There is no indication as to thickness or areal extent because the surrounding area is cultivated. The overburden appears to be light over most of the area. The surrounding area is open and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
MG-8-1	42.30%	2.60%	0.68%	53.60%	0.51%

MIDDLE MUSQUODOBOIT AREA

MIDDLE MUSQUODOBOIT (Mo-1-1)

Outcrops of this occurrence are located 1.9 km north of Middle Musquodoboit on the Glenmore road. The dolomite outcrops in a quarry which is located 152.4 m east of the Glenmore road. The walls in this dolomite quarry reach a height of 9-12 m in some places. The dolomite can also be seen on the floor of the quarry (Fig. 45).

Description

The occurrence is light brown, very hard, dense, massive, fossiliferous, B Subzone, Windsor Group dolomite. The bedding is very poorly developed with a light brown, smooth, weathered surface. The bedding is easily distinguished in some parts of the quarry. The fossils found are brachiopods, gastropods and some bryozoans. The fossils are very small. The jointing is well developed and is almost perpendicular to the strike. The lowermost section of the dolomite contains large, rounded boulders of the Halifax and Goldenville Formations. Some of these boulders were found in some of the higher sections. On the southern side of the quarry, the dolomite can be seen unconformably overlying the Halifax Formation slates. There is some slickensiding as well as calcite blebs on some of the surfaces. The strike is N 71° E and dip is 40° SE.

There is very little overburden and the dolomite appears to be at least 12 m thick. The purer parts of the dolomite appear to have been quarried out, thus making the dolomite of very little value.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-1-1	43.70%	6.10%	3.58%	29.20%	17.95%

MIDDLE MUSQUODOBOIT (Mo-2-1) (DIAMOND DRILLING)

This occurrence is located on the back road to Elderbank, 4.8 km southwest of Middle Musquodoboit. The limestone is found in a small quarry on the property of William Murchy. The limestone is found on both sides of the road and also in the fields on either side of the railroad tracks (Fig. 45).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Middle Musquodoboit area.

Description

This is a grey, hard, fossiliferous, E Subzone, Windsor Group limestone. The bedding is well developed with a light brown, smooth, weathered surface. The fossils found are brachiopods (*Gigantoproductus*) and chain corals (*Lithostrotion*) and one cephalopod. The fossiliferous layer seems to form only a 1.2-1.5 m layer over a brown, hard, more massive dolomitic limestone. This lower section appears to contain no fossils. The limestone is flat lying and covers a wide area.

There is no indication as to the thickness of the limestone. There is very little overburden because limestone can be seen outcropping in the hay fields on the Murchy property. The area is easily accessible and is mainly open land.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-2-1	42.00%	5.56%	2.08%	44.95%	5.90%

MIDDLE MUSQUODOBOIT (Mo-3) (FLOAT)

This float can be found along the southern shore of the Musquodoboit River, 1.6 km south of Middle Musquodoboit. This float can be found along the southern bank of the River for a distance of 122 m eastward from the bridge which crosses the Musquodoboit River on the Middle Musquodoboit to Musquodoboit Harbour road (Route 357). Nowhere was the limestone found to be outcropping (Fig. 45).

Description

The float is grey, hard, compact, slightly fossiliferous, massive, Windsor Group dolomite. The weathered surface is light brown and smooth. The only fossils noted were very small brachiopods and a few small cephalopods.

The float is very abundant along the shore of the Musquodoboit River. The overburden appears to be fairly thick, ranging up to 6 m in thickness.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-3	45.90%	1.90%	2.00%	30.25%	20.10%

MIDDLE MUSQUODOBOIT (Mo-4-1)

This occurrence is located on Lindsay Brook which is located 7 km southeast of Middle Musquodoboit and 3.2 km east of Brookvale. The limestone can be found outcropping near the top of a 15.2 m embankment on the western side of the Brook, 597.4 m up the western branch of Lindsay Brook from the intersection of the eastern and western branches (Fig. 56).

Description

The occurrence is light brown, very hard, compact, massively bedded, Windsor Group dolomite. The bedding is not too well developed and the weathered surface is a light tan colour and has a smooth surface. There is only one small area where outcrop was found. However, there are several large dolomite boulders along the side of the hill. This section of Windsor Group is completely surrounded by the Halifax Formation slates and forms a small pocket sitting on the slates. Some slumping has occurred in the outcrop area, but the dolomite appears to be almost flat lying.

There is no indication as to thickness or areal extent of the dolomite, although float can be found in Lindsay Brook from here down to the intersection of the eastern and western branches. The overburden appears to be extensive here.

The area is heavily wooded and is 3.2 km from any public road, although old logging roads are found throughout the area.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-4-1	46.10%	1.80%	1.96%	30.40%	20.20%

