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Ontario

2017 Work Report on the Sandspit Property, NW Ontario.

NTS 42E/01

Bounded by UTM coordinates (NAD 83 Zone 16):

532890 & 534900 East; 5446120 & 5449320 North

By: Kevin R. Kivi, P.Geo.

8 December 2017

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Introduction

Rudolf Wahl holds 100% interest in the Sandspit Property located in Islington Lake Area (G-0593), Thunder Bay Mining District, Ontario. Sandspit is currently under option to Churchill Diamond Corporation, who conducted the work reported herein.

The Sandspit Property is located about 220 km east-northeast of Thunder Bay, and access is by driving 280km east of Thunder Bay on Highway 17, then north on Deadhorse Creek Road and subsequent logging roads for 54 km to the property. The property is accessible by truck.

The Sandspit property consists of two claims (32 units) staked to cover kimberlite float occurrences, scattered kimberlite indicator minerals in till, and a broad magnetic anomaly.

This report describes 2016 field work that includes line cutting, prospecting, magnetic and VLF geophysical surveys, and cutting access trails and a base line. Laboratory work includes sawing rock samples, thin section preparation and sample descriptions.

Work was completed by Churchill Diamond Corp, under direct supervision of Kevin Kivi, P.Geo., of KIVI Geoscience Inc.

Location and Access

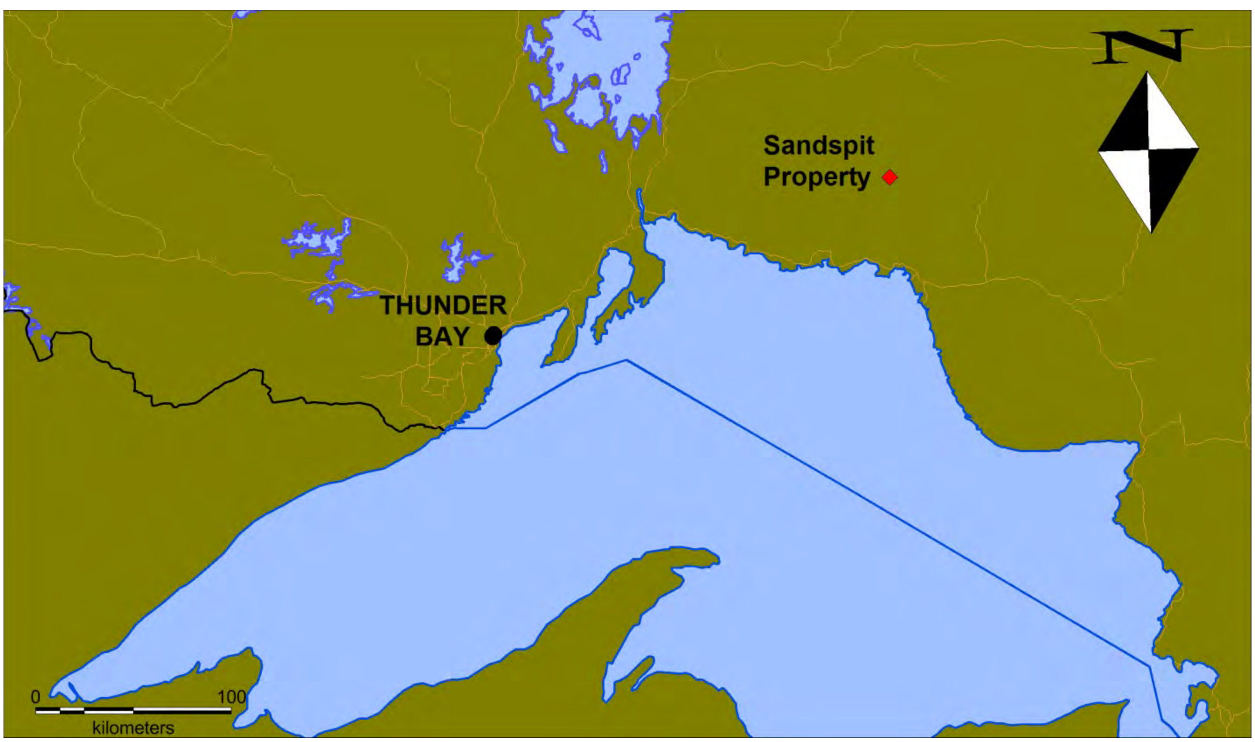


Figure 1. Location Map of Sandspit Lake Property.

The Sandspit Property is located in the Islington Lake River Area (G-0593), Thunder Bay Mining District, Ontario. Jackpine Road crosses the property 54 km north of the Highway 17 and Deadhorse Creek Road junction, which is midway between Terrace Bay and Marathon.

Terrace Bay and Marathon are full-service communities with a hotels, restaurants, fuel and supplies. Surrounding towns have workers of all trades to support exploration and mining.

Access to Sandspit Property from Terrace Bay is east on Highway 17 for 46.5 km, then north on Deadhorse Creek Road for 18.3 km, then right on Jackpine Road for 35.3 km to a parking area on the property. An ATV trail extends west to an area known for kimberlite float occurrences.

Figure 2. Parking area on Sandspit Property, ATV trail entrance behind GMC pickup.

Property

Rudolf Wahl holds 100% interest in the Sandspit Property which consists of claims 4261168 and 4263470 which combined total 32 units, and occur in Islington Lake Area (G-0593), Thunder Bay Mining Division (Table 1 and Figure 4).

The Sandspit Property is under option to Churchill Diamond Corporation (CLT # 413087). All claims were in good standing at the time of this report. Claim 4263470 is under an extension of time whereby the time for performing assessment work or filing a report of such work on the mining claim is extended to November 21, 2017, and due to interruptions filing this report, the claim is on active hold pending submission of this report.

Table 1: Claim List of Sandspit Property (MNDM Website, February 24, 2017).

THUNDER BAY Mining Division - 206079 – RUDOLF WAHL

Township / Area	Claim Number	Recording Date	Claim Due Date	Status	Percent Option	Work Required
ISLINGTON LAKE AREA	4261168	2016-Oct-31	2018-Oct-31	A	100%	$5,600
ISLINGTON LAKE AREA	4263470	2013-May-21	2017-May-21	A	100%	$5,103

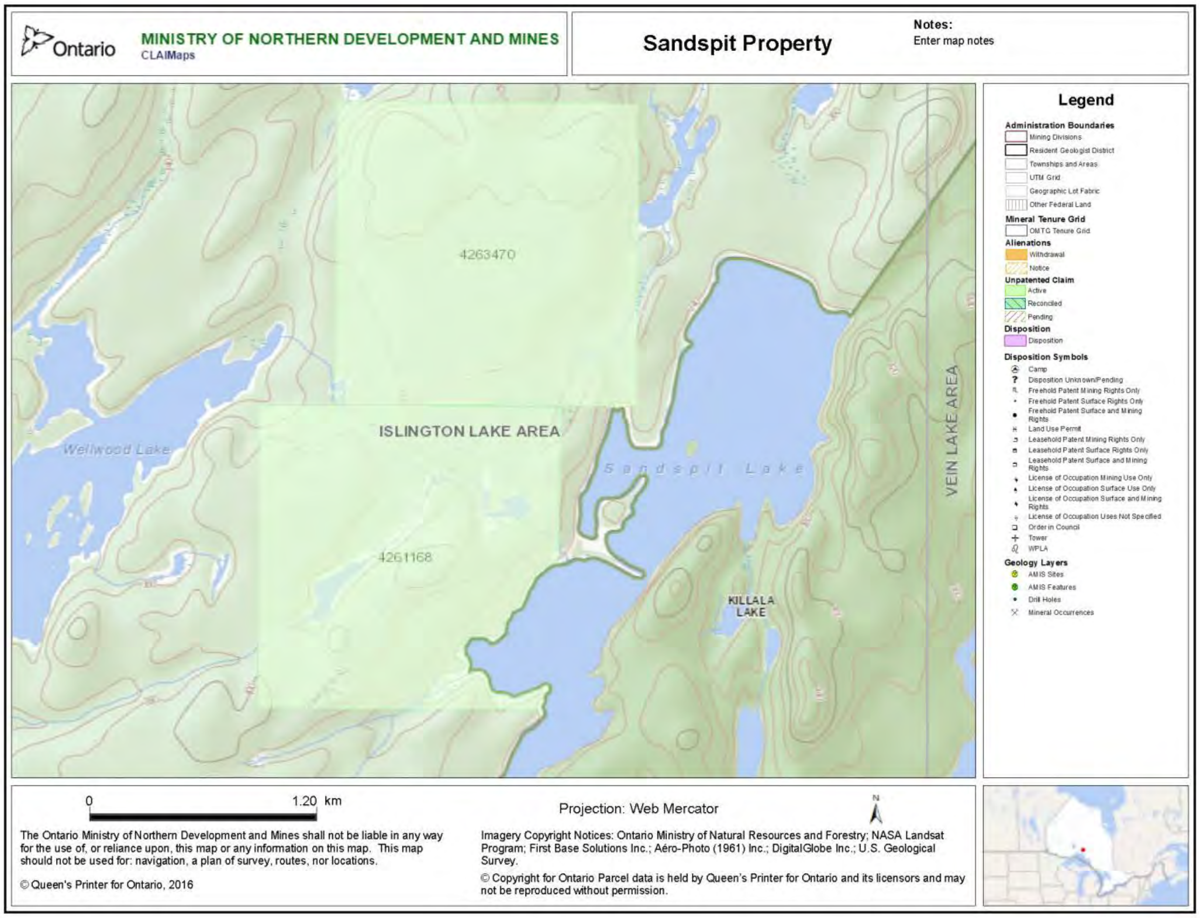


Figure 3: Sandspit Property, CLAIMapsIV Website, February 26, 2017.

Previous Work

Mineral exploration in the Killala Lake Area was in response to the discovery of the Geco copper deposit (52 Mt; 2.3% Cu, 8.2% Zn, 74 g/t Ag) in Manitouwadge in 1953, and subsequently the Willroy deposit and others. Historical work by prospectors, exploration companies and their subcontractors, and government agencies is sparse, but documented at Killala Lake. The Killala Lake Alkali complex was explored for copper and nickel.

The first significant government publication on Killala Lake was Ontario Department of Mines (ODM) Geological Report 81, 1970 which includes a colour geological map (Map 2191). The report tallies work by companies prior to 1970 in Figure 4 which targeted base metals. GR 81 was based on Preliminary Geological Map P.382 published earlier by ODM in 1967.

Table 1 ASSESSMENT WORK DATA ON FILE WITH THE ONTARIO DEPARTMENT OF MINES, AS OF JUNE 1968

NAME OF COMPANY OR INDIVIDUAL	TYPE OF INFORMATION	DATE OF WORK	NUMBER OF CLAIMS	TORONTO FILE NO.	PORT ARTHUR FILES
American Metal Co. Ltd., The, Stone Group	Diamond Drill Logs	1954	2	4-12-343	*
Ankeno Mines Ltd.	Geophysical (MAG)**	1954	18	63.442	*
Baseline Mines Ltd.	Geological	1954	63	4-5-361	*
	Diamond Drill Logs	1954		4-5-361	*
Caral Mining Co. Ltd.	Geophysical (MAG, EL)	1954	27	63.550	*
Connell, Mark D.	Diamond Drill Logs	1964	15	4-1-374	*
Falconbridge Nickel Mines Limited	Geophysical (MAG, EM)	1966	18	63.2020	*
	Geophysical (MAG, EM)	1966	36	63.2020	*
Grandines Mines Ltd.	Geophysical (EM)	1954	35	63.540	*
Kagiano Mines Ltd.	Geophysical (EM)	1966	20 (N. Group)	63.2121	. . .
	Geophysical (EM)	1966	26 (S. Group)	63.2121	. . .
Kennco Explorations (Canada) Ltd.	Diamond Drill Logs	1957	26	4-3-285	*
Kerr Addison Mines Ltd. (Baarts-Donaldson Vein Lake Option)	Geophysical (EM) Diamond Drill Logs	1965	33	63.1660	*
Keyboycon Mines Ltd.	Geophysical (EM)	1954	8	63.536	*
Killala Lake Mines Ltd.	Geophysical	1954	. .	. . . .	*
	Diamond Drill Logs	1954	42	4-24-370	*
Lexindin Gold Mines Ltd.	Geological Geophysical (MAG)	1955	36	63.657	*
Mallen Red Lake Gold Mines Ltd.	Geophysical (MAG)	1954	6	63.474	*
Marbenor Malartic Mines Ltd.	Geophysical (MAG, SP)	1954	36	63.473	*
	Diamond Drill Logs	1954	. .	4-7-393	*
	Diamond Drill Log	1954	. .	4-1-394	*
Morton, Coleman, and others	Geophysical (EM)	1966	117	63.2024	. . .
Nubar Mines Ltd.	Geophysical (EM)	1954	9	63.533	*
Prospectors Airways Co. Ltd. (Boomerang Synd.)	Geological	1954	3	63A.237	*
Red Bark Mines Ltd.	Geophysical (MAG)	1954	18	63.482	*

*Indicates information on file at Resident Geologist's office, Port Arthur.

**EL — Electrical
EM — Electromagnetic
MAG — Magnetometer
SP — Self potential

Figure 4. Corporations active in the Killala Lake-Vein Lakes area prior to 1970.

1954 Baseline Mines Limited explored the SE margin of Killala Lake Alkali Complex at Drainage Lake (small lake NW of Beeline Lake). Three drill holes tested the gabbro and returned pyrrhotite, magnetite, and 3-5% chalcopyrite, but no assays were reported. Pyrrhotite, chalcopyrite, native copper and panned gold were indicated on the company's geological map.

1954 Killala Lake Mines held 42 claims on the west side of the Killala Lake Alkali Complex from Sandspit Lake to Papaver Lake (3 miles). The company completed a self-potential survey and drilled 11 holes for 4,725 feet on the Sandspit magnetic Anomaly, and 13 holes for 7,840 feet in the Papaver anomaly. The best assay was from Papaver returning 0.32% Cu and 0.07% Ni over 10'. The target of drilling was coarse-grained olivine gabbro that forms the western periphery of the alkalic complex. The gabbro is rich in magnetite, apatite, and pyrrhotite in certain layers.

1954 Prospector Airways Company explored the Killala Lake Alkali Complex using airborne magnetic and scintillometer surveys, and ground geophysical surveys on a magnetic anomaly at Drainage Lake, where olivine gabbro was stripped and trenched. The gabbro returned from trace to 0.03% nickel.

1986 Noranda Exploration Company Limited explored in the Killala Lake Area (NTS 42D/15, 42D/16, 42E/1 and 42E/2). Work completed includes an airborne survey consisting of Electromagnetic, VLF-EM, and magnetometer surveys (1985). Ground work included geology, max-min electromagnetics (444Hz & 1777 Hz), and soil geochemistry.

2005 Ripple Lake Diamonds contracted KM Diamonds Exploration Ltd (KMD - Felix Kaminsky) who reviewed samples from the Ripple Lake diatreme (tectonic breccia), McKellar Creek diatreme (a "dry eruption" of crystalline rocks with no KIMs, and Highway 17 ultramafic dikes #1 and #2 (pyroxene-free alkali picrite) with picroilmenite, phlogopite, and olivine.

2006 Ripple Lake Diamonds contracted KMD and Orequest, and Condor Consulting> Condor processed and analysed OGS airborne geophysics (1999 High Sense Aeromagnetics and 2005 Aeroquest Impulse EM and magnetics), KMD performed prognostication (structural interpretation of remote sensing data), 403 panned till samples from which 101 PYR, 1440 ILM, 319 CHR, 730 CPX were recovered. KMD completed mineralogy, and electron microprobe analysis on KIMs producing standard KIM plots. Orequest authored the report. Ripple Lake Diamonds held a total of 276 claims (3,732 units) for 59,712 Ha known as the TCH Property (includes current Sandspit Property).

2007 Ripple Lake Diamonds interpretation report of 546 panned KIM samples, which include some samples reported in 2006, and some that were collected outside the property boundaries. This volume reports of the combined 546 samples, and includes till interpretation, mineral chemistry, and diamond potential of several anomalous areas of the TCH Property. (includes current Sandspit Property)

2007 Dianor Resources Inc worked on the Killala Project which covered parts of NTS 42D/15, 42D/16, 42E/1 and 42E/2, conducted 25.3 lkm of ground magnetics on four grids.

2009 Rudolf Wahl and Dianor Resources Inc. completed processing of rock sample M01, 1,205.80 kg from the Madonna Dyke using Kennecott's mini DMS which recovered 66 diamonds that weighed a total of 0.23 carats. The largest stone was 0.042 ct.

Table 2. Diamond recovery from sample **M01 (1,205.8 kg.) - Madonna Dyke**.

DMS Fraction	Botton sieve aperture in millimetres							Total Diamonds	Total weight (carats)
	0.150	0.212	0.300	0.425	0.600	0.850	1.180		
Non-magnetic DMS sinks	0	1	1	32	8		0	42	0.09295
Non-magnetic scalp	1	1	0	3	5	7	1	18	0.1336
Recrush	0	!	0	5	0	0	0	6	0.0063
Total	**1**	**3**	**1**	**40**	**13**	**7**	**1**	**66**	**0.23285**

2014 Rudolf Wahl (Prospector) completed 32 man-days prospecting at Killala North Property and collected 19 rock samples for Au and REE.

2014 Rudolf Wahl (Prospector) completed 35 man-days prospecting, geological mapping and sampling at Killala South Property in search of kimberlite and collected 29 soil samples for SGH survey (Target #6) and one 86 kg rock (Sample **Kill301**) for microdiamond recovery. Rio Tinto reported **5 microdiamonds**.

2015 Rudolf Wahl (Prospector) completed 28 man-days prospecting on the Madonna Dyke, including rock sampling and a petrological report. Report discusses a 1-tonne mini-bulk sample and recovery of 60 diamonds including 8 commercial sized stones. A visiting professor, Dr. Shannon Zurevinski found a small yellow diamond in hand sample. Dr. Roger Mitchell classified **Madonna Dyke** sample RW1 as **alnöite**, which is a member of the **melilitite** clan. Noteworthy is that sample RW1 contains late-stage primary amphibole which is not present in alnöite.

Property Geology

The Archean Superior Province is the mining heartland of Canada, with mining camps that include the Abitibi, Hemlo, and Red Lake. To the south the Proterozoic Sudbury structure is one of the world's largest nickel mining regions. The Superior Province forms the core of North America, and is surrounded by provinces of Paleoproterozoic age. Despite compressional re-activation and large scale rotation, the Craton has escaped ductile deformation. The Superior Province has been tectonically stable since 2.6 Ga.

The Superior Province is a collage of small continental fragments which consists of elongated East-West granite-greenstone terranes interspersed with metasedimentary belts.

This architecture is a result of accretion of island arcs and sedimentary prisms onto an older continent. The property lies near the boundary of Quetico and Wawa Subprovinces.

The Quetico Subprovince consists of greywacke and derived migmatite and granite cut by plutonic suites. The Wawa Subprovince begun with 2.89 Hawk assemblage, then 2.775Ga Hemlo-Back river, 2.745 Ga Wawa and 2,72 Ga Greenwater and Manitouwadge assemblages.

To the west the Port Coldwell Complex is the Schreiber assemblage, which joins to the Shebandowan and Vermillion belts further west.

Most of the belt consists of Schreiber Assemblage is gneiss, which varies from biotite-quartz-feldspar gneiss to hornblende-biotite-quartz-feldspar gneiss. These gneisses are probably after feldspathic sandstone and psammite. The Schreiber Assemblage locally has volcanic belts which consist of fine to medium grained mafic amphibolite, with local intermediate to felsic volcanics inter-banded with biotite-quartz-feldpar gneiss.

Biotite gneiss and granitic gneiss that are cut by veins and stringers of pegmatite and granite, likely the product of anataxis are dominant lithologies encountered on the Sandspit property. On Killala Lake there are reports of conglomerate which consists of 30% felsic cobbles occur in a hornblende-biotite-quartz-feldspar gneiss matrix, which were not observed during Churchill’s work.

Figure 5. Biotite gneiss on Sandspit property.

Granitic rocks include hornblende granite gneiss and biotite granite to granodiorite gneiss locally intruded by quartz monzonite stocks.

Proterozoic dyke swarms transect the Superior Province, each with a dominant orientation best seen in regional magnetic maps. Several diabase events occur in the area, and most are fine to coarse grained varieties, that are both magnetic highs and magnetic lows, suggesting a range of emplacement ages. Diabase boulders with glomeroporphyritic plagioclase up 3 cm in size have been observed on the property.

The Killalla Lake Alkali Complex is 1050 Ma, and is consists of an outer ring of troctolite, followed inward by nepheline syenite with an inner core of amphibole syenite. Gabbro intrusions also partially surround the complex, and have been explored in the past for copper and nickel. Numerous outcrops of the complex can be viewed on an E-W trail north of Killala Lake near the Sandspit Property. This trail was the topic of a field trip during the 41st Institute on Lake Superior conference.

Lamprophyre dikes also have been mapped near the Killala Lake Alkali complex. The dikes are black to dark green, and vary from 10cm to 3m in width. Flow banding is evident in some intrusions.

Further south is the Port Coldwell Alkali intrusive is 1109 Ma, which is exposed in rock cuts on Highway 17 and consists of quartz syenite granite, nepheline syenite, gabbro, diabase, and extrusive phases.

The trans-superior tectonic zone (TSTZ) extends N-NNE, bisects the mid-continent rift and has a magnetic, gravity, and topographic expression. The TSTZ is also hosts a string of large alkali-intrusive complexes (Coldwell, Killalla), carbonatites (Prairie Lake), and diatremes (Dead Horse). A major alkalic event occurred between 1000 and 1200 Ma.

The TSTZ is a deep-penetrating structure that mantle-derived kimberlites and lamproites could follow to surface, bringing with them diamonds. The TSTZ has been targeted by diamond exploration companies in the past.

Quaternary Geology

Rugged terrain characterizes much of the Terrace Bay-Marathon area along Lake Superior and north to Killala Lake. The outcrop ridges reflect recent glacial ice flow with roche moutonée forms locally, and between outcrops are valleys with thick till layers, swamps and lakes. Ice-flow can be measured from glacial striae, grooves and chattermarks on frequent outcrops.

Between rocky ridges are till blankets, swamp and lakes. Glacial landforms include drumlins and fluvial esker ridges, areas of fluvial outwash in modern river valleys which terminate at former glacial and post-glacial lakes. Coarse and fine glaciolacustrine are confined to river valley areas.

The former large glacial lakes are marked by raised beaches, terraces and wave-cut benches that mark former shoreline elevation, which is 100m higher than Lake Superior.

The Killala Lake area covered with a thin till veneer, usually less than 1m thick, and clasts present reflect local bedrock lithologies. The boulder debris field present in thin till and on outcrop makes prospecting for kimberlite float particularly effective in the Killala Lake area.

On the Sandspit Property, glacial ice-flow is 190° azimuth, as measured from striations and grooves on outcrop surfaces. Plots of boulder debris fields with potential kimberlitic composition also align at 190° Azimuth, which will allow prospectors to follow boulders up-ice to their bedrock source.

Government till sampling surveys of Killala Lake are reported in OFR6013 outlined several areas of anomalous kimberlite indicator minerals. Area 3 anomalous samples are near Wellwood Lake, is a tight grouping of anomalous samples from Sandspit Lake Property.

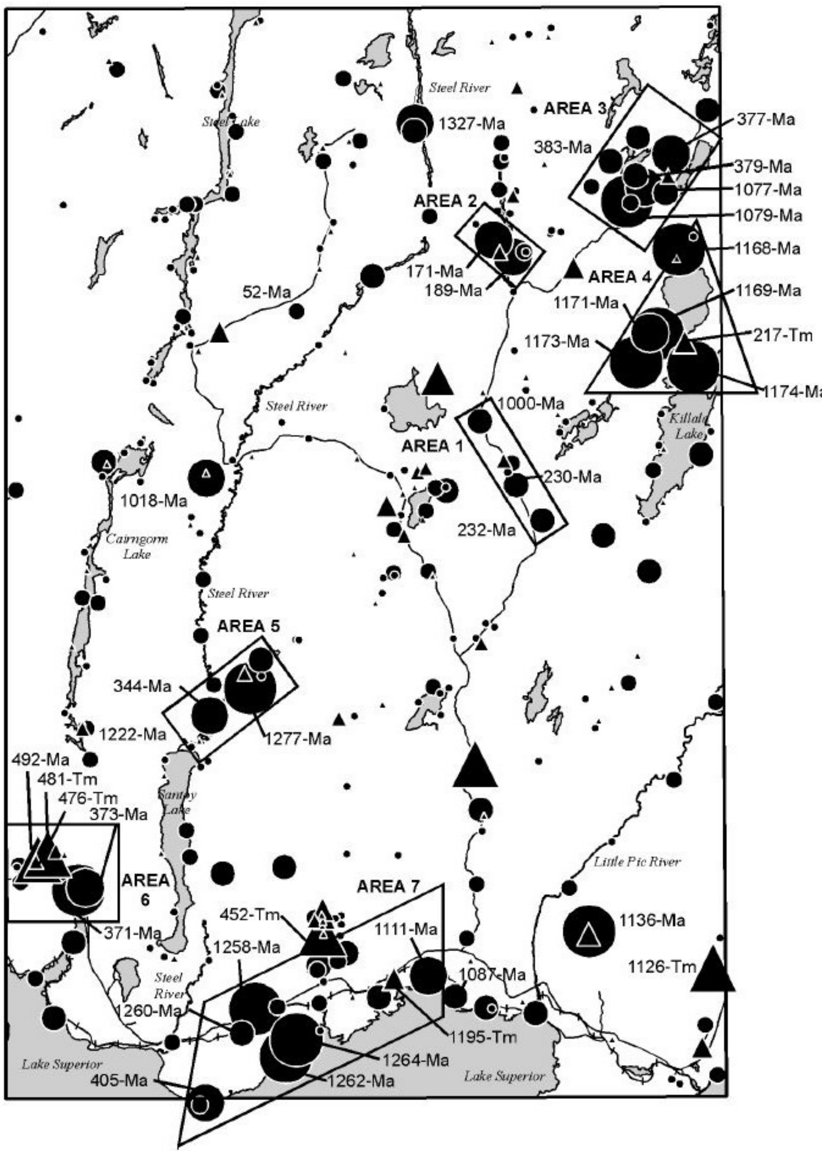


Figure 6. KIMs reported in OFR6013, Sandpit Lake Property is situated in Area 3.

Table 3: KIM counts from Area 3, near Wellwood Lake (Morris, 2000).

3) Wellwood Lake	377-Ma-99	14 IM*
	379-Ma-99	1 MEG, 40 IM*
	383-Ma-99	1 MEG, 7 IM*
	1077-Ma-99	2 G9, 3 MEG, 71 IM*, 4 Cr
	1079-Ma-99	1 MEG, 459 IM*, 2 Cr

Deposit Type and Mineralization

Exploration is targeting kimberlitic or lamproitic intrusive rocks that may contain diamond. Between Terrace Bay and White River diamond-bearing rocks include olivine melnoite, kimberlite, alnöite, and para-lamproite occurrences. Olivine lamprophyre and other alkaline rocks also occur.

At Sandspit, and in the Killala Lake area the combination of thin till veneer with local boulder and clast lithologies makes kimberlite prospecting particularly effective. Kimberlite indicator mineral sampling reported in OFR6163 (Morris, 2000) also show that till sampling is an effective method to explore for kimberlitic rocks in the area.

2016 Line-cutting and Prospecting

Work at Sandspit commenced with line-cutting and cutting access trails. The lines were used to make access to remote parts of the property easier, and trails cut so that ATVs could be positioned in order to carry heavy payloads of rocks and boulders back to the truck.

Working from trails, cut lines, forestry roads and skidder trails, prospectors located local bedrock float of mafic and ultramafic composition with great success.

Churchill's prospectors worked together and effectively to explored the area of interest. Figure 9 shows GPS tracks with coloured traverses one prospector, and grey tracks his partner often working about 50 meters apart to effectively cover the ground. The NE trending linear on the east side is Jackfish road, and the E-W linear is a cut line emplaced for prospecting control.

Many float samples are olivine macrocrystic, with large green clinopyroxene, which may be a mafic lamprophyre, alnöite, or kimberlitic rock. Some are micaceous lamprophyre. The boulder debris field is located in the vicinity of OFR6163 Area 3 KIM dispersal train.

Prospecting continued until a significant snowfall curtailed the activity. The team mobilized to another project.

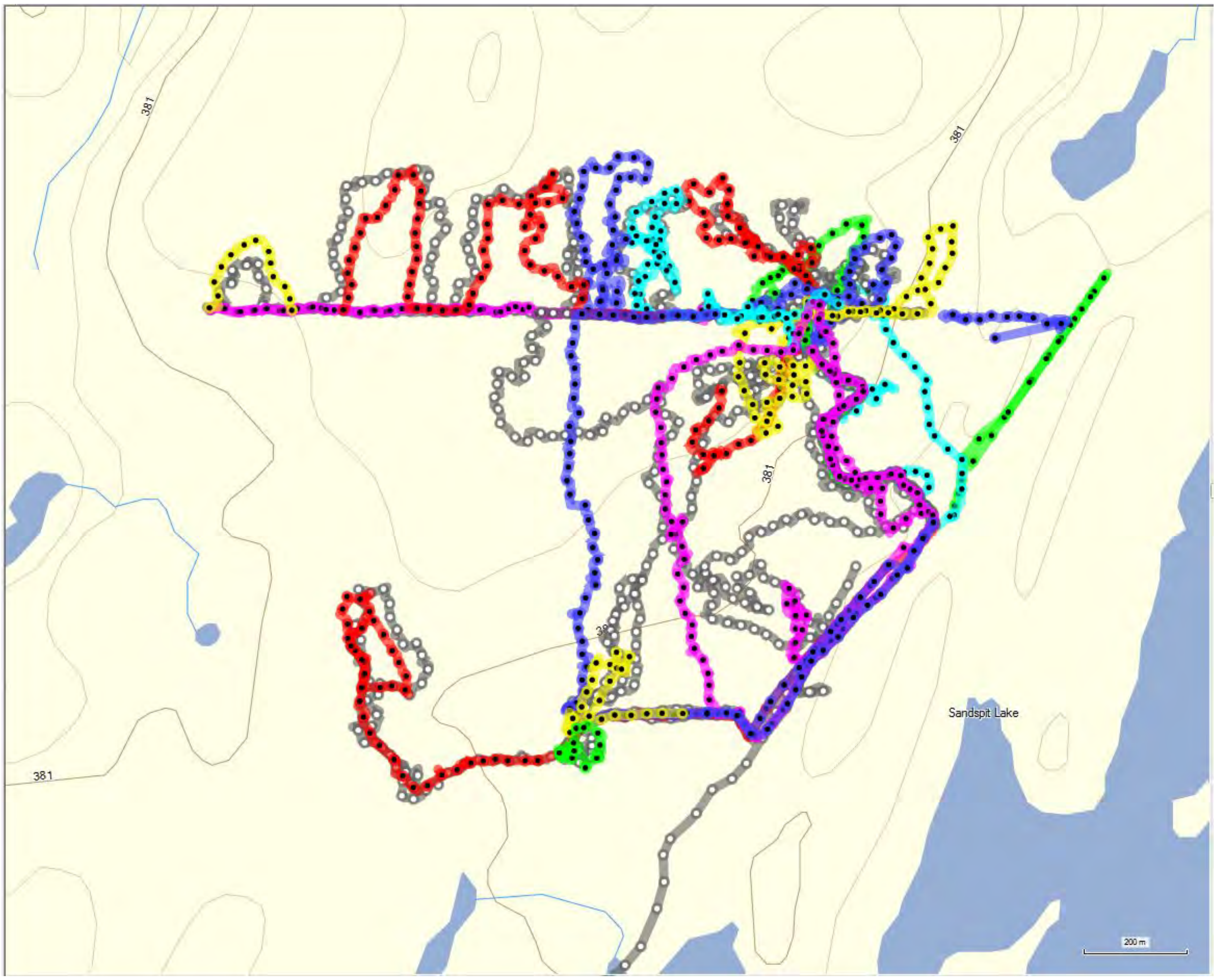


Figure 7. Prospecting Traverses completed at Sandspit Property

Field notes collected by Churchill's prospecting team were input to excel and are provided in Table 4.

Table 4. Sample waypoints and field notes by prospectors

Sample	Easting	Northing	Fieldname	Size	Roundness	Note1
E589201	533405	5446179	Kimberlite	50cm x 60cm x 25cm	SRND	Float 90% left at site
E589202	534472	5448387	Kimberlite	30cm x 20cm x 10cm	SRND	None left
E589203	534509	5448457	Kimberlite	110cm x 102cm x 40 cm	SANG	Float 97% left at site
E589204	534510	5448457	Kimberlite	130cm x 95cm x 30cm?	SANG	Float 98% left at site
E589205	534335	5448592	Kimberlite	140cm x 80cm x 60cm?	SRND	Float 95% left at site
E589206	534336	5448592	Kimberlite	130cm x 50cm x 50cm?	SANG	Float 95% left at site
E589207	534283	5448447	Kimberlite	40cm x 50cm x 30cm	SRND	Float 75% left at site

E589208	534286	5448437	Kimberlite	40cm x 30cm x 15cm	SANG	Float 65% left at site
E589209	534172	5448562	Kimberlite	25cm x 17cm x 9cm	SRND	None left
E589210	534112	5448534	Kimberlite	22cm x 12cm x 12cm	SANG	None left
E589211	534583	5448455	Kimberlite Dyke	160cm x ? cm x ? cm	Bedrock	Bedrock
E589212	533819	5447573	Kimberlite	23cm x 23cm x 20cm	ANG	Fload Boulder Pile
E589213	533630	5447634	Kimberlite	25cm x 12cm x 11cm	ANG	None left
E589214	533625	5447767	Kimberlite	26cm x 15cm x 12cm	SRND	None left
E589215	533599	5447817	Kimberlite	58cm x 38cm x 38cm	SANG	Float 85% left at site
E589216	533624	5447889	Kimberlite	30cm x 28cm x 15cm?	SRND	Float 60% left at site
E589217	533707	5447700	Kimberlite	70cm x 35cm x 35cm?	SRND	Float 80% left at site
E589218	534369	5448436	Kimberlite Dyke	150cm Plus	Bedrock	Bedrock
E589219	534285	5448435	Kimberlite	1.5 meter North of E589208	SANG	Float 90% left at site
E589220	534330	5448423	Kimberlite	140cm x 120cm x 70cm?	SRND	Float 95% left at site
E589221	534570	5448093	Kimberlite	33cm x 23cm x 15cm	SANG	Float 70% left at site
E589222	534250	5448267	Kimberlite	48cm x 30cm x 30cm	SANG	Float 80% left at site
E589223	534206	5448016	Kimberlite	20cm x 16cm x 12cm	SRND	None left
E589224	534437	5447873	Kimberlite	130cm x 110cm x 50cm?	SANG	Float 98% left at site
E589225	534059	5448209	Kimberlite	Bedrock	Bedrock	Bedrock
E589226	534153	5448119	Kimberlite	20cm x 19cm x 20cm	ANG	None left
E589228	534149	5447930	Kimberlite	???	ANG	Float 20% left at site
E589229	534250	5448207	Kimberlite	48cm x 30cm x 30cm	SUB ANG	None left
E589230	534020	5447658	Kimberlite	215cm x 120cm x 60cm?	SANG	Float 98% left at site
E589231	534003	5447636	Kimberlite	140cm x 65cm x 40cm	SRND	Float 95% left at site
E589232	534016	5447626	Kimberlite	33cm x 33cm x 20cm	SRND	Float 75% left at site
E589233	534101	5447782	Kimberlite	80cm x 35cm x 50cm	SANG	Float 90% left at site
E589234	534126	5447773	Kimberlite	70cm x 40cm x 30cm?	SRND	Float 90% left at site
E589235	533998	5447578	Kimberlite	70cm x 50cm x 60cm?	SANG	Float 90% left at site
E589236	533998	5447585	Kimberlite	38cm x 26cm x 30cm	SANG	None left

E589237	533998	5447586	Kimberlite	70cm x 45cm x 35cm?	SANG	Float 90% left at site
E589238	533999	5447584	Kimberlite	38cm x 24cm x 20cm	SRND	None left
E589239	534013	5447594	Kimberlite	59cm x 28cm x 26cm?	SANG	Float 80% left at site
E589240	534060	5447588	Kimberlite	50cm x 30cm x 20cm?	SANG	Float 30% left at site

Another dike, called Anthony Dike, located at 534368E and 5448434N was also sampled by property vendor Rudy Wahl and Churchill's prospecting team.

Figure 8. Anthony Dike hand stripping and sampling.

2016 Geological Mapping

Geological mapping and prospecting was also conducted in the area of the boulder debris field to learn about local geology and the glacial history. Geological mapping stopped abruptly on Oct 26, 2017 due to an ATV accident, which injured the author and curtailed geological field work. Figure 10 is a screen capture from Garmin Basecamp software. The same base magnetic image is activated and viewed in the field using a Garmin GPSMAP64st.

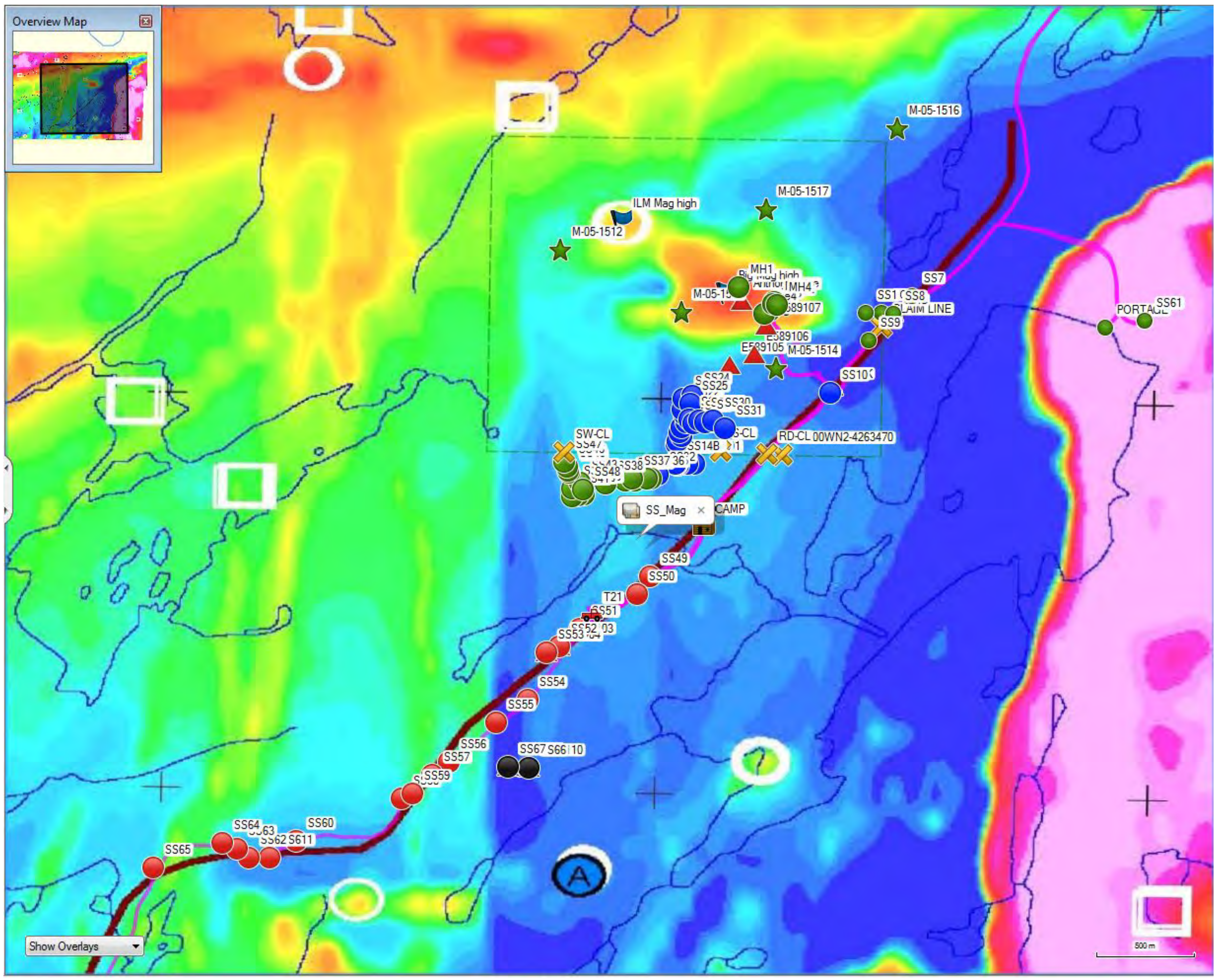


Figure 9. Geological mapping waypoints on Total Field Magnetics image.

Several potential kimberlite boulders were located and sampled, which added to the successful prospecting campaign.

At waypoint SS14 two large boulders of mica lamprophyre was found on an old logging trail.

Figure 10. Mica lamprophyre float at waypoint SS14 (E589108 and E589109).

Under a hunter's tree stand at waypoint SS53, a large boulder of olivine-clinopyroxene mafic lamprophyre (potential kimberlite) was found. This boulder is 1m in diameter, so only a small piece was sampled. The remaining sample is available for microdiamond recovery if petrology is favourable. This discovery resulted in additional staking.

Figure 11. Olivine-clinopyroxene mafic lamprophyre at waypoint SS53 (589104).

A narrow dike, oriented at 333° Azimuth was observed in outcrop on the Sandspit property at waypoint SS26. Petrological blanks have been cut to determine the nature of this intrusion, as in hand specimen the rock resembles kimberlite. Clinopyroxene xenocrysts resembling chrome diopside are present.

Figure 12. Outcrop SS26, with 14 cm 'kimberlite" dike (E589102).

Figure 13. Outcrop SS26, close-up of green clinopyroxene xenocrysts in outcrop(E589102).

Table 5. Rock samples collected while mapping.

SampleID	E_NAD83z16	N_NAD83z16	Fieldname	Showing	Size_cm	Roundness	More Available
E589101	534117	5447663	Kimberlite	Float	20	RND	N
E589108	534076	5447661	UM_Lamp	Float	50	SANG	N
E589109	534072	5447663	UM_Lamp	Float	36	SANG	N
E589102	534125	5447891	Kimberlite	Dike	14		Y
E589103	533613	5446733	Kimberlite	Float	20	SRND	N
E589104	533562	5446698	Kimberlite	Float	64	SRND	Y
E589105	534286	5448165	Kimberlite	Float	20	RND	N
E589106	534384	5448225	Kimberlite	Float	60		Y
E589107	534429	5448370	Kimberlite	Float	20	SRD	Y
E589110	533496	5446116	Kimberlite	Float	20	SANG	Y
E589111	533411	5446120	Kimberlite	Float	30	SANG	Y

2016 Laboratory Work

Laboratory work on the large collection of potential kimberlite float commenced. Ultramafic lamprophyre, especially micaceous varieties are very difficult to break, and therefore a hydraulic rock breaker was used on the largest samples.

The method to evaluate the rocks is to cut each sample into slabs using a diamond saw, generating thin section blanks and samples for lithogeochemistry. Microscopic and hand specimen observations and magnetic susceptibility is documented for each sample.

Table 6. Prospecting sample descriptions and magnetic susceptibility

SAMPLE	FIELD NAME	DESCRIPTION	MAG. SUSC. (SI Units)
E589202	Macrocrystic kimberlite	40% OLI up to 8mm, 10% pale green CPX up to 8mm, no opaques.	1.28×10^{-5}
E589203	Macrocrystic kimberlite	Fine grained, 30% OLI < 5mm, rare 4mm chrome diopside, no opaques.	8.28×10^{-5}
E589204	Peridotite	Medium grained, 20% OLI, 10% green CPX	1.29×10^{-5}
E589205	Peridotite	Medium grained, 15% 3mm OLI, 10% CPX, trace pyrrhotite	1.86×10^{-5}
E589206	Diabase	Medium grained, trace pyrrhotite	1.28×10^{-5}
E589207	Olivine Diabase	Medium grained	10.5×10^{-5}
E589208	Kimberlite	Olivine macrocrystic kimberlite, 30% 2-4mm OLI, rare CPX and pale PYR(?) garnet, 2cm crustal xenoliths	9.21×10^{-5}
E589209	Altered kimberlite	20% brown-rimmed olivine in fine-grained green chloritic matrix	2.16×10^{-5}
E589210	Olivine pyroxenite	Medium grained, 80% amphibole matrix, 20% 1-3mm OLI phenocrysts, 5% carbonate vesicles, trace chalcopyrite	13.0×10^{-5}
E589211	Olivine diabase or peridotite	Altered olivine diabase or peridotite, 8% 1-2 mm brown rimmed olivine phenocrysts in fine grained amphibole matrix	9.2×10^{-5}
E589112	Macrocrystic kimberlite	20% 6mm OLI, 20% 2mm OLI phenocrysts, 10% 5mm CPX (chrome diopside?), no opaques	32.5×10^{-5}
E589113	Altered Kimberlite	Zoned/altered olivine and cpx with brown mica at crystal margins. 30% 4mm OLI in green fine grained groundmass	1.61×10^{-5}
E589213	Snowflake Diabase	Fine-grained green matrix with 2cm plagioclase needle-like crystals	0.055×10^{-5}
E589214	Olivine pyroxenite	20% 2-3mm OLI in green fine grained chlorite-actinolite matrix, trace chalcopyrite	1.27×10^{-5}
E589215	Snowflake diabase	Fine grained dark green matrix with 5% 1-2 mm plagioclase phenocrysts	8.86×10^{-5}

E589216	Snowflake diabase	Fine grained grey-green amphibole matrix with 8-15mm plagioclase, glomeroporphyritic texture.	0.64×10^{-5}
E589212	Olivine pyroxenite	Medium grained amphibolite matrix, 20% 1-2mm olivine, trace chalcopyrite.	3.85×10^{-5}

Kimberlitic rocks require petrological observations before a final rock name can be applied, so the reader is cautioned that "field names" provided are based on the general look of the rock, and a final name will result after petrological and geochemical studies have taken place.

