

Depth and density measurements on core from the Chapel Street borehole

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The following table shows depth and density measurements on core from the Chapel Street bore at Glenorchy (320900 mE, 5256200 mN). Brief descriptions are given of the types of dolerite encountered in the hole.

The main mass of rock, especially that from about 1000 to 1550 feet (305 to 472 m) is a fine to medium-grained dolerite made up of a mass of laths of labradorite, 0.25 to 0.5 mm long, and interspersed groups of pyroxene crystals, each crystal averaging about 0.5 mm long. The pyroxene is a yellowish-green or greyish-green faintly pleochroic augite or pigeonite according to the optic axis angle. A little disseminated magnetite is present and traces of pyrite. Secondary minerals are biotite, amphibole and chlorite. Only a small amount of interstitial material, consisting of micrographic intergrowth and quartz, is present.

The variation in density is due mainly to different proportions of feldspar and pyroxene. At 1550 feet (472 m) there is an increased proportion of magnetite, but apparently this mineral is not plentiful enough to give any marked increase in density. The figures show a rapid increase to a maximum at about 750 feet (228 m) followed by a gradual decrease to a minimum at about 850 feet (259 m). An increase then occurs until the curve flattens out at about 1000 feet (305 m). At 1550 feet (472 m) the figures decrease to a minimum at the low contact of 1617 feet (493 m).

From 845 to 920 feet (257 to 280 m) the coarsest grained rock types appear, consisting of large pyroxene crystals enclosing laths of labradorite. Some large feldspar crystals also occur.

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<i>Depth</i>	<i>Density</i>	<i>Description</i>
651' 5"	2.67	Very fine grained with intersertal texture. Labradorite needles up to 0.2 mm long. Rare biotite.
653' 4"	2.84	Slightly coarser grained and less glass.
654' 11"	2.92	Little glass, average length of labradorite 0.2 mm.
670' 6"	2.85	Fine grained holocrystalline, sub-ophitic. Labradorite 0.3 mm long.
679' 2"	2.92	Labradorite 0.5 mm long, biotite rather common, patches of micrographic intergrowth.
692' 7"	2.83	Fine grained, sub-ophitic, plates of biotite common.
699' 11"	2.69	Similar to 692' 7". In both pyroxene, possibly bronzite, has pronounced schiller. Chloritic band cause of low S.G.
707'	2.96	Fine to medium grained with pyroxene crystals up to 1.5 mm.
714' 5"	2.90	Fine grained with some pyroxenes reaching 1 mm.
724' 9"	2.95	Fine grained sub-ophitic. Agglomeration of crystals gives effect of medium grain in hand specimen.
735' 3"	2.93	Similar.
745' 6"	2.96	Labradorite laths up to 0.25 mm long.
753' 8"	2.97	
755' 10"	2.95	
755'	2.93	Some alteration of pyroxene to hornblende, chlorite and biotite.
782'	2.90	Medium-grained rock with micrographic intergrowth, feldspar and pyroxene crystals up to 2 mm long. Alteration to hornblende and chlorite
790'	2.80	Medium grained (crystals up to 3 mm). Granophyric intergrowths in groundmass alteration of pyroxene to hornblende and chlorite.
800'	2.98	Fine grained, sub-ophitic.
820'	2.91	Fine grained, sub-ophitic, but appearing coarser because of agglomeration.
830'	2.92	Similar to 820'.
845'	2.80	Appearing coarse to medium grained because of skeletal pyroxene crystals up to 10 mm long and more, but labradorite crystals average 0.25 mm long.
870'	2.89	As 845 but some large feldspar crystals as well and micrographic intergrowth.
895'	2.92	Coarse pyroxene common but coarse labradorite rare.
920'	2.91	Coarse grained similar to 895'.
945'	2.89	Medium-grained sub-ophitic dolerite with some micrographic intergrowth.
970'	2.77	As 945'. S.G. unreliable as specimen is damaged.
995'	2.97	Medium grained. Pyroxenes up to 3 mm.
1045'	2.97	Similar to 995'.
1070'	2.99-	Similar to 995'.
1095'	2.94	Fine grained sub-ophitic, but appearing medium grained due to agglomeration.
1120'	3.00	Fine grained sub-ophitic.
1145'	2.84	Similar to 1120' but pyroxenes semi opaque white with alteration.
1169'	2.92	Similar to 1145' but pyroxenes a little larger and more numerous.
1195'	3.00	Fine grained, but more pyroxene than 1169'.
1220'	2.97	Fine grained sub-ophitic.
1245'	2.94	Fine grained sub-ophitic.
1275'	2.96	Fine grained sub-ophitic.
1320'	2.95	Fine grained sub-ophitic.
1345'	2.98	Fine grained sub-ophitic.
1370'	2.97	Fine grained sub-ophitic.
1420'		Fine grained sub-ophitic.
1445'	3.00	Fine grained sub-ophitic.
1475'	2.93	Fine grained sub-ophitic.
1495'	2.98	Fine grained sub-ophitic.
1520'	2.92	Fine grained sub-ophitic.
1550'	2.98	Increased amount of fine-grained disseminated magnetite.
1575'	2.84	Magnetite present, also chlorite vein.
1600'	2.83	Fine grained sub-ophitic and intergranular texture
1615'	2.85	Very fine grained sub-ophitic and intergranular.
1617'	2.67	Very fine grained intergranular with a little dark glass.