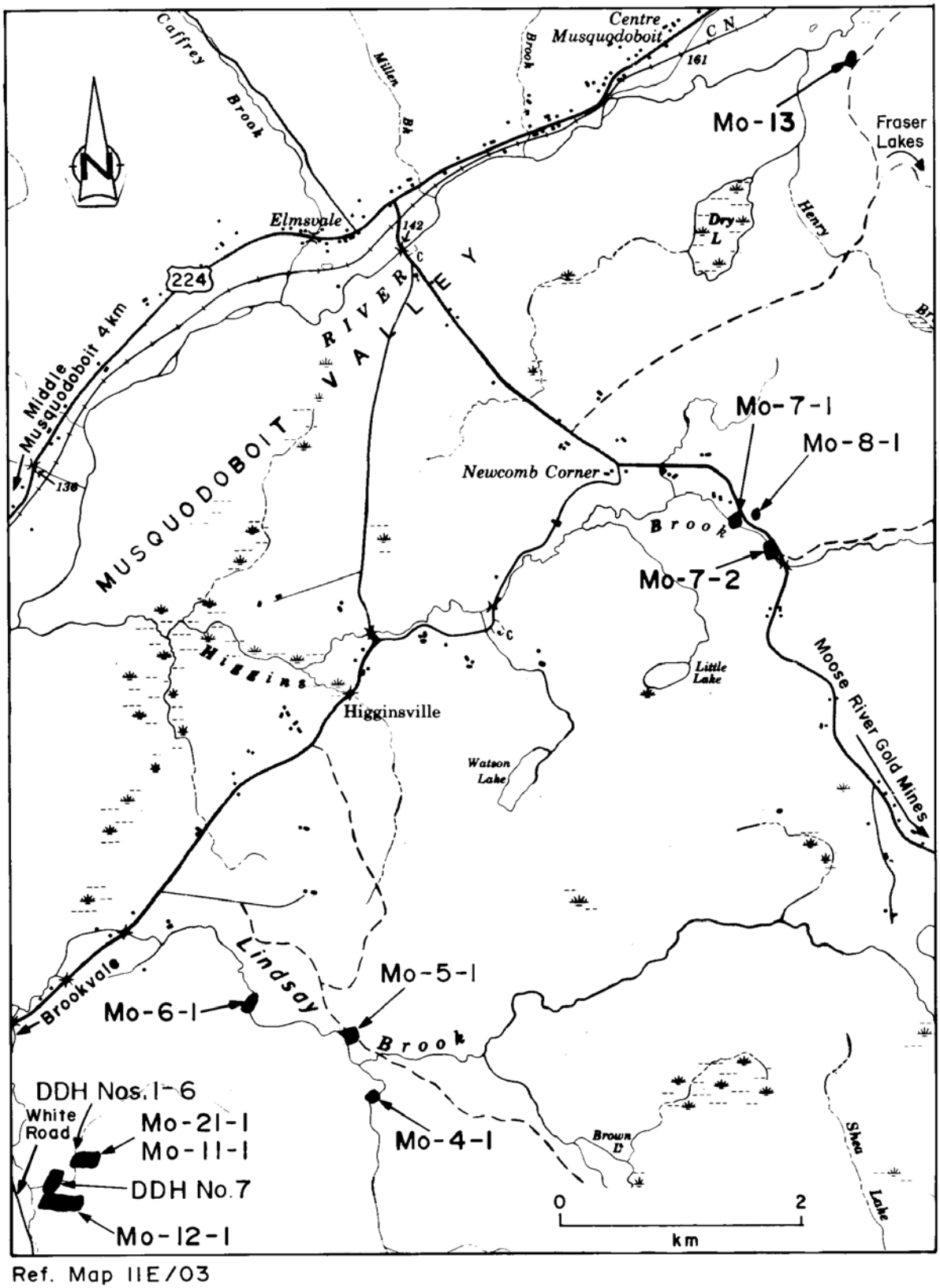


Figure 56. Location map of limestone and dolomite occurrences sampled in the Middle Musquodoboit area, Halifax County (11E/03).

MIDDLE MUSQUODOBOIT (Mo-5-1)

This occurrence of dolomite is found along Lindsay Brook, 7 km southeast of Middle Musquodoboit. The dolomite can be found outcropping on the eastern side of the Brook, 222.5 m downstream from the intersection of the eastern and western branches of Lindsay Brook (Fig. 56).

Description

The occurrence is grey, very hard, compact, massively bedded, Windsor Group dolomite. The bedding is very poorly developed with a light brown, smooth, weathered surface. No fossils were noticed and only a few, thin, calcite stringers are evident. The dolomite forms an unconformable contact with the underlying Halifax Formation.

The dolomite appears to be striking N 65° E, but, due to the massive nature of the bedding and the small areal extent of the outcrop, it is impossible to measure directly.

There is no indication as to the thickness or areal extent of the occurrence. The overburden appears to be only slight. The area is heavily wooded and hilly and is only accessible by old logging roads.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-5-1	44.20%	1.94%	4.52%	30.70%	17.80%

MIDDLE MUSQUODOBOIT (Mo-6-1)

This occurrence is located on Lindsay Brook, approximately 6.4 km southeast of Middle Musquodoboit. The dolomite outcrops 226 m up the Brook from a gravel pit. This dolomite can be traced up the western side of the Brook for a distance of 12 m. The dolomite is then cut off by Halifax Formation slates for a distance of 97.5 m up the Brook. The dolomite then outcrops again for a distance of 402.3 m up the Brook and is cut off again by the slates (Fig. 56).

Description

The occurrence is dark grey, hard, compact, fossiliferous, massive, B Subzone, Windsor Group dolomite. The bedding is very poorly developed with a light brown, smooth, weathered surface. At the contact, large slate fragments are found in the dolomite. Numerous calcite blebs are found replacing the brachiopods. Stylolites are abundant. Gastropods are the most abundant fossil type found with a few *Paraconularia planicostata*. The fossils are very poorly preserved because of compaction. Minor amounts of mineralization can be seen in the dolomite. The dolomite appears to be striking N 15° E and dipping 55° NW, however it is difficult to distinguish because of the massive bedding.

There is very little indication as to the thickness or areal extent of the dolomite because it is in contact with the slate to the west and south and it becomes drift covered basinward. The area is heavily wooded and hilly and is only accessible by old logging roads.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-6-1	43.75%	3.70%	3.92%	30.10%	17.65%

MIDDLE MUSQUODOBOIT (Mo-7-1) (Mo-7-2)

This occurrence is located on Higgins Brook, approximately 1 km east of Newcomb Corner and approximately 10 km east of Middle Musquodoboit. The dolomite outcrops only in the Brook, on the side of the Brook. The area is behind the farm of J. Bryson Fraser at Newcomb Corner. The dolomite can be found outcropping in two locations in Higgins Brook, 30.5 m apart (Fig. 56).

Description

The occurrence is dark grey, hard, argillaceous, siliceous, Windsor Group dolomite. The bedding is well developed and ranges up to 5 cm in thickness. The weathered surface is light brown and smooth. The bedding surfaces contain small amounts of pyrite coating. It strikes N 73° W and dips 13° NE.

There is no indication as to the areal extent or thickness of the dolomite. There appears to be a considerable amount of overburden away from the Brook.