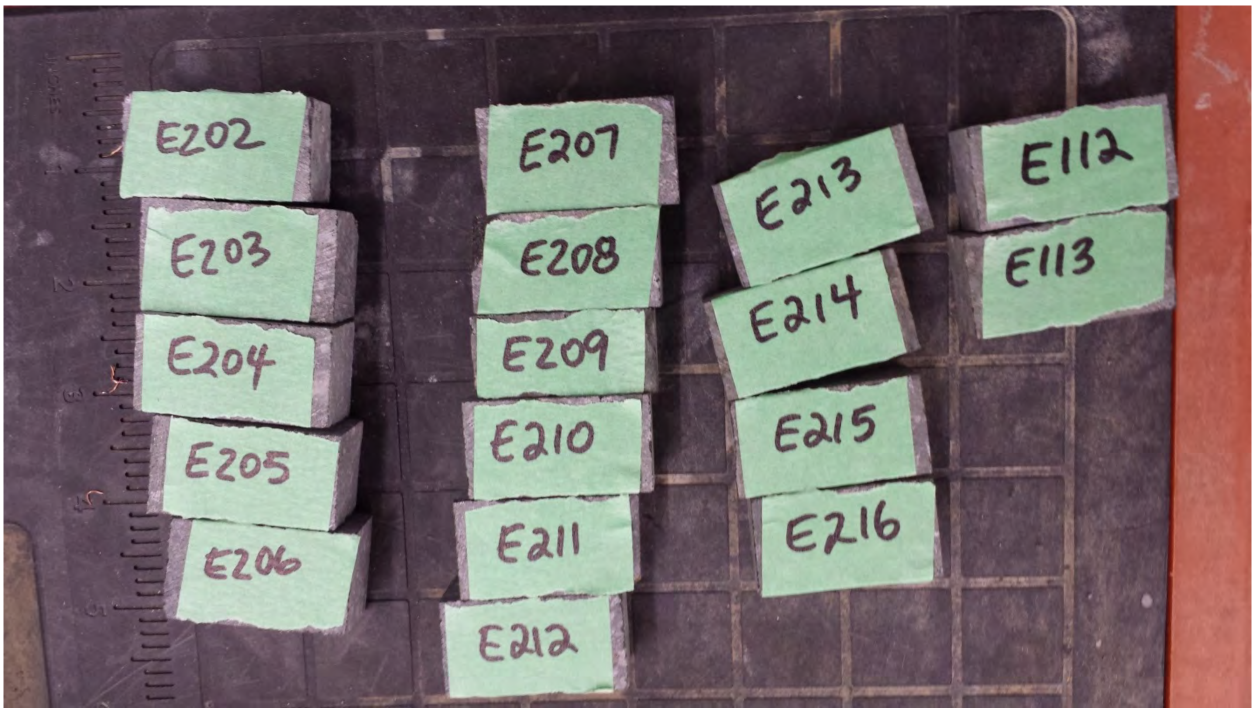


Figure 14. Blanks submitted for thin section preparation.

Petrologic thin sections were prepared by Anne Hammond at Lakehead University. In order to label petrologic slides, the first 3 numeric characters were dropped from each sample, so petrological descriptions follow with the abbreviated sample number.

2017 Petrology

Igneous petrology was conducted by R.L. Barnett, of Barnett Geological. The header for each polished thin section includes the sample ID in abbreviated form for labelling polished thin sections.

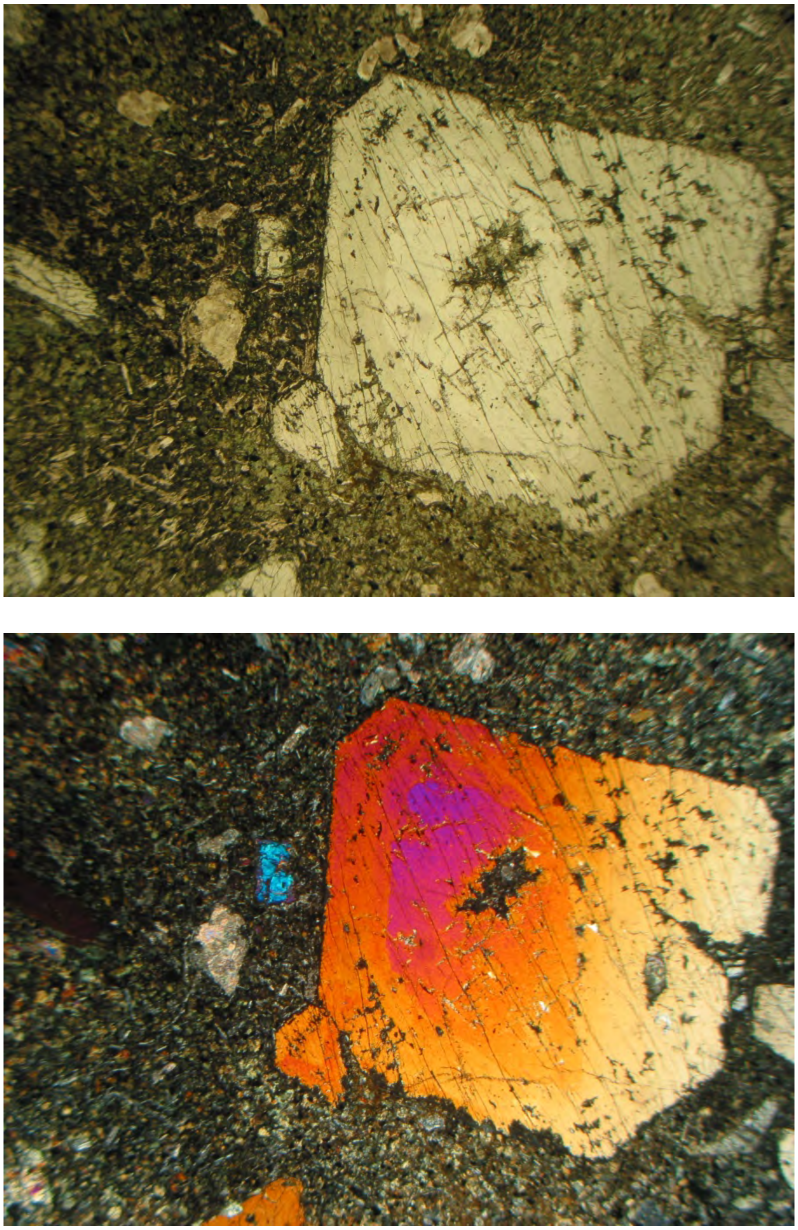
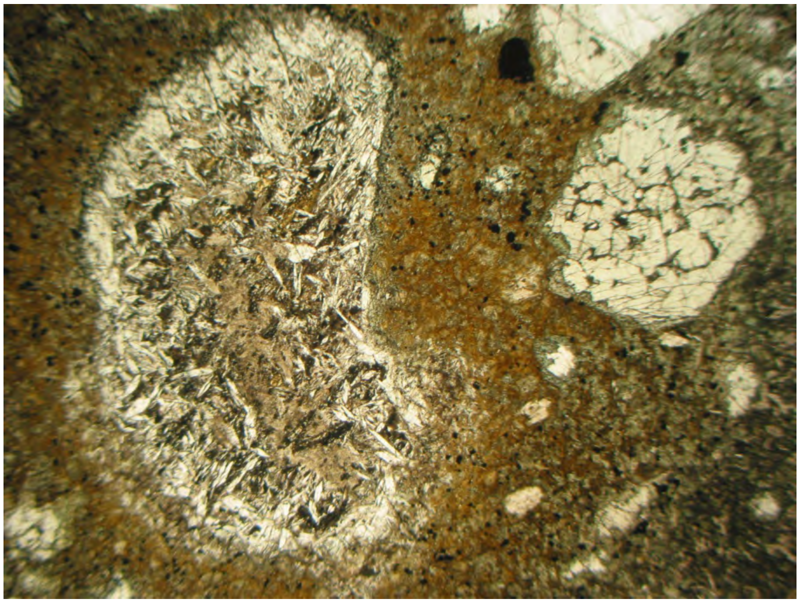


Figure 15. SAMPLE E112 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E112 PLATE 1 – Extremely large clinopyroxene phenocryst, 0.75 cm in size, with core to marginal compositional variation reflected by variation in birefringence set in a groundmass comprised by linear plagioclase laths and extremely-fine-grained amphibole after clinopyroxene.



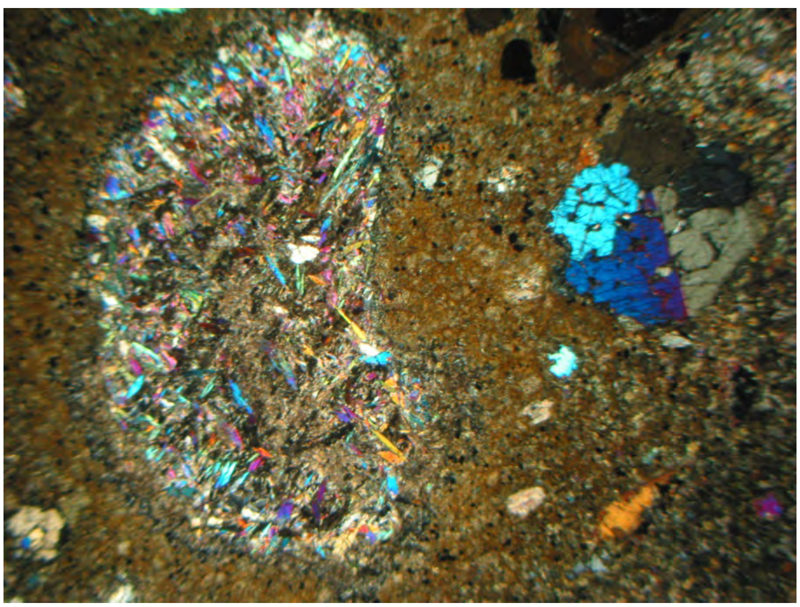
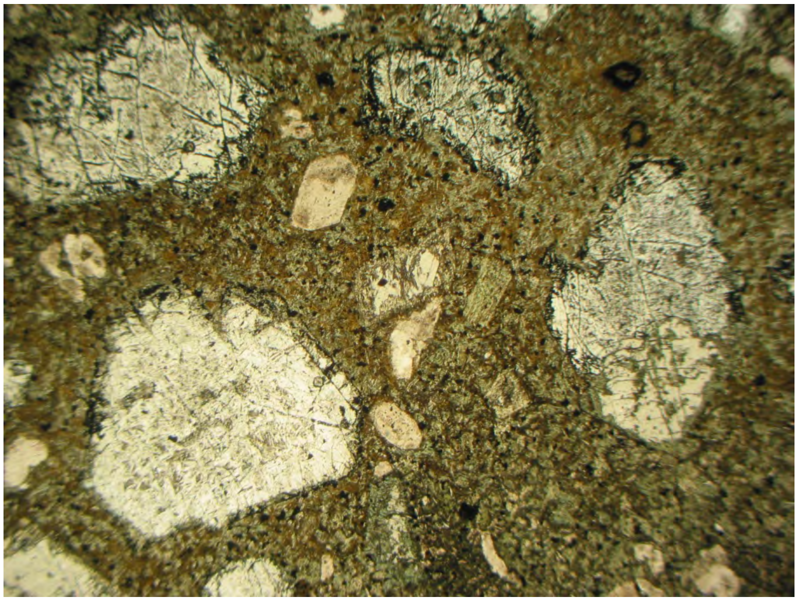


Figure 16. SAMPLE E112 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E112 PLATE 2 – Arcuate region consisting of acicular birefringent blue-yellow amphibole needles, intergrown with and enclosing central fine-grained talc. Observe that this central region is completely surrounded by a wide zone of brown phlogopitic biotite. There is a decreasing abundance of biotite gradational into the surrounding groundmass that is dominated by small altered grains of amphibole after clinopyroxene and minute plagioclase laths.



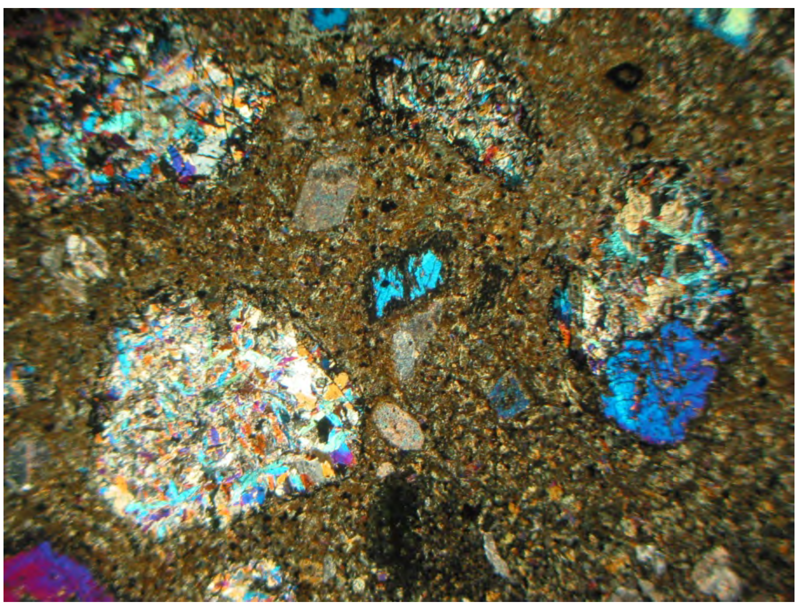
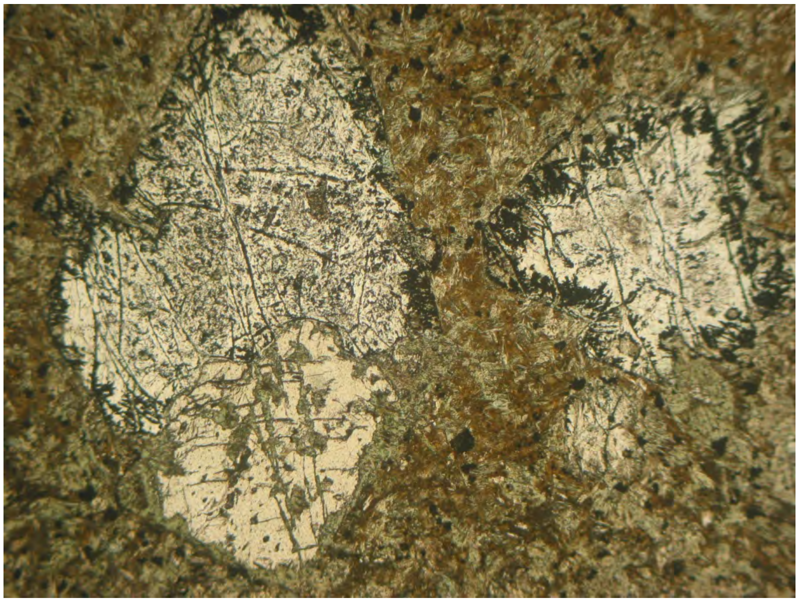


Figure 17. SAMPLE E112 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E112 PLATE 3- Angular birefringent domains of multigranular tremolitic amphibole situated within a groundmass comprised by finely-intergrown amphibole and brown biotite. Observe that the lower half of the domain, at right actually clinopyroxene. The angular and intersecting shape of margin these domains allows the interpretation that they were originally olivine. Note the smaller feldspar phenocryst within the groundmass replaced by muscovite.



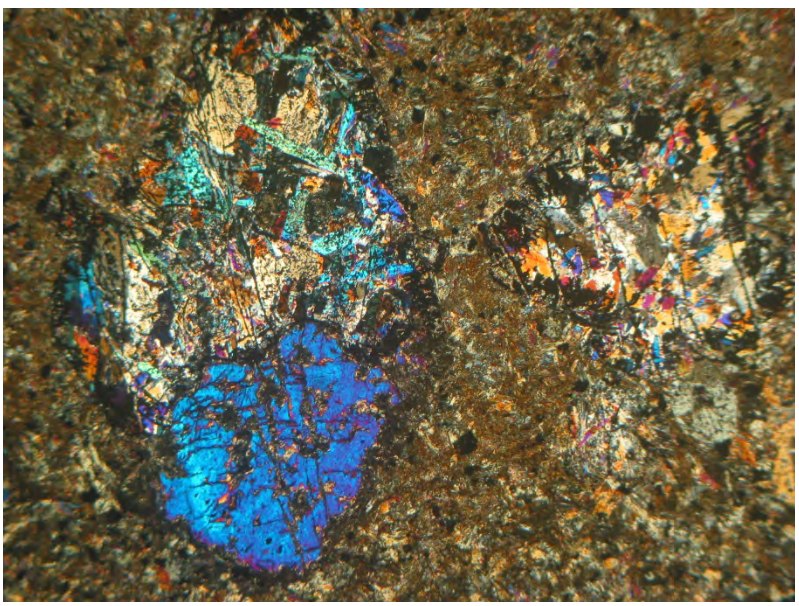


Figure 18. SAMPLE E112 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E112 PLATE 4 – Angular idiomorphic outline of a former olivine grain with the bottom one half birefringent blue clinopyroxene and the top half, an array of intersecting tremolite needles.

- It is interesting to observe that the original olivine phenocrysts in this sample are consistently enclosed within an increasing abundance of brown biotite in the groundmass or are completely surrounded by a wide, generally circular region of brown biotite. In three dimensional then, this former composite olivine-clinopyroxene grain is completely enclosed within an envelope of mica. This relationship is not easily interpreted and not commonly observed in a typical porphyritic olivine, clinopyroxene and plagioclase porphyritic dike. This may be evidence that Sample E112 is actually a hybrid rock in which the olivine and rarely olivine-clinopyroxene and phlogopite features are in some way “exotic” fragments. However, evidence from other samples allows the interpretation that these features are actually the sites of formerly-stable olivine grains.

Porphyritic magnesian clinopyroxene and olivine pyroxenite dike

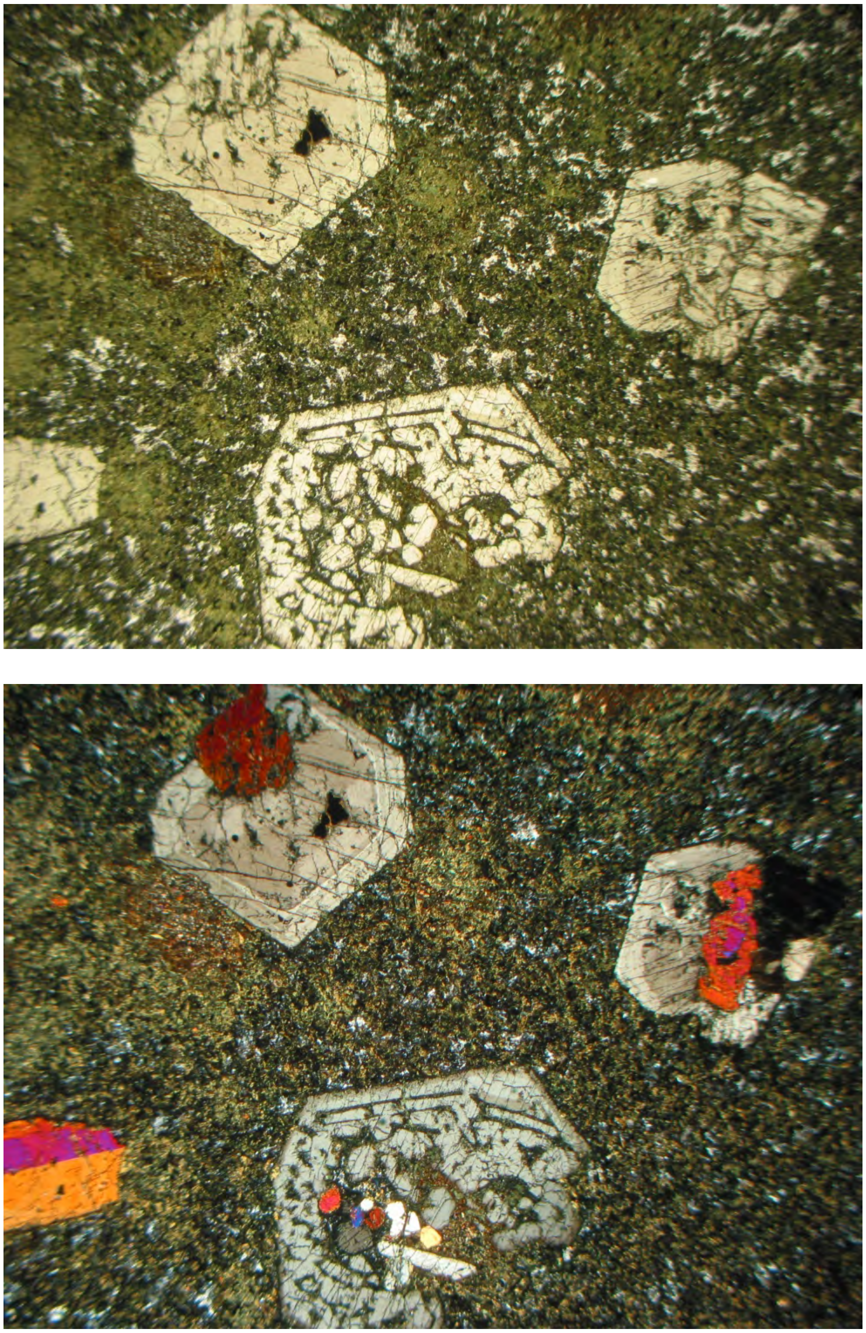


Figure 19. SAMPLE E113 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E113 PLATE 1 – Coarse-grained phenocrysts of chrome-bearing very magnesian diopsidic clinopyroxene, within a groundmass of deep-green hornblendic amphibole, plagioclase feldspar and quartz. The small grains at the centre of the lower phenocryst contain 1.04 wt% Cr2O3 at 1.04 wt% MgO.

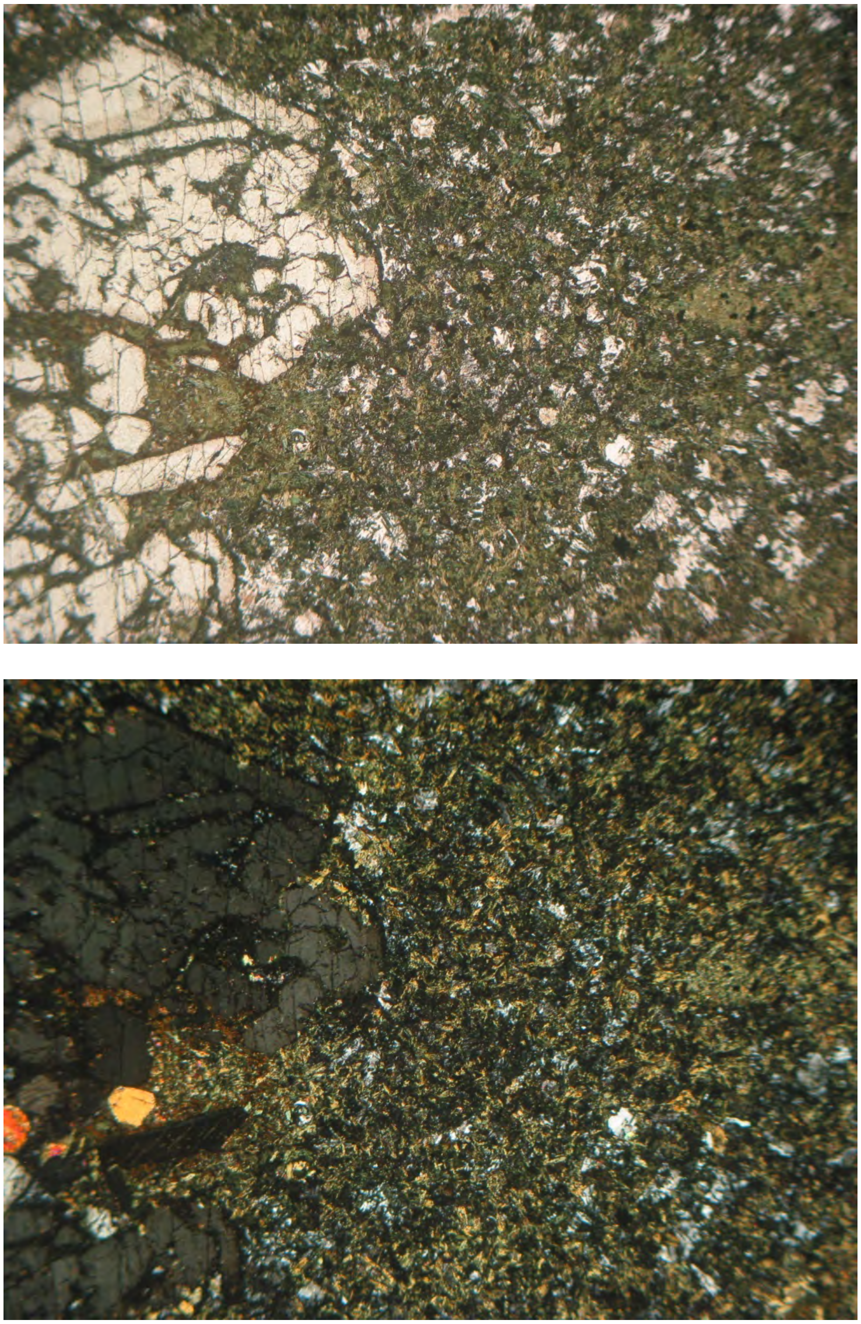


Figure 20. SAMPLE E113 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E113 PLATE 2 – Region of groundmass host to chrome diopside phenocrysts, extensive regions of deep green hornblende with plagioclase largely replaced by quartz.

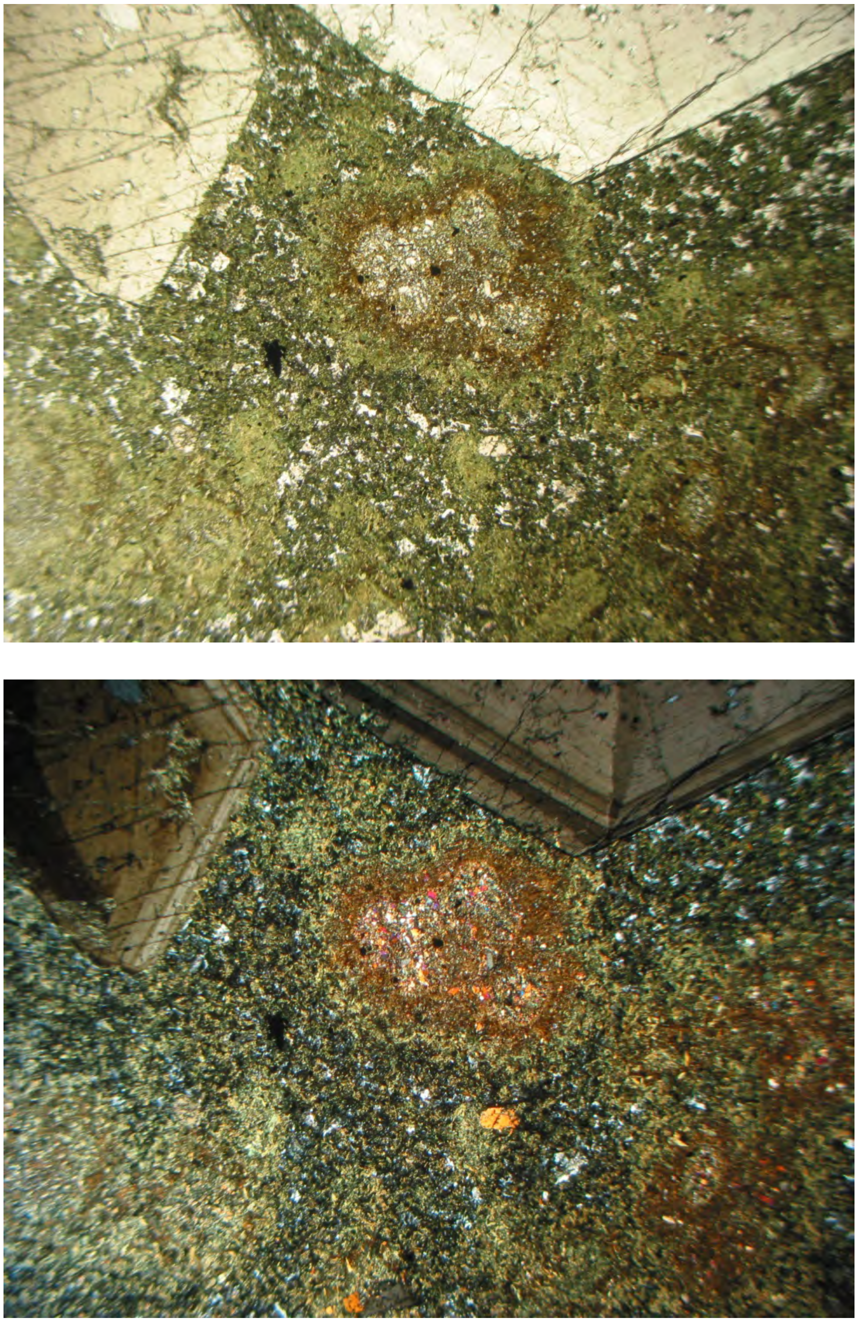


Figure 21. SAMPLE E113 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E113 PLATE 3 – Twinned and compositionally-zoned chromian diopside with a concentrically and mineralogically-zoned feature in the enclosing groundmass.

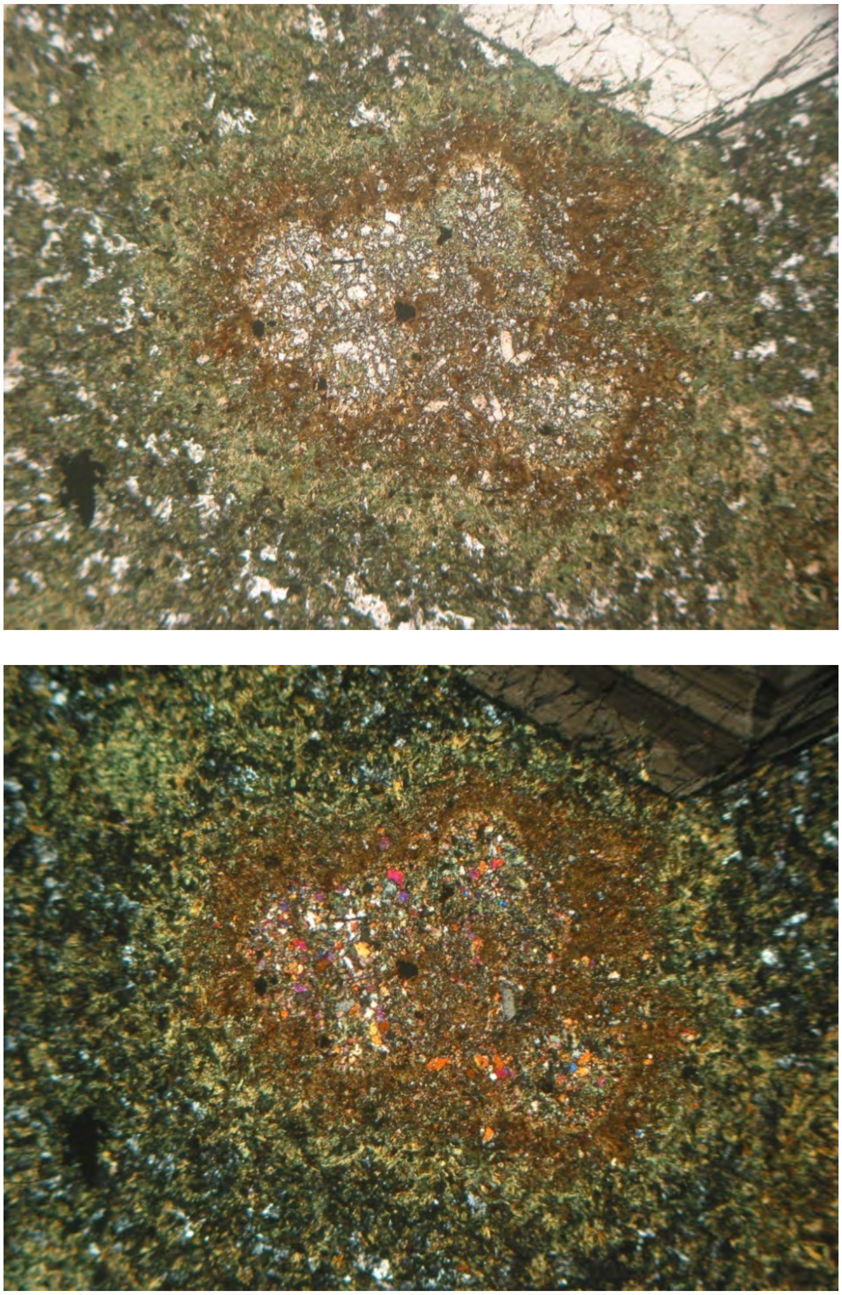


Figure 22. SAMPLE E113 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E113 PLATE 4 – A mineralogically-zoned domain in groundmass. The central region is comprised by relatively coarse birefringent red-yellow grains of magnesian diopside without chrome, surrounded by successive mineralogical zones comprised by tremolite amphibole, Mg-Fe mica and an outermost zone of green hornblendic Na-K amphibole. The angular opaque grains within the diopside-tremolite central regions are chromite containing 47.93 wt% Cr_2O_3 and an elevated content of both manganese at 2.27 wt% MnO and zinc at 1.92 wt% ZnO.

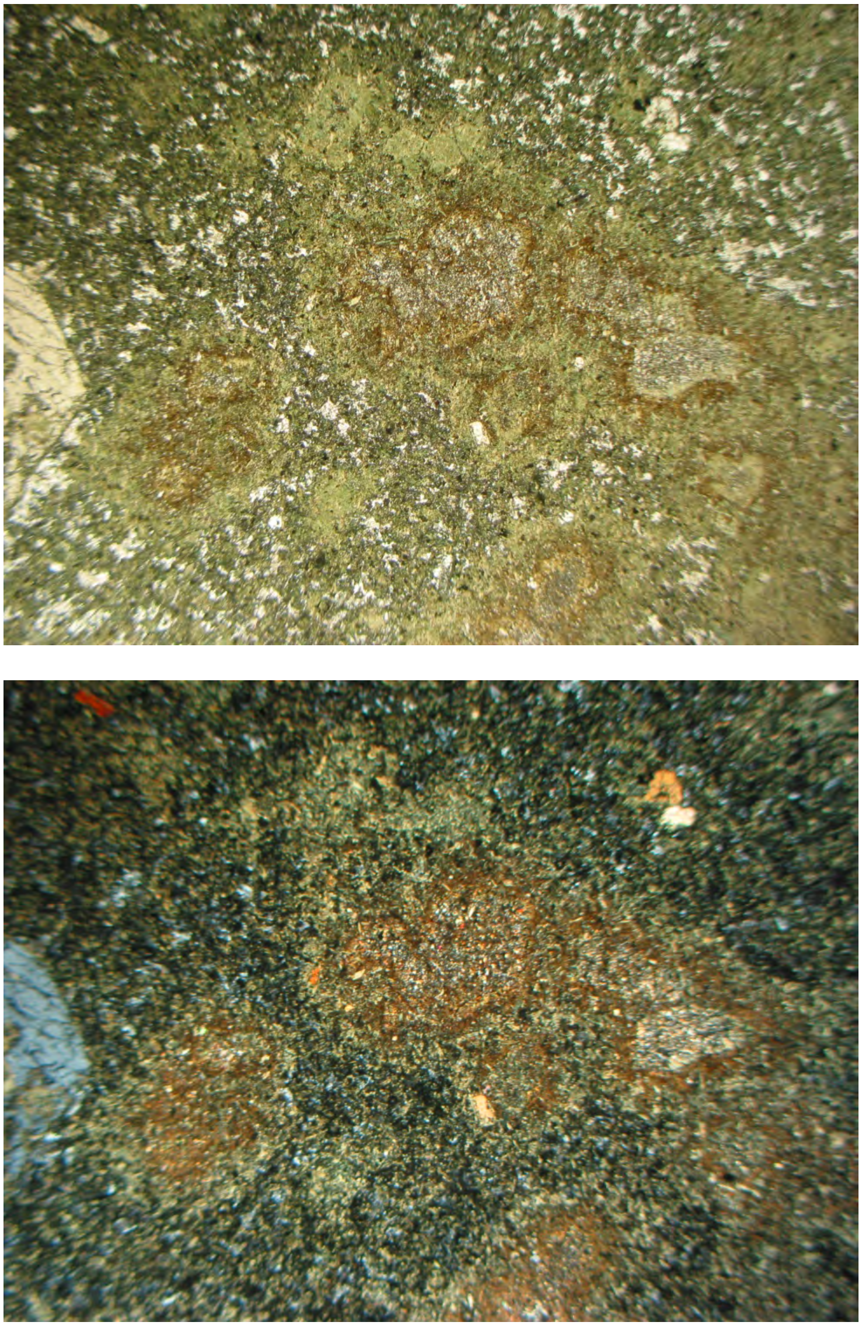


Figure 23. SAMPLE E113 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E113 PLATE 5 – Cluster of former olivine phenocrysts now present as concentrically-zoned magnesian diopside, tremolitic amphibole, Na-K amphibole, Mg-Fe phlogopitic mica and outer green hornblendic amphibole domains.

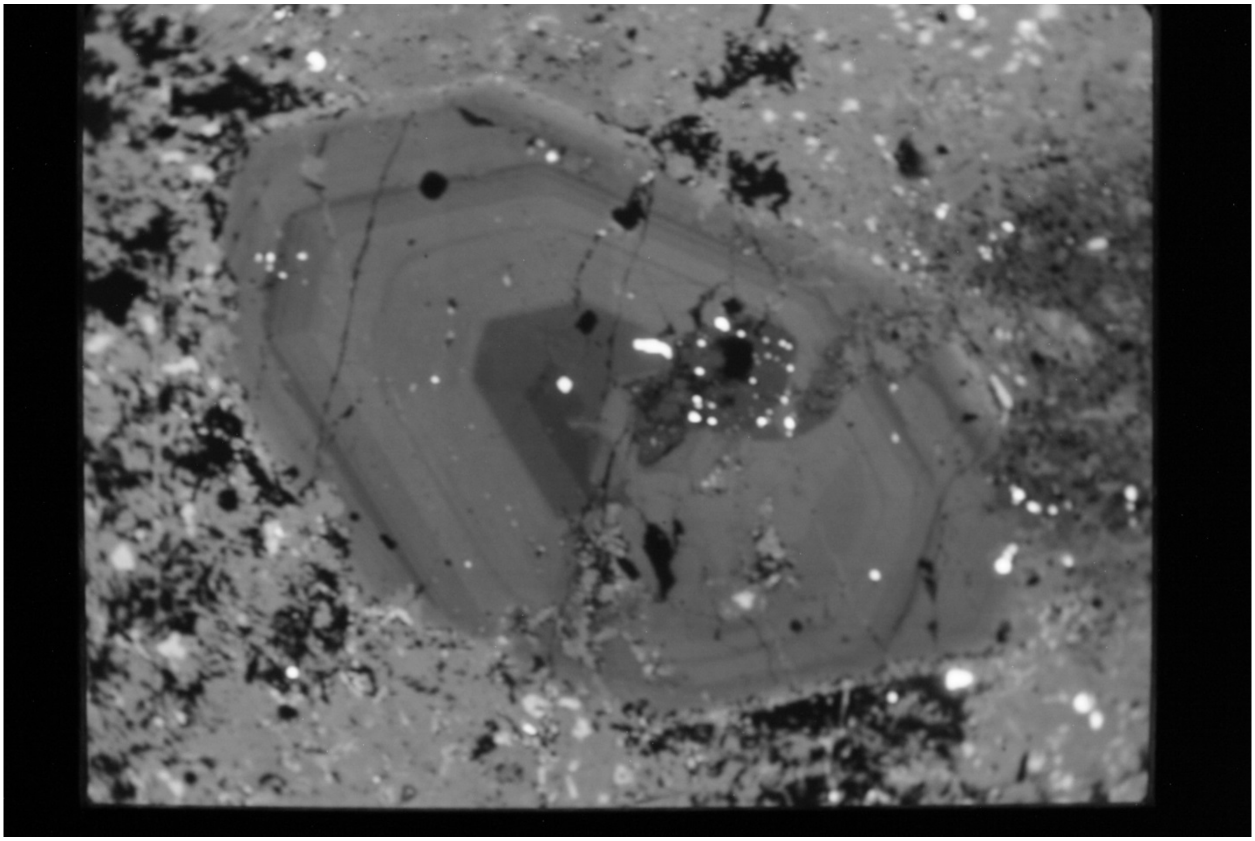


Figure 24. SAMPLE E113 PLATE 6 (X-Ray backscatter image).

SAMPLE E113 PLATE 6 – Idiomorphic clinopyroxene phenocryst with strong, core to marginal compositional zonation. The central core region, dark in the BSE image, is chrome and magnesium-enriched diopside with 1.13 wt% Cr2O3 and 3.67 wt% MgO respectively.

Porphyritic chromian diopside and olivine pyroxenite dike

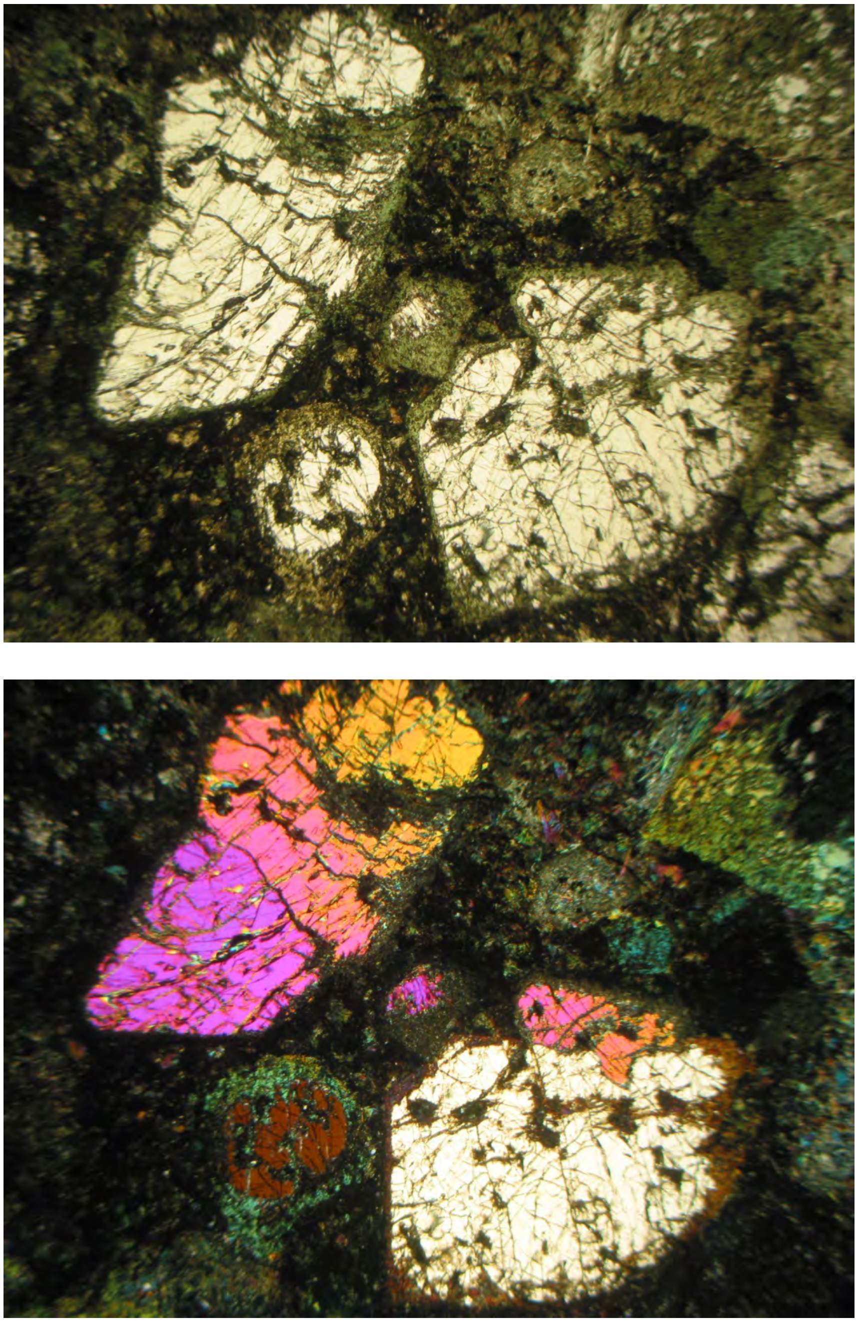


Figure 25. SAMPLE E202 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E202 PLATE 1 – Coarse angular phenocrysts of diopsidic clinopyroxene within finer-grained matrix largely replaced by extensive development of green and colourless amphibole. Plagioclase, if originally present, has been complexly consumed by amphibole.

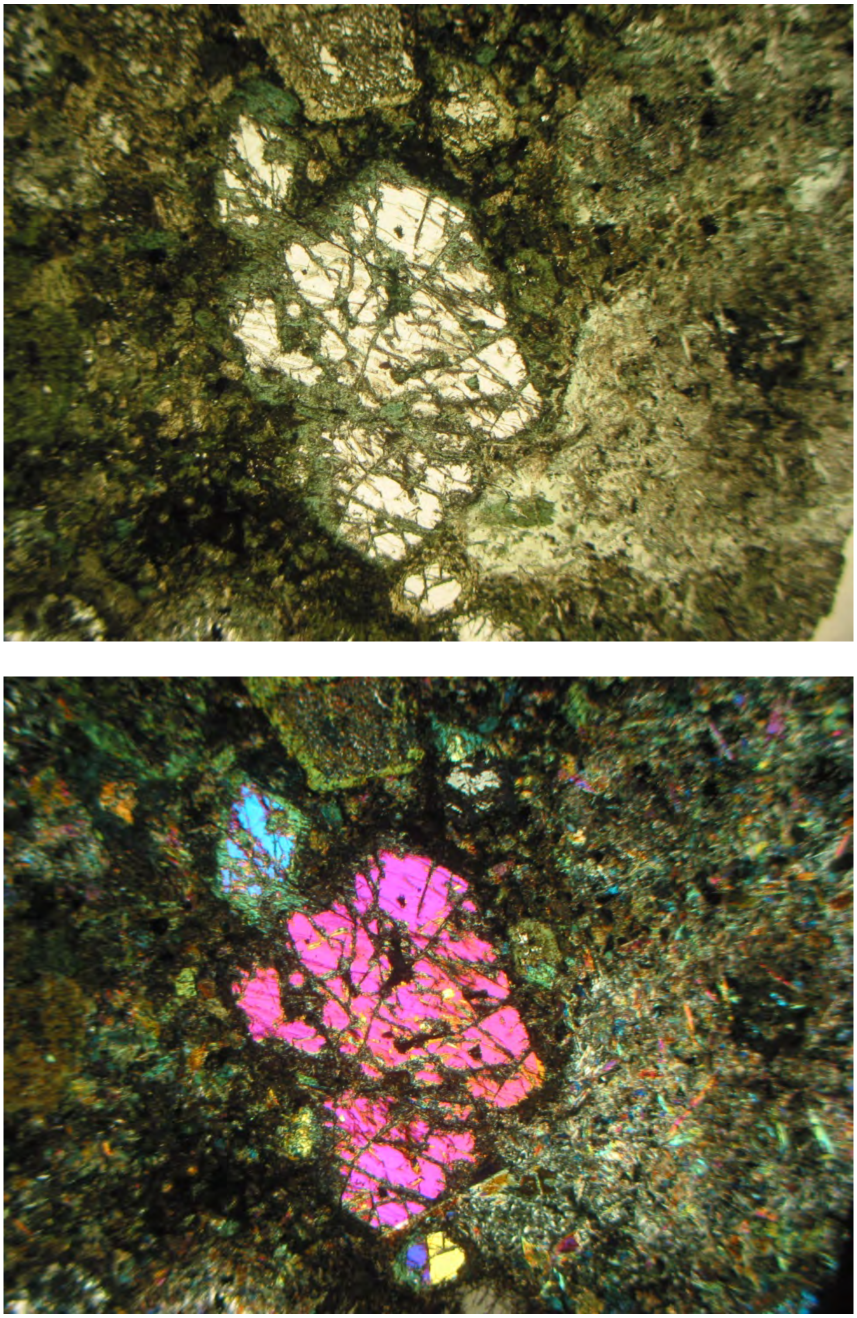


Figure 26. SAMPLE E202 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E202 PLATE 2 – Clinopyroxene replaced in marginal areas by deep green amphibole gradational into a matrix of acicular green amphibole needles. Throughout the sample, original olivine grains are now represented by irregular domains of colourless tremolitic amphibole.

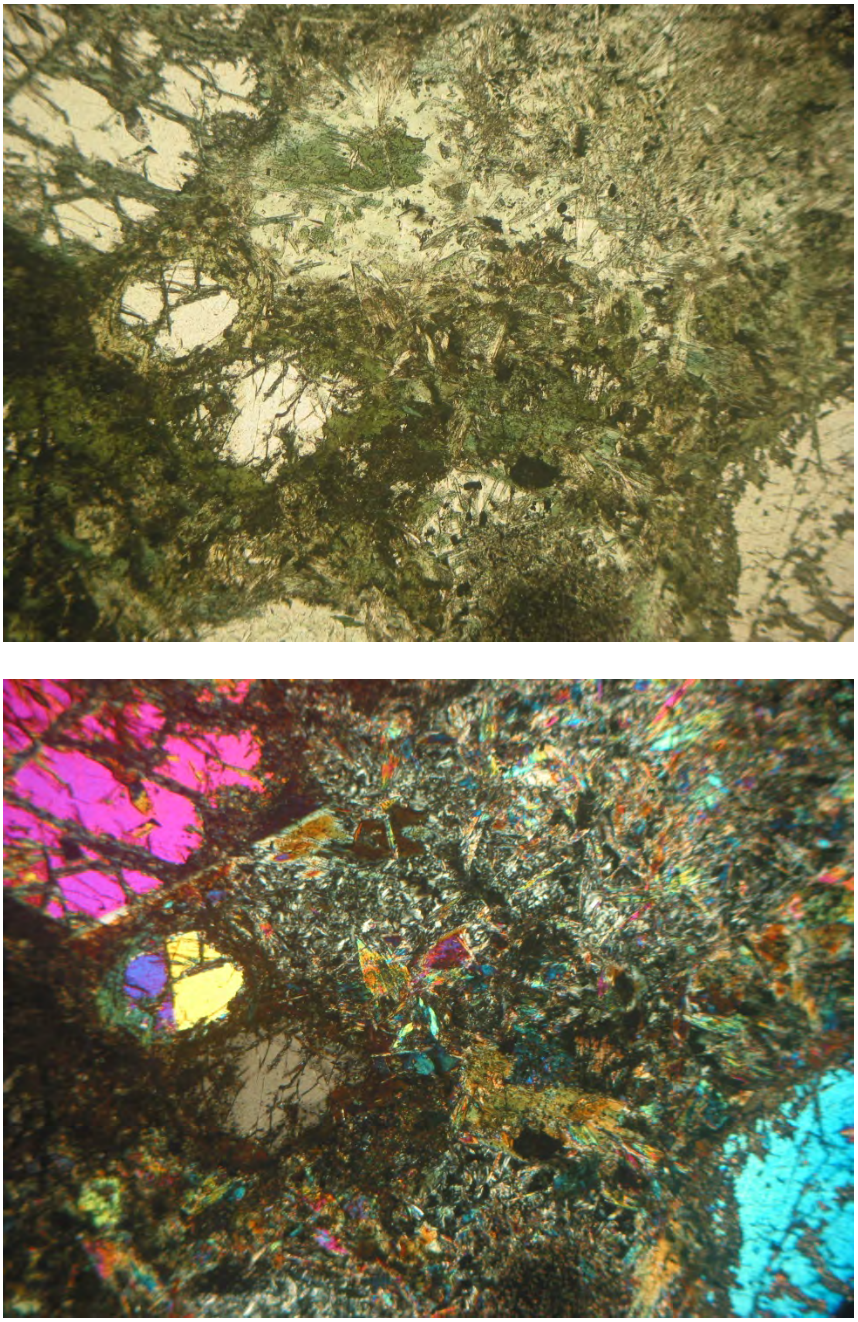
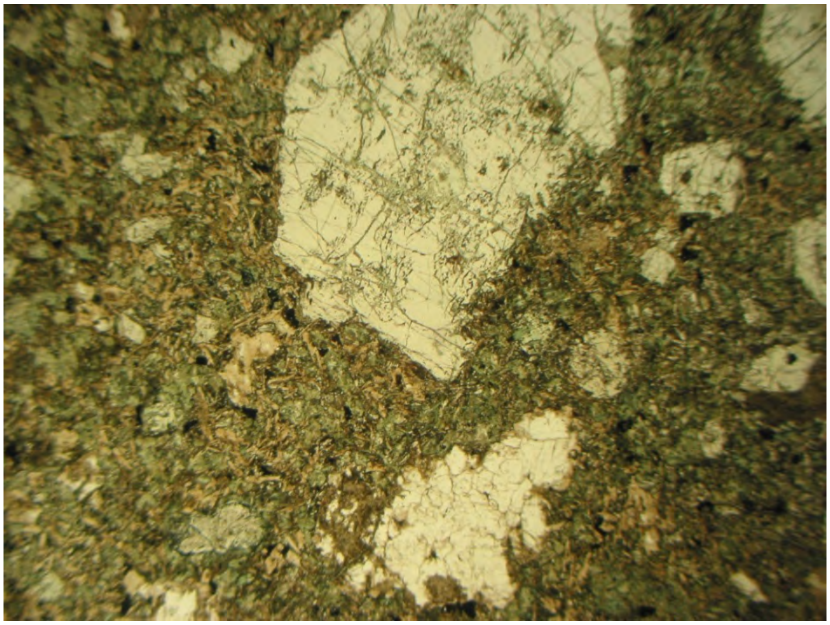


Figure 27. SAMPLE E202 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E202 PLATE 3 – Abundance of deep green needles and concentrations of deep green hornblendic amphibole in groundmass to diopside phenocrysts. Interstitial regions of colourless amphibole have more tremolitic compositions and likely possibly sites of pre-existing olivine grains.

- Very mafic sample dominated by an abundance of coarse chromian magnesian clinopyroxene , 65% and interstitial olivine now replaced by tremolitic amphibole. The original plagioclase content is difficult to assess to pervasive development of amphibole but likely quite minimal.

- **clinopyroxene and olivine-bearing ultramafic pyroxenite dike**



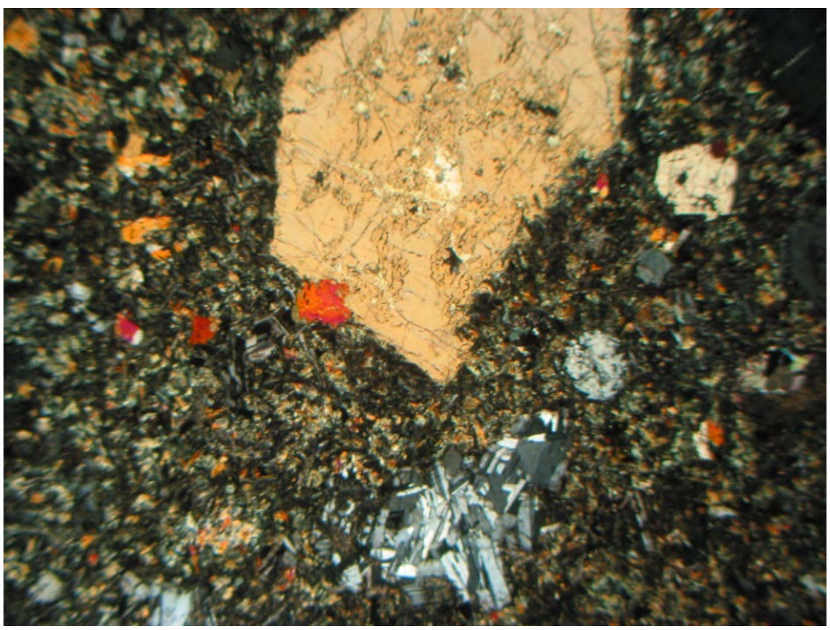


Figure 28. SAMPLE E203 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E203 PLATE 1 – Coarse phenocryst of diopsidic clinopyroxene and a multigranular clot of polysynthetically-twinned plagioclase within a groundmass of much smaller clinopyroxene and intersecting brown and altered plagioclase laths with small clinopyroxene partly replaced by green hornblendic amphibole and chlorite.

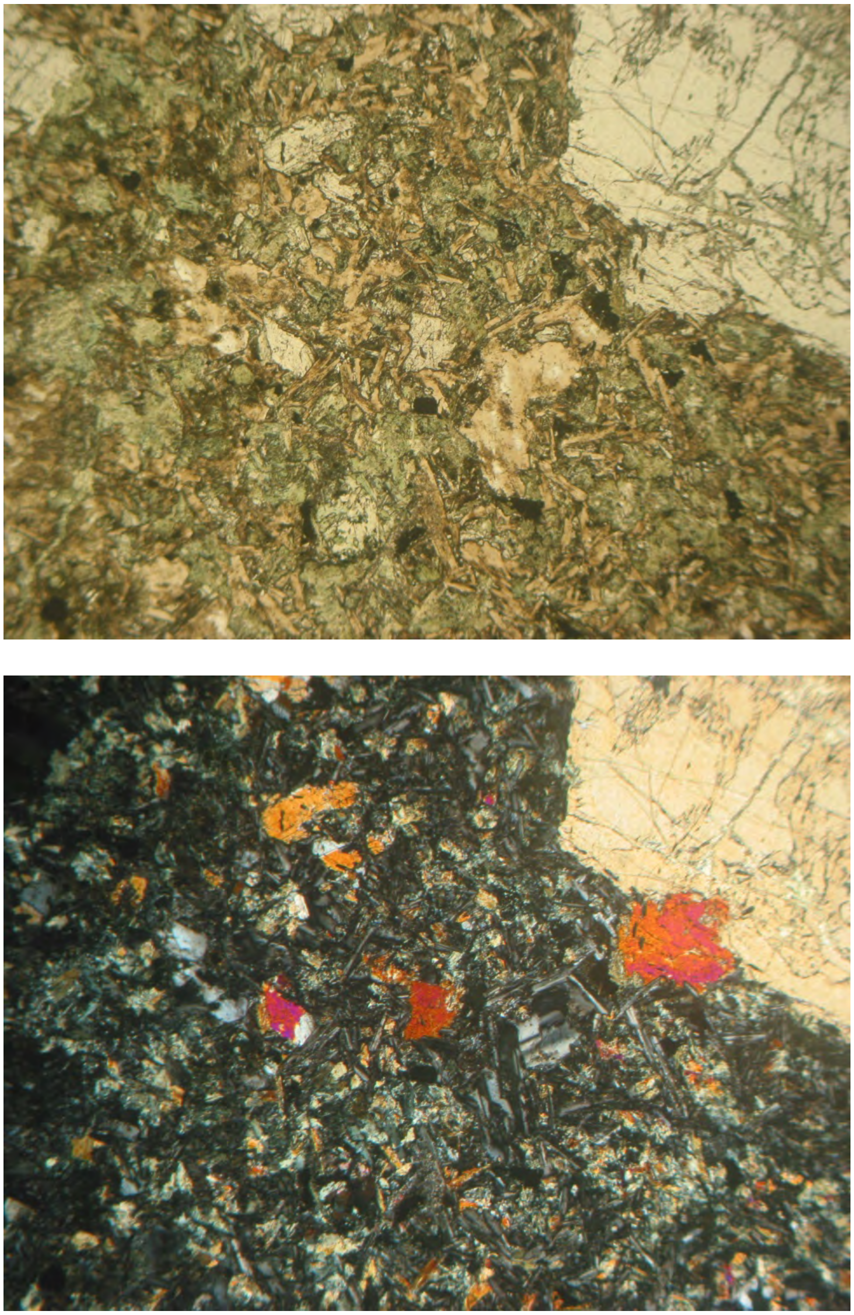
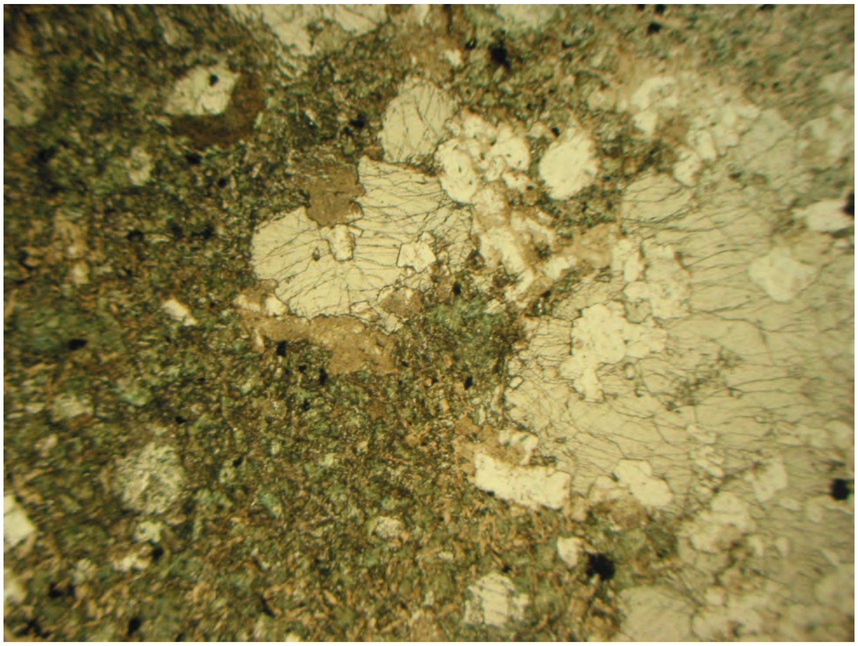


Figure 29. SAMPLE E203 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E203 PLATE 2 – Linear randonly-oriented laths of twinned plagioclase feldspar and birefringent yellow grains of clinopyroxene in the groundmass with extensive retrogression to deep geen amphibole.



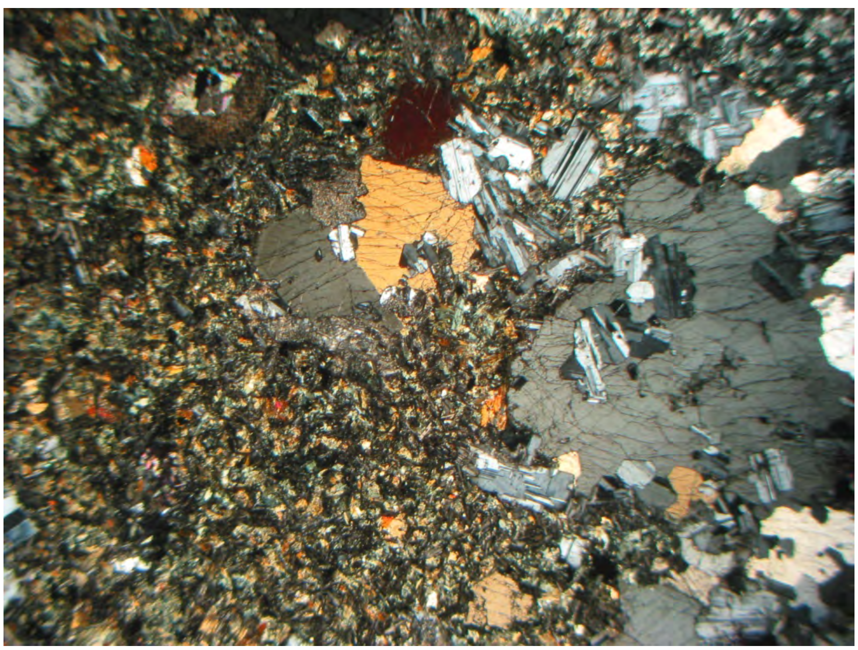


Figure 30. SAMPLE E203 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E203 PLATE 3 – Extraordinary, very coarse multigranular clinopyroxene concentration intergrown with and including twinned plagioclase, essentially unaltered.

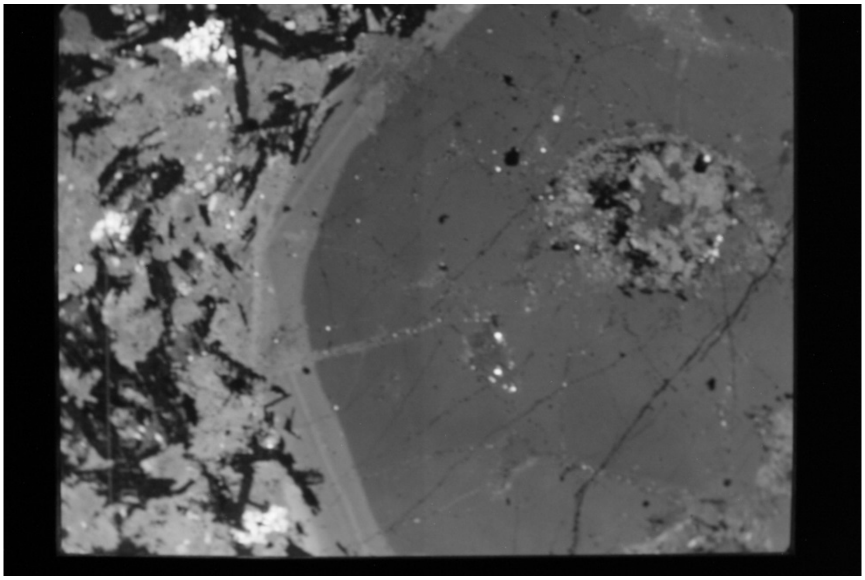


Figure 31. SAMPLE E203 PLATE 4 (X-Ray backscatter image).

SAMPLE E203 PLATE 4 – BSE image of of zoned clinopyroxene phenocryst. Broad chrome-rich central region contains elevated chrome approaching 1.50 wt% Cr_2O_3 while the narrow outermost growth zones are enriched in iron at 13.08 wt% FeO.

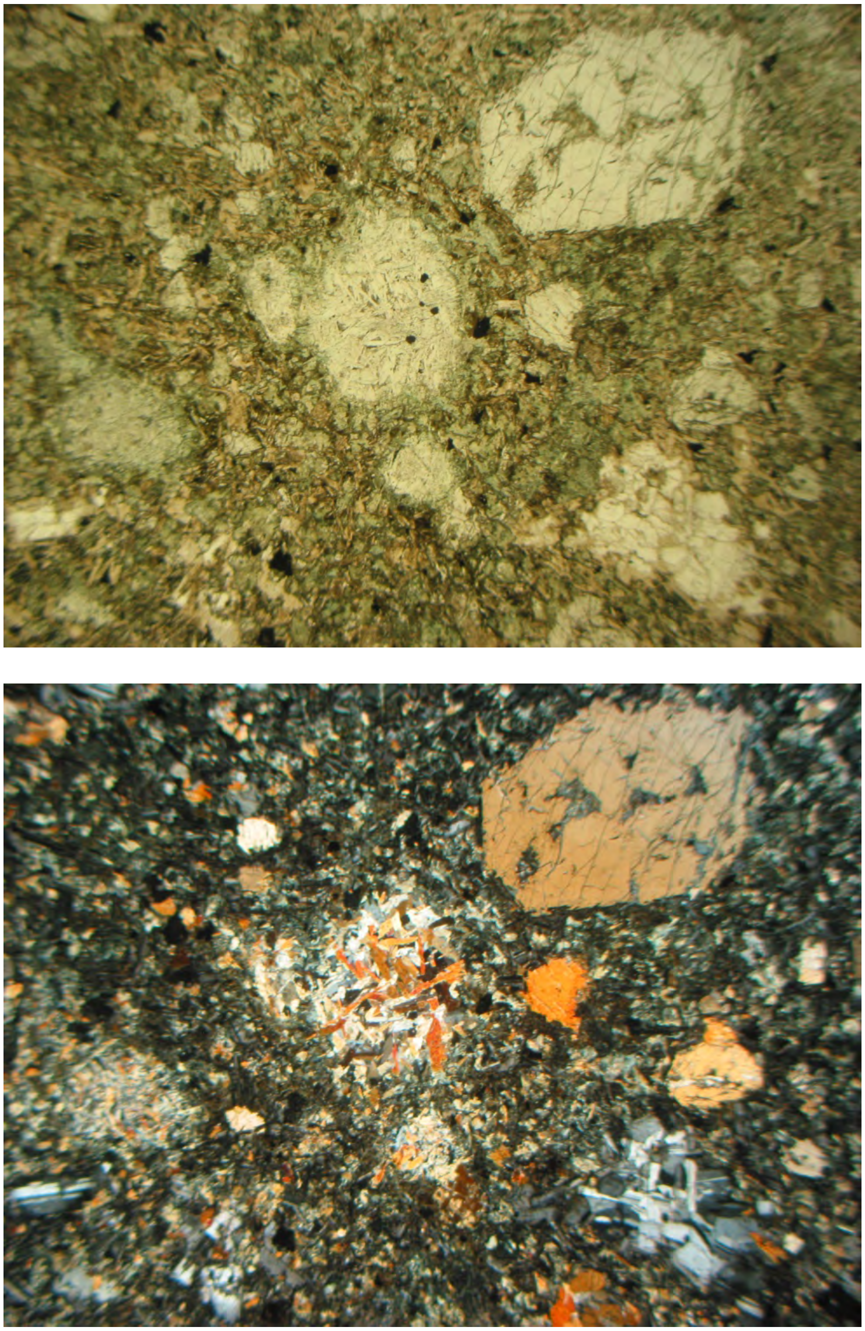


Figure 32. SAMPLE E203 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E203 PLATE 5 – Birefringent yellow clinopyroxene including internal plagioclase, a multigranular clot of twinned plagiocalse andan irregular domain consisting of coarse interpentrating colourless tremolitic amphibole, possibly after olivine..

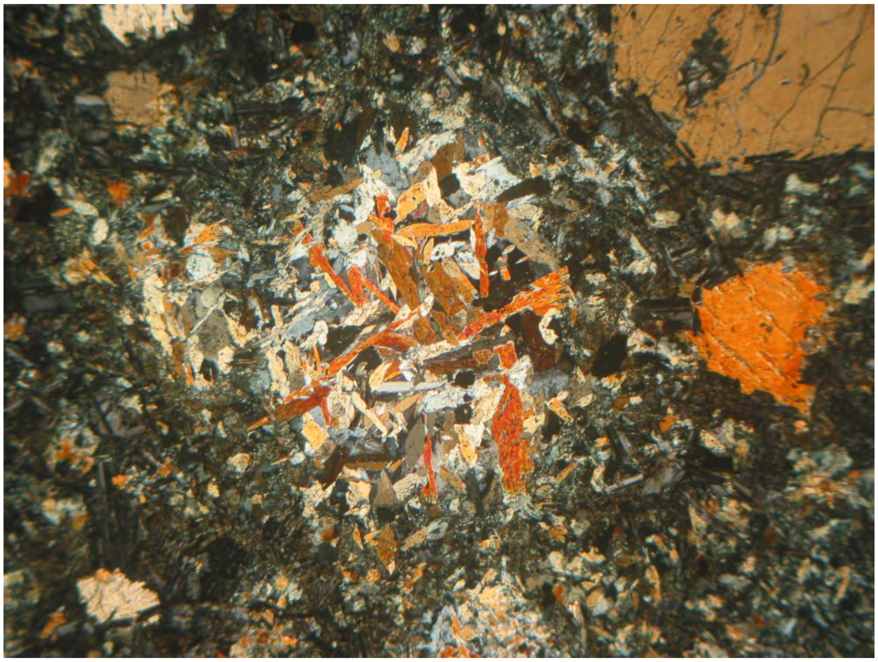


Figure 33. SAMPLE E203 PLATE 6 (cross-polarized light).

SAMPLE E203 PLATE 6 – Rounded domain of interlocking tremolitic amphibole, originally considered to be an exotic fragment but now interpreted to be the site of a pre-existing grain of olivine.

- **Porphyritic clinopyroxene, olivine and plagioclase pyroxenite dike. Olivine replaced by tremolitic amphibole.**

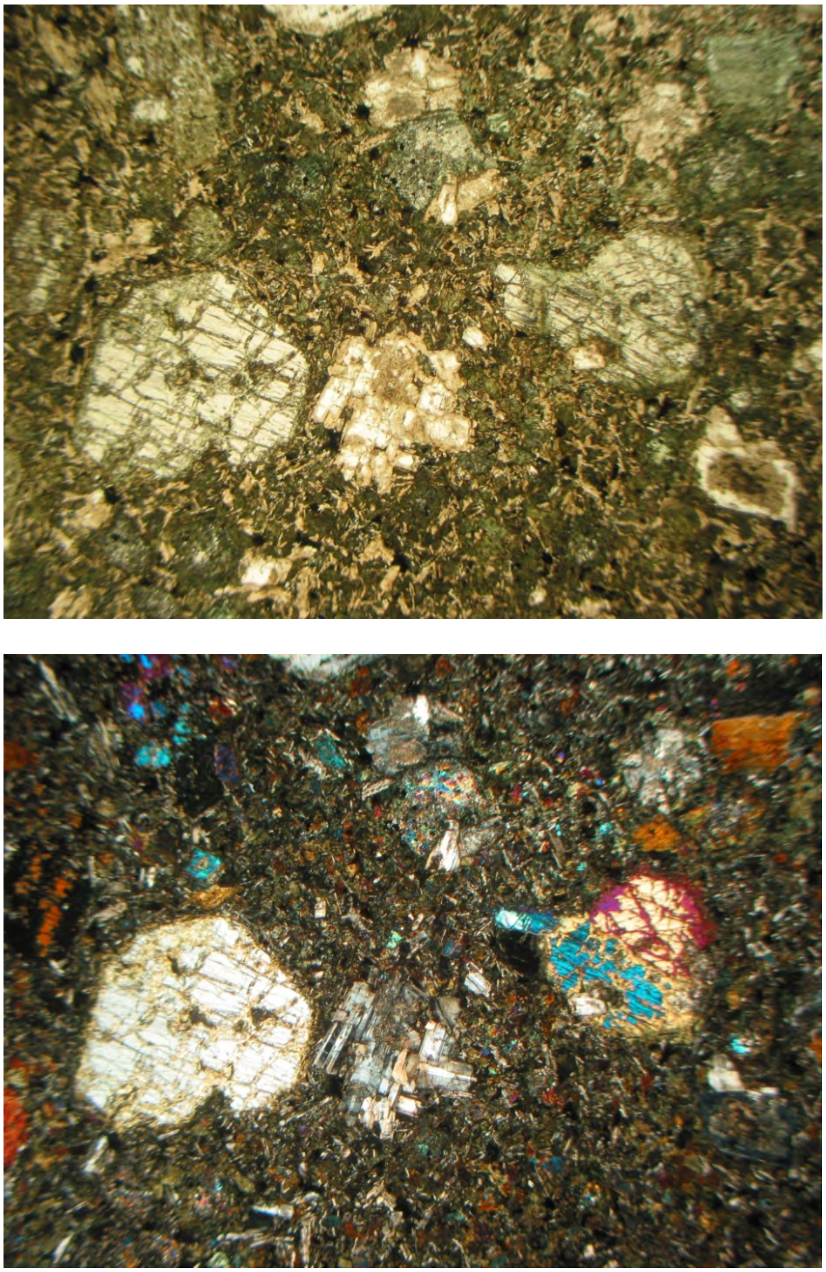


Figure 34. SAMPLE E204 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E204 PLATE 1 – Coarse idiomorphic clinopyroxene phenocrysts and a multigranular cluster of polysynthetically-twinned plagioclase within a much finer-grained groundmass comprised by linear brown-altered plagioclase laths intergrown with small clinopyroxene grains extensively replaced by green amphibole. Observe that the clinopyroxene phenocryst at right is replaced along internal cracks and along grain margins by amphibole.

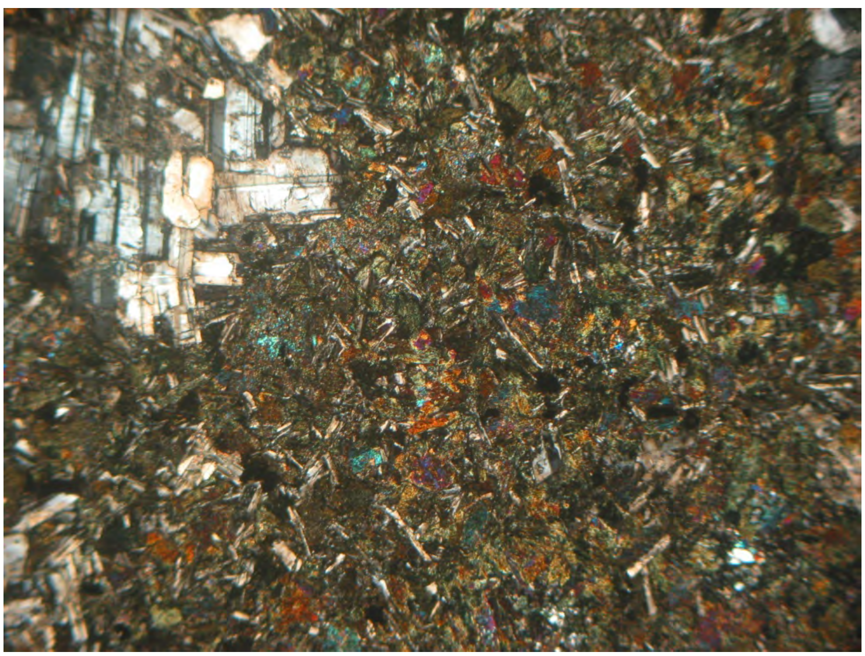


Figure 35. SAMPLE E204 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E204 PLATE 2 – Typical aspect of groundmass host to the clinopyroxene and plagioclase phenocrysts, an even-grained distribution of small clinopyroxene grains now replaced by hornblende with interlocking tabular brown plagioclase laths distributed along original clinopyroxene grain margins. This sample contains 30% plagioclase present as large phenocrysts and in the groundmass.

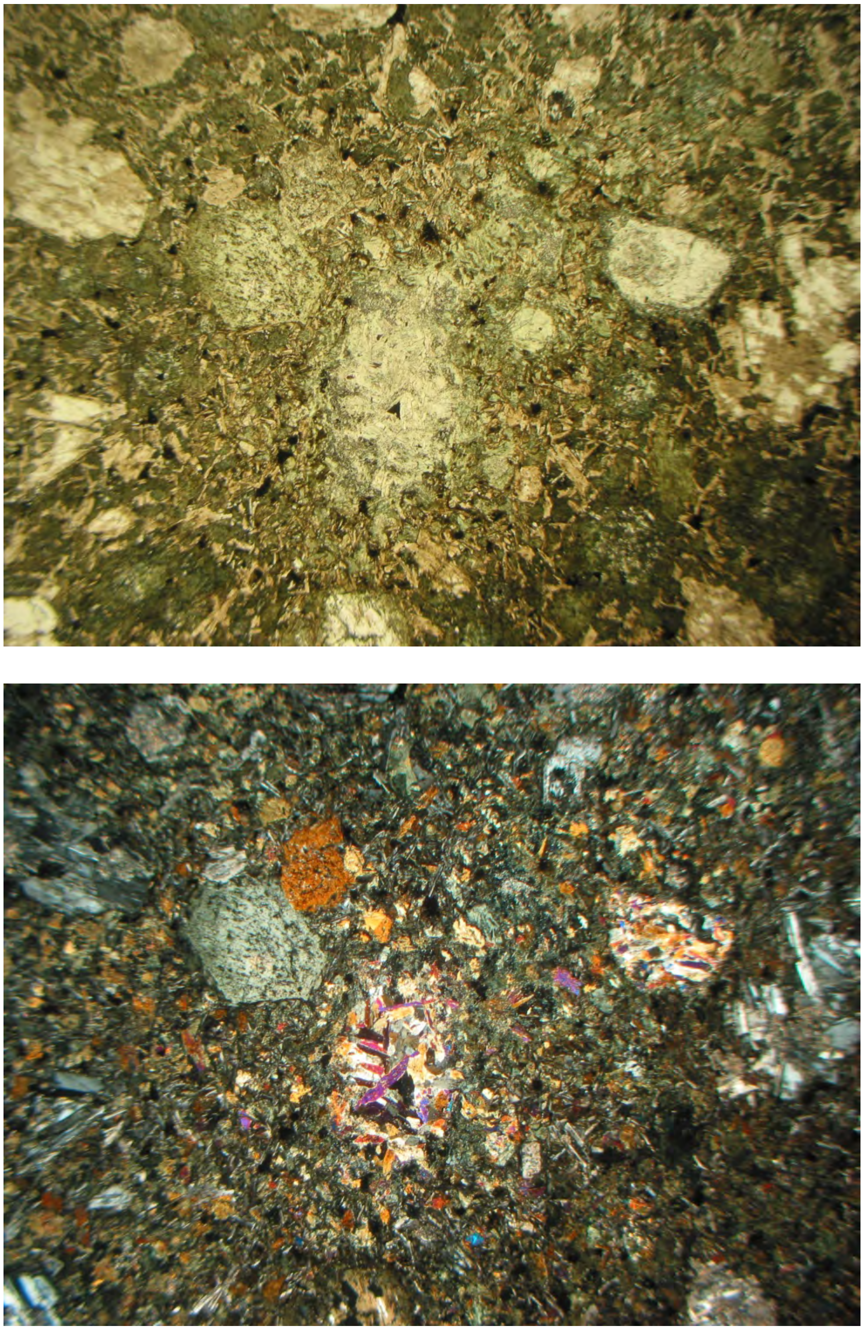
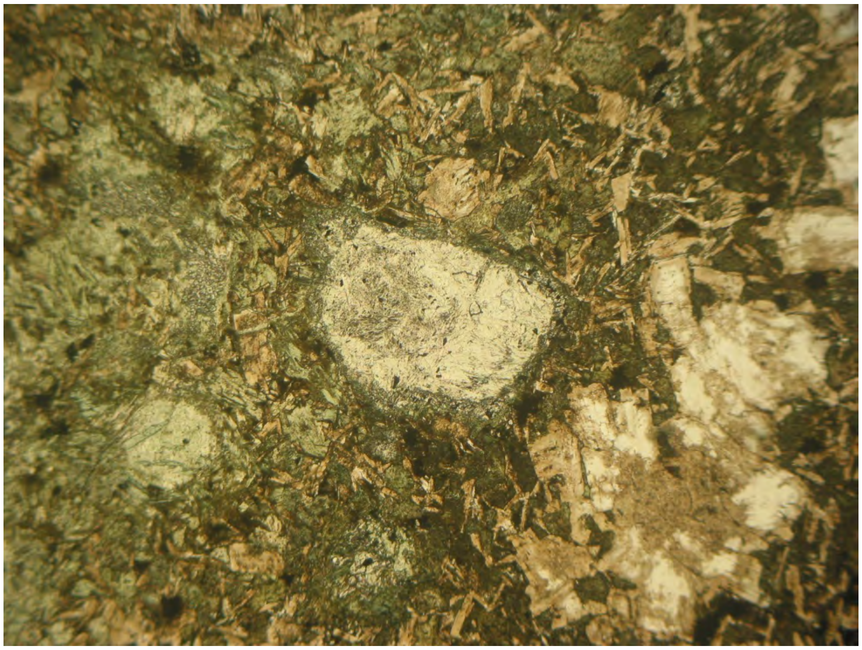


Figure 36. SAMPLE E204 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E204 PLATE 3 – Small idiomorphic clinopyroxene phenocrysts and two domains of relatively coarse-grained colourless tremolitic amphibole replacing olivine, one smaller and angular at right and a larger domain that appears to be located within a subdomain of the sample that has its own internally-consistent texture, a possible olivine-bearing lithic fragment.



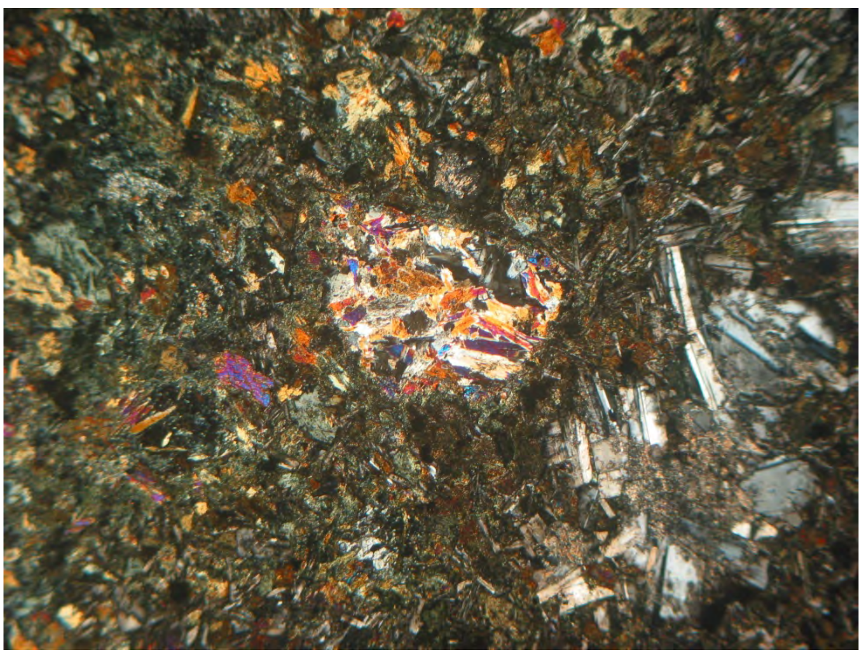


Figure 37. SAMPLE E204 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E204 PLATE 4 – Small discrete angular domain comprised by a linear concentration of colourless tremolitic amphibole, a lithic fragment or pseudomorph of a pre-existing olivine grain?

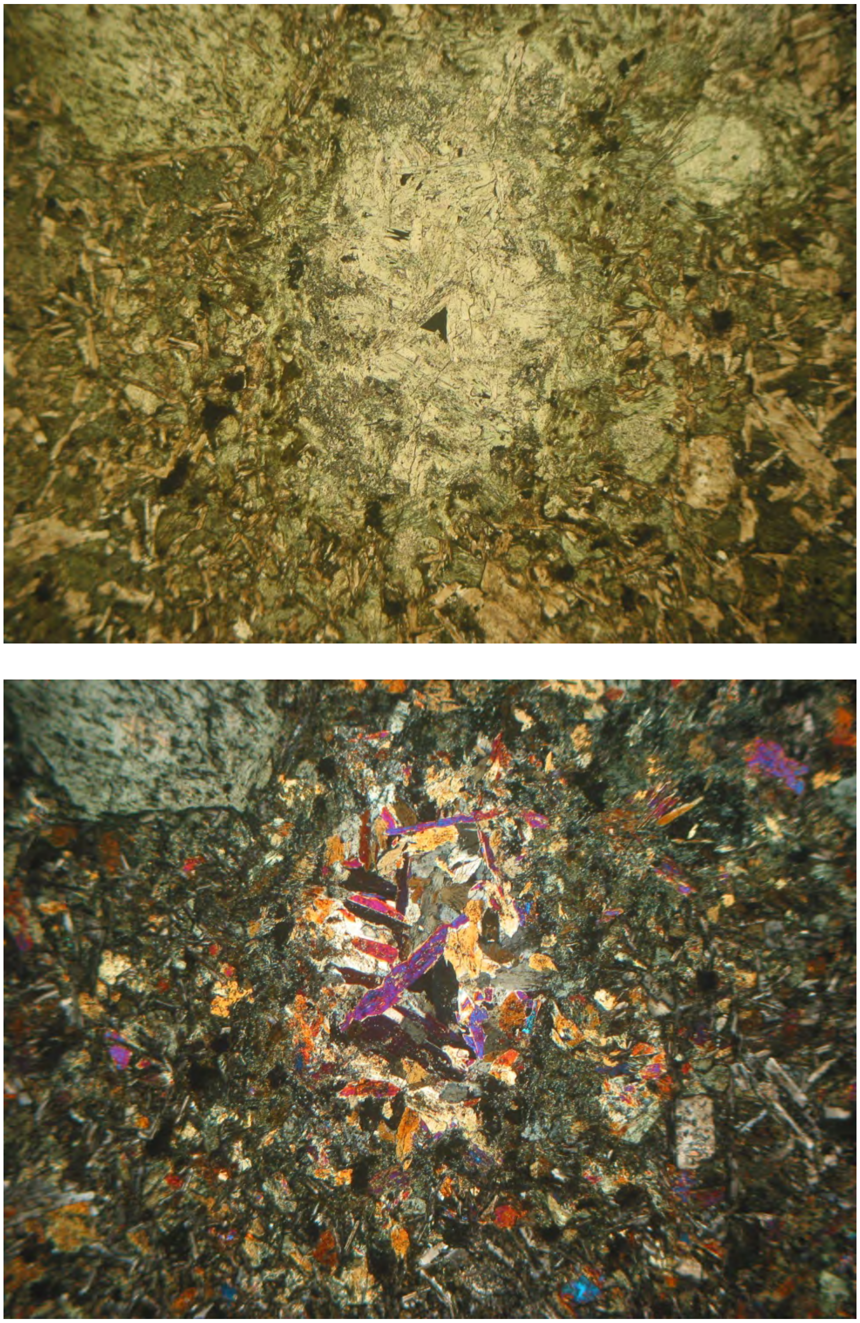
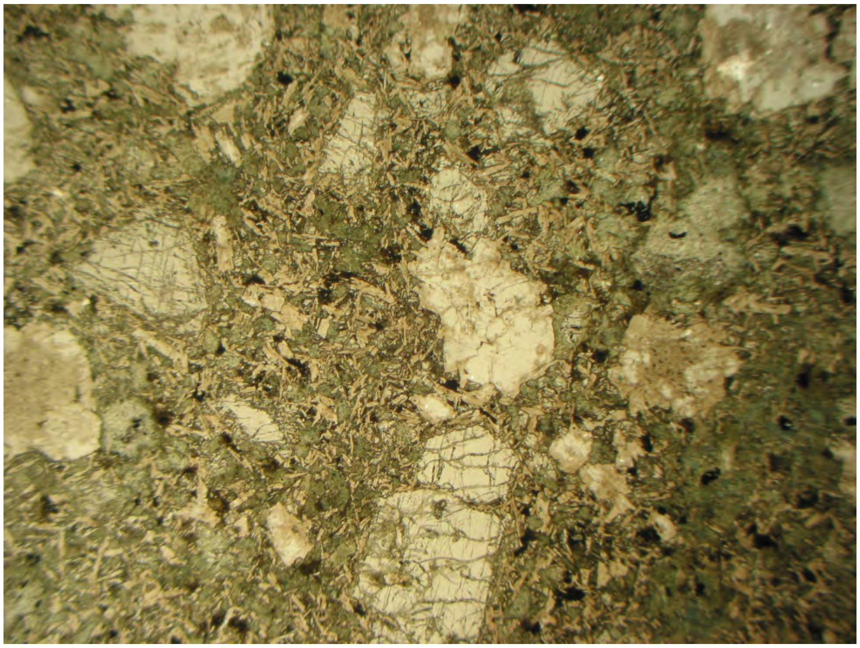


Figure 38. SAMPLE E204 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E204 PLATE 5 – Ovoid region consisting of interlocking linear grains of tremolitic amphibole that might be the site of a reacted and partly- resorbed olivine grain.

- **Porphyritic clinopyroxene, olivine? and plagioclase diabase dike**



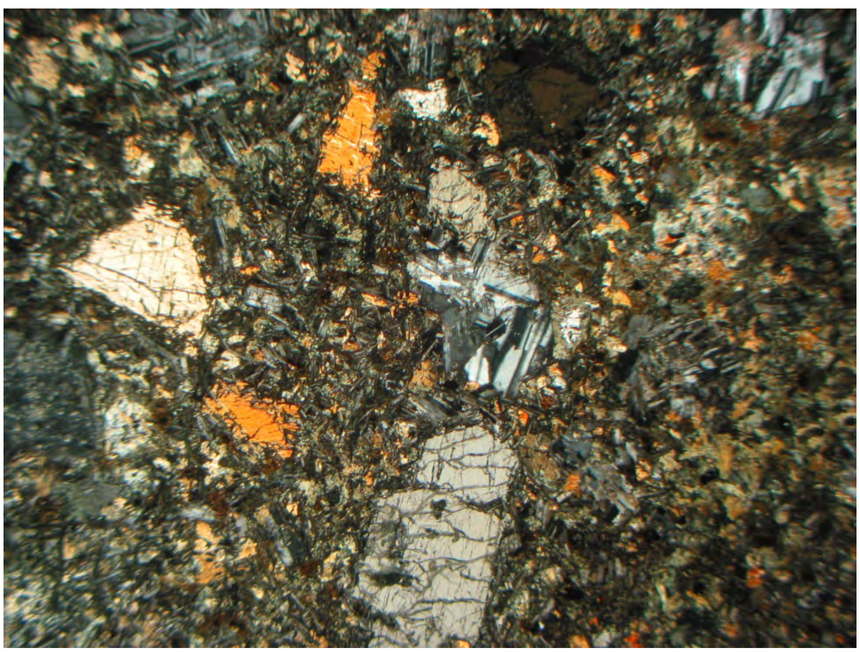


Figure 39. SAMPLE E205 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E205 PLATE 1 – Coarse-grained clinopyroxene phenocrysts and multigranular clot of polysynthetically-twinned plagioclase feldspar within a groundmass of acicular plagioclase and small clinopyroxene grains now replaced by amphibole.