The surrounding area is hilly and heavily wooded, although the area is very close to the Newcomb Corner-Moose River Gold Mines road. Sample Mo-7-2 was taken 256.6 m up Higgins Brook from Mo-7-1. At Mo-7-1 the dolomite is slightly more calcareous and a siltstone is found overlying it. The dolomite is laminated.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-7-1	45.50%	1.92%	2.57%	30.10%	19.45%
Mo-7-2	40.10%	10.80%	6.03%	26.30%	17.50%

MIDDLE MUSQUODOBOIT (Mo-8-1)

This occurrence is located along the eastern side of the road running from Newcomb Corner to Moose River Gold Mines. This occurrence outcrops in an embankment beside the road, 0.16 km southeast of the J. Bryson Fraser farmhouse. The limestone is 183 m east of Mo-7-1 and is north of

Mo-7-2. Construction has been carried out along this road and has uncovered a small area of outcrop in the bank. This is approximately 1.2 km southeast of Newcomb Corner (Fig. 56).

Description

This is a grey, very hard, compact, slightly fossiliferous, slightly metamorphosed, Windsor Group limestone. The bedding appears to be massive with a light brown, smooth, weathered surface. It contains some clusters of calcite crystals. The only fossils noted are small brachiopods. There is no indication as to the strike and dip because of the small areal extent of the outcrop.

Although there is very little overburden, no indication of thickness or areal extent could be found. The area is hilly and heavily wooded away from the road.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-8-1	42.50%	3.19%	0.87%	51.40%	1.60%

MIDDLE MUSQUODOBOIT (Mo-9-1)

Outcrops of this occurrence are located at Murchyville on Little River, 5 km south of Middle Musquodoboit. The dolomite outcrops on the western side of Little River, 132.3 m upstream from the Middle Musquodoboit-Shaw Big Lake road. The dolomite forms the bank of Little River and outcrops along this bank for a distance of 96.6 m (Fig. 45).

Description

The occurrence is hard, brown, massive, fossiliferous, Windsor Group dolomite (Fig. 57). The bedding is very poorly developed with a light brown, smooth, weathered surface. There are numerous fossil cavities, some filled, others partially filled, with calcite. Some calcite veins are present. The fossils found are brachiopods and gastropods.

The strike and dip could not be determined because of the massive nature of the dolomite. Sedimentary rocks downstream, however, are striking east-west and dipping 7° south.

Overburden, over the dolomite, appears to be no more than 4.6 m. There is no indication as to the thickness of the dolomite. The dolomite is resting unconformably on steeply dipping Meguma Group rocks which outcrop on the eastern side of Little River. The surrounding area is open and easily accessible.

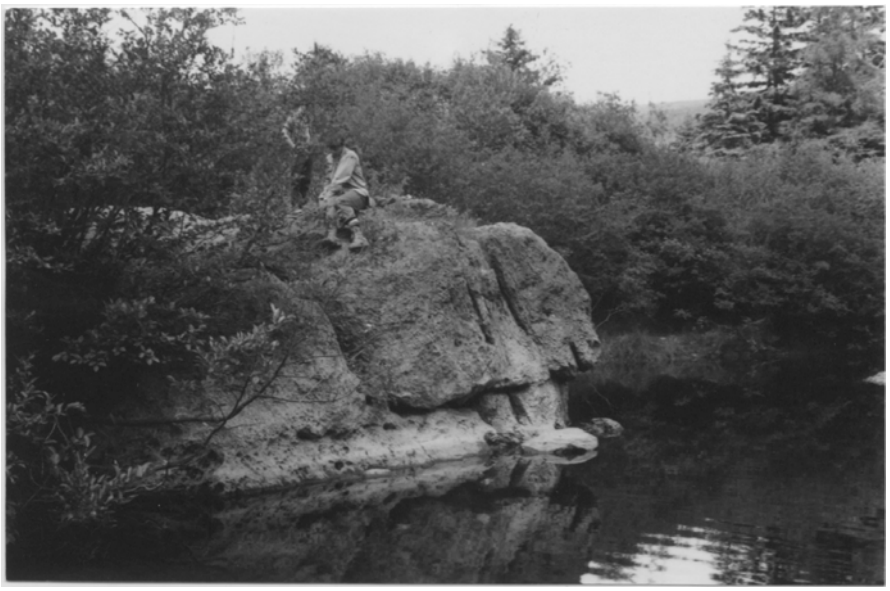


Figure 57. Outcrop of massive, fossiliferous Windsor Group dolomite found on Little River near Murchyville, Middle Musquodoboit area, Halifax County (Mo-9-1).

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-9-1	44.85%	1.73%	4.75%	30.70%	17.75%

MIDDLE MUSQUODOBOIT (Mo-9-2)

This occurrence is located on Little River at Murchyville approximately 5 km south of Middle Musquodoboit. Dolomite outcrops on the northern side of the River, 158.5 m downstream from the bridge on the Middle Musquodoboit-Shaw Big Lake road. The dolomite lies unconformably on the underlying Meguma Group rocks. The contact more or less follows the Little River at Murchyville. This dolomite is a continuation of Mo-9-1 which outcrops upstream from the bridge (Fig. 45).

Description

The occurrence is dark grey, hard, massive, slightly fossiliferous, Windsor Group dolomite. The bedding is very poorly developed with a light brown, smooth, weathered surface. A few brachiopods and gastropods were the only fossils noticed. Some cigar sized and shaped structures were also noticed (burrows?). The dolomite contains some cavities, some filled, and others partially filled, with calcite.

The strike and dip could not be measured because of the massive nature of the dolomite. It does, however, appear to be trending N 60° E along the Meguma-Windsor contact.

There is no indication as to the thickness. Overburden is at least 3-4.6 m thick. The surrounding area is open and accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-9-2	44.95%	1.48%	5.60%	30.05%	17.70%

MIDDLE MUSQUODOBOIT (Mo-10-1) (DIAMOND DRILLING)

This occurrence is located behind an abandoned farm on the side of Little River at Murchyville. This farm is approximately 548.6 m down the River from the bridge on the Middle Musquodoboit-Shaw Big Lake road. The farm is 0.32 km west of the Middle Musquodoboit-Shaw Big Lake road. It outcrops behind the foundation of the house, in the apple trees (Fig. 45).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Middle Musquodoboit (Murchyville) area.

Description

The occurrence is dark grey, hard, massive, Windsor Group dolomite. The bedding is very poorly developed with a rough, dark brown, weathered surface. It contains a few small cavities containing calcite. The dolomite is slightly arenaceous. There is no indication as to the strike or dip.