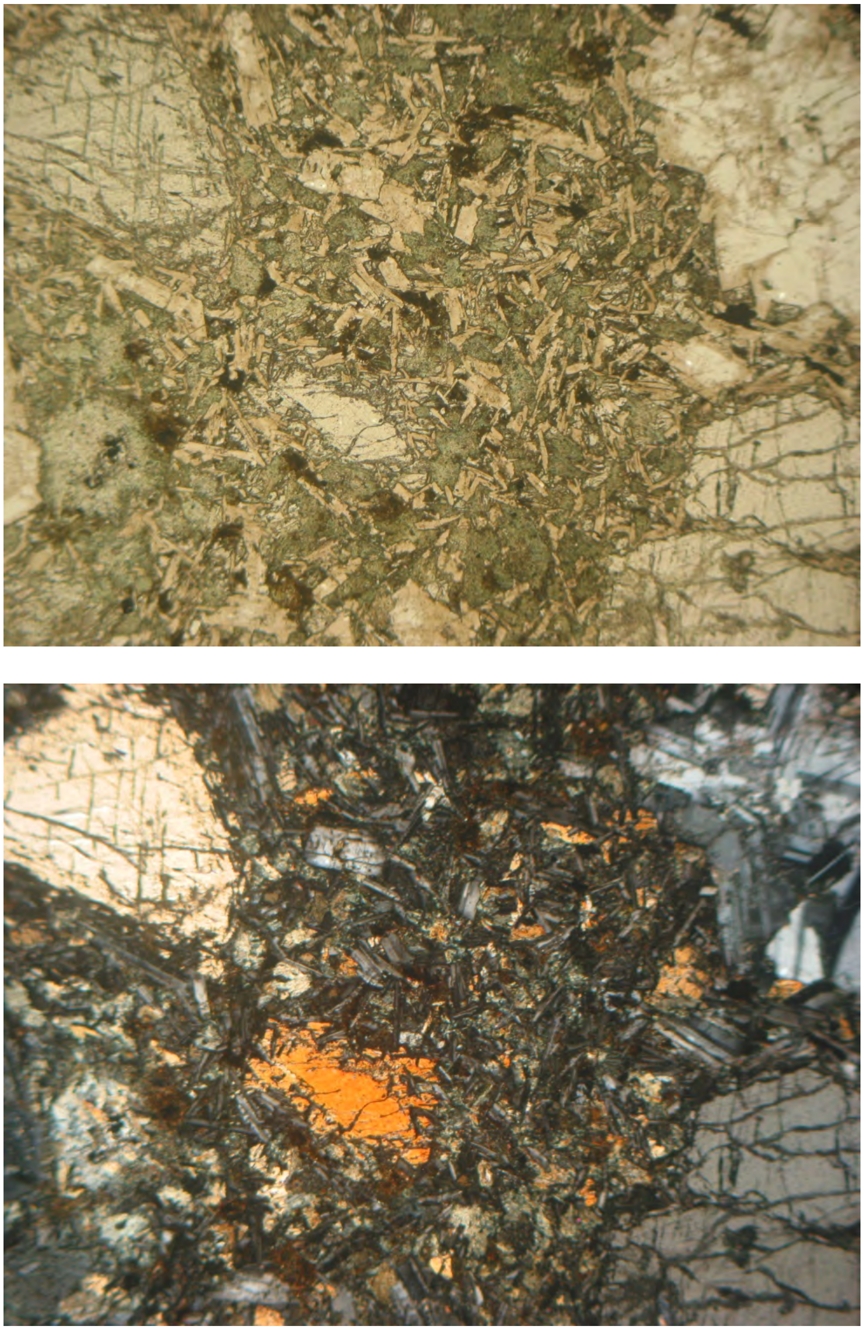
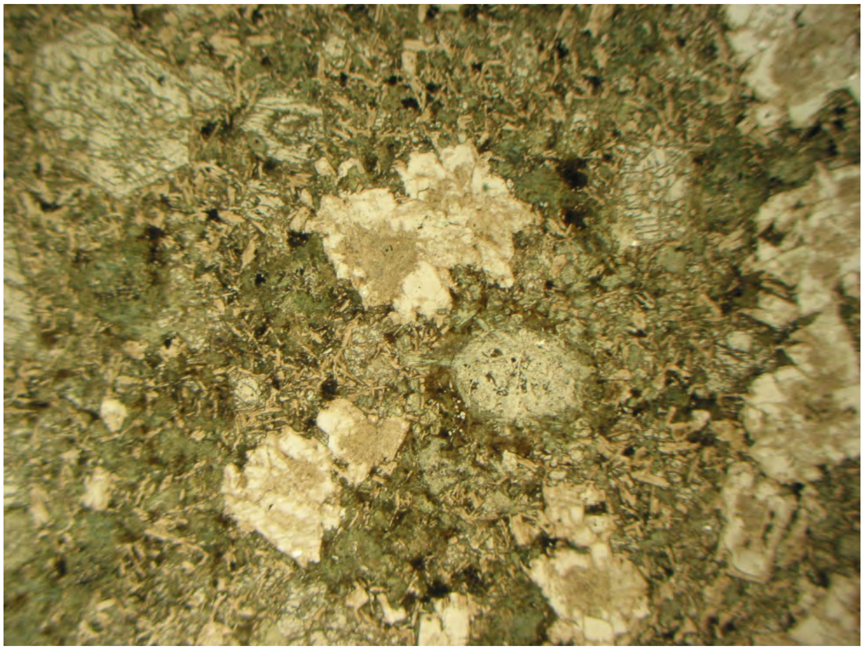


Figure 40. SAMPLE E205 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E205 PLATE 2 – Typical region of groundmass enclosing clinopyroxene phenocrysts, randomly-oriented acicular brown, twinned plagioclase needles intergrown within finer-grained clinopyroxene largely replaced by green amphibole.



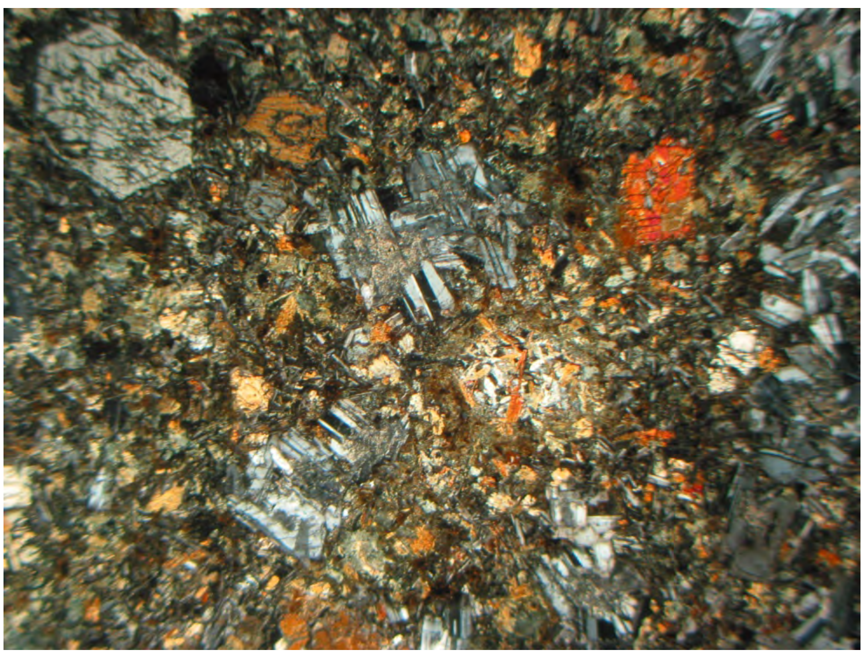


Figure 41. SAMPLE E205 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E205 PLATE 3 – Multigranular clots of intergrown, polysynthetically-twinned plagioclase, idiomorphic clinopyroxene and a small rounded domain of colourless interlocking amphibole, possibly replacing olivine.

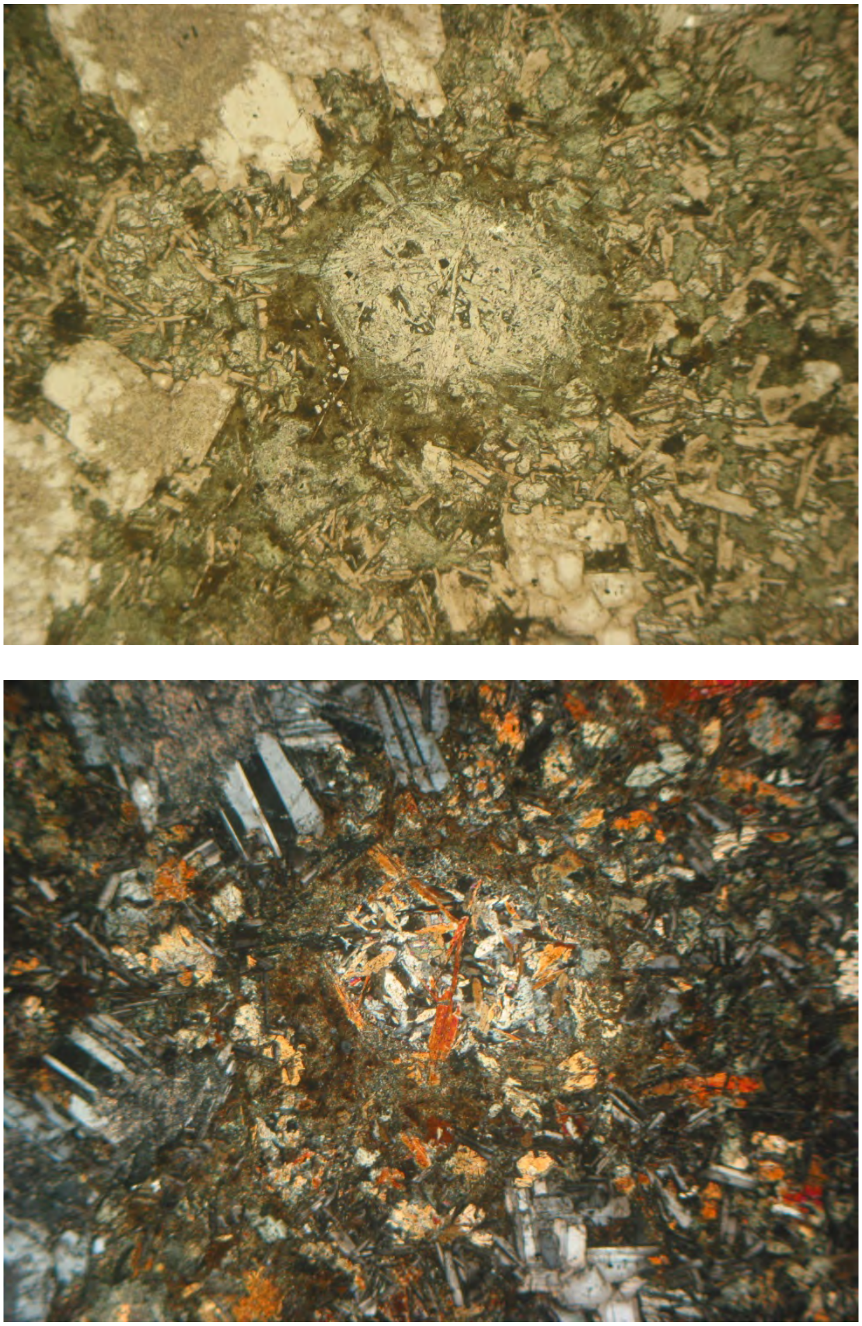


Figure 42. SAMPLE E205 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E205 PLATE 4 – Rounded region consisting of coarse-grained intimately interlocking tremolitic amphibole in groundmass. This domain might be the site of a pre-existing olivine grain

- **Coarse phenocrystal clinopyroxene, olivine? plagioclase diabase dike**

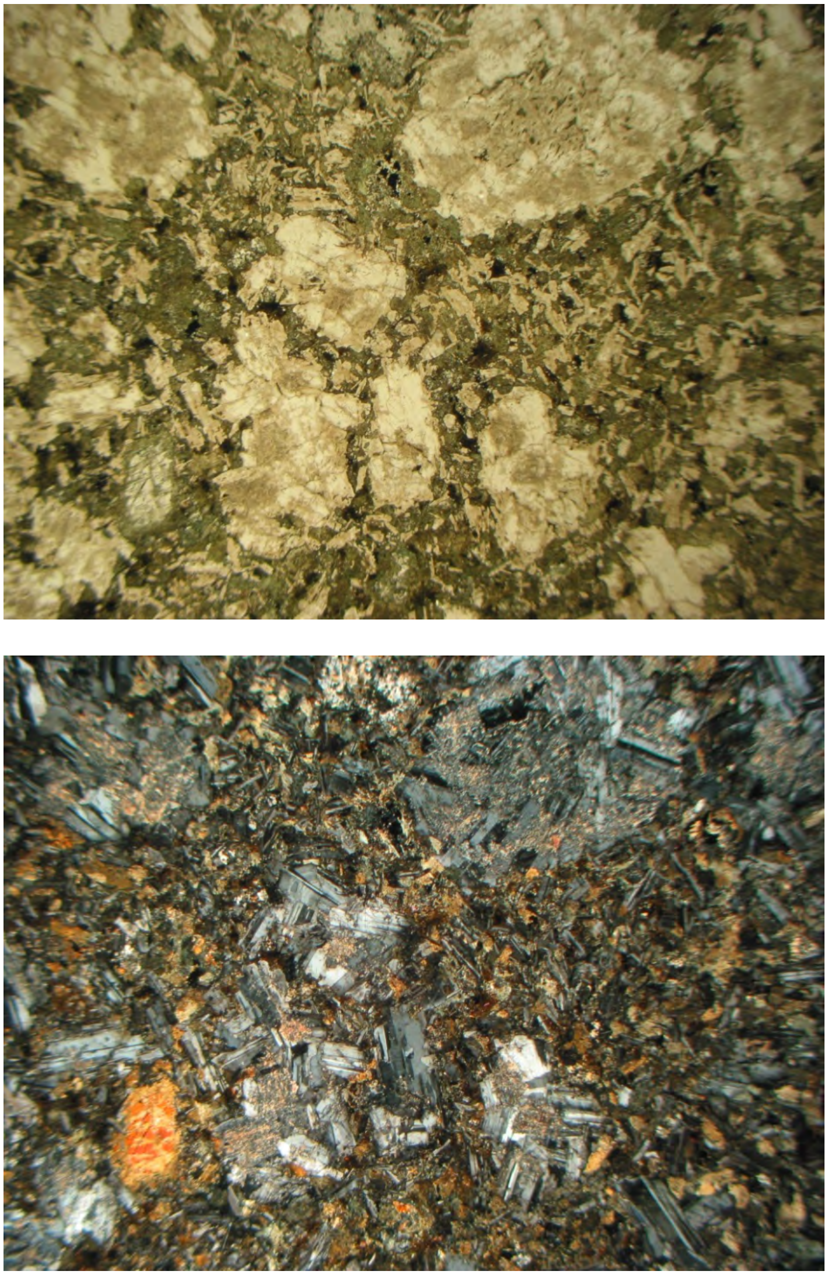


Figure 43. SAMPLE E206 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E206 PLATE 1 – Single birefringent yellow clinopyroxene phenocryst and rounded multigranular clusters of polysynthetically-twinned plagioclase clots within a groundmass of stubby plagioclase laths intimately intergrown with clinopyroxene partly replaced by retrogressive amphibole. Plagiocalse content of sample approaches 50% by volume.

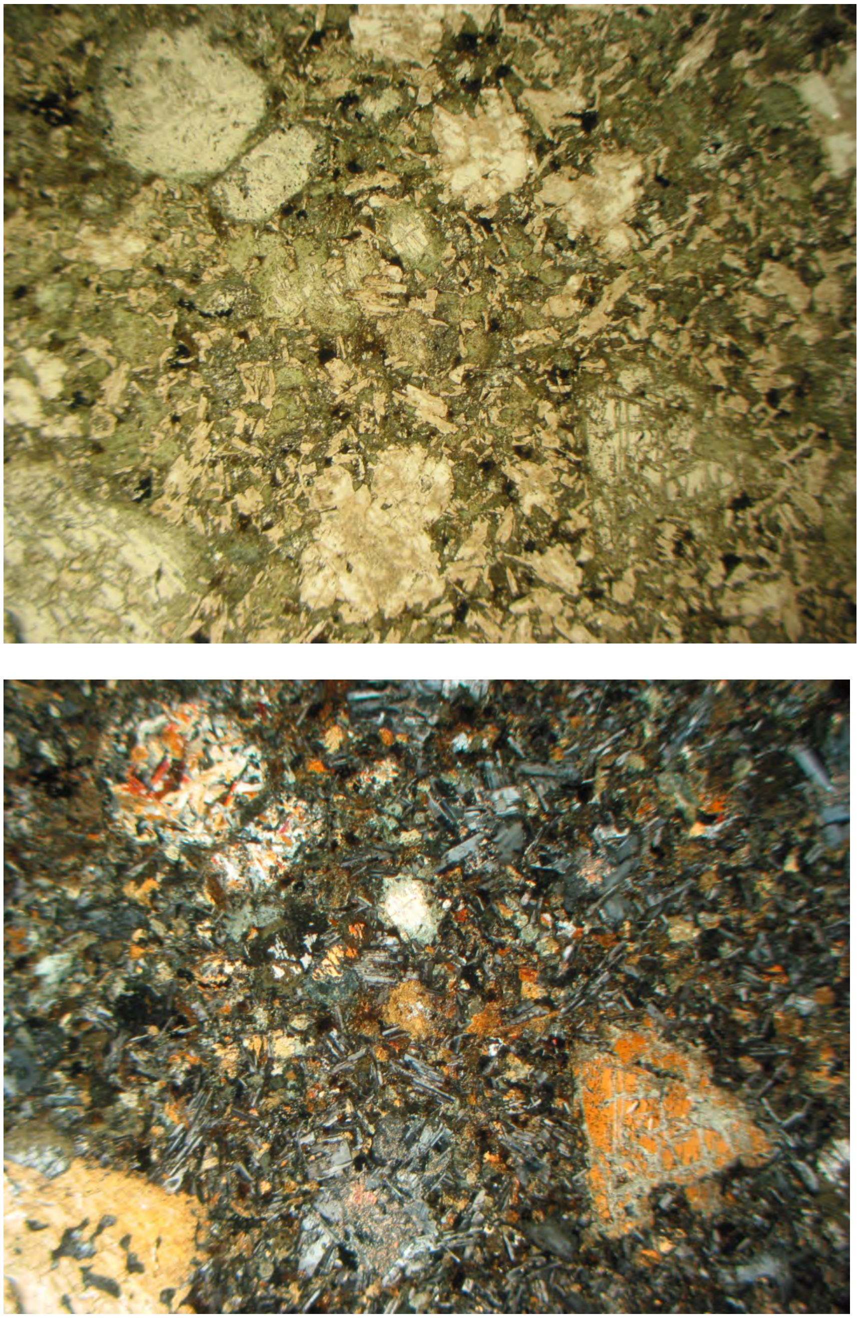


Figure 44. SAMPLE E206 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E206 PLATE 2 – Birefringent yellow clinopyroxene phenocryst, plagioclase clot and peculiar rounded domains of relatively coarse tremolitic amphibole, upper left, all set within a much finer-grained clinopyroxene, amphibole and plagioclase groundmass.

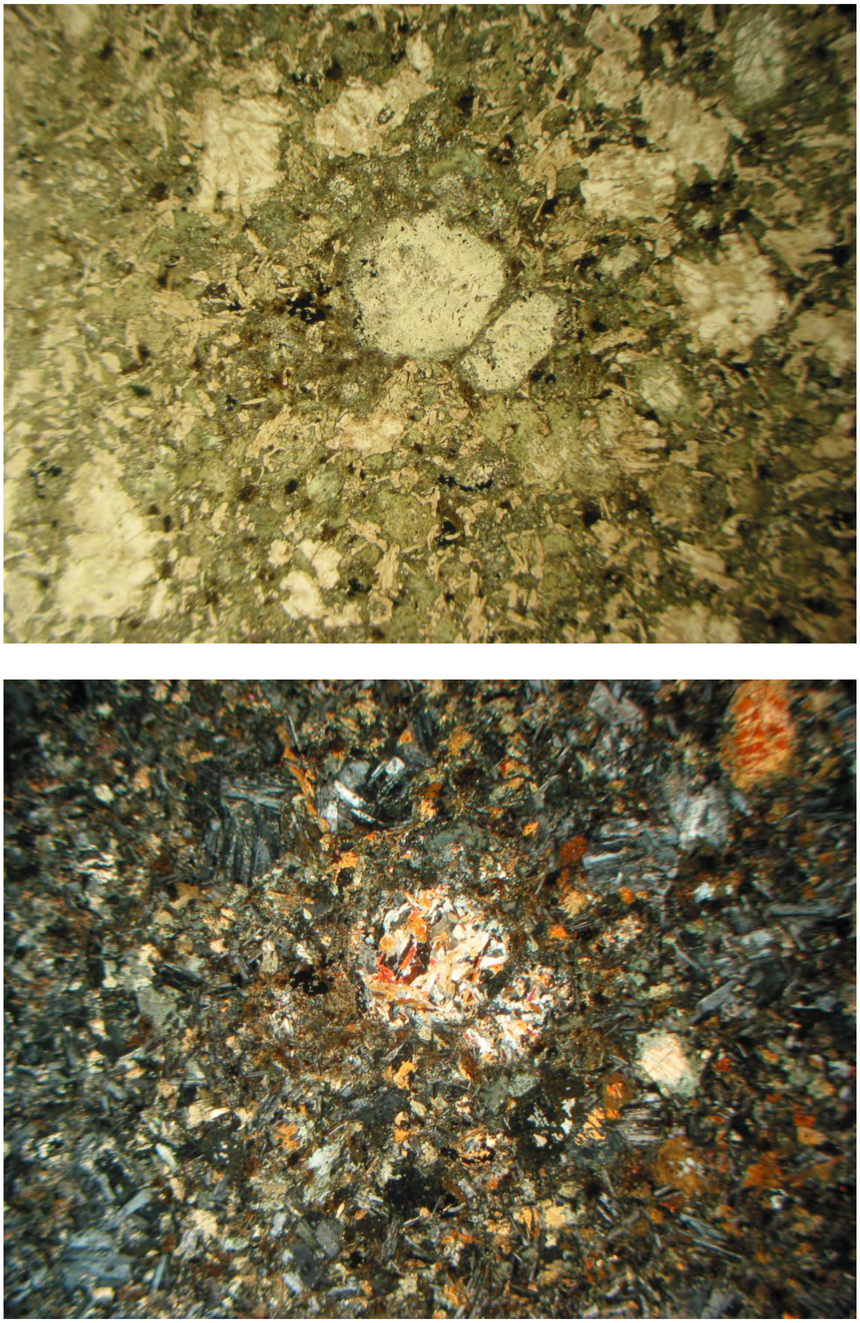


Figure 45. SAMPLE E206 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E206 PLATE 3 – Two bright domains of coarse birefringent tremolitic amphibole, possibly after olivine, located within a distinct lithic fragment, the outlines of which are more apparent in the X-polar image. The matrix of the fragment is fine-grained clinopyroxene, amphibole and plagioclase, essentially the same mineralogy as the host.

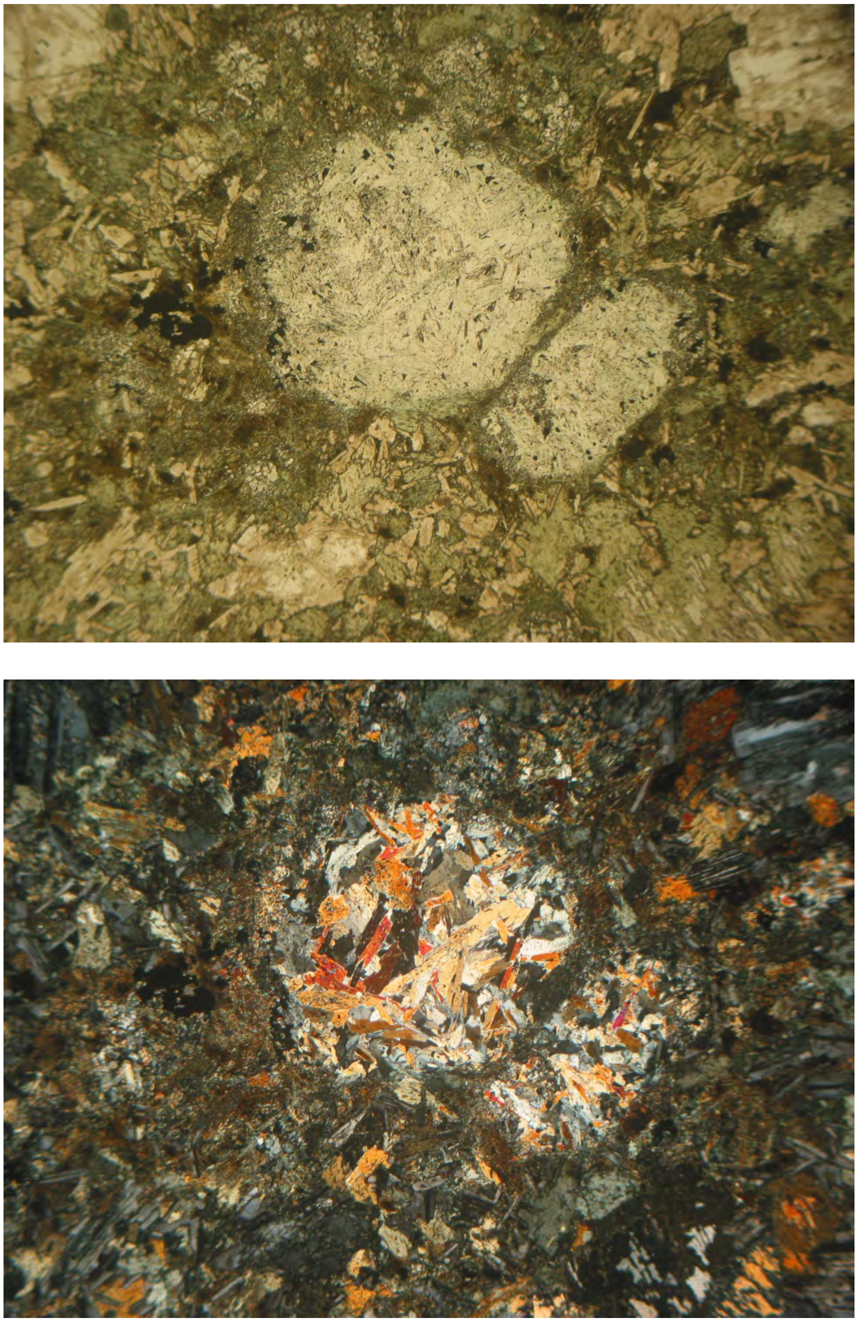


Figure 46. SAMPLE E206 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E206 PLATE 4 – Two peculiar domains of relatively coarsely- intergrown amphibole. Observe that these two domains of amphibole have discrete angular margins that may define the margin of a pre-existing mineral. One might speculate that this pre-existing mineral, likely olivine, was replaced when the lithic fragment was incorporated into the host.

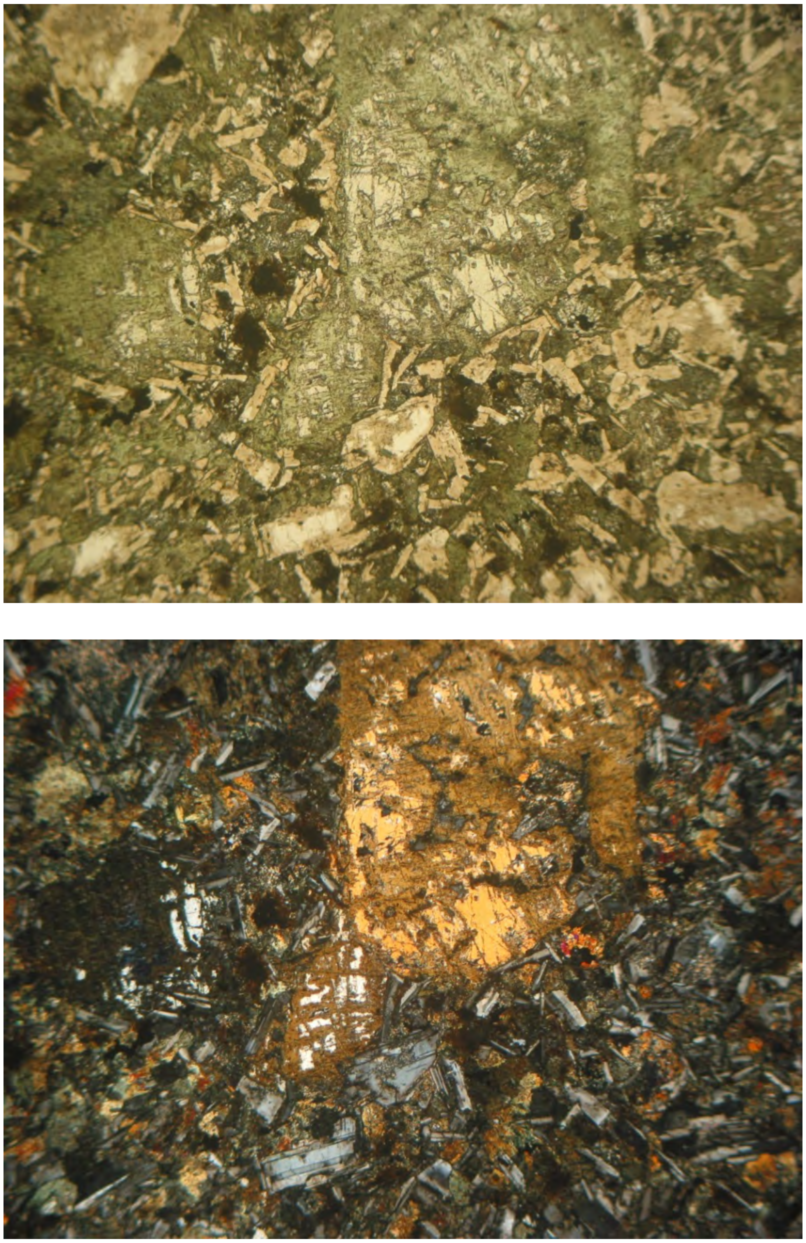


Figure 47. SAMPLE E206 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E206 PLATE 5 – Clinopyroxene phenocryst with relic domains of clinopyroxene present within low temperature retrogressive amphibole alteration, set within a groundmass of clinopyroxene, amphibole and unaltered tabular plagioclase feldspar.

- **Porphyritic clinopyroxene, olivine? and plagioclase diabase dike with possible autolithic fragments**

Figure 48. SAMPLE E207 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E207 PLATE 1 - Coarse birefringent yellow and blue clinopyroxene phenocrysts and multigranular clots of polysynthetically-twinned plagioclase within a groundmass of smaller clinopyroxene grains and tabular plagioclase laths within a smaller grain size population of matrix clinopyroxene grains completely replaced by amphibole.

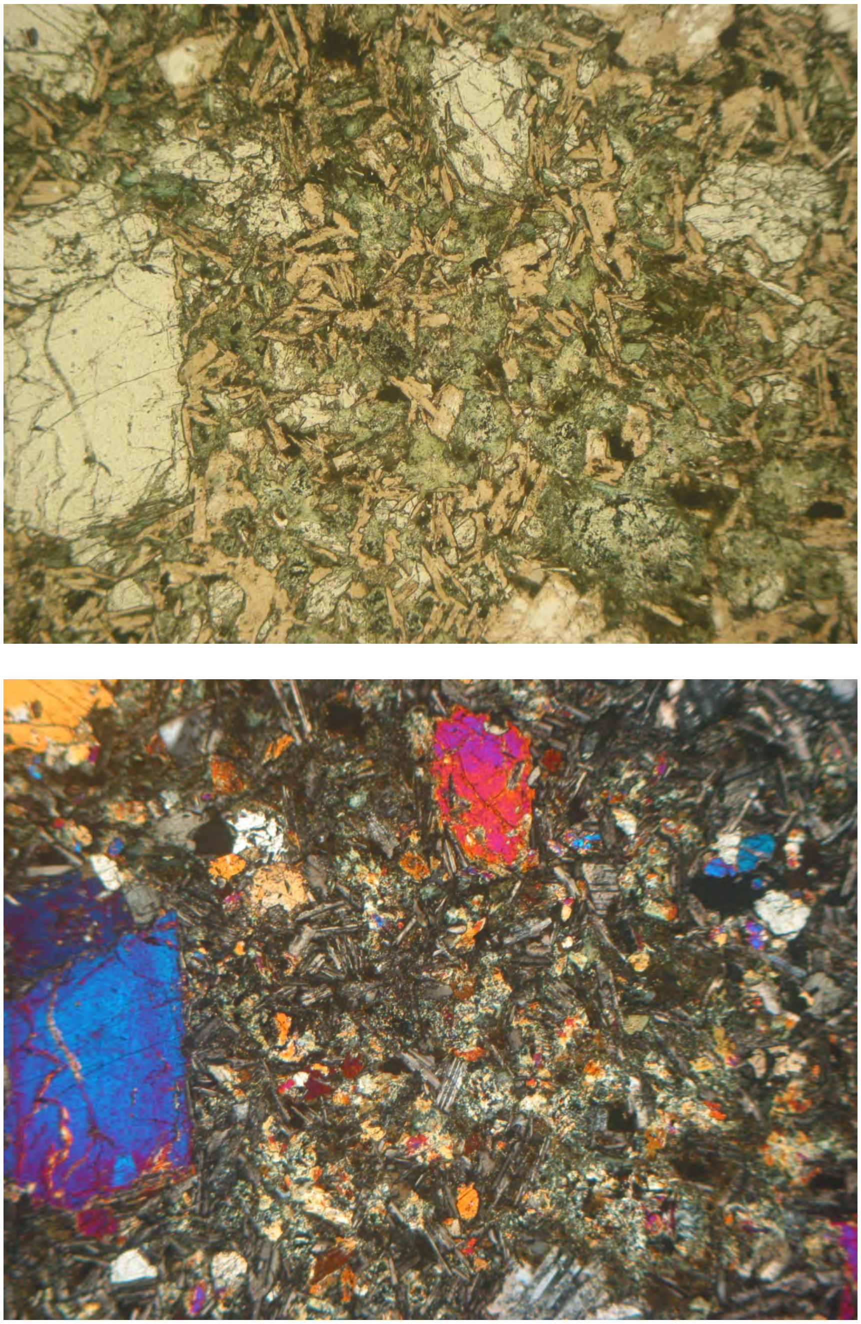


Figure 49. SAMPLE E207 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E207 PLATE 2 – Tabular brown altered and twinned plagioclase feldspar, randomly-oriented and intergrown with smallest clinopyroxene grains largely replaced by amphibole, typical region of groundmass host to clinopyroxene phenocrysts.

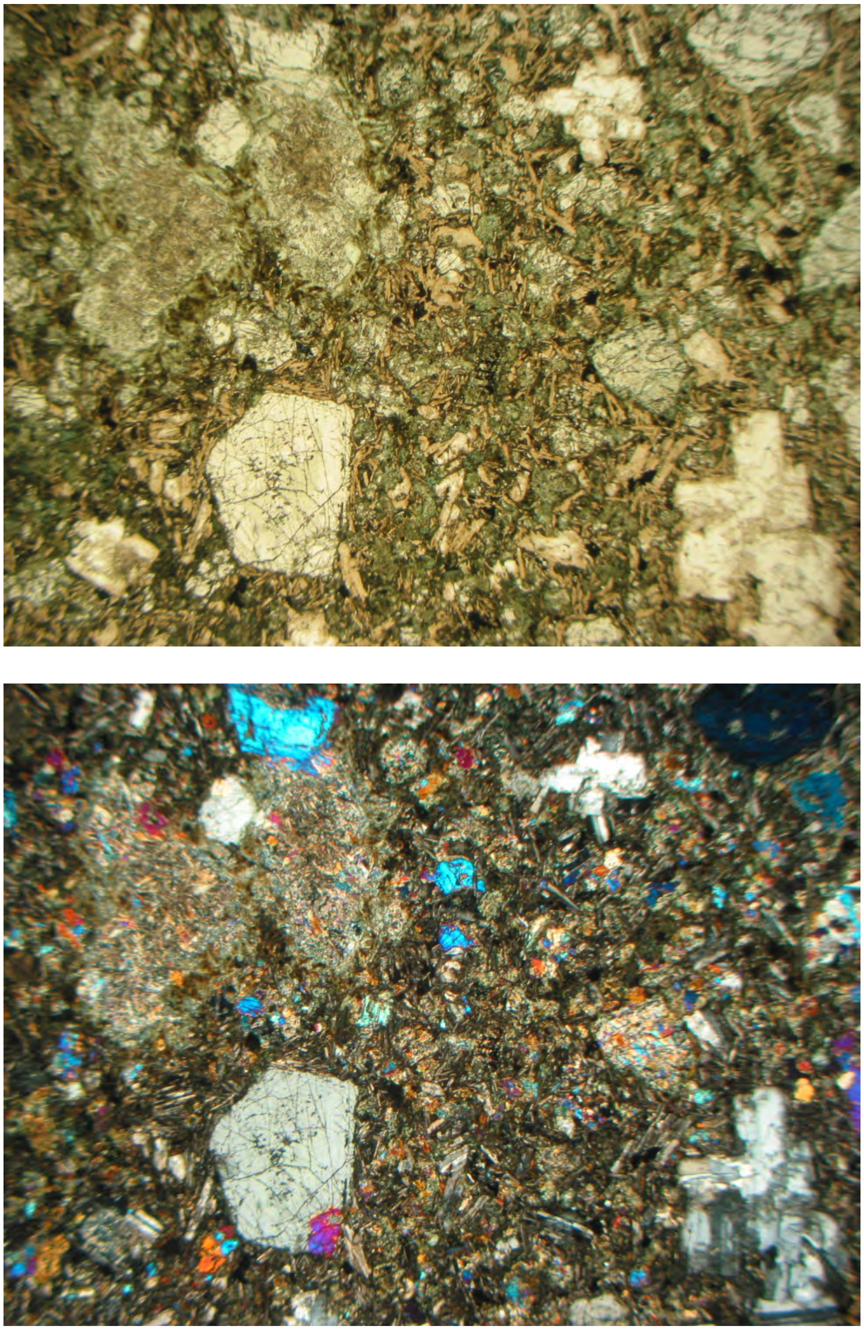


Figure 50. SAMPLE E207 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E207 PLATE 3 – Idiomorphic clinopyroxene phenocryst and two larger domains comprised by finer-grained and more acicular amphibole at the upper left of the image, likely sites of pre-existing olivine.

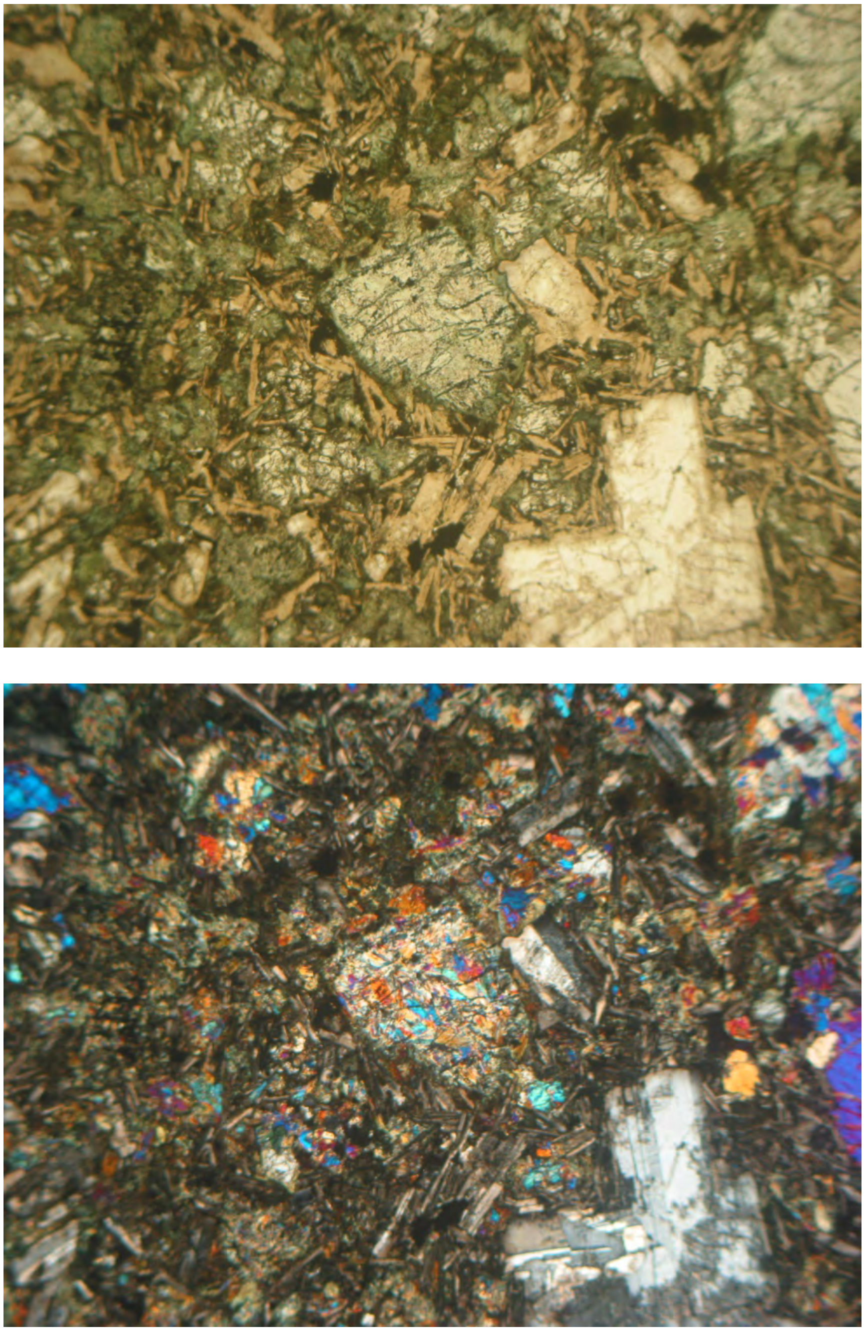
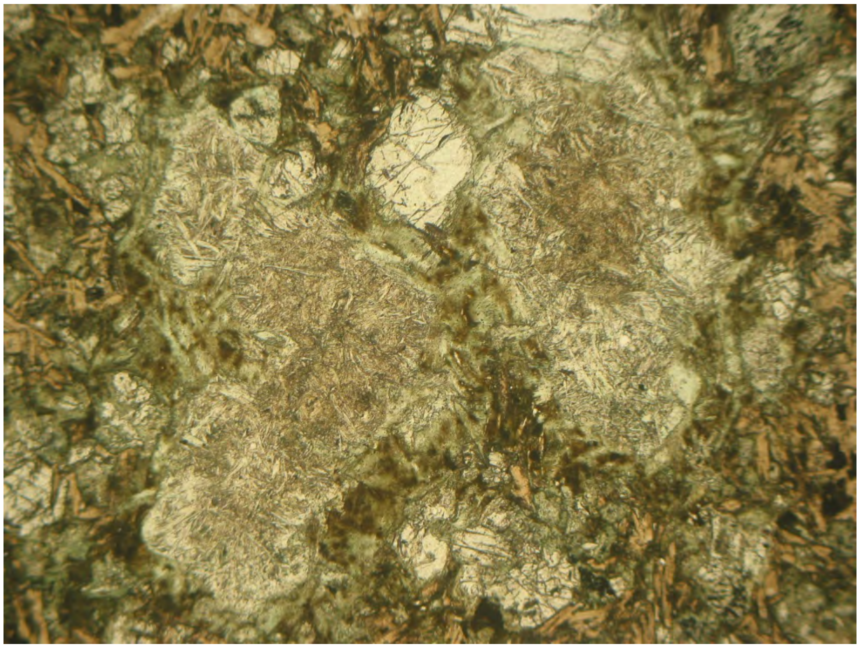


Figure 51. SAMPLE E207 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E207 PLATE 4 – Angular domain of birefringent blue-yellow tremolitic amphibole with fine-grained oxide material, central to the image . The angular shape and overall aspect suggests that this feature was originally an olivine grain.



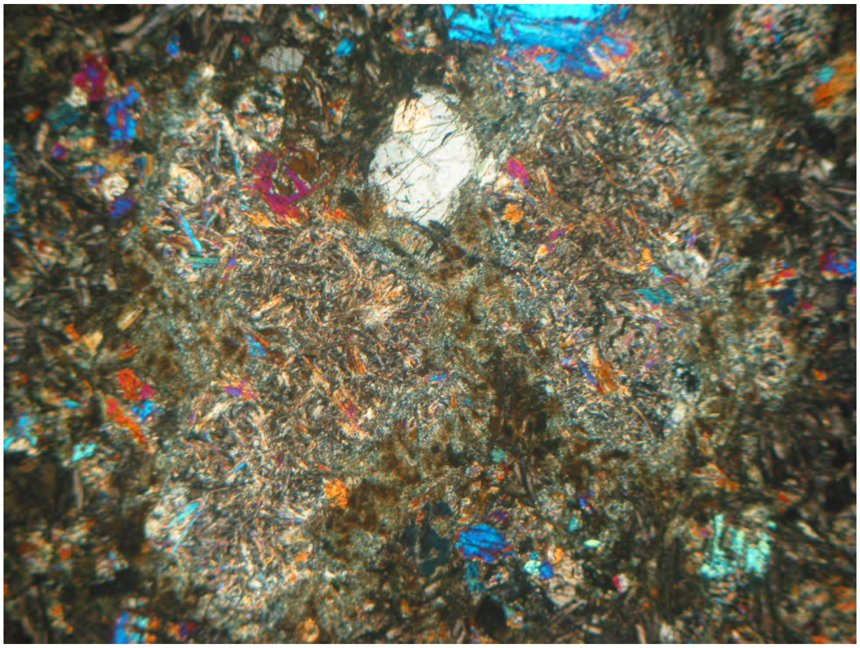
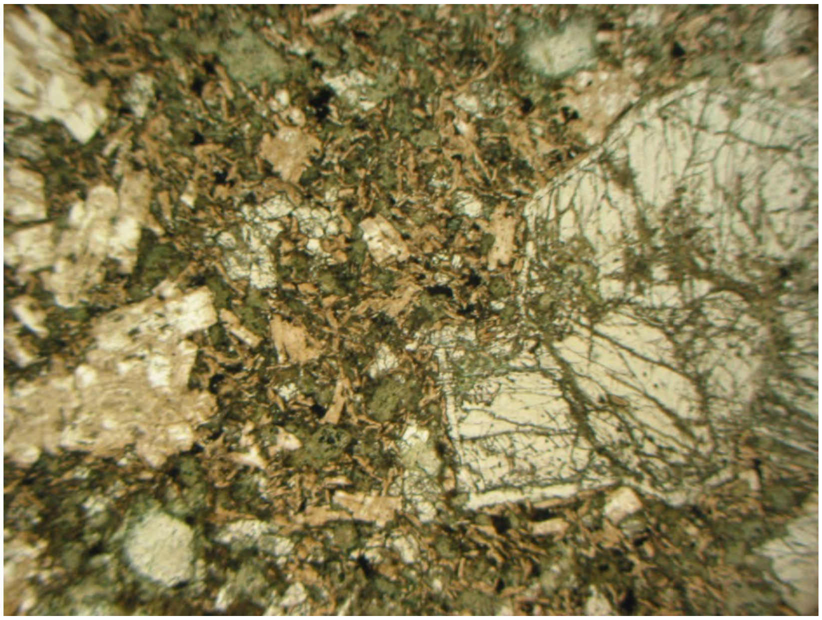


Figure 52. SAMPLE E207 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E207 PLATE 5 – Two adjacent linear domains of extremely fine-grained colourless tremolitic amphibole, possible altered lithic fragments but likely sites of pre-existing olivine grains that have been more extensively altered and reacted than the grain in Plate 4.

- **Porphyritic clinopyroxene, olivine? and plagioclase diabase dike**



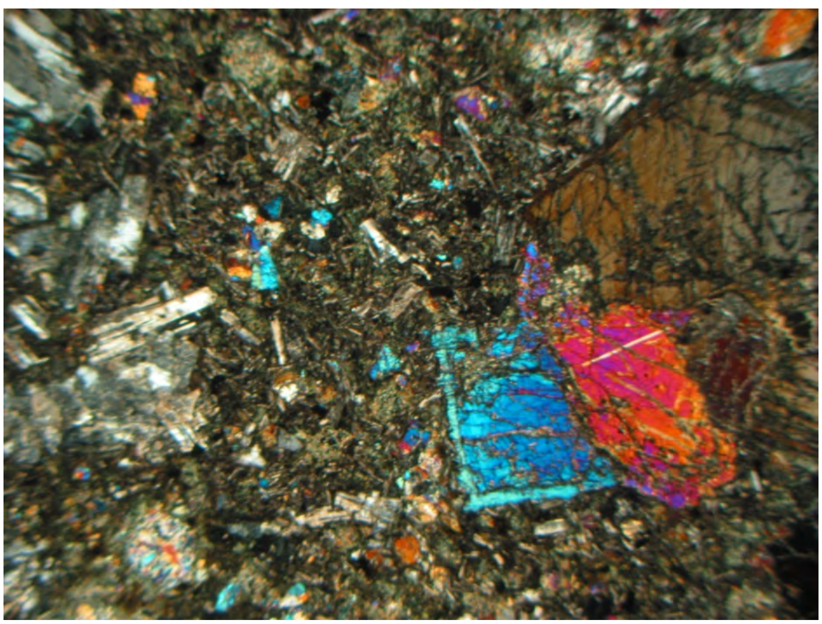
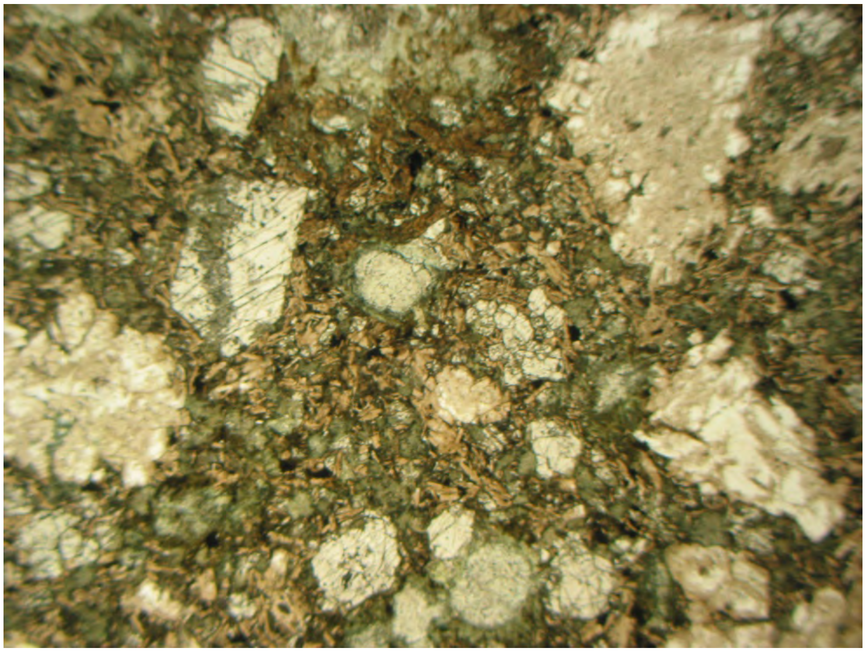


Figure 53. SAMPLE E208 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E208 PLATE 1 – Coarse phenocrystal aggregate of twinned clinopyroxene and multigranular clots of twinned plagioclase within groundmass of smaller clinopyroxene, extensively replaced by amphibole and minute tabular plagioclase. Note that the plagioclase grains have a brown colour due to oxidation of their original iron content.



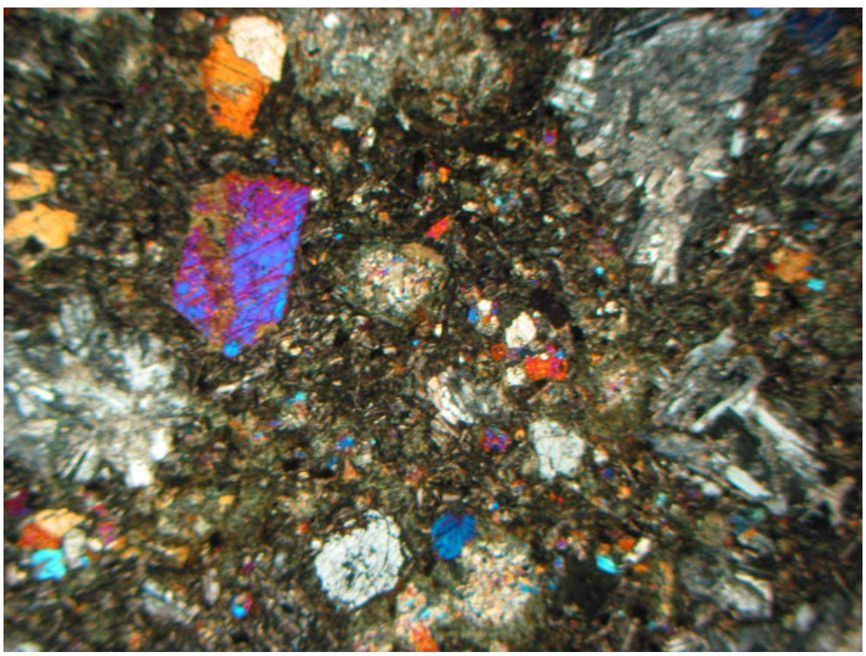


Figure 54. SAMPLE E208 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E208 PLATE 2 – Coarse phenocrysts of twinned clinopyroxene and centrosymmetric clots of tremolitic amphibole and grains of plagioclase feldspar. Observe gradation in grain size of clinopyroxene and plagioclase into finer-grained clinopyroxene, amphibole and plagioclase in the groundmass. The plagioclase content of the sample approaches 60 % by volume.

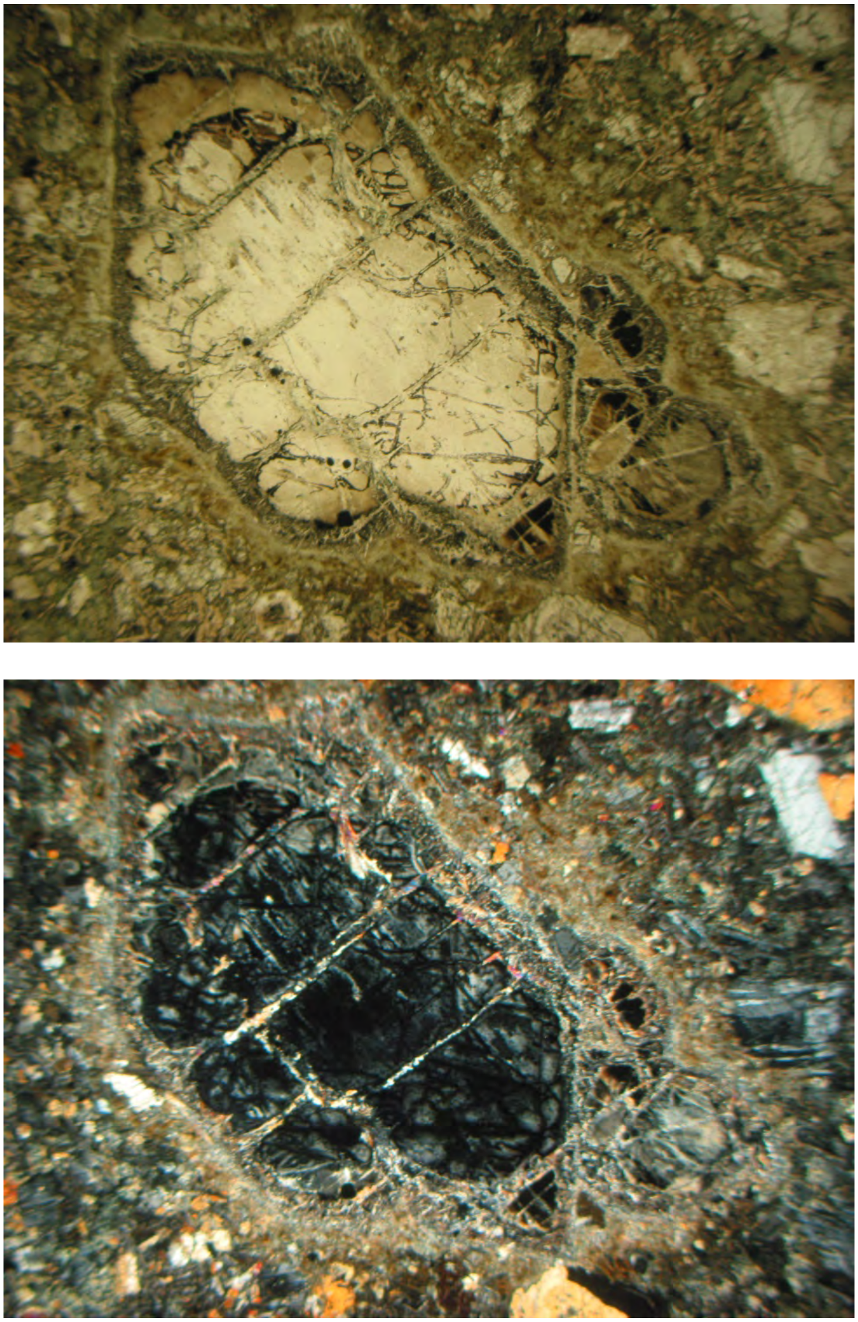


Figure 55. SAMPLE E208 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E208 PLATE 3 – Excellent example of an idiomorphic, doubly-terminated olivine phenocryst preserved by a central region of serpentine surrounding on its circumference by concentric zone of extremely fine-grained, quite magnesian mica, phlogopite-biotite solid solution, 12.59 wt% FeO and 20.85 wt% MgO. There is a concentration of minute grains of magnesian clinopyroxene at the interface between the magnesian mica and the mineral s of the host groundmass..

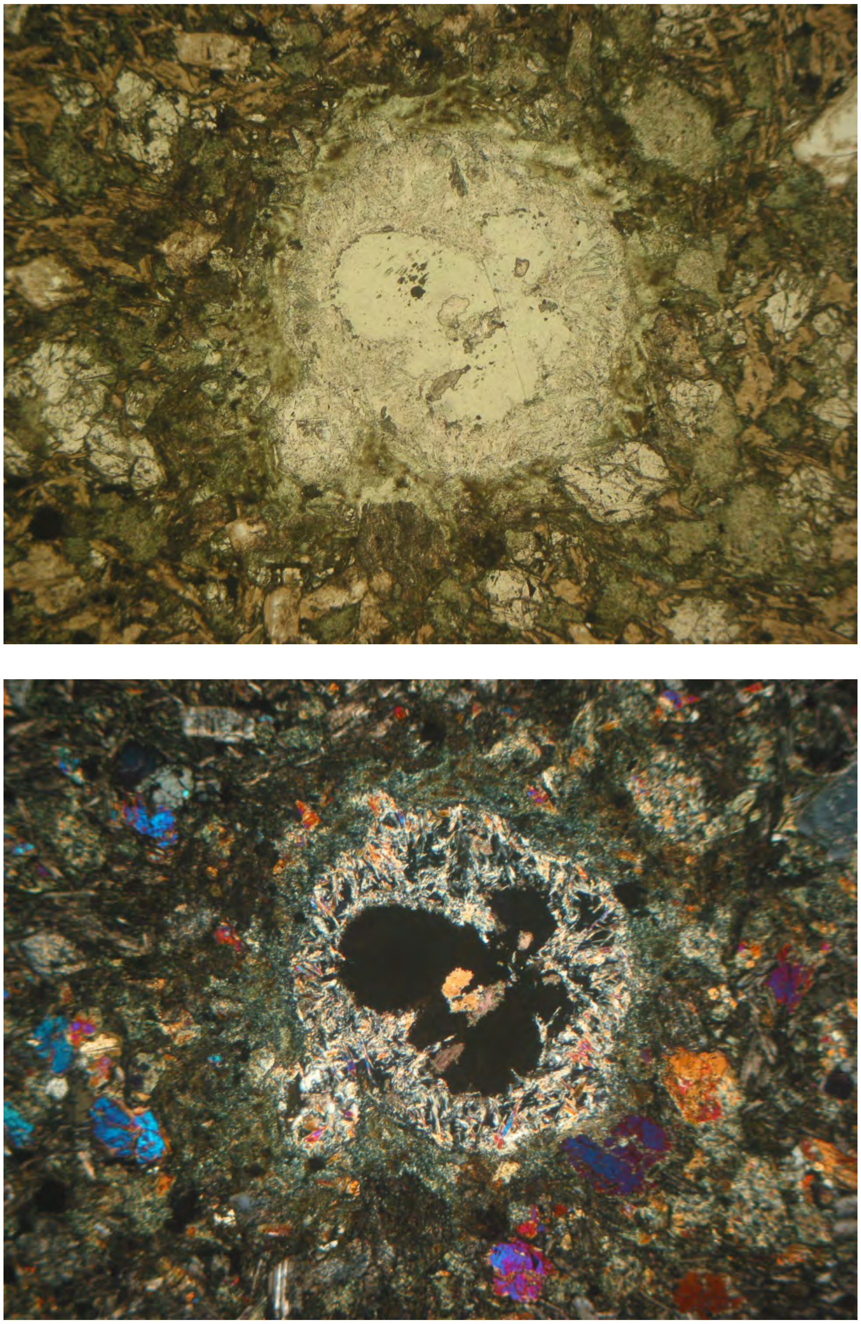


Figure 56. SAMPLE E208 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E208 PLATE 4 – Site of pre-existing olivine now replaced by a central region of serpentine surrounded by a concentric outer zone of tremolitic amphibole. The central serpentine, presumably after olivine, is quite iron-rich with 18.57 wt% FeO and 21.07 wt% FeO. The amphibole enclosing the serpentine is also similarly enriched in iron with 10.99 wt% FeO and 16.88 wt% MgO.

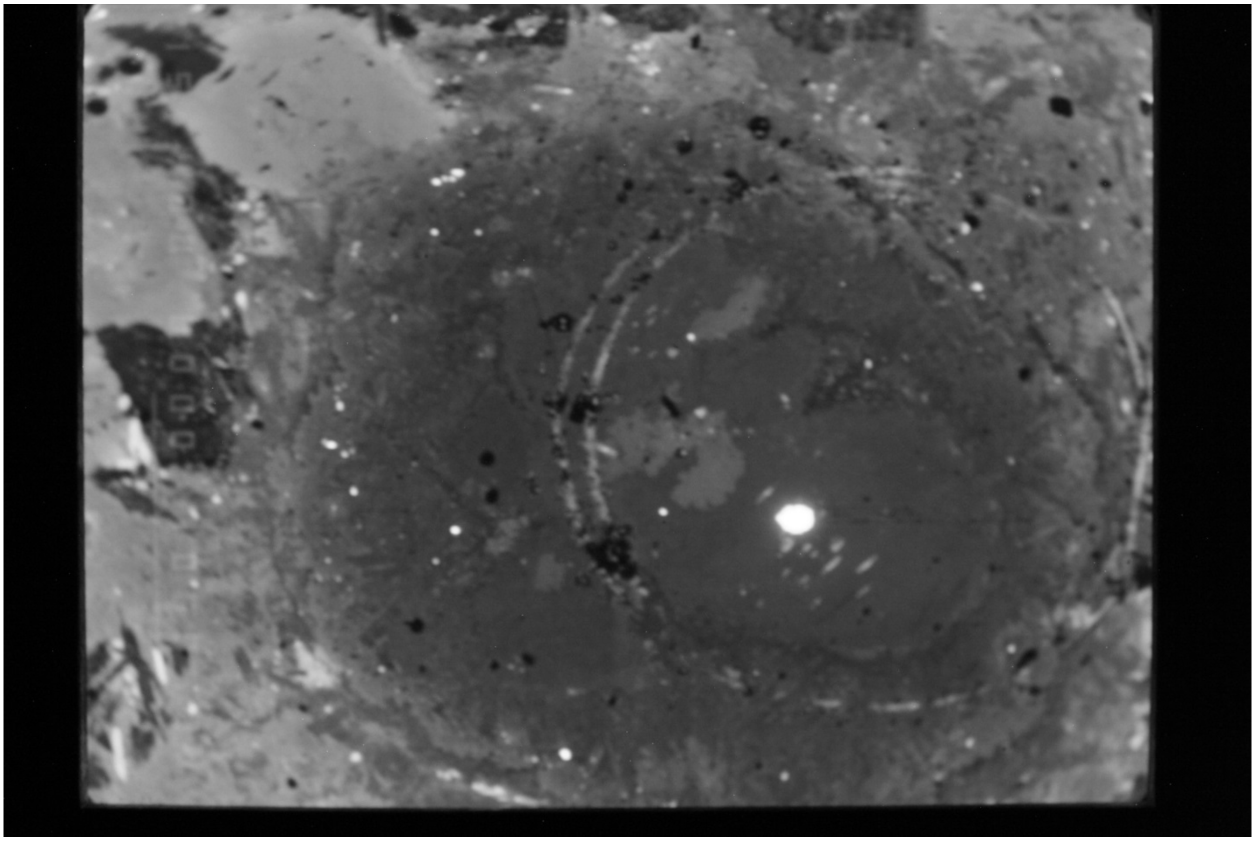


Figure 57. SAMPLE E208 PLATE 5 (X-Ray backscatter image).

SAMPLE E208 PLATE 5 – BSE image of altered olivine shown in Plate 4. Small bright grains of calcite are present within extensive central region of serpentine entirely surrounded by a zone of acicular tremolitic amphibole and outer magnesian clinopyroxene.

- **Porphyritic clinopyroxene, olivine and plagioclase diabase dike**

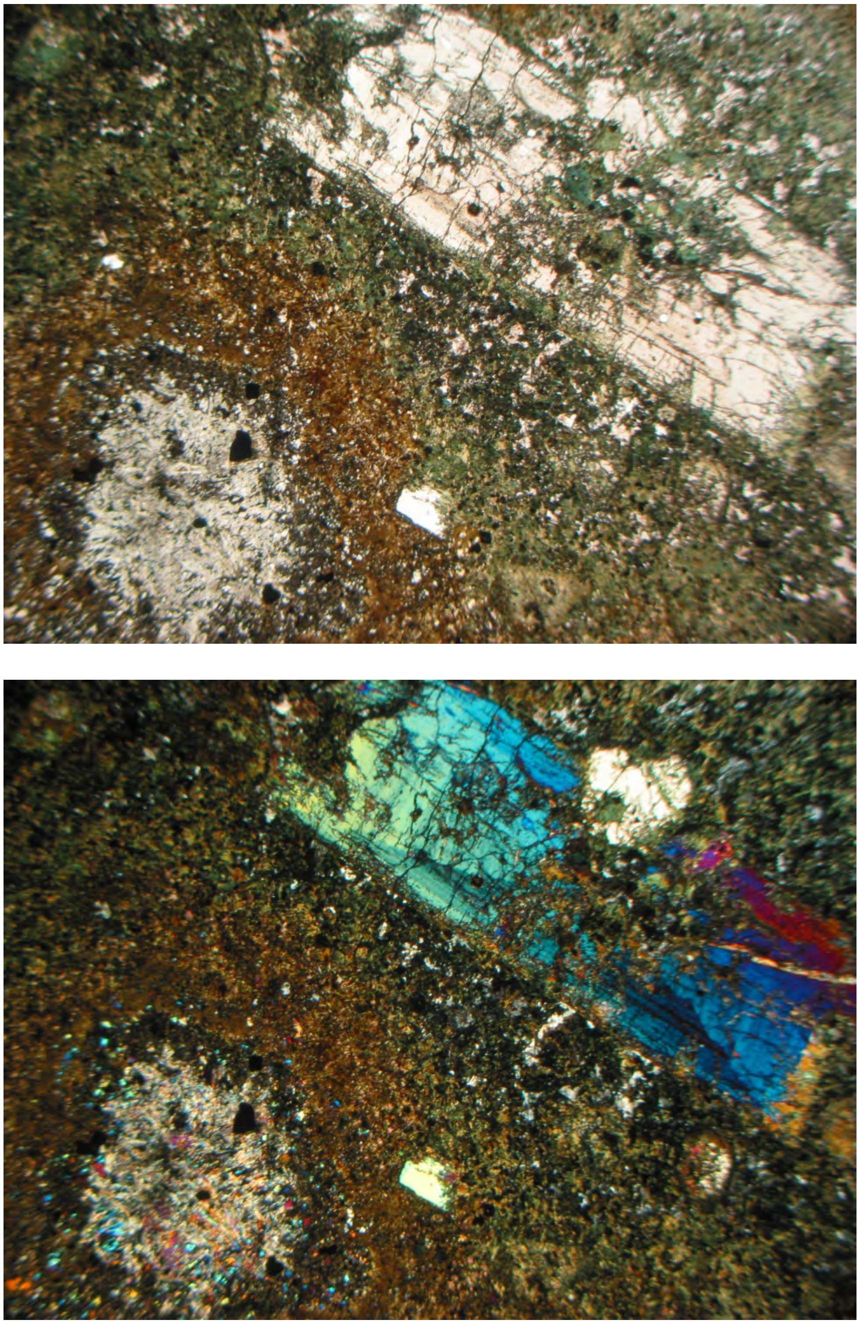
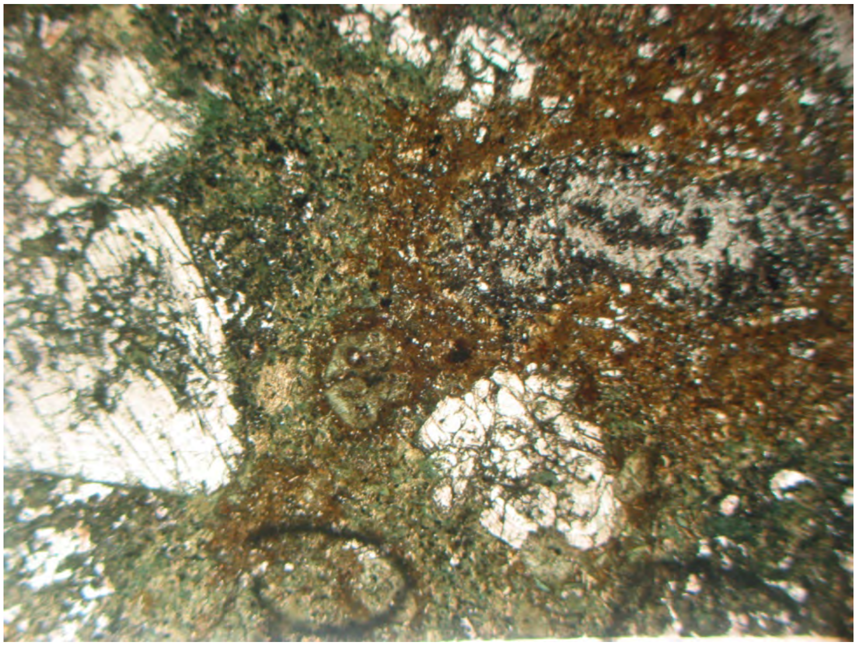


Figure 58. SAMPLE E209 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E209 PLATE 1 – Coarse clinopyroxene phenocryst with spectacular hour-glass twinning apparent in x-polar image and an interesting region of multigranular birefringent circular domain of tremolitic amphibole that is surrounded by an extensive coronal reaction zone of brown mica, phlogopite-biotite solid solution with intermediate iron-magnesium ratio. The angular outline of the mineral, originally present within this domain, is most apparent in the X-polar image. This rounded domain formerly olivine is now comprised by minute grains of magnesian clinopyroxene enclosed within needles of tremolitic amphibole. The angular opaque grain within this clinopyroxene-tremolite domain is chromite containing 42.92 wt% Cr_2O_3 and an extraordinary content of zinc at 1.77 wt% ZnO. This chromite with elevated zinc may also be an integral component of the reaction of the original olivine to diopside and tremolite. There is no textural evidence former presence of olivine in this sample although a small original plagioclase component may have been consumed by a reaction to amphibole.



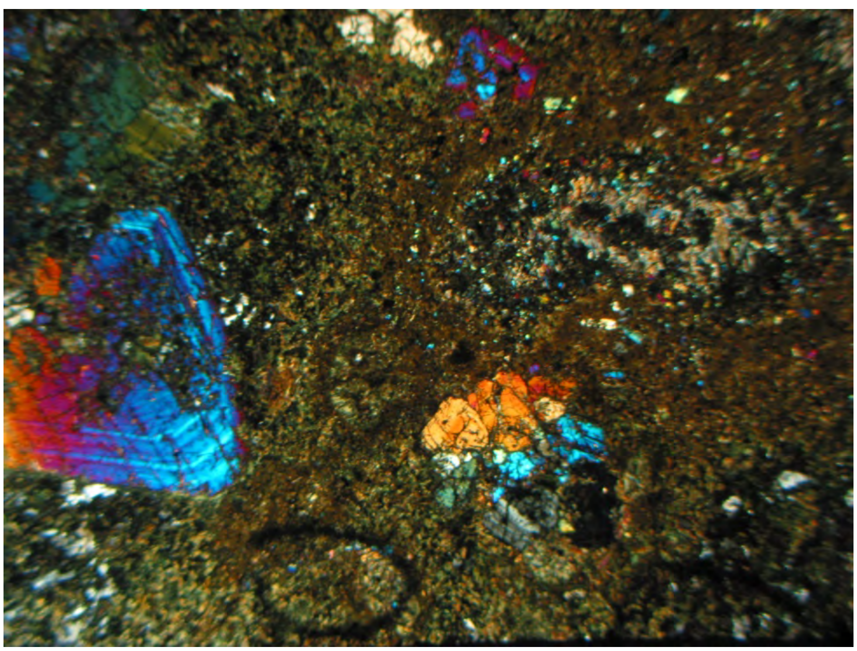


Figure 59. SAMPLE E209 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E209 PLATE 2 – Large grain of concentrically-zoned clinopyroxene and adjacent multigranular clinopyroxene clot in fine-grained groundmass with extensive green amphibole replacing original clinopyroxene and extensive regions of brown biotite. Observe ill-defined region at top right image, bright grains, central, are remnants of magnesian clinopyroxene replaced by tremolitic amphibole enclosed within an outer ring of brown phlogopite-biotite solid-solution mica.

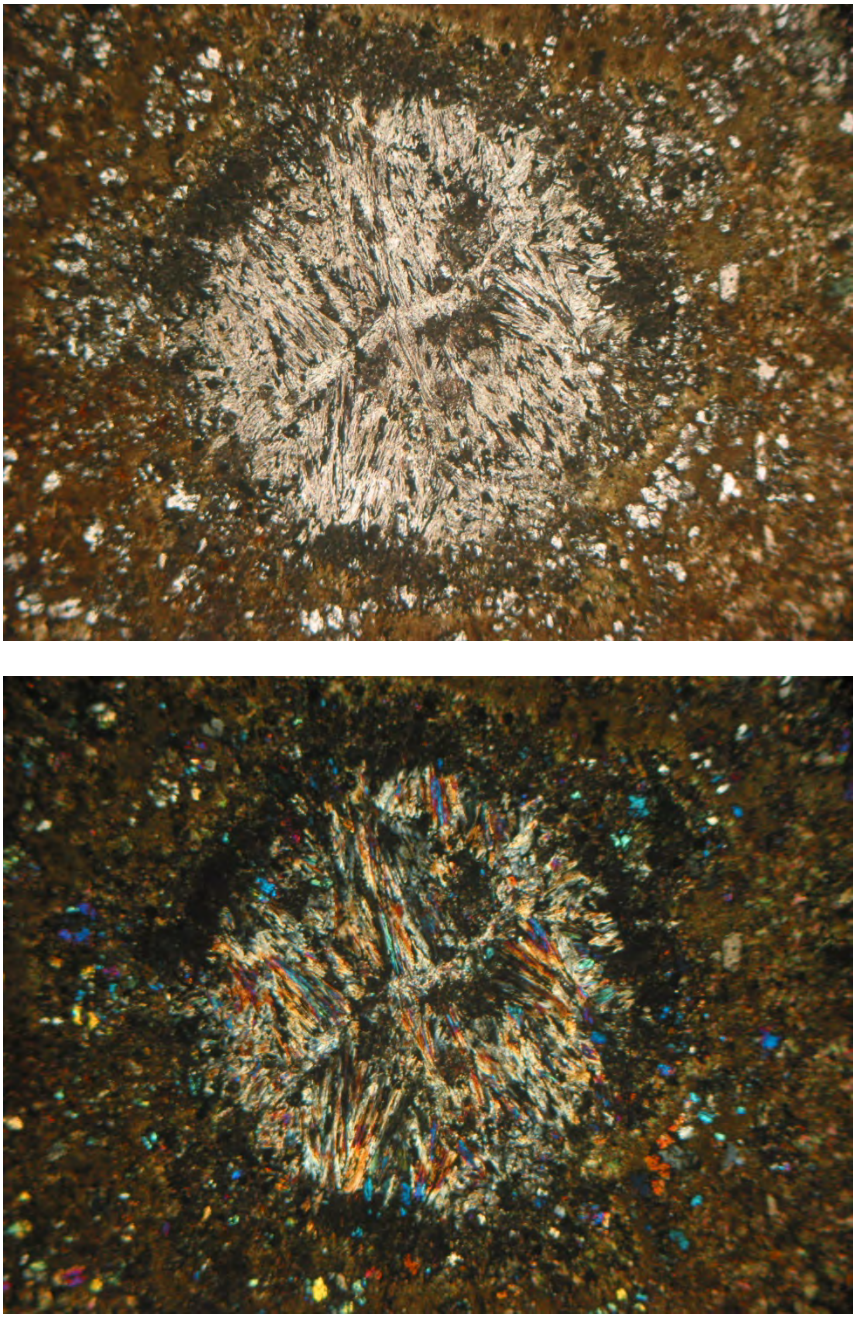


Figure 60. SAMPLE E209 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E209 PLATE 3 – Example of circular domain of acicular interpenetrating amphibole grains surrounded by an extensive region of extremely fine-grained brown biotite. There are minute grains of magnesian clinopyroxene within the more extensive regions of radiating, tremolitic amphibole. The origin of this feature is not obvious. One possibility is that this domain might be a site of specific domain of ingress of retrogressive solutions into the original rock volume of this sample. Another probable interpretation is that this circular domain was originally olivine.

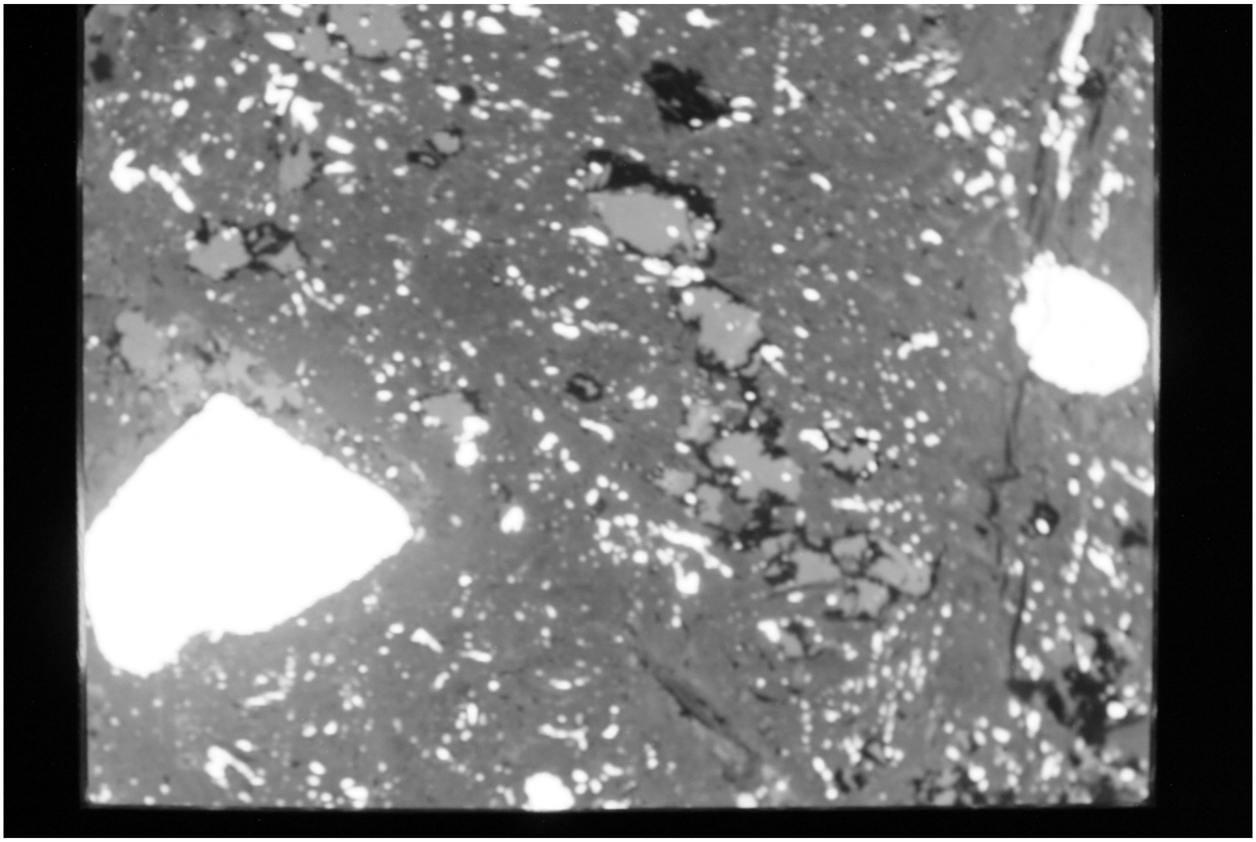


Figure 61. SAMPLE E209 PLATE 4 (X-Ray backscatter image).

SAMPLE E209 PLATE 4 – Small remnants of magnesian clinopyroxene within extensive tremolitic amphibole at centre of rounded domain likely after olivine.

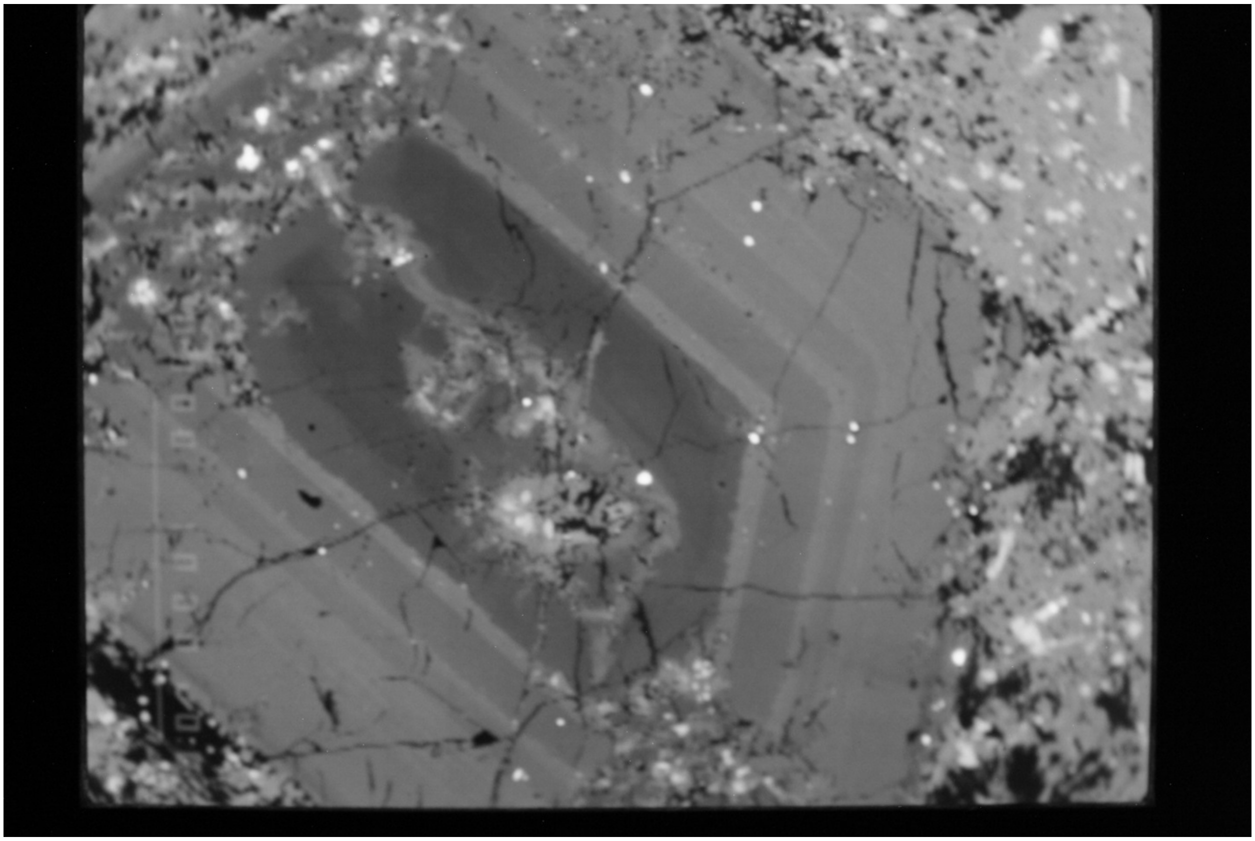


Figure 62. SAMPLE E209 PLATE 5 (X-Ray backscatter image).

Sample E209 PLATE 5 – Magnesian clinopyroxene with strong core to marginal compositional zonation. Darkest, central growth zones contain elevated chrome approaching 1.19 wt% Cr_2O_3.

- **Porphyritic clinopyroxene and olivine ultramafic pyroxenite dike**

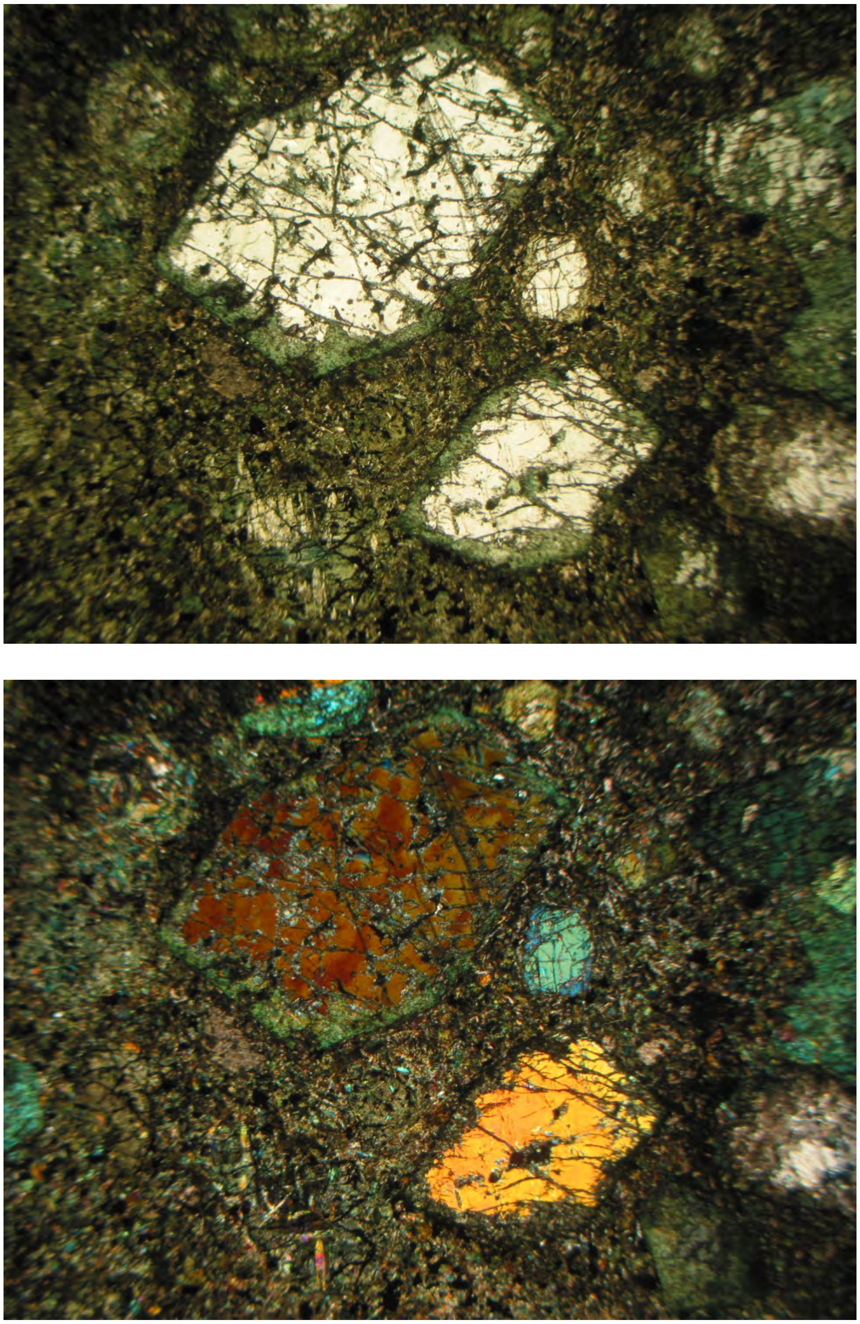


Figure 63. SAMPLE E210 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 1 – Coarse compositionally-zoned diopsidic clinopyroxene phenocrysts within fine-grained groundmass consisting of minute linear plagioclase laths and needles, 5%, within extensive regions of deep green hornblende.