There is no indication as to the thickness of the dolomite. The overburden covering is very slight because the dolomite outcrops in the field. This occurrence is an extension of Mo-9-1 and Mo-9-2 along the Meguma-Windsor contact. The surrounding area is open and easily accessible.

Down Little River from this dolomite occurrence, large limestone boulders were found containing Gigantoproductus, indicative of the Musquodoboit limestone (C Subzone). In the vicinity of Mo-10-1, a stromatolitic limestone is found outcropping in Little River (Fig. 58).

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-10-1	44.90%	2.40%	6.20%	29.65%	16.90%

MIDDLE MUSQUODOBOIT (Mo-11-1) (Mo-21-1) (DIAMOND DRILLING)

This occurrence is located approximately 1.6 km southeast of Brookvale off the White Road. The area is 5 km southeast of Middle Musquodoboit. The dolomite outcrops on an abandoned farm, 0.8 km east of the White Road. Dolomite can be found outcropping around the farmhouse and in the

Figure 58. Stromatolitic limestone (Meaghers Grant Formation Windsor Group) found along the Little River near Murchyville, Middle Musquodoboit area, Halifax County (Mo-10-1).

field surrounding the house. On the western and northwestern side of the house, a 7.6-9 m embankment is found with dolomite outcropping in this bank in various locations from top to bottom (Fig. 56).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Middle Musquodoboit (Brookvale) area.

Description

Mo-11-1

The occurrence is greyish-brown, hard, massive, fossiliferous, Windsor Group dolomite. The bedding is very poorly developed with a dark brown, rough, weathered surface. The fossils are not abundant and the only type found is brachiopods. There are numerous cavities throughout, some fossil cavities. Some of these cavities are filled or partially filled with calcite, although calcite is not very abundant. The strike and dip could not be measured, although it appears to be trending N 80° E.

There is no indication as to the thickness of the dolomite. There appears to be little or no overburden covering the dolomite. The dolomite is very near the Meguma-Windsor contact. The surrounding area is open farmland and is easily accessible. This deposit appears to be quite extensive.

Mo-21-1

This belongs to the same occurrence as above, but is found in a small brook to the northwest of the abandoned farmhouse. The dolomite outcrops along both sides of the brook and forms 6.7 m high banks along the brook. This sample is a 6.7 m channel sample.

The dolomite appears to form an anticlinal structure with sandstone overlying the dolomite up and down the brook. This anticline strikes away from the brook in both directions and forms a 12 m high mound.

The dolomite is hard, massive, brown, fossiliferous, B Subzone Windsor Group. The fossils found are brachiopods and gastropods.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-11-1	45.95%	0.80%	3.77%	31.05%	18.85%

MIDDLE MUSQUODOBOIT (Mo-12-1) (DIAMOND DRILLING)

This occurrence is located east of the White Road, approximately 1.6 km southeast of Brookvale and 5 km southeast of Middle Musquodoboit. This dolomite is found in the vicinity of Mo-11-1 and is found outcropping along the farm road which runs to the abandoned farmhouse around which Mo-11-1 dolomite was found. This area is 335.3 m south of Mo-11-1 along the farm road and outcrops in mounds in the field and in clumps of bushes and trees along the old farm road (Fig. 56).

See Chapter 4 and Appendix 1 for information concerning diamond drilling and chemical analyses in the Middle Musquodoboit area.

Description

The occurrence is greyish-brown, hard, massive, fossiliferous, Windsor Group dolomite (Fig. 59). The dolomite is identical to that found at Mo-11-1 and is probably an isolated occurrence sitting on or near the Meguma contact. The bedding is poorly developed with a dark brown, rough, weathered surface. There are numerous cavities throughout the dolomite, some partially filled with calcite. The fossils found are brachiopods and are not abundant. The strike is east and the dip is 35° south.

There is no indication as to the thickness, but the dolomite can be seen outcropping in various locations for a distance of 198 m along the farm road which runs diagonally across the strike. There is little or no overburden. The area is open farm land and is easily accessible.

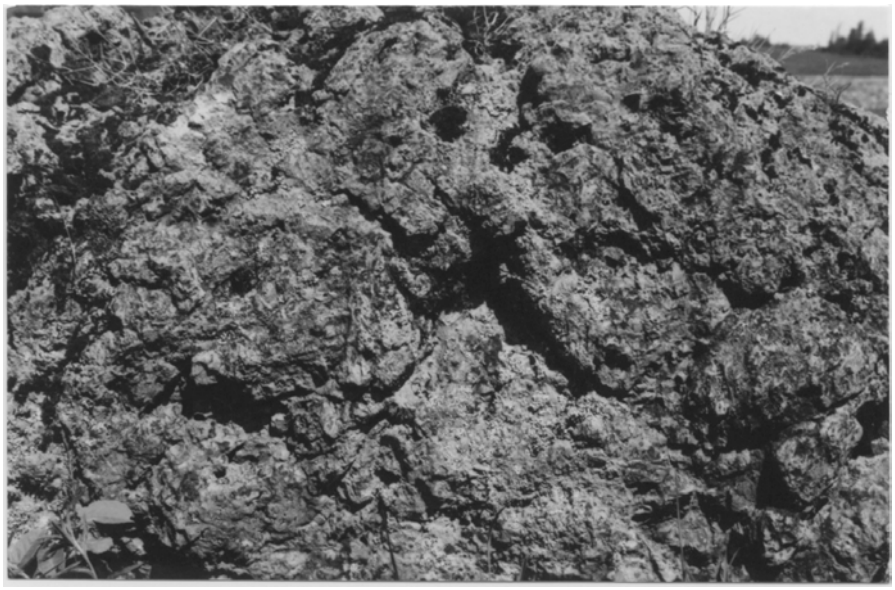


Figure 59. Massive, fossiliferous dolomite found south of Brookvale, Middle Musquodoboit area, Halifax County (Mo-12-1).

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-12-1	45.40%	3.05%	4.0%	30.40%	17.80%

MIDDLE MUSQUODOBOIT (Mo-13) (FLOAT)

This limestone can be found as float approximately 1.6 km east of Centre Musquodoboit on the southeastern side of the Musquodoboit River. Limestone is found in a small brook 0.4 km east of where Henry Brook empties into the Musquodoboit River. The area can be reached by a dead end road which runs northeast from Newcomb Corner to Fraser Lakes. The limestone is found in an old field which has grown over. The limestone float is found 30.5 m north of the foundation of an old house (Fig. 56).

Description

This float ranges from a very hard, grey, compact, lithographic, slightly oolitic limestone to a thinly bedded, grey, hard, Windsor Group limestone. The lithographic limestone has a light brown, smooth, weathered surface. Very little calcite or cavities are found in the limestone.

There is no indication as to the thickness or the overburden depth, but the float can be found in great abundance in the soil on the side of the brook. The surrounding area is bush covered, but easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-13	41.05%	5.50%	15.80%	51.05%	0.70%

MIDDLE MUSQUODOBOIT (Mo-14-1)

This occurrence is located 4 km south of Middle Musquodoboit on the Middle Musquodoboit-Murchyville road. The dolomite outcrops in the road and under a farmhouse. This farm is 2.1 km north of the bridge at Murchyville. The dolomite outcrops on the road, on the front lawn and in the barn yard, and appears to be in a mound trending perpendicular to the road (Fig. 45).

Description

The occurrence is greyish-brown, hard, dense, Windsor Group dolomite. The weathered surface is dark brown and smooth. Very few cavities are present with very little secondary calcite. No fossils were found. This dolomite belongs to the Upper Windsor Group.

There is no indication as to the dip and strike because of the small areal exposures. The dolomite, however, is in a mound which strikes N 55° E. There is no indication as to the thickness or areal extent of the dolomite. The overburden is only slight with the dolomite outcropping in several places in this area. The area is open farmland and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-14-1	45.30%	1.98%	1.92%	34.20%	16.55%

MIDDLE MUSQUODOBOIT (Mo-15-1)

This occurrence is located 2.6 km southeast of Middle Musquodoboit on the South Section-Brookvale road. The limestone only outcrops along the northern ditch of this road and only a small exposure was found. This occurrence is 2.66 km west of the Brookvale intersection. There is a large amount of limestone float in the surrounding area, but no outcrop (Fig. 45).

Description

The occurrence is dark brown, hard, dense, thinly bedded, arenaceous, Windsor Group limestone. The bedding is well developed with a dark brown, smooth, weathered surface. There are very few cavities and no secondary calcite. This is Upper Windsor Group limestone. It appears to be striking N 50° E and dipping 31° SE.

There is no indication as to the thickness, areal extent or depth of overburden over the limestone because of the limited areal exposure. The surrounding area is open fields and rolling hills. Most of the hills appear to be of glacial origin. The area is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-15-1	37.25%	14.04%	8.05%	36.70%	3.30%

MIDDLE MUSQUODOBOIT (Mo-16-1)

Outcrops of this occurrence are located 1.6 km south of Middle Musquodoboit along the southern bank of the Musquodoboit River. The limestone outcrops along the top of a 7.6 m embankment, 30.5 m east of where the Canadian National Railway crosses the Musquodoboit River. Limestone can be found in the bank of the River, 4.6 m up from the water (Fig. 45).

Description

The occurrence is brown, hard, slightly porous, medium grained, slightly arenaceous, Windsor Group limestone. The bedding is poorly developed and crumbly with a brown, smooth, weathered surface. The limestone contains numerous cavities with no calcite infilling. Underlying the limestone is a red siltstone which outcrops at the edge of the Musquodoboit River. The siltstone contains a large amount of calcite.

The limestone appears to be flat lying with maybe a slight dip towards the north and out into the River. The limestone is only 3 m thick with possibly 1.5 m of overburden. The surrounding area is open and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-16-1	43.25%	4.60%	1.57%	47.20%	3.81%

MIDDLE MUSQUODOBOIT (Mo-17-1)

This occurrence is located 1.6 km east of Middle Musquodoboit on a small brook which runs into the eastern side of the Musquodoboit River near the hospital. The limestone outcrops on the western bank of the brook, 304.8 m north of the Middle Musquodoboit-Brookvale road. Outcrops are found at the base of a 6 m embankment and limestone can be found along the side of the brook for a distance of 91.4 m (Fig. 45).

Description

The occurrence is brown, hard, dense, arenaceous, dolomitic, Upper Windsor Group limestone. The bedding is well developed with a light brown, smooth, weathered surface. No fossils were found. It is flat lying.

The limestone is approximately 3 m thick with 6-9.1 m of overburden. The limestone is underlain by a calcareous, light brown sandstone. A diamond-drill hole was put down in this area for clay and struck limestone after penetrating 12.2 m of cover (Wright, 1969). The area is partly wooded and hilly and is easily accessible. The limestone is of no economic value.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-17-1	40.75%	9.54%	5.82%	30.90%	13.20%

MIDDLE MUSQUODOBOIT (Mo-18-1)

Limestone of this occurrence can be found outcropping approximately 6 km southwest of Middle Musquodoboit, along the sides of the Canadian National Railway tracks. This area is along the Back Road Elderbank and is approximately 3 km northeast of Elderbank. Limestone can be found outcropping along the tracks, 160 m southwest of the second railway crossing from Elderbank. The limestone can be found for a distance of 38.1 m along the tracks (Figs. 45 and 46).

Description

This is a greyish-brown, hard, dense, fossiliferous, dolomitic, E Subzone, Windsor Group limestone. The bedding is well developed with a grey, rough, weathered surface. The fossils protrude from the weathered surface and consist of brachiopods, mainly *Gigantoproductus*. There are some cavities and veins containing small calcite crystals. It strikes N 45° E and dips 38° SE.

There is no indication as to thickness or areal extent. This occurrence, however, is very similar to Mo-2-1 which has only a thin covering of limestone with dolomite underneath. The cover over this limestone is slight. The area is open and easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-18-1	42.40%	5.20%	3.60%	34.15%	13.75%

MIDDLE MUSQUODOBOIT (Mo-19-1)

This occurrence of limestone is located approximately 2.4 km north of Elderbank and 7 km southwest of Middle Musquodoboit. This limestone is found along the eastern ditch of the Elderbank-Middle Musquodoboit road (Route 357), 0.48 km north of the turnoff to Chaswood which is 1.6 km north of Elderbank. There is limestone rubble for 30.5 m along the ditch with no visible outcrop (Fig. 46).