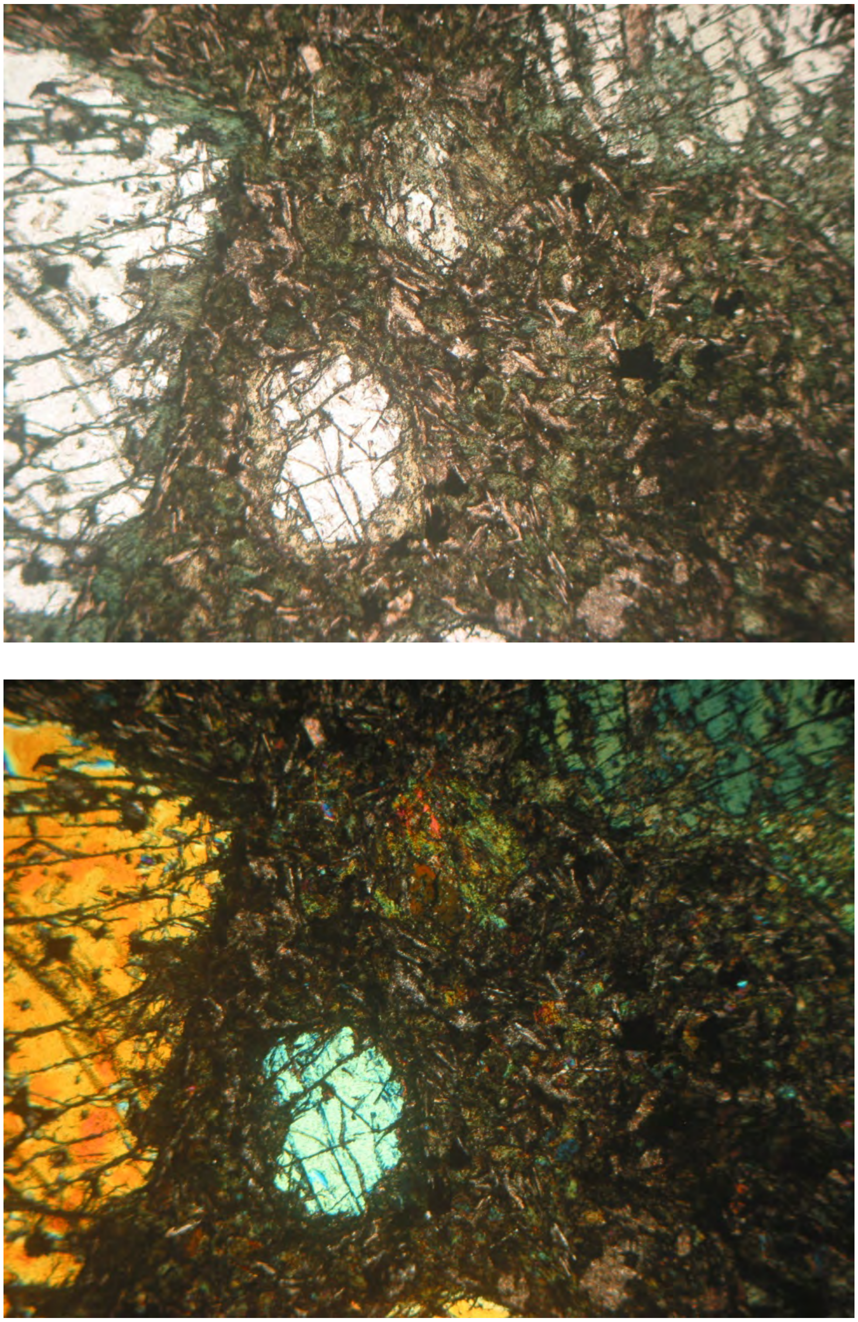


Figure 64. SAMPLE E210 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 2 – Typical region of groundmass, minute acicular plagioclase microlites, altered to a brown colour due to oxidation of original iron content within regions and discrete grains of deep green amphibole.

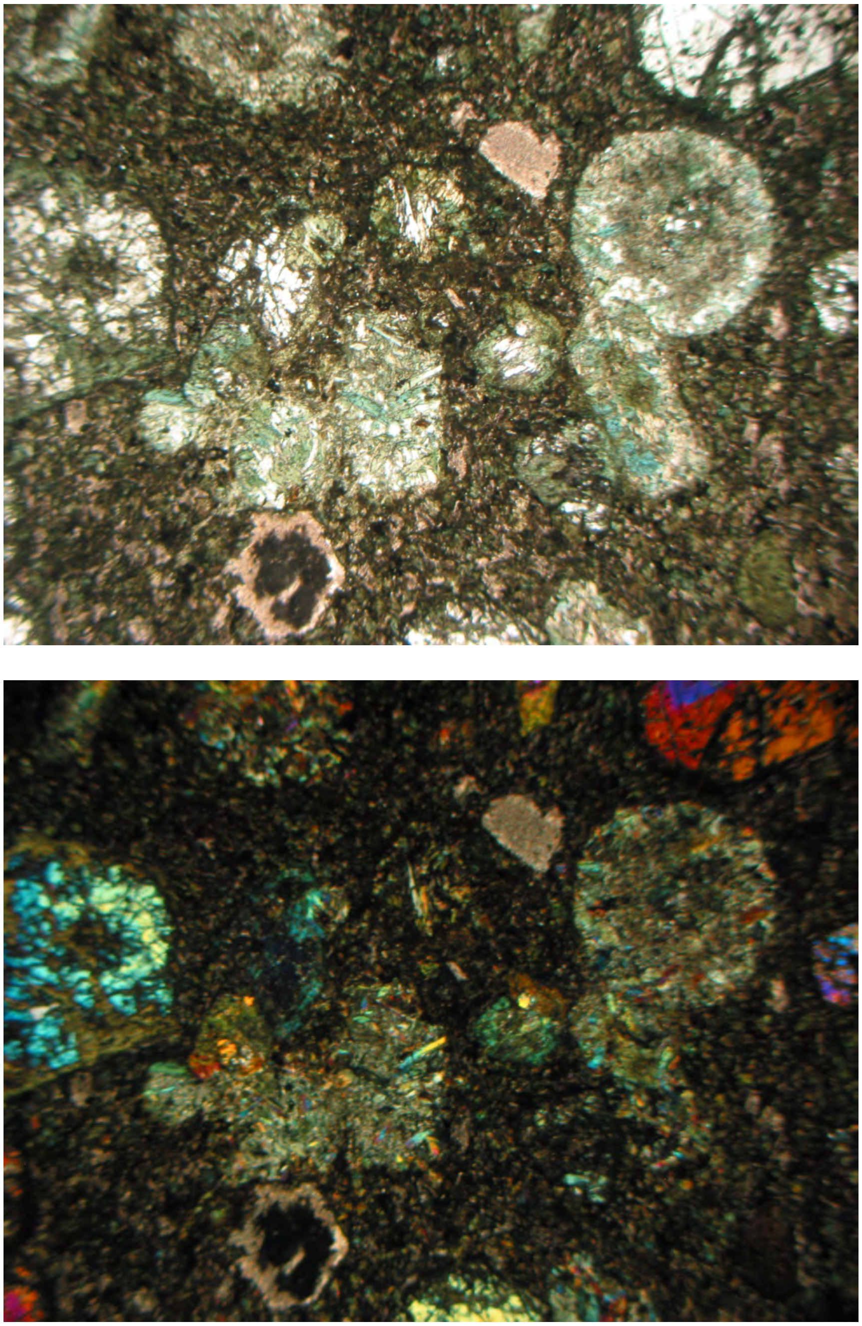


Figure 65. SAMPLE E210 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 3 – Concentration of Interesting angular and importantly, entirely circular regions and domains that alternate with the coarse clinopyroxene phenocrysts in the sample along with coarse occasional smaller altered phenocrysts of plagioclase feldspar.

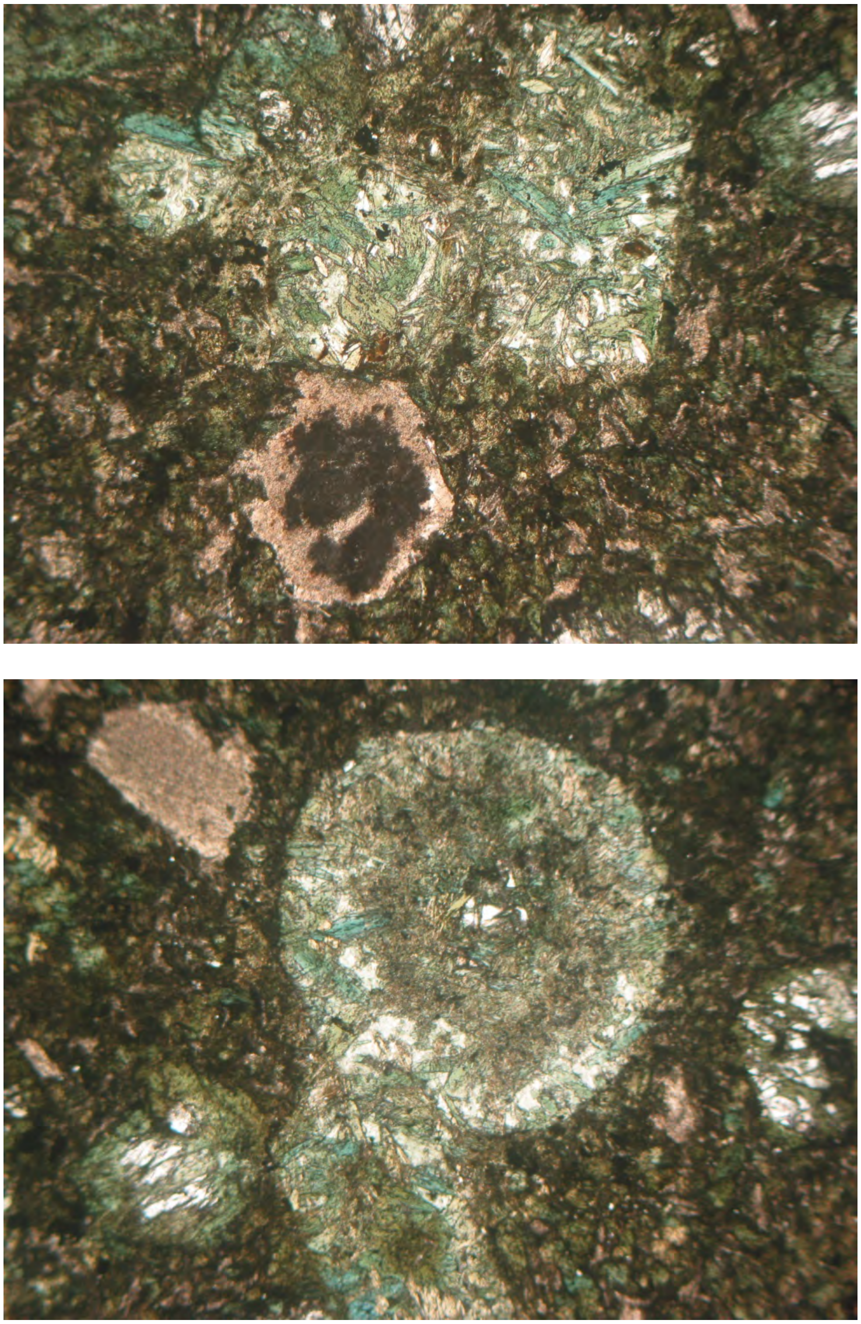


Figure 66. SAMPLE E210 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 4 – Angular and circular regions with internally-consistent mineralogy and texture involving plates and laths of hornblendic amphibole with interstitial regions commonly chlorite but on occasion coarse calcite. The angular fragments might be interpreted to be sites of a pre-existing mineral but the origin of the numerous circular features is more problematic.

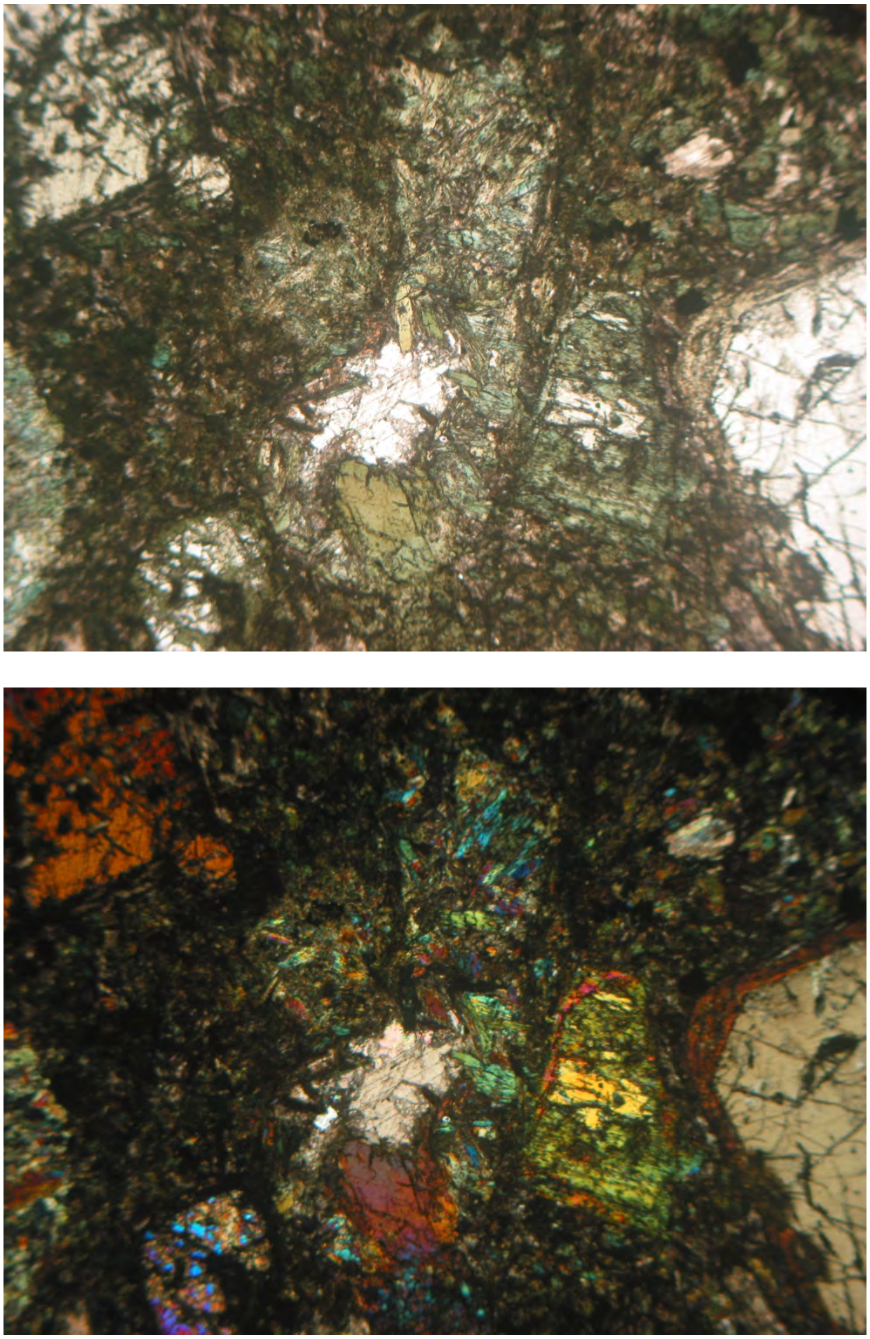
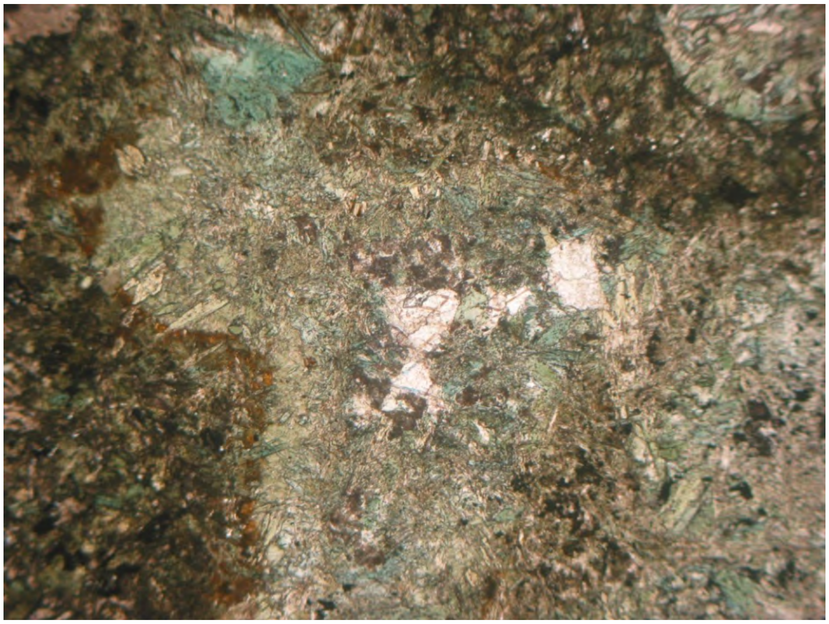


Figure 67. SAMPLE E210 PLATE 5 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 5 – Rounded linear fragment comprised by coarse deep green hornblendic amphibole penetrating into an internal region of calcite. The interpretation is this particular feature and the angular and circular domains with the same mineralogy and texture are actually lithic fragments of mafic material, possibly a mafic intrusion that was metamorphosed to amphibolite facies metamorphic rank.



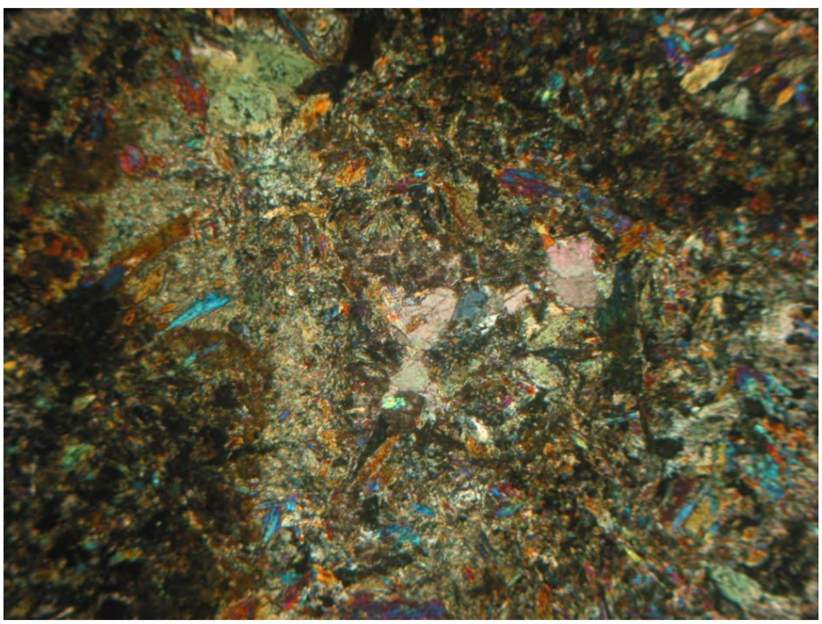
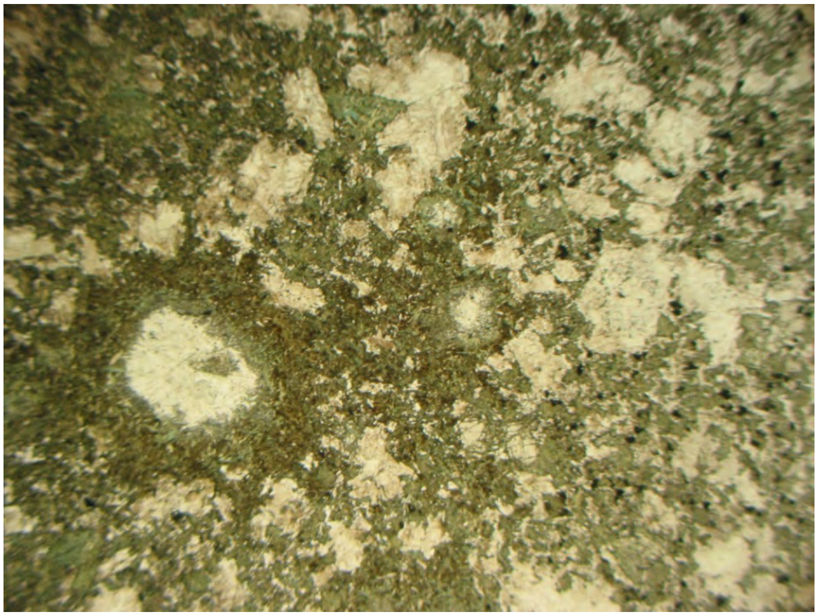


Figure 68. SAMPLE E210 PLATE 6 (plane-polarized light and cross-polarized light).

SAMPLE E210 PLATE 6 – Coarse lithic fragment with an internally-consistent texture involving a region of coarse-grained calcite situated within coarse intersecting amphibole host.

- **Porphyritic clinopyroxene and olivine pyroxenite dike with numerous angular and rounded fragments of metamorphosed mafic material at amphibolite facies metamorphic rank.**



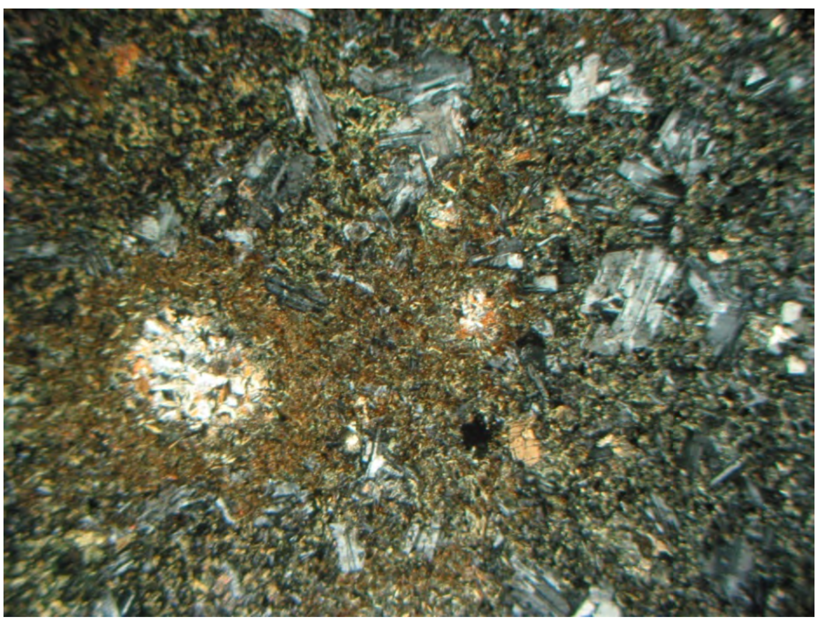


Figure 69. SAMPLE E211 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E211 PLATE 1 – Relatively coarse multigranular clots of polysynthetically-twined plagioclase feldspar and coarse, rounded concentrically-zoned domains with central coarse regions of interpenetrating amphibole surrounded by an extensive marginal zone of ultrafine-grained phlogopite-biotite ss. These features may represent the sites of a pre-existing mineral possibly olivine. These features are all set within a groundmass of twinned plagioclase and clinopyroxene partly replaced by amphibole. Original plagioclase content was near 65%. This sample does not contain clinopyroxene phenocrysts.

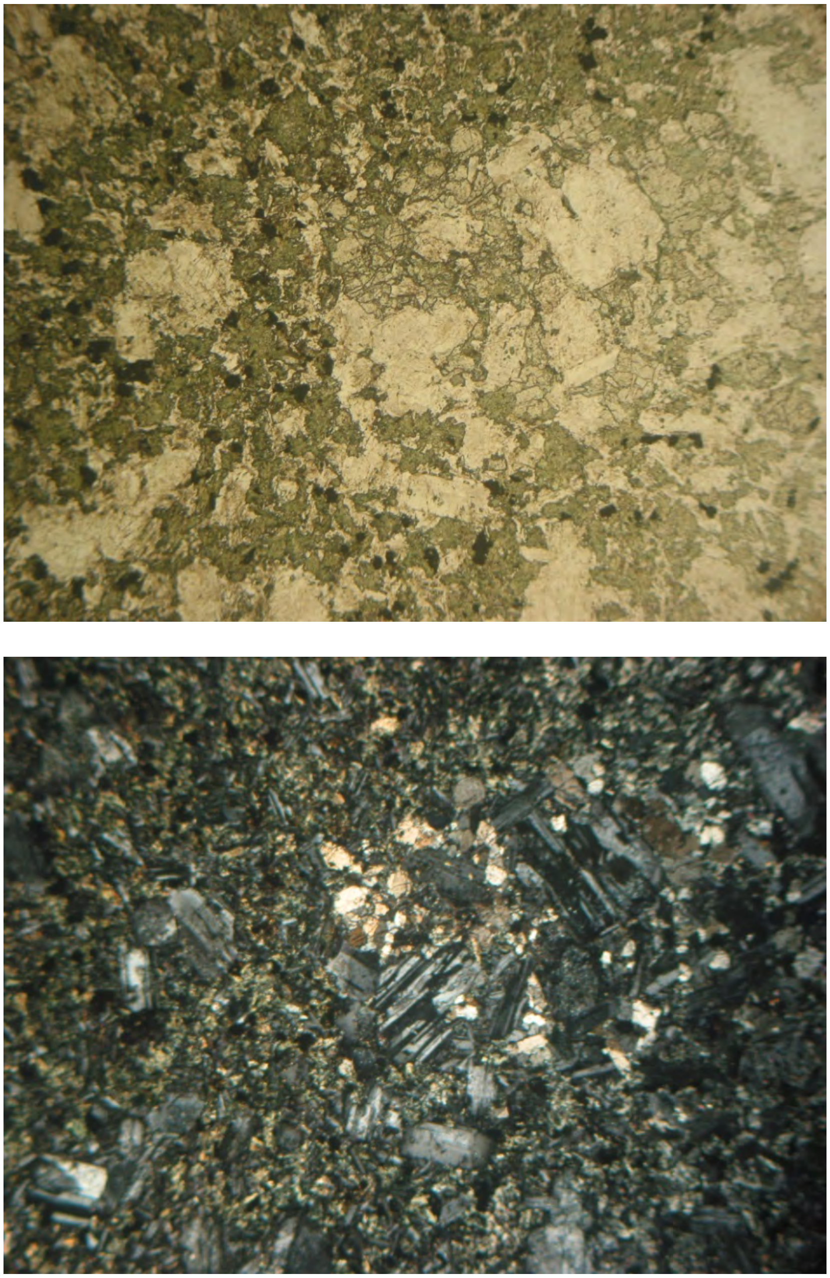


Figure 70. SAMPLE E211 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E211 PLATE 2 – Relatively coarse clot comprised by polysynthetically-twinned plagioclase within enclosing groundmass comprised by minute tabular plagioclase and clinopyroxene partly replaced by amphibole.

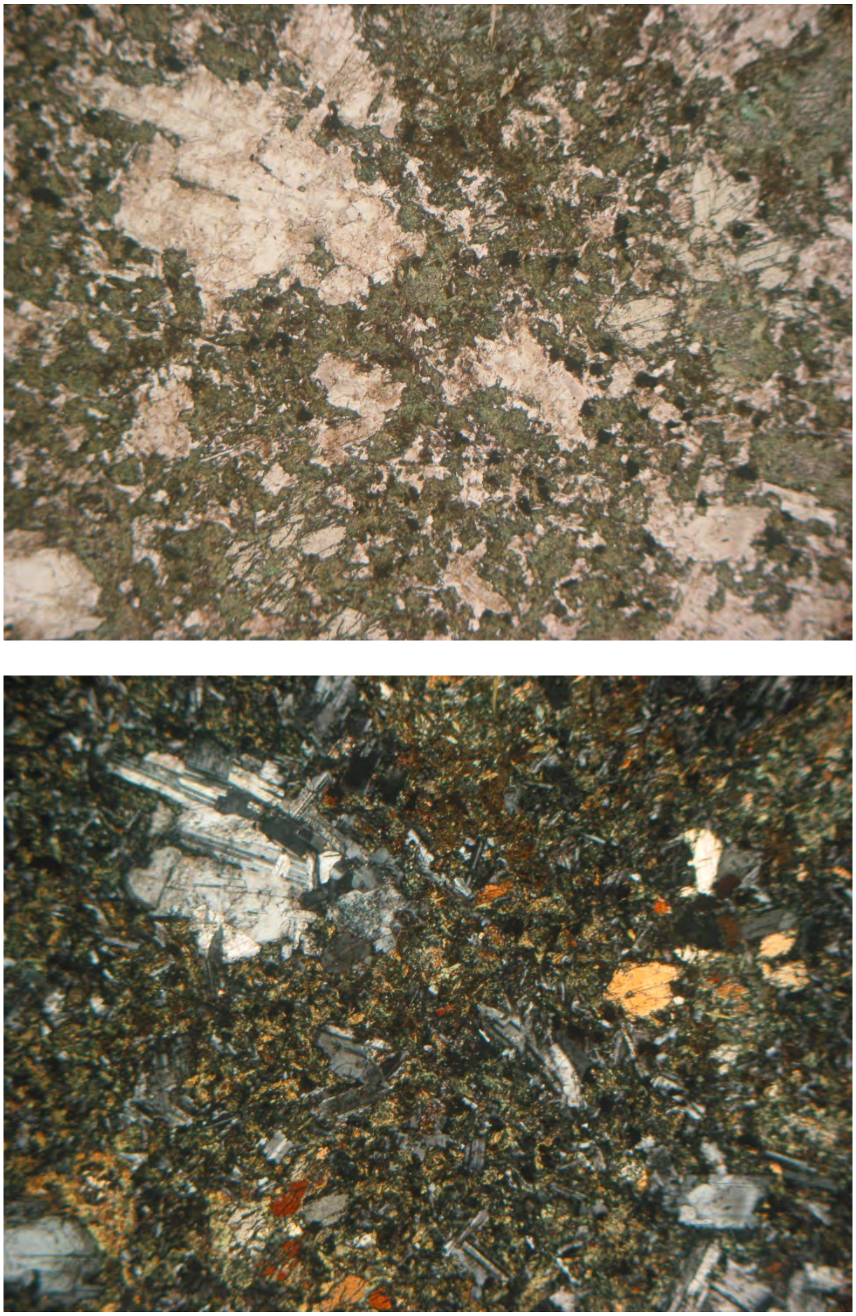


Figure 71. SAMPLE E211 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E211 PLATE 3 – Typical region of fine grained groundmass comprised by tabular plagioclase with decreasing grain size within predominantly fine-grained clinopyroxene largely replaced by blades of amphibole and chlorite, 5% ilmenite as oxide component.

- **Porphyritic plagioclase and olivine diabase dike**

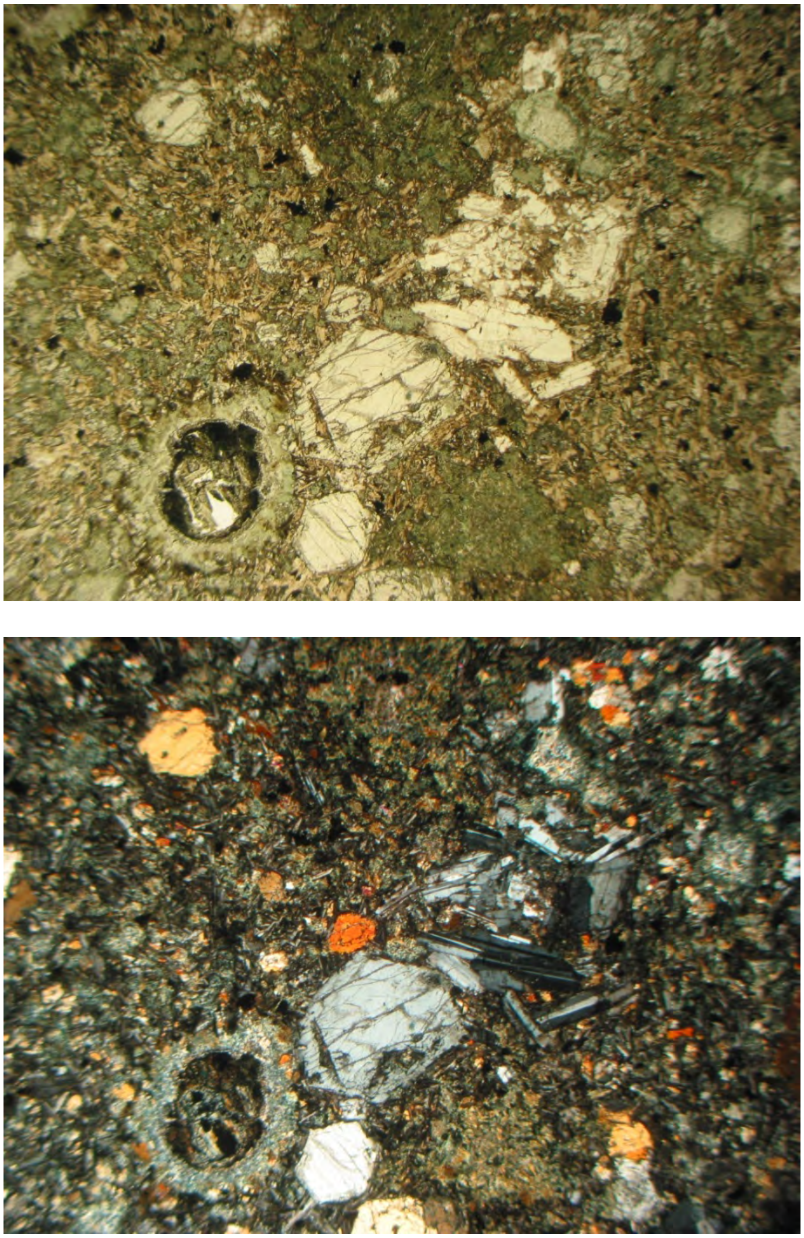
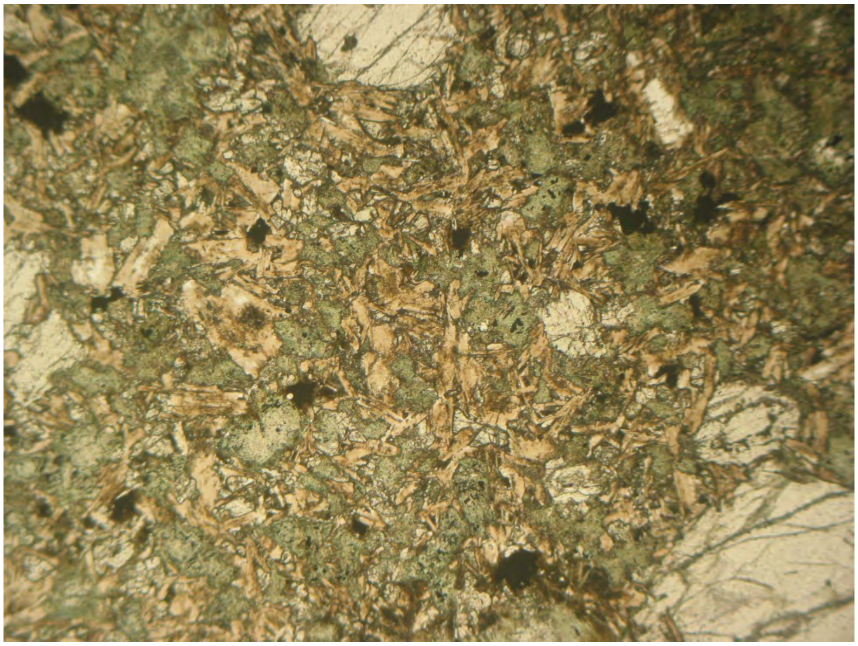


Figure 72. SAMPLE E212 PLATE 1 (plane-polarized light and cross-polarized light).

SAMPLE E212 PLATE 1 – Coarse phenocrysts of birefringent yellow clinopyroxene, multigranular clots of polysynthetic plagioclase set within a finer-grained groundmass of plagioclase and amphibole after clinopyroxene. Observe rounded concentric feature at lower left of image, interpreted to have originally have been primary olivine.



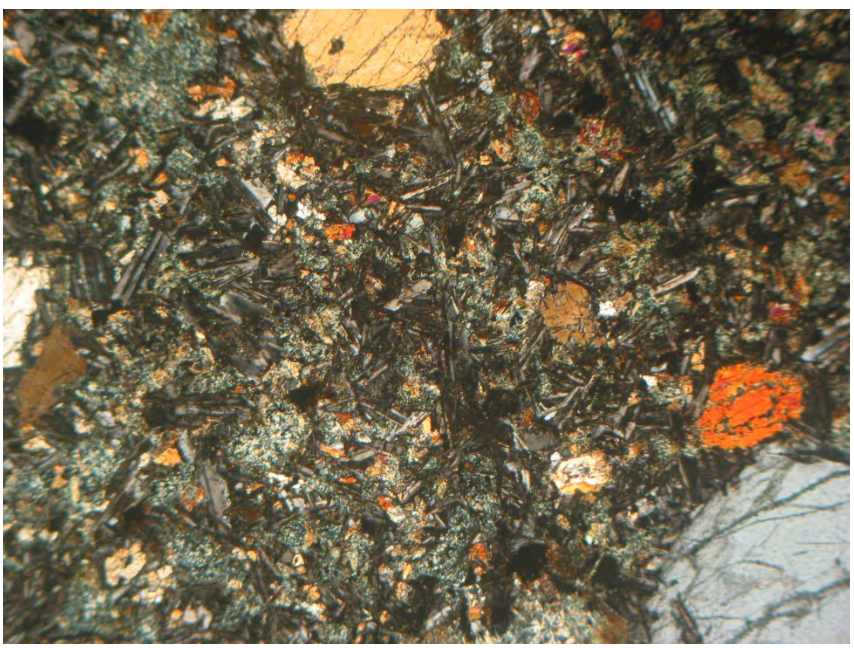


Figure 73. SAMPLE E212 PLATE 2 (plane-polarized light and cross-polarized light).

SAMPLE E212 PLATE 2 – Representative region of groundmass, acicular needles of plagioclase, altered brown, intergrown with fine-grained clinopyroxene now replaced by amphibole.

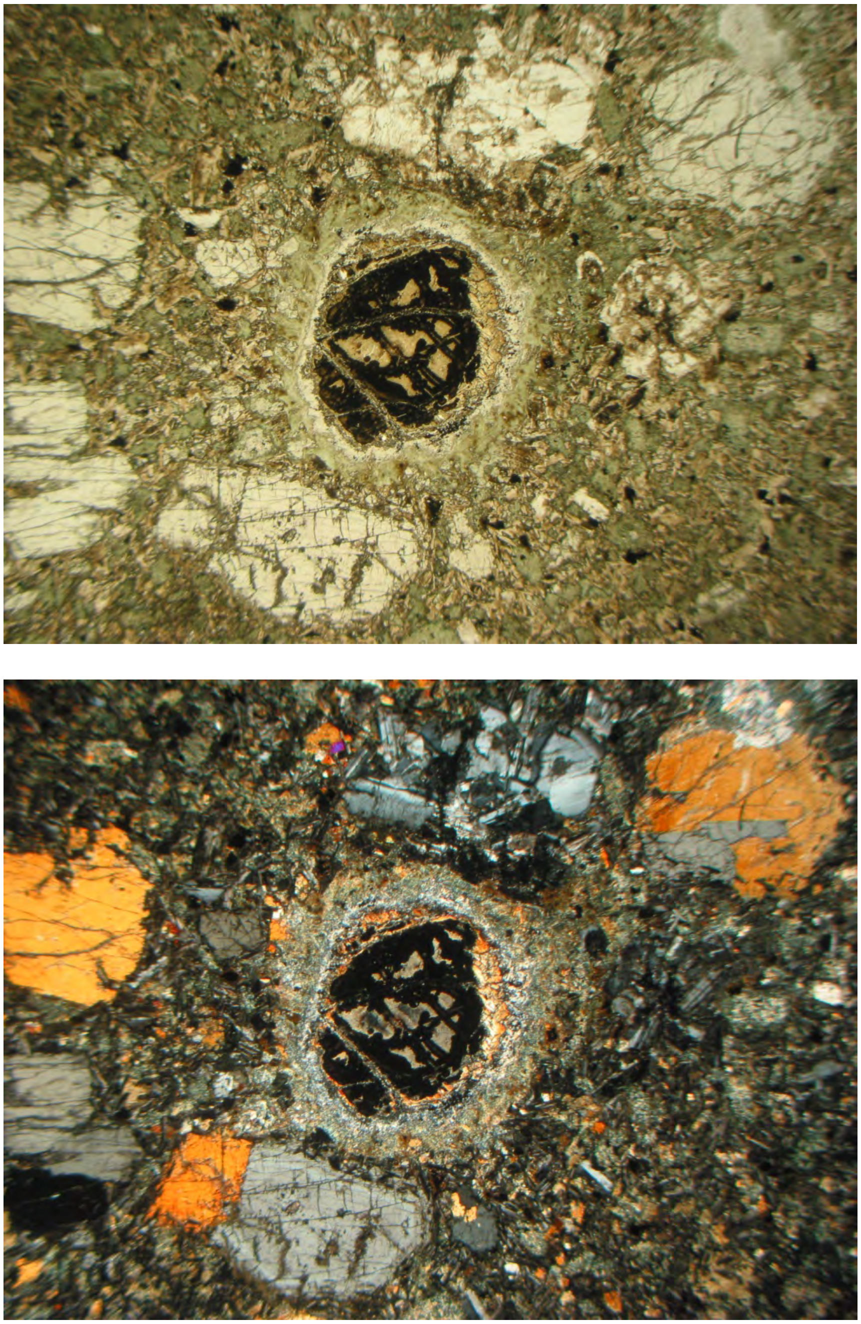


Figure 74. SAMPLE E212 PLATE 3 (plane-polarized light and cross-polarized light).

SAMPLE E212 PLATE 3 – Coarse phenocrysts of twinned birefringent yellow clinopyroxene, multigranular clot of polysynthetically-twinned plagioclase and a grain of probable olivine, now replaced by a concentric array of alteration phases within a fine-grained groundmass.

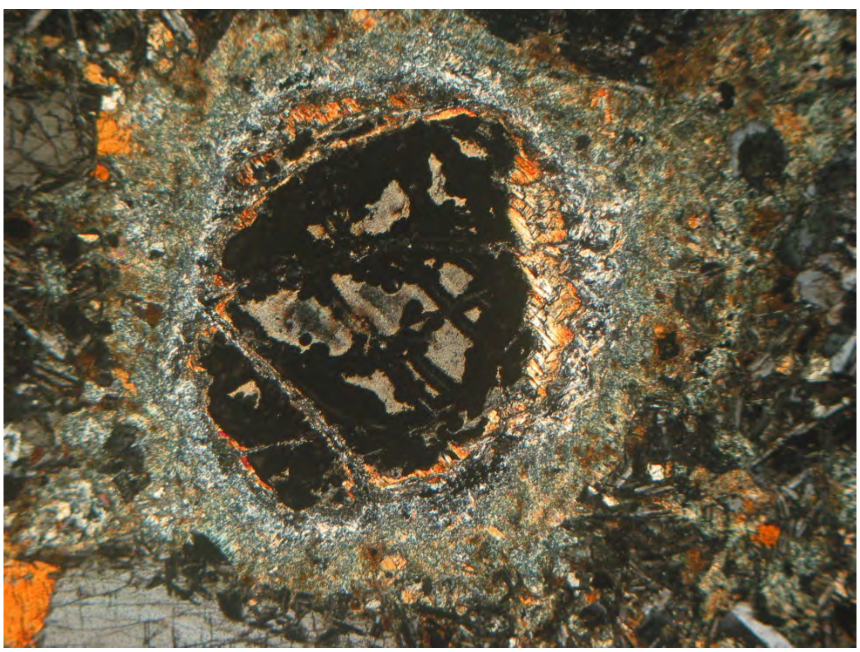


Figure 75. SAMPLE E212 PLATE 4 (plane-polarized light and cross-polarized light).

SAMPLE E212 PLATE 4 – Outline of pre-existing olivine phenocryst with central region of serpentine surrounded by a concentric distribution of diopside and tremolitic amphibole and other alteration mineral phases.

- **Porphyritic olivine, clinopyroxene and plagioclase diabase dike**

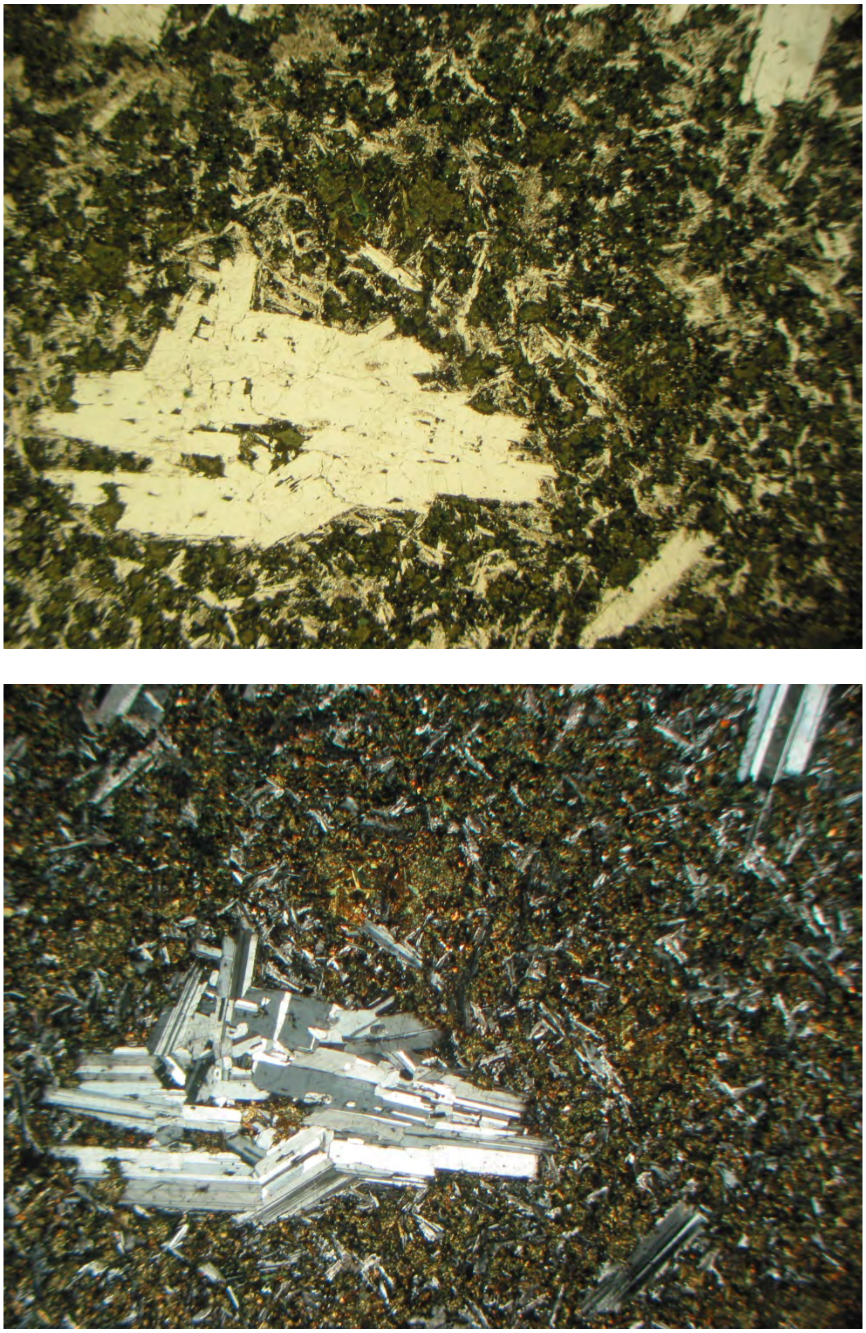


Figure 76. SAMPLE E213 PLATE 1 (plane-polarized light and cross-polarized light)

SAMPLE E213 PLATE 1 – Cluster of coarse-grained polysynthetically-twinned plagioclase phenocrysts within finer-grained groundmass consisting of smaller twinned plagioclase and amphibole replacing clinopyroxene.