Description

The limestone ranges from dark grey, hard, dense, fossiliferous, C Subzone, Windsor Group limestone on top (possibly top 1.5 m) to brown, hard, slightly porous, Windsor Group dolomite below. From the rubble found, the bedding appears to be well developed with a smooth, weathered surface. The limestone contains brachiopods (*Gigantoproductus*) and corals (*Lithostrotion*). The corals are flat lying with their long direction parallel to the bedding. The underlying dolomite contains calcite veins with small crystals of calcite. This Upper Windsor Group section is similar to that found at Mo-2-1 and Mo-18-1 (Fig. 45). There is no indication as to the strike or dip, but it is probably flat lying.

There is no indication as to the thickness of the section or areal extent. The overburden appears to be no more than 1.5 m thick. The surrounding area is open farmland.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-19-1	41.50%	6.25%	1.90%	44.80%	5.30%

MIDDLE MUSQUODOBOIT (Mo-20-1)

This occurrence is located approximately 1.6 km northwest of Middle Musquodoboit. The dolomite occurrence is beside the dump road which runs around to Glenmore. The dolomite does not outcrop, but can be found as float in a small brook on the Winfred McFetridge property. The dolomite is on the southeastern side of the road, approximately 152.4 m west of the McFetridge barn. Dolomite can be found in a small pit which was used at one time for quarrying dolomite for the fields (Fig. 45).

Description

The occurrence is hard, brown, slightly porous, slightly fossiliferous, Windsor Group dolomite. No bedding can be distinguished because of the lack of outcrop. The weathered surface is dark brown and smooth. Small pieces of crinoid stems can be seen on the weathered surface. These were the only fossils found. Numerous small cavities are found throughout giving the porous nature to the rock. The strike and dip could not be measured.

The areal extent and depth of overburden could not be determined. The surrounding area is partly wooded and partly open pastureland and is accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
Mo-20-1	43.65%	6.35%	3.01%	28.45%	18.35%

UPPER MUSQUODOBOIT AREA

Mosher Limestone Company Limited have operated quarries and a dolomitic limestone processing facility at Upper Musquodoboit that has supplied aglime products to the Maritime region for more than 50 years (Fig. 60). Carbonate buildups of the Gays River Formation of the Lower Windsor Group (A Subzone) have been the primary source of dolomitic limestone. A series of quarries have been operated in a large carbonate bank complex occurring over a distance of several kilometres northeast of Route 224 along the southern border of the Musquodoboit Valley near Upper Musquodoboit. The geology of these carbonates, including the contact relationships with the underlying Meguma Group basement, is well exposed in these quarries (Figs. 61, 62 and 63). Carbonate buildups of the Gays River Formation are scattered around the perimeter of the Musquodoboit Valley from Gays River (host to Pb-Zn deposit) to Meaghers Grant and Upper Musquodoboit.

UPPER MUSQUODOBOIT (UM-1-1)

This occurrence is located 4.8 km south of Upper Musquodoboit along the road running from Upper Musquodoboit to Caribou Mines. This occurrence consists of dolomite which outcrops along the eastern side of the road, crosses the road and outcrops on the western side. The dolomite forms a mound which is approximately 24.4 m across at the summit. This area is 1.1 km south of the intersection at Fraser Settlement (Fig. 60).

Description

The occurrence is greyish-brown, very hard, dense, thinly bedded, Windsor Group dolomite. The weathered surface is light brown with a rough, pitted surface (typical dolomite weathering). There are some calcite stringers, not greater than 2.5 cm in thickness. It contains some detrital material probably from the Meguma Group. It strikes N 33° E and dips 21° NW.

The dolomite is found in a mound trending in the same direction as the strike, and can be traced for a distance of 243.8 m. There is no indication as to what is overlying or underlying the dolomite, although a large amount of quartzite float can be found below the dolomite.

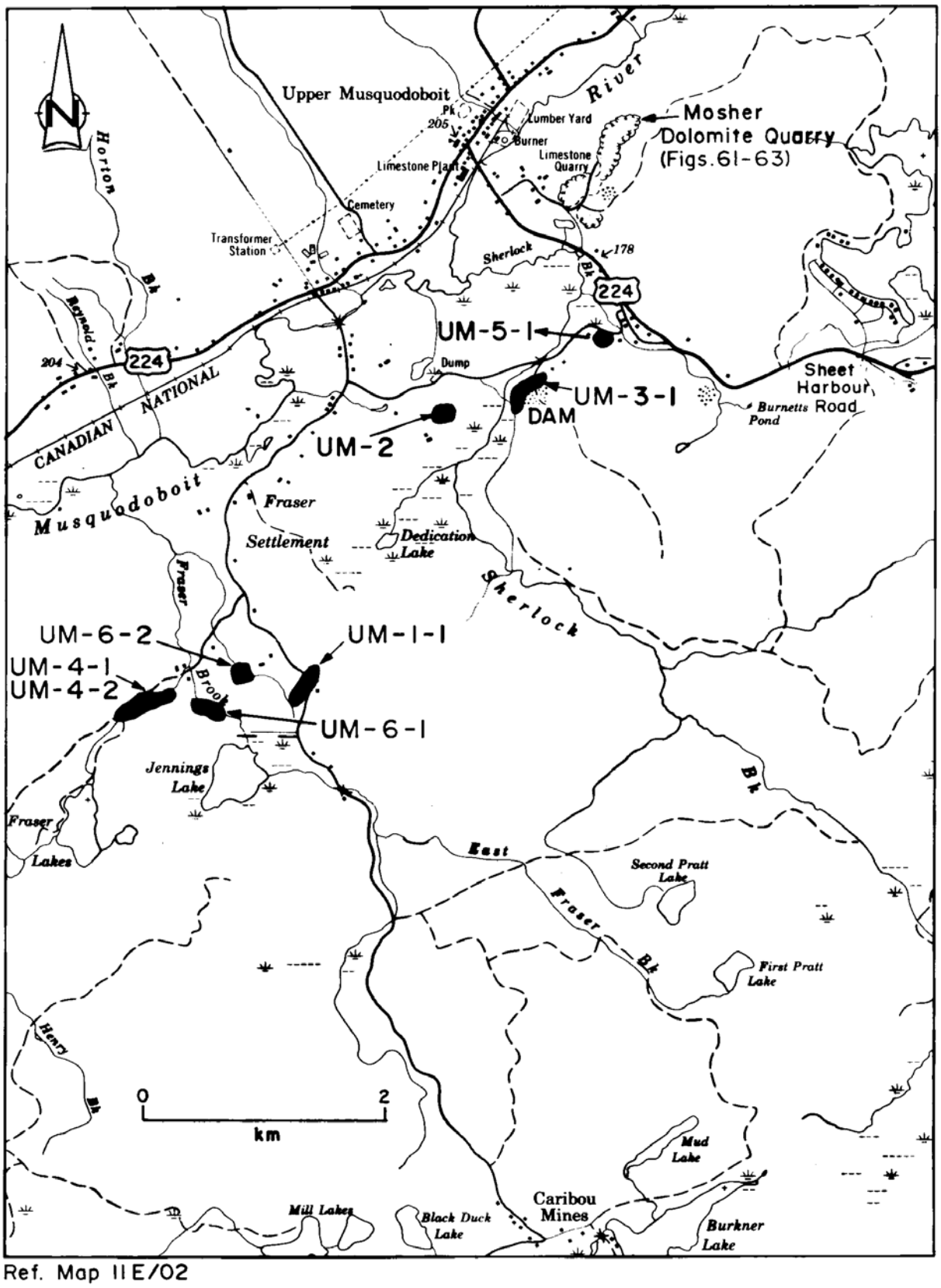


Figure 60. Location map of limestone and dolomite occurrences sampled in the Upper Musquodoboit area, Halifax County (11E/02).

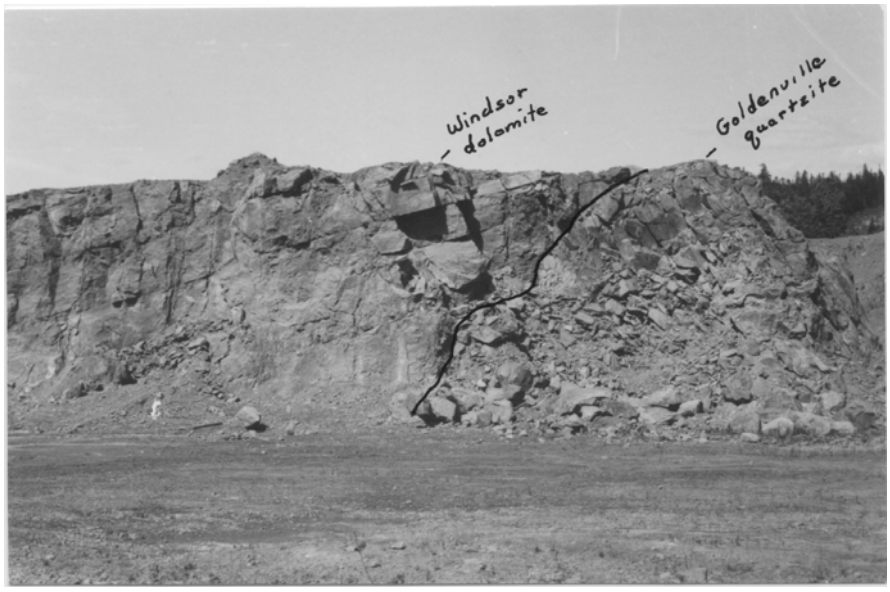


Figure 61. Dolomite can be seen overlapping quartzite in the Upper Musquodoboit dolomite quarry, Halifax County. For location see Figure 60..

Figure 62. Closeup of Goldenville-Windsor contact in quarry shown in Figure 61, Upper Musquodoboit, Halifax County.

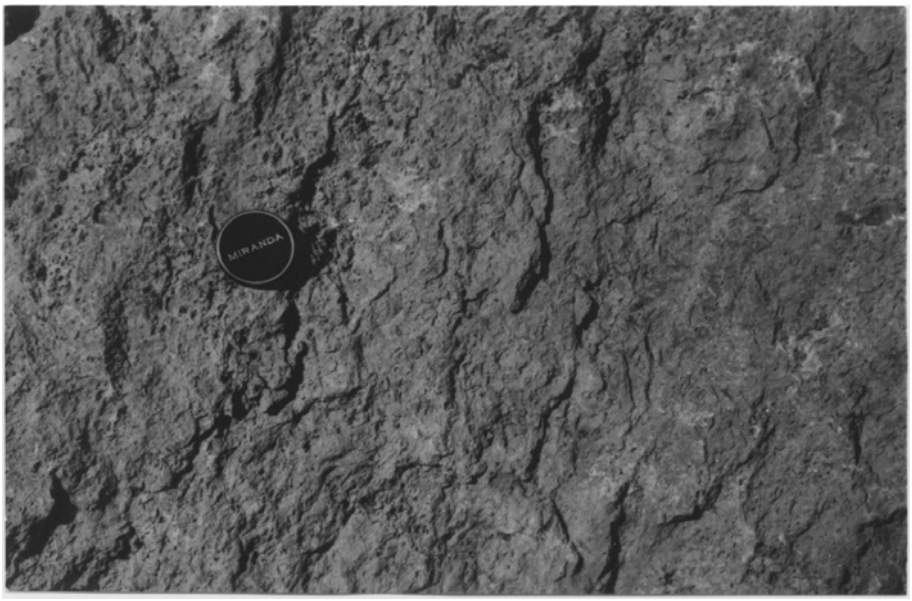


Figure 63. Massive dolomite found in the quarry at Upper Musquodoboit, Halifax County. For location see Figure 60.

The overburden is only slight with dolomite outcropping on the surface. The dolomite is approximately 9 m thick. The surrounding area is open on the western side of the road and heavily wooded with spruce on the eastern side.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-1-1	43.30%	7.85%	2.27%	28.50%	17.35%

UPPER MUSQUODOBOIT (UM-2) (FLOAT)

This occurrence is located approximately 2.4 km south of Upper Musquodoboit and 1.3 km east of Fraser Settlement. This dolomite does not outcrop, but a large amount of float can be found. The dolomite float is found 243.8 m south of the road running from Fraser Settlement to Sheet Harbour Road. Float is found in a mound with an elevation of 76.2 m. This is south of the farmhouse of Elmer Stewart (Fig. 60).