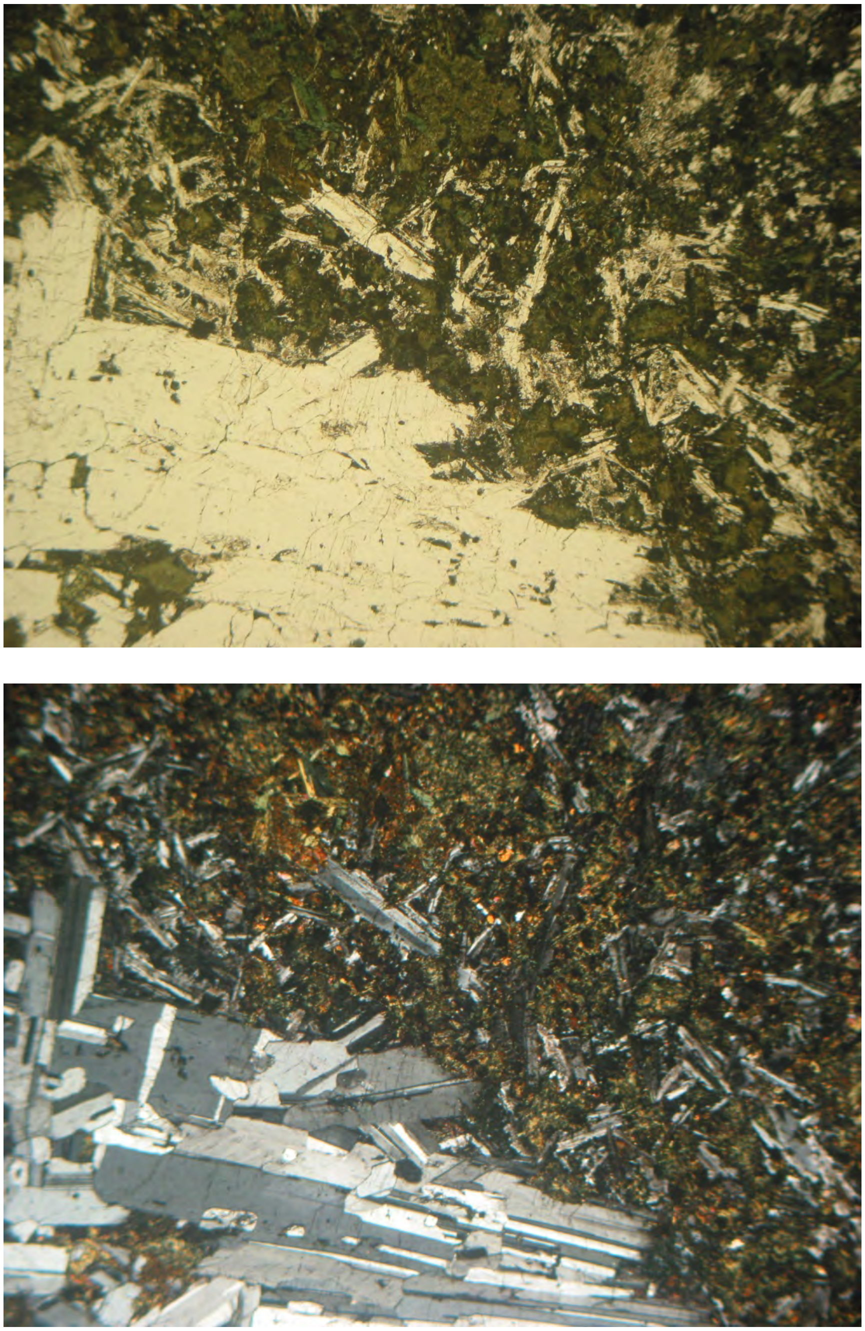


Figure 77. SAMPLE E213 PLATE 2 (plane-polarized light and cross-polarized light)

SAMPLE E213 PLATE 2 – Coarse plagioclase clot within a groundmass consisting of irregular domains of colour-zoned pale to deep green amphibole replacing plagioclase intermixed with smaller polysynthetically-twinned plagioclase laths.

- **Porphyritic plagioclase diabase dike**

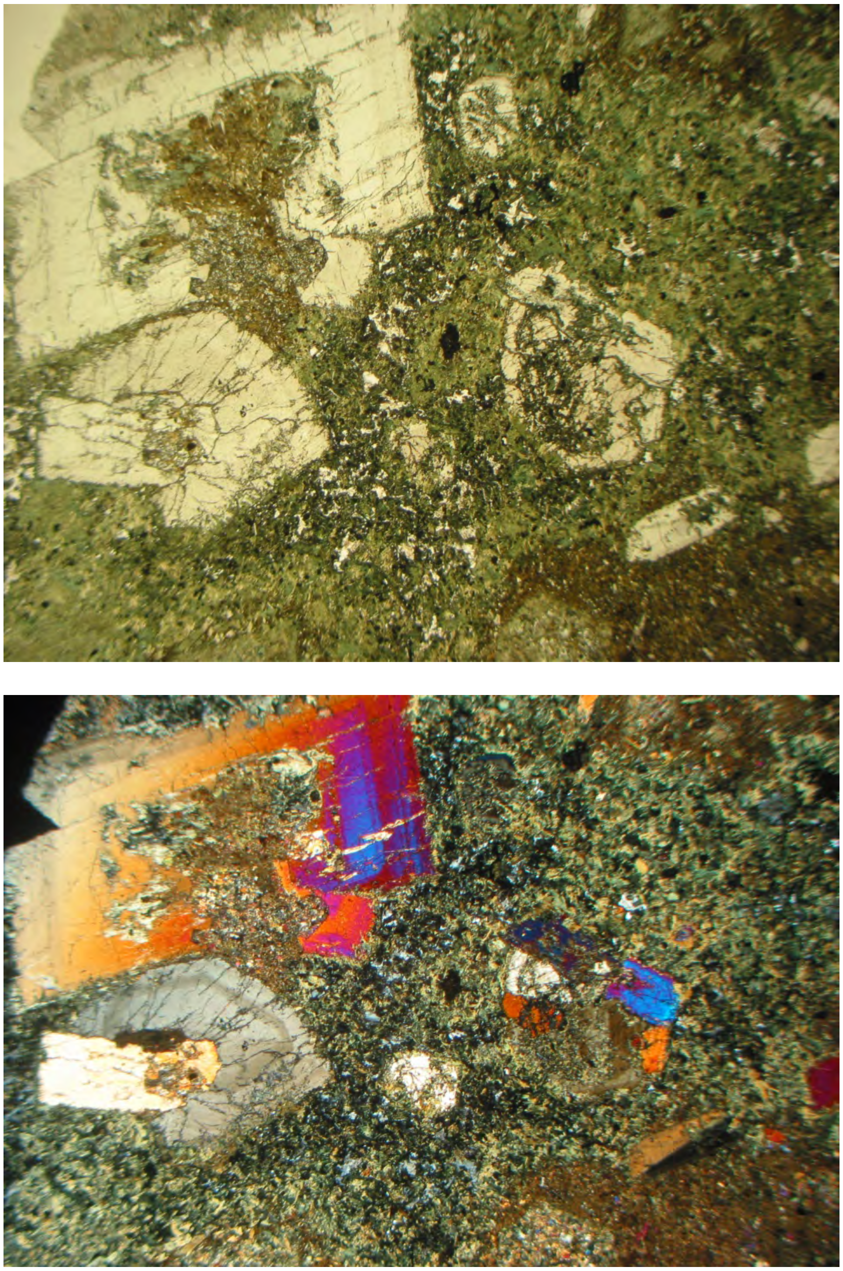
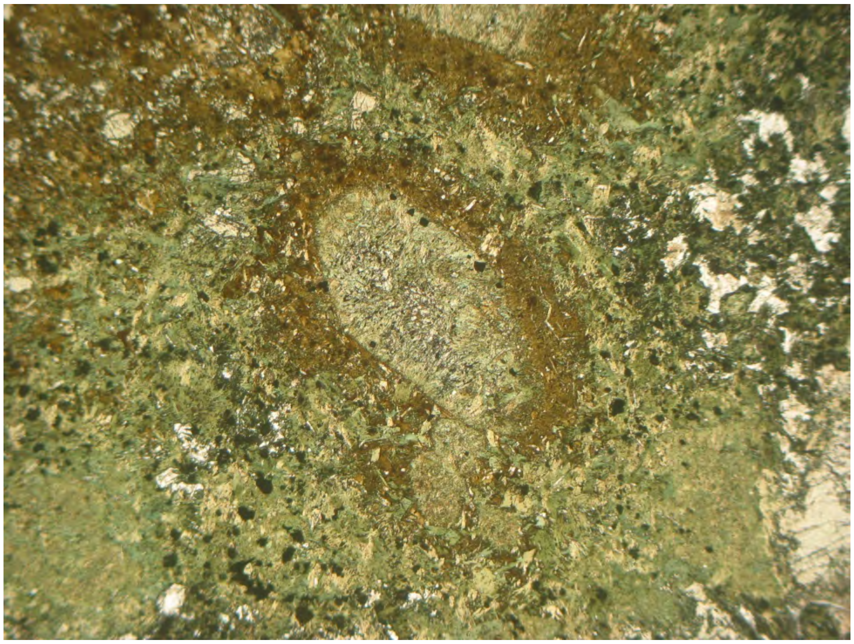


Figure 78. SAMPLE E214 PLATE 1 (plane-polarized light and cross-polarized light)

SAMPLE E214 PLATE 1: – Coarse compositionally-zoned birefringent red-blue clinopyroxene phenocrysts within a fine-grained groundmass, now amphibole replacing pre-existing clinopyroxene. Observe smaller multigranular twinned clinopyroxene grain, right central, and abundant brown biotite concentration with amphibole, lower right.



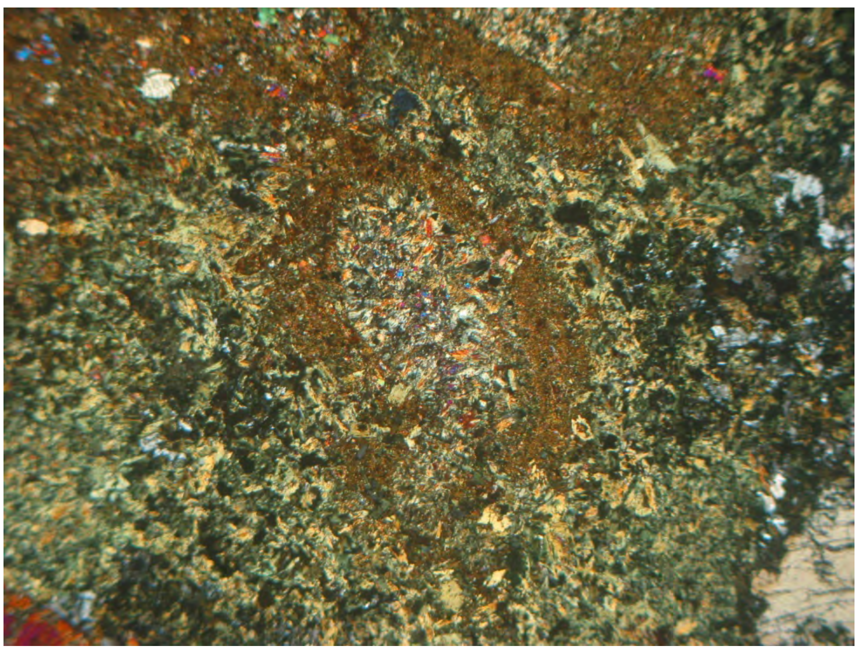


Figure 79. SAMPLE E214 PLATE 2 (plane-polarized light and cross-polarized light)

SAMPLE E214 PLATE 2 – Idiomorphic outline of pre-existing mineral, likely magnesian olivine. Central regions, formerly olivine, are now birefringent multigranular, magnesian clinopyroxene. There is a consistent mineral zonation outward from the central zone of multigranular clinopyroxene, with an innermost zone of magnesian tremolitic amphibole through a zone of phlogopite-biotite solid solution gradational into an outer zone of recrystallized Na-K hornblendic amphibole. The interpretation is that this interesting mineral zonation developed within a retrogressive fluid-rich metasomatic environment. The light grey interstitial grains are calcic plagioclase gradational to albite. It would appear that the original sample had a minimal primary feldspar content less than 5% by volume.

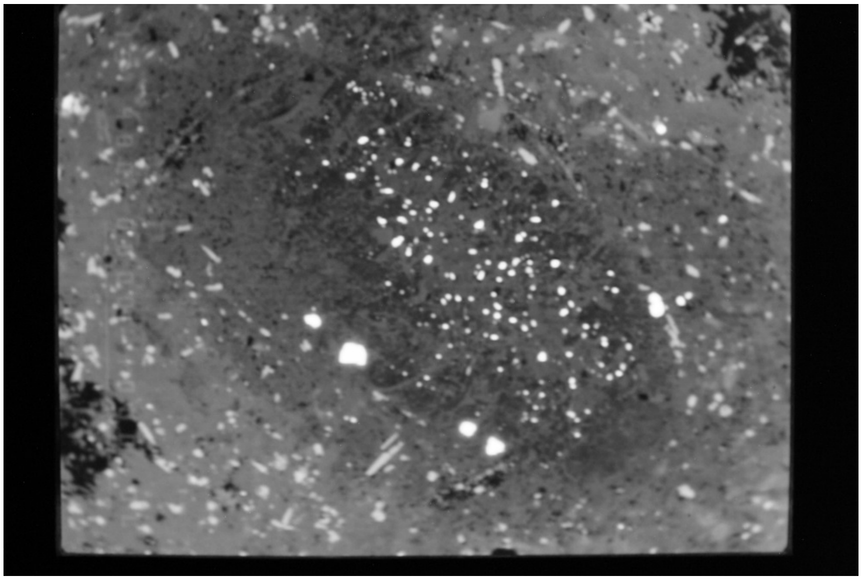


Figure 80. SAMPLE E214 PLATE 3 (X-Ray backscatter image).

SAMPLE E214 PLATE 3 – BSE image of former olivine, now with central regions of magnesian clinopyroxene and minute bright Ti- magnetite surrounded by phlogopite-biotite ss. and Na-K amphibole.

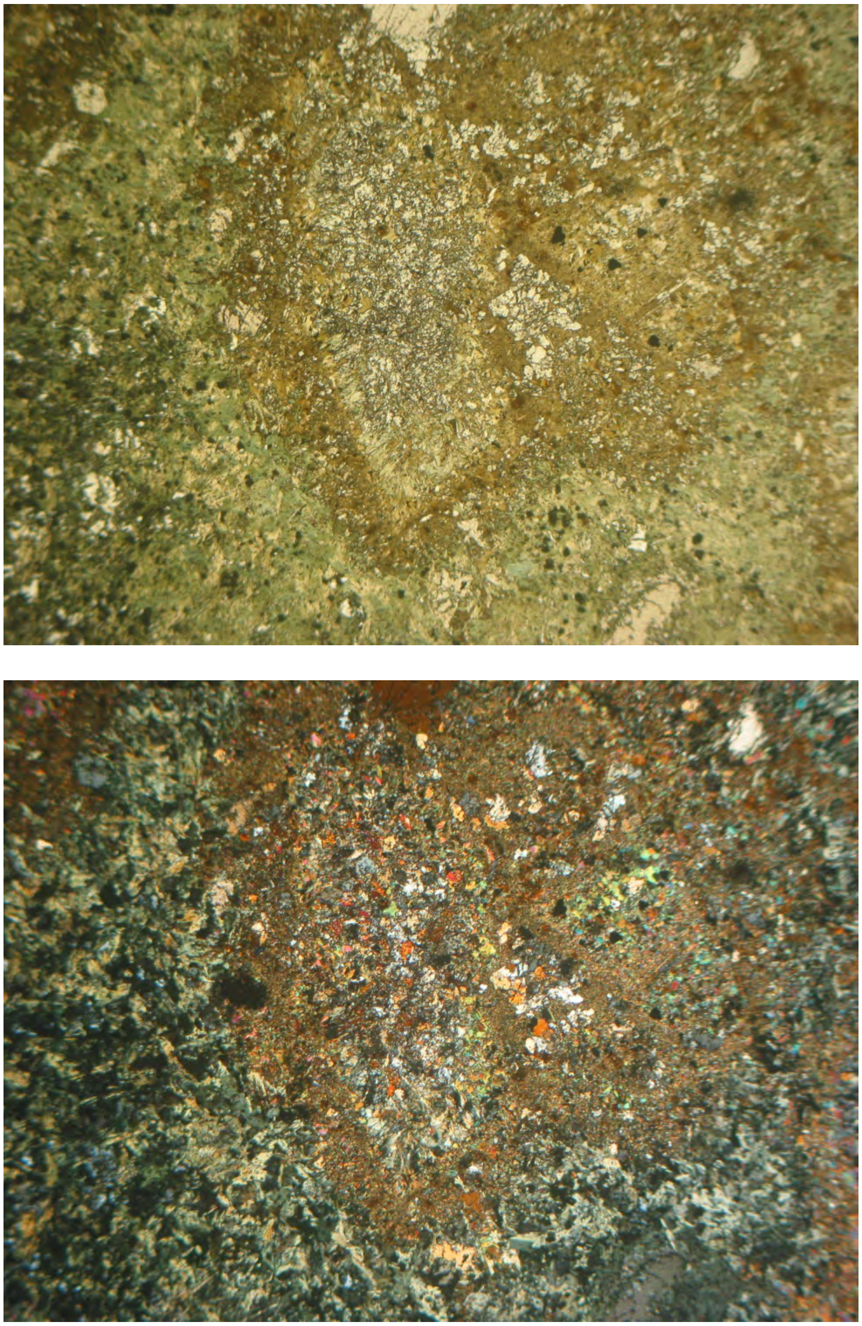


Figure 81. SAMPLE E214 PLATE 4 (plane-polarized light and cross-polarized light)

SAMPLE E214 PLATE 4 – Outline of pre-existing mineral phase, likely olivine, now preserved by fine-grained birefringent magnesian amphibole surrounded by a concentric reaction rind of tremolitic amphibole, Na-K amphibole and brown Mg,Fe phlogopite-biotite ss.

- **Porphyritic clinopyroxene and olivine ultramafic pyroxenite dike**

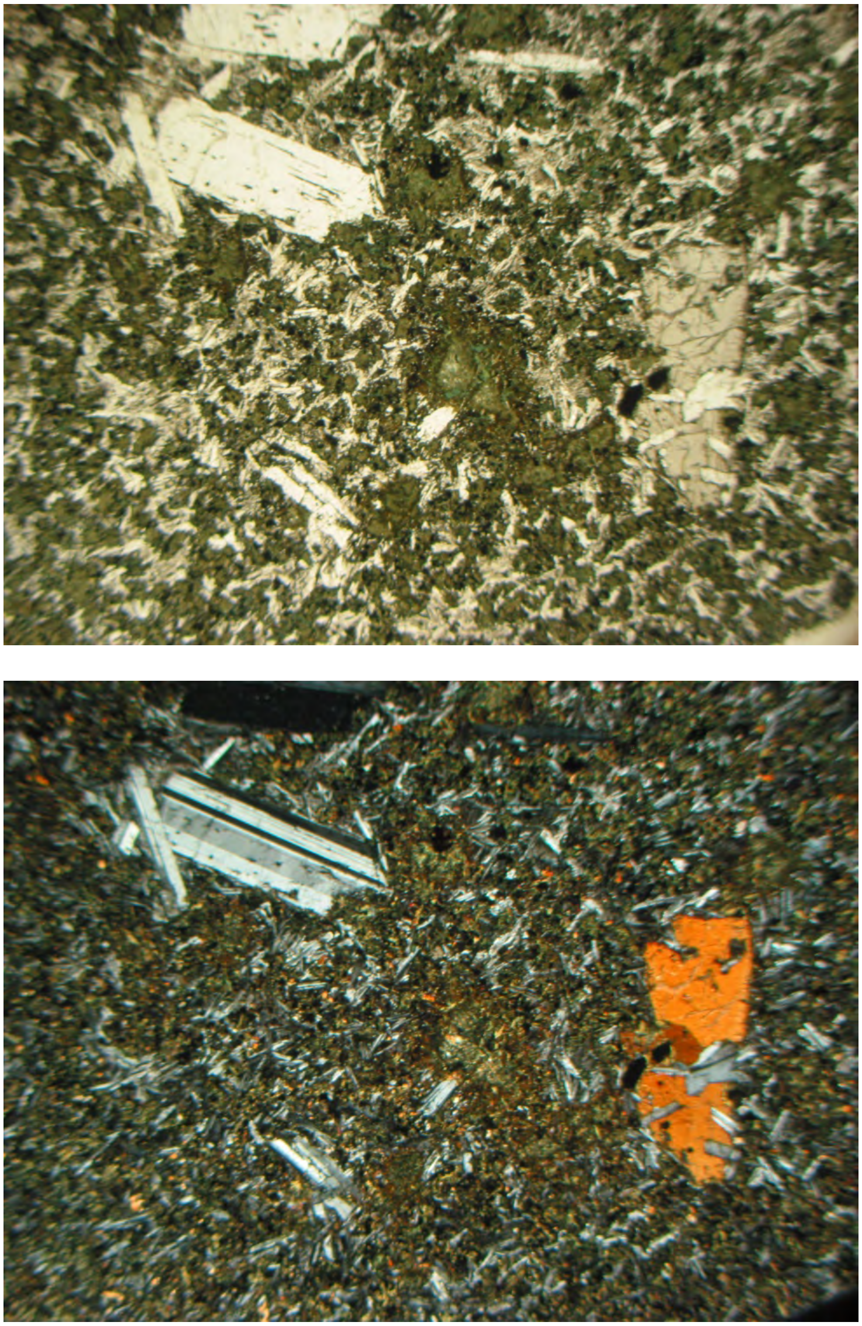


Figure 82. SAMPLE E215 PLATE 1 (plane-polarized light and cross-polarized light)

SAMPLE E215 PLATE 1 – Coarse phenocrysts of polysynthetically-twinned plagioclase and birefringent yellow clinopyroxene within a much finer-grained groundmass of tabular plagioclase intergrown with smaller clinopyroxene, largely replaced deep green amphibole.

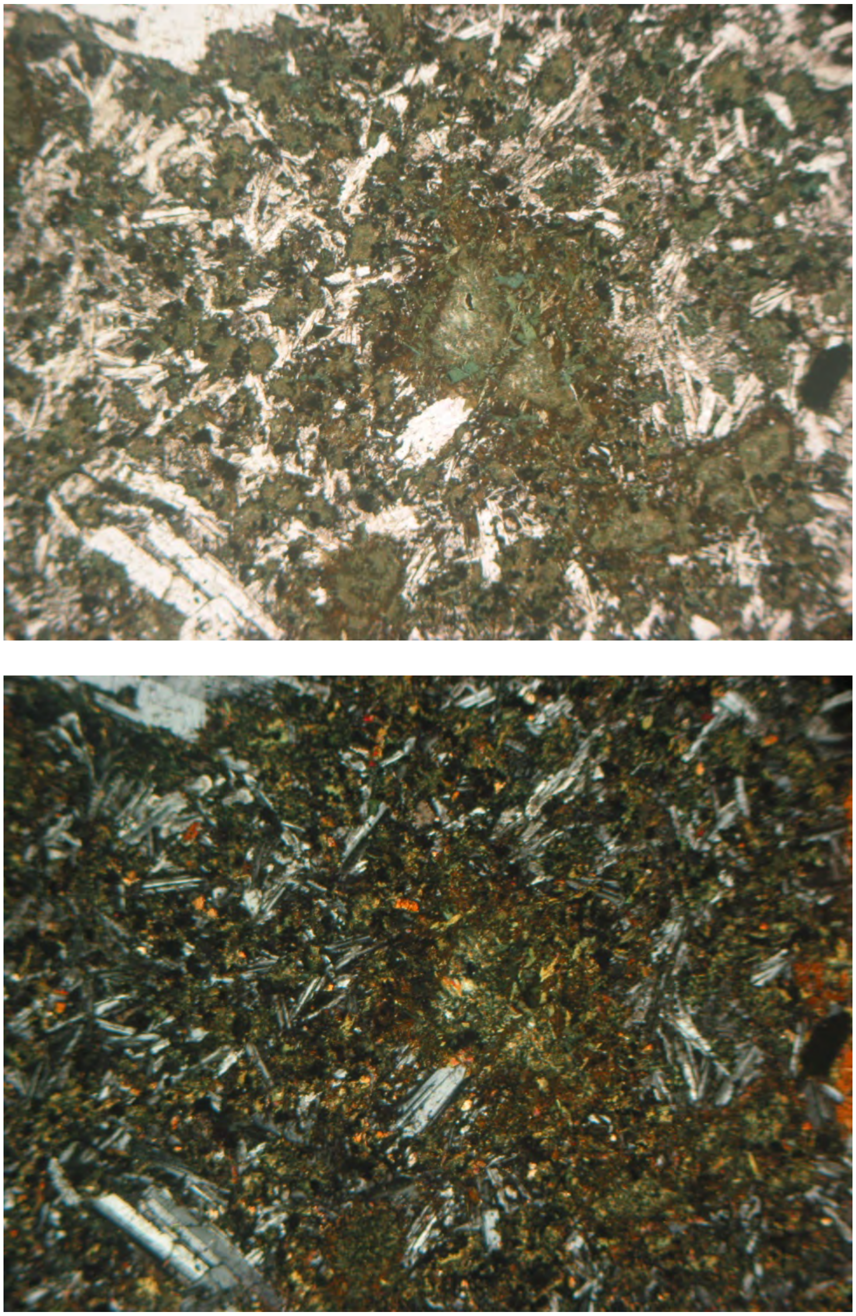


Figure 83. SAMPLE E215 PLATE 2 (plane-polarized light and cross-polarized light)

SAMPLE E215 PLATE 2 – Fine-grained groundmass comprised by clinopyroxene largely replaced by green hornblende intermixed with minute laths of twinned plagioclase feldspar.

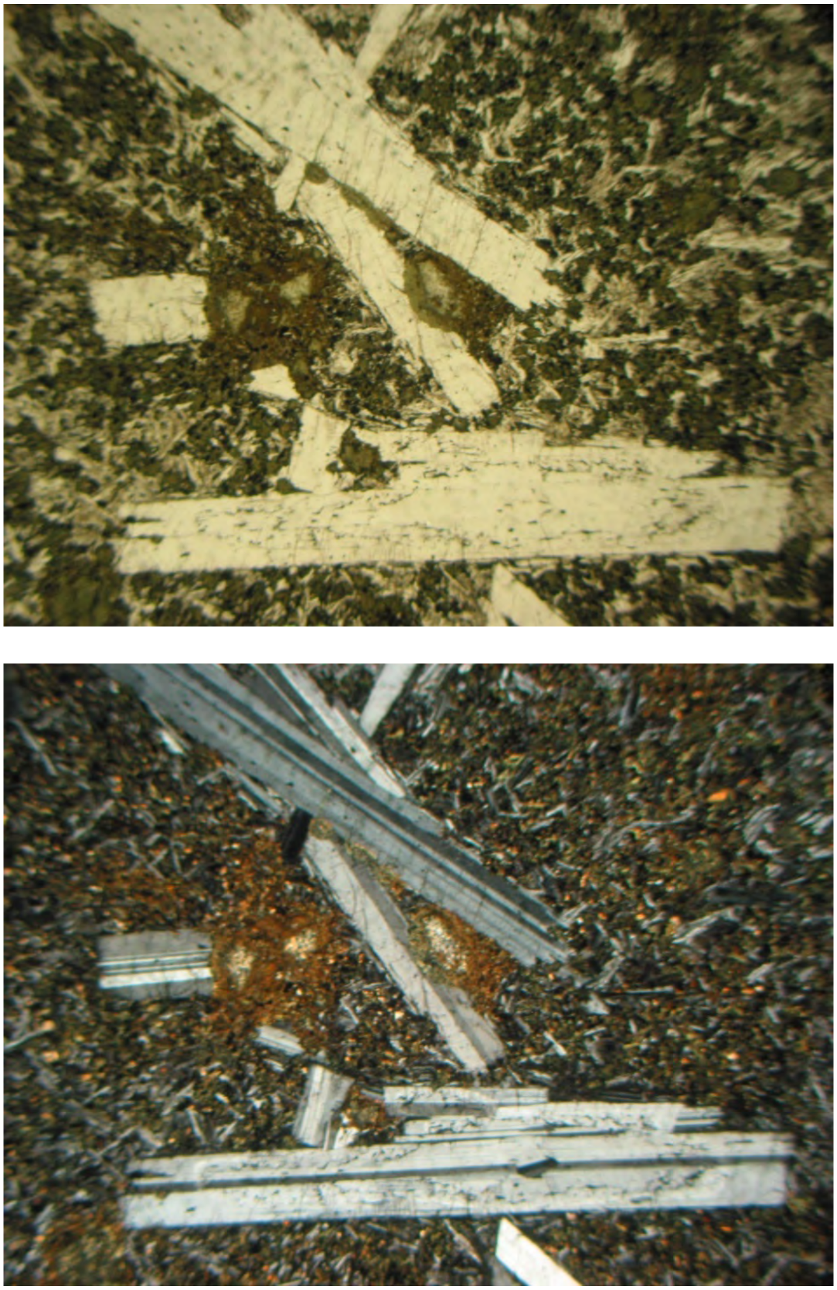
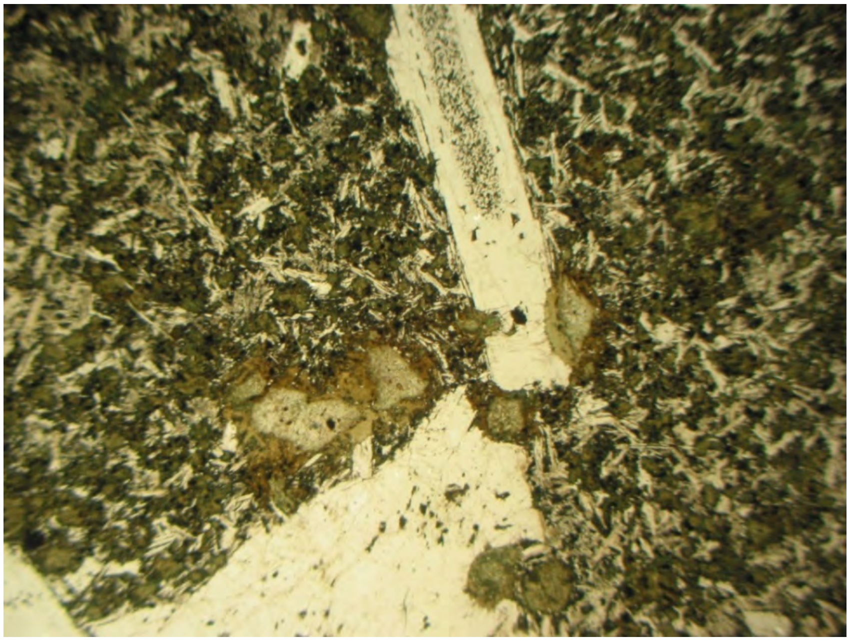


Figure 84. SAMPLE E215 PLATE 3 (plane-polarized light and cross-polarized light)

SAMPLE E215 PLATE 3 – Coarse tabular, twinned plagioclase feldspar within a much finer-grained plagioclase, clinopyroxene and green amphibole groundmass. Observe small domains of tremolitic amphibole enclosed in brown mica, central to image. These domains are interpreted to be sites of a pre-existing mineral, likely olivine that are enclosed within irregular regions of fine-grained biotite.

- **Porphyritic plagioclase and clinopyroxene and olivine-bearing diabase dike**



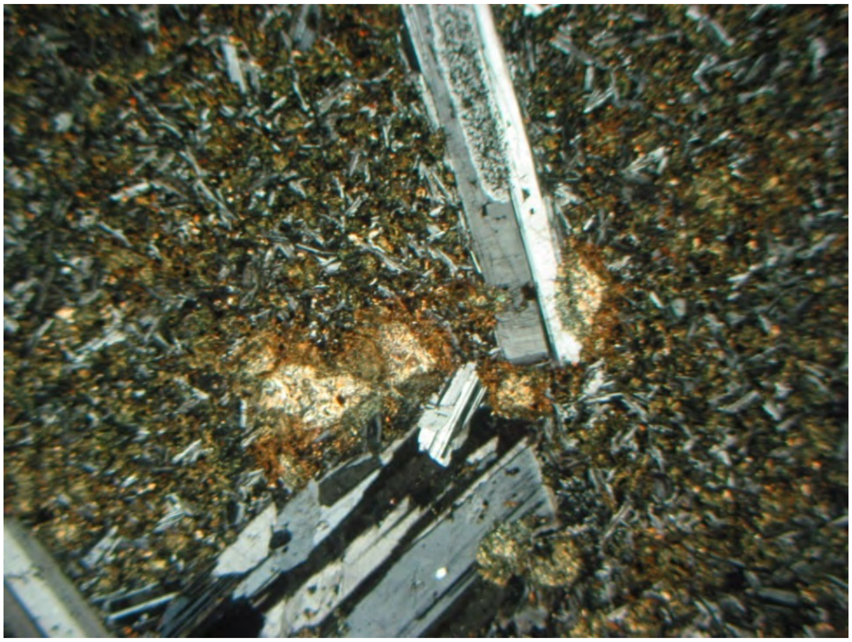


Figure 85. SAMPLE E216 PLATE 1 (plane-polarized light and cross-polarized light)

SAMPLE E216 PLATE 1 – Coarse tabular twinned grains and clusters of plagioclase feldspar within fine-grained matrix of clinopyroxene largely replaced by amphibole, occasional preserved birefringent clinopyroxene grain in groundmass. Note angular regions of colourless amphibole enclosed in zones of fine-grained brown biotite.

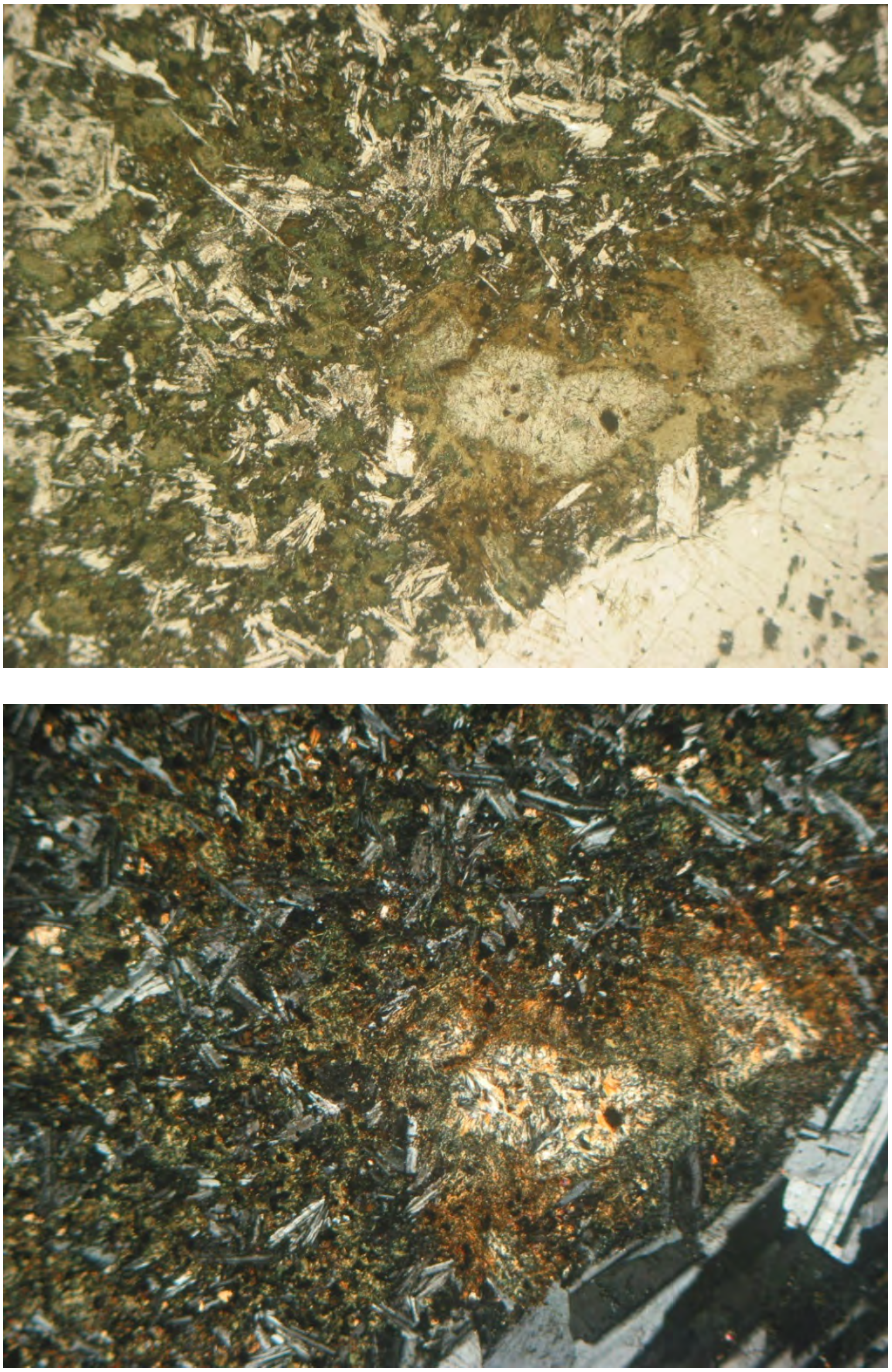
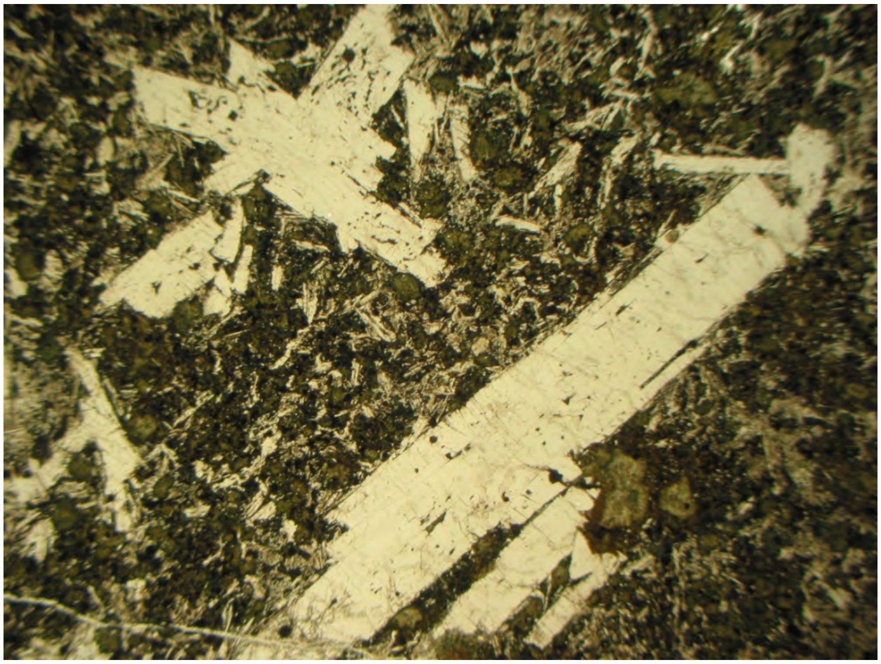


Figure 86. SAMPLE E216 PLATE 2 (plane-polarized light and cross-polarized light)

SAMPLE E216 PLATE 2 – Two angular regions of colourless amphibole, possibly replacing original olivine surrounded by regions of fine-grained brown phlogopite-biotite ss,



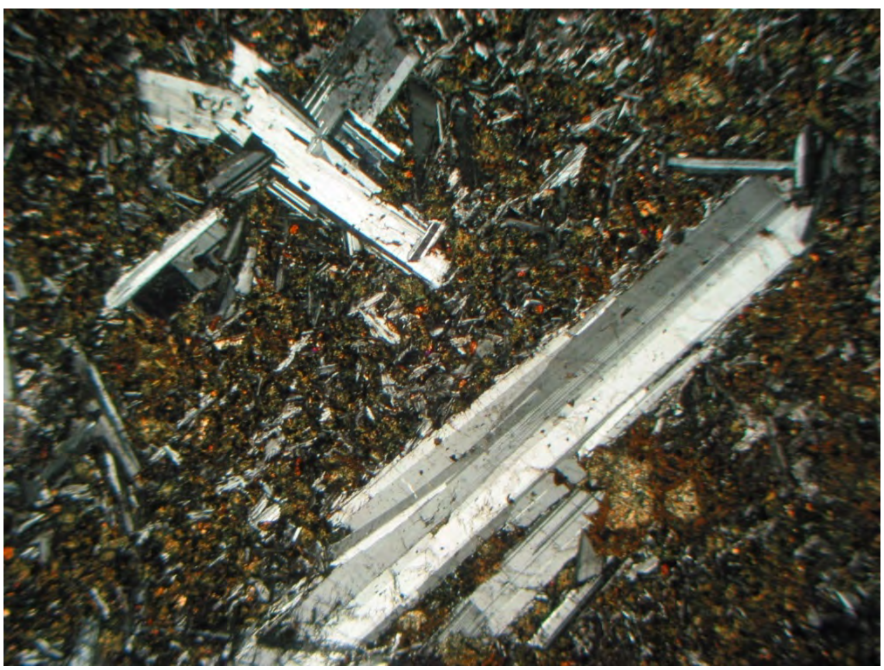


Figure 87. SAMPLE E216 PLATE 3 (plane-polarized light and cross-polarized light)

SAMPLE E216 PLATE 3 – Porphyritic laths and radial clusters of twinned plagioclase feldspar within groundmass consisting of minute clinopyroxene largely replaced by amphibole. Observe two small angular regions of colourless amphibole enclosed within biotite, possibly sites of pre-existing olivine.

-

- **Porphyritic plagioclase diabase dike**

Table 7. Fieldname-Petrology Reconciliation

SampleID	Fieldname	Petrologic Rock Name
E589112	Macrocrystic kimberlite	Porphyritic magnesian clinopyroxene and olivine pyroxenite dike
E589113	Altered Kimberlite	Porphyritic chromian diopside and olivine pyroxenite dike
E589202	Macrocrystic kimberlite	clinopyroxene and olivine-bearing ultramafic pyroxenite dike
E589203	Macrocrystic kimberlite	Porphyritic clinopyroxene, olivine and plagioclase pyroxenite dike.
E589204	Peridotite	Porphyritic clinopyroxene, olivine? and plagioclase diabase dike
E589205	Peridotite	Coarse phenocrystal clinopyroxene, olivine? plagioclase diabase dike
E589206	Diabase	Porphyritic clinopyroxene, olivine? and plagioclase diabase dike with possible autolithic fragments
E589207	Olivine Diabase	Porphyritic clinopyroxene, olivine? and plagioclase diabase dike
E589208	Kimberlite	Porphyritic clinopyroxene, olivine and plagioclase diabase dike
E589209	Altered kimberlite	Porphyritic clinopyroxene and olivine ultramafic pyroxenite dike
E589210	Olivine pyroxenite	Porphyritic clinopyroxene and olivine pyroxenite dike with numerous angular and rounded fragments of metamorphosed mafic material at amphibolite facies metamorphic rank
E589211	Olivine diabase or peridotite	Porphyritic plagioclase and olivine diabase dike
E589212	Olivine pyroxenite	Porphyritic olivine, clinopyroxene and

		plagioclase diabase dike
E589213	Snowflake Diabase	Porphyritic plagioclase diabase dike
E589214	Olivine pyroxenite	Porphyritic clinopyroxene and olivine ultramafic pyroxenite dike
E589215	Snowflake diabase	Porphyritic plagioclase and clinopyroxene and olivine-bearing diabase dike
E589216	Snowflake diabase	Porphyritic plagioclase diabase dike

As expected, petrology is required to confirm kimberlitic affinity, as kimberlite is difficult to identify in hand specimen. None of the samples submitted for petrology were classified as kimberlite.

2017 Analytical Work

Rock samples from off-cuts and hand specimens were submitted to Bureau Veritas Laboratories for whole rock and trace element analysis.

Analytical results are provided in a separate certificate of analysis from the laboratory.

Rocks with low SiO_2, Al_2O_3 and elevated MgO, K_2O, TiO_2 Ba and Ni are of interest for diamonds. Rocks with mafic compositions are not of interest.

Personnel

The current exploration work program was conducted by people listed in Table 6.

While working at the Sandspit Property, K. Kivi, P.Geo. rented a cabin at Jackfish Lake Cabins east of Terrace Bay and bought groceries at Costas Foods, Terrace Bay.

All other workers reside in Marathon and commuted daily from their homes, which elevates mileage and fuel costs, but reduces daily food and lodging.

Mike Wesley is a First Nation citizen. Hiring local people is important to Churchill Diamond Corp.

Table 8: Exploration Personnel

	Field Days	**Lab and Office Days**
Kevin Kivi, P.Geo., **Thunder Bay ON**	Mapping 10	Lab work 4 Data and GIS 4 Report 6
Frederick Lowndes **Marathon ON**	Cut Base Line and trail 7 Prospecting 13	
Mike Wesley **Marathon, ON**	Cut Base Line and trail 7 Prospecting 13	
R. L. Barnett **London, ON**		Petrology 9
Rudy Wahl **Marathon, ON**	Prospecting 1	

Conclusions and Recommendations

Prior prospecting work by claimholder Rudolph Wahl, and quaternary sampling and sampling by Tom Morris formerly with Ontario Geological Survey, and reported in OFR6013 result in a very promising diamond exploration project we call Sandpit Lake. Churchill Diamond Corporation optioned the property from Mr. Wahl and partners as the property represented a good property that could be quickly and cost effectively evaluated with a good chance of generating a drill target or making a bedrock discovery of kimberlite.

The prospecting team picked up identification of boulders looked like either Group I or Group II kimberlites, lamproite, melnoite, alnöite or ultramafic lamprophyre in hand specimen. All these rock types contain diamond in the Superior Craton.

About 50 new float and bedrock samples were collected from rocks that share macroscopic features with diamond-bearing lithologies known in the Superior Craton.

The approach to evaluate the boulders found was to collect a large sample, transport it from the field, saw and describe float samples in detail, and then cut polished thin sections and conduct petrological work. This approach has proven to be time consuming, but it has provided a good starting database of rock types on the property. Future work will be more streamlined.