Description

This occurrence is brownish-grey, hard, slightly porous, fossiliferous, A Subzone, Windsor Group dolomite. The weathered surface is pitted and light brown. It contains a large amount of secondary calcite filling some of the cavities. Associated with the calcite is galena as small crystals. The fossils found are gastropods and these are only found as moulds.

There is no indication as to the thickness or the amount of overburden. The surrounding area is open pastureland and is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-2	47.40%	0.48%	0.84%	31.20%	20.10%

UPPER MUSQUODOBOIT (UM-3-1)

This occurrence is located 2.4 km south of Upper Musquodoboit and can be found outcropping along the southeastern side of Sherlock Brook, above and below the dam. The dolomite outcrops along the eastern side of the lake above the dam and runs parallel to Sherlock Brook almost to the Fraser Settlement-Sheet Harbour Road (Fig. 60).

Description

The occurrence is brownish-grey, porous, massive, fossiliferous, B Subzone, Windsor Group dolomite. It contains numerous cavities, some filled and others partially filled with calcite. The bedding is poorly developed with a rough, pitted, weathered surface. Most of the fossils have been destroyed by dolomitization, but a few casts and moulds still remain. The fossils are gastropods and brachiopods. The rock contains a large amount of calcite. It strikes east and dips 8° S.

Several trenches were dug in this area to test the dolomite for agricultural stone. These trenches show the dolomite to be at least 4.6 m thick with the overburden varying between 3-4.6 m. The surrounding area is wooded, but easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-3-1	46.30%	1.45%	2.01%	30.40%	20.40%

UPPER MUSQUODOBOIT (UM-4-1) (UM-4-2)

This occurrence is located 5.3 km southwest of Upper Musquodoboit. The dolomite outcrops on the road between Fraser Settlement and Fraser Lakes and also outcrops on the sides and in Fraser Brook, 0.8 km north of where it empties into Fraser Lakes. Dolomite outcrops over a wide area in the fields and on the road. It can be traced along Fraser Brook for 457.2 m (Fig. 60).

Description

This occurrence consists of two types of dolomite. On top is UM-4-1, which is a light grey, siliceous, porous, medium grained, oolitic, Windsor Group dolomite. The weathered surface is smooth with poorly developed bedding. It contains a large amount of detrital material. Underlying UM-4-1 is UM-4-2 which is a light grey, very hard, compact, Windsor Group dolomite. The bedding is poorly developed with a smooth, light brown, weathered surface. This dolomite is close to the Windsor-Meguma contact. The dolomite is almost flat lying with a slight dip to the northeast.

This occurrence is at least 4.6 m thick with the overburden ranging from 3-4.6 m in thickness. The surrounding area consists of heavily wooded areas as well as open pastureland and is readily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-4-1	42.10%	10.30%	2.58%	27.10%	17.35%
UM-4-2	45.20%	3.27%	2.90%	32.50%	15.30%

UPPER MUSQUODOBOIT (UM-5-1)

This occurrence is located on the Sheet Harbour Road-Fraser Settlement road, 0.64 km south of where this road joins the Upper Musquodoboit-Sheet Harbour Road road. This area is approximately 2 km southeast of Upper Musquodoboit. Limestone is found outcropping on the southern side of the road beside the house of Hector Gaul. The property has been cleared next to the house exposing the outcrop (Fig. 60).

Description

The occurrence is light grey, hard, dense, partially oolitic, massive, Windsor Group limestone. The bedding is very poorly developed with a rough, light grey, weathered surface. A few brachiopods can be found on the weathered surface, but none could be seen on a fresh surface. The dip and strike could not be measured because of the rubbly nature of the outcrop.

Although there is little or no overburden, the thickness could not be determined. The surrounding area is hilly and heavily wooded, but is easily accessible.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-5-1	40.01%	5.60%	4.30%	49.70%	0.60%

UPPER MUSQUODOBOIT (UM-6-1) (UM-6-2)

This occurrence is located on Fraser Brook approximately 5.3 km southwest of Upper Musquodoboit. The dolomite outcrops in Fraser Brook (UM-6-1), approximately 335.3 m up the Brook from the Fraser Settlement-Fraser Lakes road. Dolomite outcrops in the upper 6 m of a 15.3 m cliff along the northern bank of Fraser Brook. Northeast of Fraser Brook, in a field, the dolomite is found as float with outcrops (UM-6-2) in a brook (Fig. 60).

Description

UM-6-1

The occurrence is greyish-brown, hard, massive, arenaceous, Windsor Group dolomite. The rock is very thickly bedded with a brown, rough, weathered surface. It contains some small calcite veins, as well as some slight fracturing more or less parallel with the bedding. It strikes N 80° E and dips 13° NW.

The dolomite is approximately 6 m thick with very little overburden.

The dolomite is underlain by a very arenaceous siltstone containing a large amount of mica (Fig. 64). This siltstone is very thinly bedded with some very thin (0.6-0.9 m) interbedded limestone.

The surrounding area is heavily wooded and hilly, and not easily accessible.

All of the dolomite on Fraser Brook is very near shore or fresh water dolomite with a large amount of detritus having been carried into the depositional area. These micaceous siltstones may possibly be the upper part of the Horton Group which is conformable with the Windsor Group.

UM-6-2

UM-6-2 is a continuation of occurrence UM-6-1. It outcrops in the brook located just northeast of Fraser Brook.

It is a greenish-brown, very hard, compact, massive, arenaceous, dolomitic, Windsor Group limestone. A large amount of secondary calcite is associated with the limestone. The bedding is poorly developed with a rough, brown, weathered surface.

This limestone covers a broad area because of the low dip. The limestone, however, is probably no thicker than 6-7.6 m with possibly 3-4.5 m of overburden.

Analysis

Sample	L.O.I.	SiO_2	R_2O_3	CaO	MgO
UM-6-1	45.95%	1.05%	2.50%	32.90%	17.3%
UM-6-2	44.60%	1.54%	1.27%	40.75%	11.0%

Figure 64. Dolomite outcropping on top of a micaceous siltstone found along Fraser Brook, southwest of Upper Musquodoboit, Halifax County (UM-6-1).