Due to an ATV accident, geological field work was cut short. The injury also affected laboratory work as the resultant back injury did not allow standing for any length of time, and allowed only minimal, well calculated lifting. As a result only 17 of 50 samples have so far been sawed and described.

One First Nation citizen, Mike Wesley worked at Sandspit. First Nation employment is common for mineral exploration companies working in Northern Ontario. This point has relevance to the JEAP program, where the Ontario government provides additional funding for First Nation employment.

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Geology Ontario website: **http://www.geologyontario.mndm.gov.on.ca/**

Ontario Mining Lands Website: **http://www.geologyontario.mndm.gov.on.ca/**

Certificate of Author

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I Kevin Robert Kivi, P.Geo., (P.Geol. in NWT) am a Professional Geoscientist, employed by KIVI Geoscience Inc., of Thunder Bay, Ontario.

I am:

- a practising member of the Association of Professional Geoscientists of Ontario (APGO), Registration 0326;
- a member of the Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories (NAPEGG), Registration L821;
- a member of the Association of Professional Engineers and Geoscientists of the Province of Manitoba (APEGM), Registration 25680.
- A member of the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS), Registration #13687.

I graduated from Lakehead University, Thunder Bay with a Bachelor of Science Geology (4 year programme) in 1983, and I have practiced in my profession continuously since 1983. Since 1983 I have been involved in:

- gold exploration with Ovaltex Inc. along the Cadillac Break in Rouyn and Val D'Or, Quebec in winters of 1984, 1985 and 1986, and between 1986-1988 in NW Ontario.
- diamond exploration with BP Resources Inc – Selco Division in Ontario, Quebec, Manitoba and NWT in summers of 1984, 1985 and 1988;
- gold and base metals exploration in NW Ontario with Rio Algom Exploration between 1988 and 1992.
- diamond exploration with Kennecott Canada Exploration between 1992-1994 at Lac De Gras, NWT, Diamond Laboratory Manager between 1995-2000 in Thunder Bay, Ontario, diamond exploration 2000-2004 in Wawa in Archean lamprophyric volcaniclastic rocks and Group 2 kimberlites, March-June 2004, Exploration Manager at Diavik Diamond Mines Ltd, Lac De Gras, NT.
- 2004 to present: Geological consultant specializing in diamond, gold and base metal exploration. Current clients include Northern Exposures Ltd, Churchill Diamonds Corp, RT Minerals Corp, GEM Oil Inc, and Orebot Inc.

I continue to work as a geological consultant for Churchill Diamond Corp. in 2017.

Dated at Thunder Bay, ON, CANADA this 8th day of December, 2017.

KIVI Geoscience Inc.

Per: "Kevin Kivi" (signed)

Kevin R. Kivi, P.Geo., President

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Canada

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PHONE (604) 253-3158

Client: **Churchill Diamond Corp.**
133 Richmond St West, Suite 501
Toronto Ontario M5H 2L3 Canada

Submitted By:	Kevin Kivi
Receiving Lab:	Canada-Timmins
Received:	July 31, 2017
Report Date:	October 11, 2017
Page:	1 of 3

CERTIFICATE OF ANALYSIS TIM17000238.1

CLIENT JOB INFORMATION

Project:	None given
Shipment ID:	
P.O. Number	
Number of Samples:	40

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP90-250	39	Crush (>90%), split and pulverize 250g rock to 200 mesh			TIM
LF202	39	Total Whole Rock Characterization with AQ200	0.2	Completed	VAN

SAMPLE DISPOSAL

DISP-PLP	Dispose of Pulp After 90 days
DISP-RJT	Dispose of Reject After 60 days

ADDITIONAL COMMENTS

Bureau Veritas does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

Invoice To: Churchill Diamond Corp.
133 Richmond St West, Suite 501
Toronto Ontario M5H 2L3
Canada

CC: Paul Sobie

BRITISH COLUMBIA CERTIFIED ASSAYER
Marcus Lau
MARCUS LAU
Production Manager

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Client: **Churchill Diamond Corp.**
133 Richmond St West, Suite 501
Toronto Ontario M5H 2L3 Canada

Project: None given
Report Date: October 11, 2017

CERTIFICATE OF ANALYSIS TIM17000238.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sc	LOI	Sum	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	1	20	1	-5.1	0.01	1	0.2	0.1
E589101	Rock	0.25	45.08	12.83	9.86	11.47	13.70	1.76	0.72	0.38	0.43	0.19	0.071	486	210	44	3.1	99.64	<1	51.3	1.3
E589102	Rock	0.63	46.23	11.29	9.66	13.67	13.61	0.67	1.06	0.33	0.37	0.16	0.138	411	300	49	2.4	99.64	2	57.4	2.3
E589103	Rock	0.60	45.54	10.07	9.11	14.06	14.20	1.16	0.87	0.30	0.31	0.17	0.158	470	285	53	3.6	99.63	2	58.8	1.4
E589105	Rock	0.62	42.38	13.38	12.86	10.72	12.57	1.55	1.54	0.51	0.75	0.23	0.027	857	163	33	2.9	99.56	<1	68.9	0.8
E589106	Rock	0.74	44.42	10.50	10.13	13.41	15.19	1.02	1.11	0.38	0.43	0.19	0.100	618	232	55	2.6	99.61	<1	62.3	0.7
E589108	Rock	0.86	33.42	6.44	15.78	14.03	12.12	0.62	3.73	3.75	0.60	0.23	0.082	1430	387	26	8.4	99.44	1	76.9	8.7
E589109	Rock	0.92	33.53	6.65	14.81	13.51	12.21	0.73	3.48	3.90	0.44	0.24	0.078	1636	359	25	9.6	99.42	8	72.9	6.9
E589110	Rock	0.68	42.36	12.05	14.09	9.40	11.80	2.82	1.60	1.68	1.13	0.24	0.092	1005	253	21	2.0	99.44	2	60.9	1.1
E589111	Rock	0.85	42.43	11.51	13.87	10.12	12.27	3.04	1.33	1.70	1.05	0.24	0.098	896	240	24	1.6	99.38	3	60.3	1.2
E589112	Rock	0.21	43.30	11.82	11.74	12.15	14.47	1.24	1.26	0.47	0.56	0.21	0.062	667	199	47	2.2	99.61	<1	64.0	0.8
E589113	Rock	0.21	42.50	11.93	14.02	9.32	12.29	3.00	1.59	1.69	1.11	0.24	0.085	882	222	23	1.6	99.46	5	55.8	0.9
E589115	Rock	0.53	32.29	4.27	17.89	16.60	11.99	0.07	1.49	3.79	0.51	0.24	0.116	1036	573	21	10.0	99.42	5	98.6	7.8
E589116	Rock	0.72	34.42	5.67	15.34	9.55	15.09	1.25	3.15	5.16	1.09	0.24	0.039	1031	175	25	8.3	99.47	4	60.8	4.1
E589117	Rock	0.60	43.58	12.45	14.03	7.78	9.53	2.66	2.75	2.50	0.77	0.21	0.065	763	151	20	3.1	99.55	3	53.4	3.4
E589118	Rock	0.45	45.74	17.08	11.30	6.55	11.22	2.93	1.28	0.63	0.65	0.19	0.017	1112	77	28	1.9	99.63	<1	46.5	0.7
E589119	Rock	0.57	43.62	6.57	13.63	14.01	11.36	0.51	3.42	3.43	0.22	0.20	0.107	1404	566	22	2.2	99.50	5	86.4	42.0
E589201	Rock	0.78	44.20	9.97	14.08	10.75	13.86	1.36	1.33	1.93	0.53	0.23	0.078	856	249	36	1.1	99.56	1	69.3	1.7
E589202	Rock	0.34	44.42	10.56	10.25	13.59	14.85	1.03	1.07	0.39	0.40	0.18	0.089	640	241	53	2.7	99.60	<1	67.8	0.8
E589203	Rock	0.41	47.33	14.99	10.80	8.40	12.24	2.24	0.84	0.45	0.33	0.18	0.059	535	139	38	1.7	99.69	2	52.5	0.5
E589204	Rock	0.27	46.88	15.61	11.02	7.38	11.87	2.12	1.55	0.46	0.37	0.18	0.044	708	117	35	2.1	99.68	2	51.3	0.6
E589205	Rock	0.58	46.80	15.34	11.15	8.06	11.70	2.02	1.57	0.45	0.36	0.19	0.052	727	123	37	1.9	99.68	2	52.4	1.0
E589206	Rock	0.51	47.88	15.42	11.15	7.39	10.95	2.09	1.81	0.47	0.36	0.18	0.049	816	114	36	1.8	99.68	1	50.3	0.9
E589207	Rock	0.65	46.89	15.54	10.83	8.52	11.87	2.09	1.29	0.42	0.32	0.18	0.062	642	131	38	1.6	99.69	<1	49.8	0.8
E589208	Rock	0.30	46.52	15.46	10.77	8.49	12.02	2.12	1.42	0.42	0.32	0.18	0.059	620	140	37	1.8	99.68	2	49.3	0.8
E589209	Rock	0.48	41.87	11.35	14.31	10.83	12.91	2.68	1.20	1.69	0.97	0.24	0.113	849	265	27	1.2	99.48	2	59.4	0.8
E589210	Rock	0.41	42.18	12.81	12.83	11.58	12.94	1.69	1.16	0.50	0.64	0.23	0.037	873	172	39	2.9	99.60	2	64.5	0.8
E589211	Rock	0.33	44.73	17.31	11.35	6.34	11.34	2.98	1.47	0.59	0.71	0.20	0.009	1158	69	25	2.5	99.62	<1	44.9	0.9
E589212	Rock	0.45	46.53	15.27	10.80	8.21	12.15	2.24	1.18	0.44	0.34	0.18	0.058	635	130	37	2.2	99.68	2	47.6	0.6
E589213	Rock	0.70	45.09	16.06	14.54	4.43	9.70	3.76	1.62	1.76	1.14	0.25	0.004	1005	33	14	1.1	99.58	2	43.0	1.8
E589214	Rock	0.35	42.11	11.18	14.12	10.79	13.05	2.72	1.33	1.72	1.01	0.23	0.105	750	270	25	1.0	99.45	2	58.4	1.0

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Toronto Ontario M5H 2L3 Canada

Project: None given
Report Date: October 11, 2017

CERTIFICATE OF ANALYSIS TIM17000238.1

Method		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte		Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
MDL		0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
E589101	Rock	7.2	1.9	36.6	17.5	<1	648.9	1.6	4.8	1.0	175	<0.5	90.6	16.7	48.9	101.3	11.80	46.1	7.14	1.95	5.15
E589102	Rock	6.3	1.7	35.8	27.1	<1	463.3	1.4	4.3	0.8	186	<0.5	83.7	15.5	45.1	94.1	11.02	41.8	7.04	1.89	5.13
E589103	Rock	5.1	1.7	29.5	24.3	<1	476.2	1.2	3.9	0.8	160	<0.5	76.9	14.9	41.1	83.7	10.23	40.6	6.61	1.75	4.86
E589105	Rock	7.6	3.0	59.4	46.2	<1	1088.1	2.4	9.6	1.9	187	<0.5	149.0	22.8	91.3	180.4	20.70	78.7	11.79	3.21	8.41
E589106	Rock	5.8	2.5	36.9	35.5	<1	668.3	1.4	6.2	1.2	169	<0.5	107.1	17.2	58.5	118.1	14.05	53.8	8.61	2.35	6.23
E589108	Rock	13.2	7.7	106.4	130.6	2	918.3	6.6	13.3	3.0	300	5.0	290.2	25.5	93.2	187.6	21.27	80.9	13.51	3.85	10.38
E589109	Rock	13.6	8.3	109.4	126.3	3	982.2	6.6	17.9	4.0	296	5.5	434.9	26.5	90.9	182.4	21.02	80.6	13.72	3.81	10.23
E589110	Rock	13.0	4.8	138.2	45.4	2	1741.1	7.4	10.2	6.7	228	0.7	256.3	30.7	115.3	231.0	26.98	101.8	16.59	4.67	12.13
E589111	Rock	13.0	4.7	121.2	35.0	2	2230.6	6.5	8.4	5.2	241	0.6	249.1	29.4	104.1	214.8	25.14	95.1	16.10	4.54	11.87
E589112	Rock	6.5	2.7	43.0	38.0	<1	669.4	2.0	6.9	1.7	181	<0.5	126.9	20.5	69.8	141.0	16.61	63.1	9.96	2.73	7.19
E589113	Rock	12.7	4.7	126.6	39.5	2	1659.8	6.8	9.6	5.9	241	0.8	246.2	28.7	102.0	213.8	24.42	93.7	15.56	4.34	11.57
E589115	Rock	11.4	7.0	130.3	98.6	2	741.7	8.3	13.6	1.9	254	2.0	266.9	20.5	96.2	184.4	20.84	79.8	13.50	3.71	9.58
E589116	Rock	17.0	12.6	139.0	148.9	4	767.4	8.6	17.5	3.6	367	7.6	507.3	42.8	120.6	241.1	29.05	115.5	20.24	5.71	15.93
E589117	Rock	16.9	6.9	92.9	108.4	2	1074.2	4.9	8.9	2.8	263	1.1	318.3	31.7	96.7	193.5	22.67	83.7	14.87	4.27	11.28
E589118	Rock	11.9	3.2	63.3	34.2	1	1096.0	2.5	9.9	2.0	208	0.6	168.2	23.4	94.9	181.9	20.33	72.7	11.04	2.93	7.45
E589119	Rock	14.9	8.1	93.9	374.9	3	298.6	7.1	9.2	1.3	247	2.2	328.7	18.7	55.8	115.1	13.66	54.1	9.81	3.00	7.74
E589201	Rock	12.8	4.4	46.7	40.8	2	817.4	2.2	6.4	1.5	335	0.8	171.9	23.5	81.4	168.3	19.81	74.8	12.74	3.53	9.51
E589202	Rock	5.7	2.2	36.8	31.1	<1	696.7	1.7	5.8	1.2	159	<0.5	107.7	17.9	56.8	116.2	13.73	54.1	8.38	2.28	6.25
E589203	Rock	10.1	2.5	35.0	26.5	<1	699.2	1.6	5.4	0.9	191	<0.5	113.0	20.0	49.4	99.1	11.32	43.4	7.02	1.88	5.28
E589204	Rock	10.4	2.5	38.6	47.6	<1	731.8	1.6	6.1	1.1	192	<0.5	121.8	21.3	55.7	111.5	12.63	47.6	7.44	2.05	5.62
E589205	Rock	10.2	2.5	37.3	47.2	<1	715.8	1.6	5.7	1.1	191	<0.5	121.2	21.2	54.0	107.8	12.40	45.1	7.52	2.05	5.50
E589206	Rock	10.7	2.7	39.9	57.5	<1	716.5	1.7	6.2	1.2	201	<0.5	130.8	22.4	57.5	116.4	13.04	50.4	7.62	2.05	5.82
E589207	Rock	9.9	2.2	31.6	42.2	<1	725.4	1.5	5.0	1.0	181	<0.5	102.9	17.5	47.2	92.8	10.79	41.5	6.37	1.84	4.93
E589208	Rock	10.4	2.2	31.8	44.7	<1	765.3	1.3	5.0	0.8	180	<0.5	103.1	18.6	48.9	94.7	10.88	41.5	6.46	1.69	5.10
E589209	Rock	13.1	4.8	108.6	28.5	2	1430.1	5.7	8.1	5.0	252	0.8	236.8	28.2	96.6	196.5	23.53	90.8	15.08	4.28	11.57
E589210	Rock	8.0	2.9	51.9	38.3	1	715.7	2.3	8.5	1.8	185	<0.5	145.0	22.1	83.6	168.6	19.14	74.9	10.83	2.89	7.98
E589211	Rock	11.6	3.1	60.6	37.1	<1	1147.8	2.4	10.3	2.1	193	0.7	160.4	23.3	103.9	195.9	22.03	80.3	11.55	3.06	7.95
E589212	Rock	10.4	2.2	33.4	34.2	<1	767.2	1.3	5.3	0.9	183	<0.5	107.9	19.1	49.5	100.4	11.46	43.1	6.95	1.90	5.21
E589213	Rock	17.5	6.1	83.0	43.9	2	1187.4	3.9	12.7	3.7	237	0.9	297.2	34.1	117.6	247.4	29.26	110.1	18.35	5.10	13.79
E589214	Rock	12.5	4.5	105.5	34.4	2	1521.6	5.5	7.5	5.1	251	0.6	234.1	29.1	97.1	196.7	23.35	91.8	15.00	4.33	11.48

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Client: **Churchill Diamond Corp.**
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Project: None given
Report Date: October 11, 2017

CERTIFICATE OF ANALYSIS TIM17000238.1

Method		LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
Analyte		Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
Unit		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
MDL		0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
E589101	Rock	0.65	3.21	0.65	1.80	0.25	1.83	0.28	0.44	0.03	0.6	94.5	4.6	32	81.4	1.1	0.1	<0.1	<0.1	0.1	5.4
E589102	Rock	0.62	3.18	0.61	1.78	0.26	1.78	0.26	0.25	0.05	0.5	60.4	2.3	23	125.5	0.7	<0.1	<0.1	<0.1	<0.1	2.0
E589103	Rock	0.58	2.95	0.60	1.68	0.24	1.61	0.24	0.50	<0.02	0.4	9.5	7.4	28	111.8	1.0	<0.1	<0.1	<0.1	<0.1	1.2
E589105	Rock	1.00	4.69	0.89	2.55	0.35	2.30	0.37	0.28	0.04	0.9	82.3	2.7	40	83.5	0.5	<0.1	<0.1	<0.1	<0.1	1.8
E589106	Rock	0.74	3.70	0.69	1.85	0.26	1.77	0.27	0.29	0.04	0.8	46.7	2.0	29	95.1	0.7	<0.1	<0.1	<0.1	<0.1	3.1
E589108	Rock	1.30	6.03	1.04	2.63	0.31	2.01	0.28	1.92	0.12	1.6	110.6	9.6	187	332.0	1.7	0.3	0.2	0.2	0.2	2.0
E589109	Rock	1.32	6.10	1.11	2.83	0.37	2.41	0.32	2.26	0.12	1.2	132.4	7.1	179	275.2	1.2	0.3	0.1	0.2	0.2	4.1
E589110	Rock	1.50	7.32	1.14	3.15	0.37	2.53	0.35	0.17	0.04	2.9	139.1	3.3	81	166.9	0.6	<0.1	<0.1	<0.1	<0.1	2.4
E589111	Rock	1.49	7.04	1.14	2.97	0.38	2.37	0.32	0.13	0.03	5.9	147.7	2.6	77	166.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.3
E589112	Rock	0.89	4.31	0.76	2.25	0.30	2.03	0.31	0.23	0.03	0.9	58.6	2.9	38	92.8	<0.5	<0.1	<0.1	<0.1	<0.1	1.3
E589113	Rock	1.42	6.67	1.12	2.80	0.35	2.26	0.31	0.16	0.04	5.8	163.7	3.3	82	165.0	1.0	<0.1	<0.1	<0.1	<0.1	2.1
E589115	Rock	1.16	5.39	0.87	1.97	0.24	1.35	0.17	1.95	0.21	1.8	208.6	10.9	40	397.0	<0.5	<0.1	<0.1	<0.1	0.1	2.7
E589116	Rock	2.04	10.19	1.69	4.01	0.48	2.55	0.32	2.23	0.36	0.3	136.7	3.9	84	142.7	6.1	0.2	0.2	<0.1	<0.1	2.1
E589117	Rock	1.49	7.36	1.25	3.26	0.41	2.58	0.35	0.53	0.10	2.9	101.0	2.4	79	112.4	0.7	0.1	<0.1	<0.1	<0.1	1.1
E589118	Rock	0.92	4.42	0.87	2.47	0.35	2.46	0.37	0.23	0.04	1.1	79.6	4.0	56	51.9	0.6	<0.1	<0.1	<0.1	<0.1	1.3
E589119	Rock	0.98	4.66	0.77	1.92	0.25	1.50	0.20	0.19	0.37	0.7	254.2	3.9	85	508.4	<0.5	<0.1	<0.1	0.1	0.2	1.4
E589201	Rock	1.20	5.65	0.93	2.29	0.29	1.81	0.26	0.08	<0.02	1.8	121.5	2.8	52	108.6	<0.5	<0.1	<0.1	<0.1	0.1	4.2
E589202	Rock	0.74	3.70	0.68	1.89	0.28	1.80	0.27	0.28	0.07	0.8	42.0	1.4	33	121.8	0.5	<0.1	<0.1	<0.1	<0.1	0.7
E589203	Rock	0.68	3.69	0.72	2.31	0.33	2.31	0.37	0.15	<0.02	0.6	72.1	2.7	28	52.5	0.6	<0.1	<0.1	<0.1	<0.1	1.2
E589204	Rock	0.74	3.91	0.82	2.43	0.37	2.51	0.37	0.23	0.17	0.8	92.2	3.1	39	66.5	1.9	<0.1	0.1	<0.1	<0.1	1.3
E589205	Rock	0.71	3.93	0.78	2.34	0.34	2.37	0.38	0.18	0.29	0.8	77.7	2.5	39	68.0	2.8	<0.1	0.1	<0.1	0.1	1.3
E589206	Rock	0.72	4.05	0.81	2.50	0.36	2.57	0.39	0.30	0.50	0.7	92.7	2.7	40	65.4	1.9	<0.1	0.2	<0.1	<0.1	1.5
E589207	Rock	0.62	3.57	0.71	2.11	0.31	2.01	0.31	0.12	<0.02	0.6	66.4	2.1	31	53.7	<0.5	<0.1	<0.1	<0.1	<0.1	1.3
E589208	Rock	0.63	3.39	0.71	2.05	0.29	2.09	0.32	0.16	<0.02	0.7	73.1	2.5	34	63.4	1.2	<0.1	<0.1	<0.1	<0.1	1.6
E589209	Rock	1.41	6.70	1.14	2.64	0.35	2.10	0.31	0.08	0.03	2.4	124.2	2.0	55	176.7	<0.5	<0.1	<0.1	<0.1	<0.1	1.3
E589210	Rock	0.94	4.71	0.82	2.26	0.34	2.11	0.34	0.42	0.06	1.0	64.9	4.6	43	91.5	1.2	<0.1	<0.1	0.1	<0.1	2.0
E589211	Rock	0.95	4.63	0.86	2.43	0.34	2.20	0.35	0.24	0.04	1.4	85.6	8.3	58	47.7	6.3	<0.1	<0.1	<0.1	<0.1	2.4
E589212	Rock	0.65	3.51	0.70	2.07	0.30	2.14	0.33	0.20	0.26	0.7	76.9	3.7	40	78.9	2.6	<0.1	<0.1	<0.1	<0.1	1.0
E589213	Rock	1.68	7.75	1.35	3.37	0.44	2.83	0.42	0.06	<0.02	3.8	205.4	3.0	95	29.6	0.6	<0.1	<0.1	<0.1	<0.1	3.8
E589214	Rock	1.39	6.67	1.07	2.78	0.34	2.04	0.29	0.08	0.04	2.3	159.9	2.2	54	161.8	<0.5	<0.1	<0.1	<0.1	<0.1	1.0

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	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
E589101	Rock	<0.01	<0.1	<0.5
E589102	Rock	<0.01	0.3	<0.5
E589103	Rock	<0.01	0.1	<0.5
E589105	Rock	<0.01	<0.1	<0.5
E589106	Rock	<0.01	<0.1	<0.5
E589108	Rock	0.01	1.3	<0.5
E589109	Rock	<0.01	0.9	0.7
E589110	Rock	<0.01	<0.1	0.7
E589111	Rock	<0.01	0.1	<0.5
E589112	Rock	<0.01	<0.1	0.6
E589113	Rock	<0.01	0.1	0.6
E589115	Rock	<0.01	0.3	<0.5
E589116	Rock	<0.01	0.7	1.0
E589117	Rock	<0.01	0.6	0.5
E589118	Rock	<0.01	0.1	0.6
E589119	Rock	<0.01	2.5	<0.5
E589201	Rock	<0.01	0.2	<0.5
E589202	Rock	<0.01	<0.1	<0.5
E589203	Rock	<0.01	<0.1	<0.5
E589204	Rock	<0.01	0.1	<0.5
E589205	Rock	<0.01	0.1	0.5
E589206	Rock	<0.01	0.1	<0.5
E589207	Rock	<0.01	0.1	<0.5
E589208	Rock	<0.01	0.1	<0.5
E589209	Rock	<0.01	<0.1	<0.5
E589210	Rock	<0.01	0.3	<0.5
E589211	Rock	<0.01	0.2	<0.5
E589212	Rock	<0.01	0.1	<0.5
E589213	Rock	<0.01	0.1	<0.5
E589214	Rock	<0.01	<0.1	<0.5

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	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sc	LOI	Sum	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	1	20	1	-5.1	0.01	1	0.2	0.1
E589215	Rock	0.58	45.34	15.77	14.88	4.44	9.63	3.68	1.74	1.82	1.16	0.26	0.003	1044	34	14	0.7	99.58	5	43.4	1.9
E589216	Rock	0.43	44.94	16.00	14.75	4.51	9.74	3.79	1.38	1.81	1.20	0.25	0.005	854	36	14	1.1	99.58	2	42.3	1.5
E589230	Rock	0.74	41.91	10.79	14.17	11.13	13.33	2.72	1.11	1.74	1.02	0.24	0.111	693	280	26	1.1	99.50	2	57.5	0.6
E589231	Rock	0.38	42.05	10.89	14.14	10.92	13.36	2.74	1.11	1.72	1.03	0.24	0.103	686	271	26	1.1	99.49	3	58.8	0.4
E589232	Rock	0.63	42.40	11.03	14.00	10.79	12.89	2.80	1.04	1.71	1.01	0.24	0.108	639	267	25	1.4	99.50	3	57.0	0.5
E589233	Rock	0.82	42.06	12.21	14.41	9.55	11.95	3.10	1.27	1.72	1.14	0.25	0.084	891	216	21	1.6	99.46	3	57.1	0.7
E589234	Rock	0.46	44.02	10.55	10.40	13.47	14.97	1.07	1.11	0.39	0.43	0.18	0.087	612	235	53	2.8	99.61	2	62.6	0.9
E589236	Rock	0.41	43.98	10.69	10.95	14.00	14.02	1.24	1.10	0.39	0.42	0.19	0.072	648	254	49	2.5	99.62	1	66.1	1.1
E589237	Rock	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
E589238	Rock	0.91	51.70	12.37	9.33	1.14	8.72	3.49	7.06	0.37	0.12	0.45	0.005	1258	<20	2	4.5	99.39	30	4.3	2.6

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	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
E589215	Rock	17.6	6.3	85.4	50.1	2	1165.6	3.7	12.9	3.5	238	0.9	304.0	35.1	121.0	244.8	29.43	113.7	18.04	5.02	13.66
E589216	Rock	17.1	6.5	82.7	34.9	2	1182.2	3.6	12.5	3.6	237	0.6	299.4	34.7	118.1	244.3	29.15	113.6	18.29	5.05	13.67
E589230	Rock	12.1	4.3	98.8	26.0	2	1212.4	5.2	6.8	4.5	253	0.6	222.2	25.9	91.1	193.7	22.48	86.5	14.17	4.09	11.36
E589231	Rock	13.3	4.5	98.7	25.5	2	1222.7	5.4	7.4	4.8	252	0.5	225.2	28.0	106.7	210.7	23.85	89.2	14.58	4.17	11.39
E589232	Rock	12.3	4.6	103.8	23.6	2	1215.1	5.5	7.4	5.0	242	<0.5	228.7	27.0	91.9	189.4	22.52	88.1	14.56	4.06	11.02
E589233	Rock	13.2	4.6	135.1	31.6	2	1633.1	6.9	9.9	6.0	229	<0.5	247.8	29.0	107.6	222.7	25.67	97.2	15.74	4.39	12.17
E589234	Rock	6.0	2.3	34.6	34.7	<1	632.1	1.6	5.6	1.0	164	<0.5	104.8	17.3	55.5	112.1	13.48	51.8	8.44	2.28	6.30
E589236	Rock	6.1	2.3	37.6	37.8	<1	475.9	1.4	5.5	1.1	156	<0.5	107.4	17.4	55.1	112.6	13.33	50.5	8.12	2.25	6.08
E589237	Rock	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
E589238	Rock	40.7	13.7	479.4	215.7	11	1543.7	15.0	32.9	32.2	76	<0.5	1752.3	28.1	58.9	117.2	13.71	53.1	8.62	2.57	7.15

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Client: **Churchill Diamond Corp.**
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Project: None given
Report Date: October 11, 2017

CERTIFICATE OF ANALYSIS TIM17000238.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
E589215	Rock	1.61	7.59	1.33	3.35	0.45	2.85	0.41	0.05	<0.02	3.0	184.3	4.1	97	26.3	1.0	<0.1	<0.1	<0.1	0.1	2.0
E589216	Rock	1.61	7.60	1.31	3.39	0.45	2.84	0.40	0.04	<0.02	3.4	215.3	3.2	91	29.0	0.6	<0.1	<0.1	<0.1	<0.1	3.9
E589230	Rock	1.35	6.42	1.08	2.52	0.32	1.98	0.28	0.04	0.03	1.9	125.2	2.7	56	164.8	0.9	<0.1	<0.1	<0.1	<0.1	2.1
E589231	Rock	1.36	6.34	1.12	2.48	0.32	2.03	0.30	0.04	0.04	1.7	172.3	2.6	58	168.4	<0.5	<0.1	<0.1	<0.1	<0.1	1.4
E589232	Rock	1.33	6.49	1.07	2.70	0.34	2.04	0.29	0.04	0.03	2.5	127.2	2.3	60	177.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
E589233	Rock	1.43	7.04	1.17	2.83	0.36	2.25	0.33	0.10	0.02	0.9	142.4	2.9	72	155.0	<0.5	<0.1	<0.1	<0.1	<0.1	0.6
E589234	Rock	0.72	3.75	0.63	1.81	0.26	1.73	0.25	0.30	0.02	0.6	40.0	1.7	31	113.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
E589236	Rock	0.71	3.46	0.61	1.79	0.26	1.65	0.26	0.19	0.03	0.6	35.6	1.8	29	130.2	0.6	<0.1	<0.1	<0.1	<0.1	0.5
E589237	Rock	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
E589238	Rock	1.02	5.60	1.02	2.97	0.46	3.33	0.52	1.03	<0.02	4.0	3.2	12.4	97	6.5	1.3	<0.1	<0.1	<0.1	<0.1	<0.5

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Project: None given
Report Date: October 11, 2017

CERTIFICATE OF ANALYSIS TIM17000238.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
E589215	Rock	<0.01	0.1	<0.5
E589216	Rock	<0.01	<0.1	<0.5
E589230	Rock	<0.01	<0.1	<0.5
E589231	Rock	<0.01	<0.1	<0.5
E589232	Rock	<0.01	<0.1	0.5
E589233	Rock	<0.01	<0.1	<0.5
E589234	Rock	<0.01	<0.1	<0.5
E589236	Rock	<0.01	0.1	<0.5
E589237	Rock	L.N.R.	L.N.R.	L.N.R.
E589238	Rock	<0.01	<0.1	<0.5

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QUALITY CONTROL REPORT TIM17000238.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sc	LOI	Sum	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	1	20	1	-5.1	0.01	1	0.2	0.1
E589111	Rock	0.85	42.43	11.51	13.87	10.12	12.27	3.04	1.33	1.70	1.05	0.24	0.098	896	240	24	1.6	99.38	3	60.3	1.2
E589231	Rock	0.38	42.05	10.89	14.14	10.92	13.36	2.74	1.11	1.72	1.03	0.24	0.103	686	271	26	1.1	99.49	3	58.8	0.4
Pulp Duplicates																					
E589105	Rock	0.62	42.38	13.38	12.86	10.72	12.57	1.55	1.54	0.51	0.75	0.23	0.027	857	163	33	2.9	99.56	<1	68.9	0.8
REP E589105	QC																				
E589118	Rock	0.45	45.74	17.08	11.30	6.55	11.22	2.93	1.28	0.63	0.65	0.19	0.017	1112	77	28	1.9	99.63	<1	46.5	0.7
REP E589118	QC		45.78	16.98	11.32	6.51	11.35	2.89	1.26	0.62	0.65	0.19	0.017	1150	74	28	1.9	99.62	2	47.1	0.6
E589208	Rock	0.30	46.52	15.46	10.77	8.49	12.02	2.12	1.42	0.42	0.32	0.18	0.059	620	140	37	1.8	99.68	2	49.3	0.8
REP E589208	QC																				
E589215	Rock	0.58	45.34	15.77	14.88	4.44	9.63	3.68	1.74	1.82	1.16	0.26	0.003	1044	34	14	0.7	99.58	5	43.4	1.9
REP E589215	QC																				
REP E589233	QC		42.24	12.16	14.29	9.51	11.98	3.11	1.25	1.74	1.13	0.25	0.086	874	211	20	1.6	99.46	<1	55.7	0.6
Core Reject Duplicates																					
E589102	Rock	0.63	46.23	11.29	9.66	13.67	13.61	0.67	1.06	0.33	0.37	0.16	0.138	411	300	49	2.4	99.64	2	57.4	2.3
DUP E589102	QC		46.44	11.16	9.63	13.59	13.67	0.66	1.04	0.32	0.37	0.16	0.137	415	295	49	2.4	99.64	<1	58.0	2.5
E589233	Rock	0.82	42.06	12.21	14.41	9.55	11.95	3.10	1.27	1.72	1.14	0.25	0.084	891	216	21	1.6	99.46	3	57.1	0.7
DUP E589233	QC		42.26	12.19	14.25	9.52	11.94	3.13	1.25	1.73	1.14	0.25	0.086	895	214	21	1.6	99.47	3	55.0	0.7
Reference Materials																					
STD DS11	Standard																				
STD DS11	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD SO-19	Standard		60.23	14.06	7.51	2.93	6.00	4.04	1.32	0.70	0.32	0.13	0.508	446	470	26	1.9	99.79	16	22.7	4.2
STD SO-19	Standard		60.22	14.08	7.53	2.95	5.97	4.01	1.31	0.70	0.32	0.13	0.505	475	466	26	1.9	99.79	16	23.3	4.6
STD SO-19	Standard		60.58	13.90	7.44	2.90	5.93	4.06	1.31	0.69	0.33	0.13	0.494	444	485	27	1.9	99.81	17	23.3	4.1

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Project: None given
Report Date: October 11, 2017

QUALITY CONTROL REPORT TIM17000238.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
E589111	Rock	13.0	4.7	121.2	35.0	2	2230.6	6.5	8.4	5.2	241	0.6	249.1	29.4	104.1	214.8	25.14	95.1	16.10	4.54	11.87
E589231	Rock	13.3	4.5	98.7	25.5	2	1222.7	5.4	7.4	4.8	252	0.5	225.2	28.0	106.7	210.7	23.85	89.2	14.58	4.17	11.39
Pulp Duplicates																					
E589105	Rock	7.6	3.0	59.4	46.2	<1	1088.1	2.4	9.6	1.9	187	<0.5	149.0	22.8	91.3	180.4	20.70	78.7	11.79	3.21	8.41
REP E589105	QC																				
E589118	Rock	11.9	3.2	63.3	34.2	1	1096.0	2.5	9.9	2.0	208	0.6	168.2	23.4	94.9	181.9	20.33	72.7	11.04	2.93	7.45
REP E589118	QC	11.9	3.2	65.1	35.6	<1	1132.5	2.5	10.3	2.0	202	0.7	173.6	22.4	97.3	189.3	20.90	76.2	11.23	3.01	7.85
E589208	Rock	10.4	2.2	31.8	44.7	<1	765.3	1.3	5.0	0.8	180	<0.5	103.1	18.6	48.9	94.7	10.88	41.5	6.46	1.69	5.10
REP E589208	QC																				
E589215	Rock	17.6	6.3	85.4	50.1	2	1165.6	3.7	12.9	3.5	238	0.9	304.0	35.1	121.0	244.8	29.43	113.7	18.04	5.02	13.66
REP E589215	QC																				
REP E589233	QC	13.1	4.6	138.4	30.6	2	1638.0	7.2	9.5	5.9	229	0.6	250.6	29.9	106.5	223.4	25.71	96.8	15.35	4.36	11.86
Core Reject Duplicates																					
E589102	Rock	6.3	1.7	35.8	27.1	<1	463.3	1.4	4.3	0.8	186	<0.5	83.7	15.5	45.1	94.1	11.02	41.8	7.04	1.89	5.13
DUP E589102	QC	6.8	1.8	36.0	27.9	<1	472.4	1.6	4.6	0.9	168	<0.5	84.9	15.6	46.8	94.7	11.45	43.8	7.07	1.92	5.02
E589233	Rock	13.2	4.6	135.1	31.6	2	1633.1	6.9	9.9	6.0	229	<0.5	247.8	29.0	107.6	222.7	25.67	97.2	15.74	4.39	12.17
DUP E589233	QC	14.4	4.6	134.6	30.2	2	1610.6	6.8	9.3	6.2	229	0.6	249.2	28.9	107.6	224.0	25.39	99.4	15.58	4.48	11.93
Reference Materials																					
STD DS11	Standard																				
STD DS11	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD SO-19	Standard	14.9	3.0	66.8	17.8	17	303.1	4.4	13.0	19.5	163	9.0	104.5	34.1	71.7	159.5	18.87	73.4	12.12	3.51	10.12
STD SO-19	Standard	15.2	3.0	69.4	19.1	18	324.3	5.0	13.9	20.0	163	11.7	109.4	34.5	73.5	164.4	19.59	75.9	13.21	3.62	10.65
STD SO-19	Standard	16.0	2.9	64.4	18.0	18	309.1	4.7	13.8	20.0	173	8.9	103.6	33.5	70.8	154.9	18.70	74.3	12.94	3.61	9.71

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	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
E589111	Rock	1.49	7.04	1.14	2.97	0.38	2.37	0.32	0.13	0.03	5.9	147.7	2.6	77	166.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.3
E589231	Rock	1.36	6.34	1.12	2.48	0.32	2.03	0.30	0.04	0.04	1.7	172.3	2.6	58	168.4	<0.5	<0.1	<0.1	<0.1	<0.1	1.4
Pulp Duplicates																					
E589105	Rock	1.00	4.69	0.89	2.55	0.35	2.30	0.37	0.28	0.04	0.9	82.3	2.7	40	83.5	0.5	<0.1	<0.1	<0.1	<0.1	1.8
REP E589105	QC										0.9	79.7	2.5	40	83.7	<0.5	<0.1	<0.1	<0.1	<0.1	3.0
E589118	Rock	0.92	4.42	0.87	2.47	0.35	2.46	0.37	0.23	0.04	1.1	79.6	4.0	56	51.9	0.6	<0.1	<0.1	<0.1	<0.1	1.3
REP E589118	QC	0.95	4.79	0.86	2.63	0.37	2.56	0.40													
E589208	Rock	0.63	3.39	0.71	2.05	0.29	2.09	0.32	0.16	<0.02	0.7	73.1	2.5	34	63.4	1.2	<0.1	<0.1	<0.1	<0.1	1.6
REP E589208	QC								0.16	<0.02											
E589215	Rock	1.61	7.59	1.33	3.35	0.45	2.85	0.41	0.05	<0.02	3.0	184.3	4.1	97	26.3	1.0	<0.1	<0.1	<0.1	0.1	2.0
REP E589215	QC										2.8	198.1	4.1	97	27.2	1.0	<0.1	<0.1	<0.1	0.1	2.7
REP E589233	QC	1.41	6.97	1.17	2.79	0.36	2.24	0.33													
Core Reject Duplicates																					
E589102	Rock	0.62	3.18	0.61	1.78	0.26	1.78	0.26	0.25	0.05	0.5	60.4	2.3	23	125.5	0.7	<0.1	<0.1	<0.1	<0.1	2.0
DUP E589102	QC	0.63	3.21	0.62	1.81	0.27	1.79	0.29	0.24	0.05	0.5	57.6	2.2	20	118.2	<0.5	<0.1	<0.1	<0.1	<0.1	2.0
E589233	Rock	1.43	7.04	1.17	2.83	0.36	2.25	0.33	0.10	0.02	0.9	142.4	2.9	72	155.0	<0.5	<0.1	<0.1	<0.1	<0.1	0.6
DUP E589233	QC	1.40	6.90	1.13	2.80	0.35	2.13	0.31	0.09	0.02	0.8	148.0	2.8	73	152.3	0.7	<0.1	<0.1	<0.1	<0.1	0.6
Reference Materials																					
STD DS11	Standard										14.0	143.7	137.0	340	78.8	43.5	2.5	6.0	10.7	1.6	86.1
STD DS11	Standard										13.8	149.6	135.8	341	76.0	45.5	2.4	7.7	11.1	2.0	593.9
STD GS311-1	Standard								0.98	2.31											
STD GS311-1	Standard								0.99	2.28											
STD GS910-4	Standard								2.67	8.67											
STD GS910-4	Standard								2.68	8.16											
STD OREAS45EA	Standard										1.6	708.5	14.6	31	408.2	11.4	<0.1	0.3	0.2	0.3	62.0
STD OREAS45EA	Standard										1.6	678.5	15.2	32	390.2	11.8	<0.1	0.3	0.3	0.3	53.7
STD SO-19	Standard	1.34	7.04	1.36	3.55	0.50	3.25	0.48													
STD SO-19	Standard	1.37	7.26	1.36	3.97	0.53	3.33	0.50													
STD SO-19	Standard	1.35	6.86	1.31	3.57	0.55	3.30	0.50													

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9050 Shaughnessy St Vancouver British Columbia V6P 6E5 Canada

PHONE (604) 253-3158

Client: **Churchill Diamond Corp.**
133 Richmond St West, Suite 501
Toronto Ontario M5H 2L3 Canada

Project: None given
Report Date: October 11, 2017

QUALITY CONTROL REPORT TIM17000238.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
E589111	Rock	<0.01	0.1	<0.5
E589231	Rock	<0.01	<0.1	<0.5
Pulp Duplicates				
E589105	Rock	<0.01	<0.1	<0.5
REP E589105	QC	<0.01	<0.1	<0.5
E589118	Rock	<0.01	0.1	0.6
REP E589118	QC			
E589208	Rock	<0.01	0.1	<0.5
REP E589208	QC			
E589215	Rock	<0.01	0.1	<0.5
REP E589215	QC	<0.01	0.1	<0.5
REP E589233	QC			
Core Reject Duplicates				
E589102	Rock	<0.01	0.3	<0.5
DUP E589102	QC	<0.01	0.3	<0.5
E589233	Rock	<0.01	<0.1	<0.5
DUP E589233	QC	<0.01	<0.1	<0.5
Reference Materials				
STD DS11	Standard	0.27	4.9	2.0
STD DS11	Standard	0.26	4.9	2.1
STD GS311-1	Standard			
STD GS311-1	Standard			
STD GS910-4	Standard			
STD GS910-4	Standard			
STD OREAS45EA	Standard	<0.01	<0.1	1.1
STD OREAS45EA	Standard	0.01	<0.1	1.0
STD SO-19	Standard			
STD SO-19	Standard			
STD SO-19	Standard			

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		WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sc	LOI	Sum	Be	Co	Cs
		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	%	%	ppm	ppm	ppm
		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	1	20	1	-5.1	0.01	1	0.2	0.1
STD SO-19	Standard		60.77	13.90	7.37	2.89	5.92	3.97	1.31	0.69	0.32	0.13	0.491	441	471	26	1.9	99.81	16	21.9	3.8
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD SO-19 Expected			61.13	13.95	7.47	2.88	6	4.11	1.29	0.69	0.32	0.13	0.5	486	470	27			20	24	4.5
STD OREAS45EA Expected																					
STD DS11 Expected																					
BLK	Blank																				
BLK	Blank																				
BLK	Blank		<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<1	<20	<1	0.0	0.11	<1	<0.2	<0.1
BLK	Blank		<0.01	<0.01	<0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<1	<20	<1	0.0	0.07	<1	0.3	<0.1
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
G1-TIM	Prep Blank		71.16	13.90	3.06	0.88	2.11	4.58	2.10	0.35	0.09	0.09	<0.002	816	<20	7	1.5	99.94	<1	3.4	0.2
G1-TIM	Prep Blank		70.48	14.15	3.17	0.92	2.18	4.51	2.20	0.36	0.09	0.09	0.003	840	<20	7	1.7	99.94	2	3.7	0.3

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		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
STD SO-19	Standard	15.4	2.9	64.8	18.6	18	311.2	4.8	13.2	19.9	172	9.4	104.5	33.6	70.8	155.5	18.59	72.4	12.63	3.50	9.99
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD SO-19 Expected		17.5	3.1	68.5	19.5	19	317.1	4.9	13	19.4	165	9.8	112	35.5	71.3	161	19.4	75.7	13.7	3.81	10.53
STD OREAS45EA Expected																					
STD DS11 Expected																					
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.5	<0.1	0.3	<0.1	<1	0.5	<0.1	<0.2	<0.1	<8	<0.5	0.2	<0.1	<0.1	0.1	<0.02	<0.3	<0.05	<0.02	<0.05
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	0.3	<0.02	<0.3	<0.05	<0.02	<0.05
BLK	Blank																				
BLK	Blank																				
Prep Wash																					
G1-TIM	Prep Blank	10.1	3.2	5.3	31.9	<1	195.8	0.4	3.1	1.3	35	3.7	123.7	15.6	15.1	27.2	3.04	11.6	2.50	0.68	2.45
G1-TIM	Prep Blank	11.0	3.4	5.6	33.0	<1	190.8	0.4	2.9	1.3	35	<0.5	127.6	15.3	13.7	24.7	2.99	11.1	2.39	0.70	2.44

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		LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
		Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
		0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
STD SO-19	Standard	1.34	6.97	1.39	3.83	0.54	3.55	0.51													
STD GS311-1 Expected									1.02	2.35											
STD GS910-4 Expected									2.65	8.27											
STD SO-19 Expected		1.41	7.5	1.39	3.78	0.55	3.55	0.53													
STD OREAS45EA Expected											1.6	709	14.3	31.4	381	10.3	0.03	0.32	0.26	0.26	53
STD DS11 Expected											13.9	156	138	345	81.9	42.8	2.37	7.2	12.2	1.71	79
BLK	Blank								<0.02	<0.02											
BLK	Blank								<0.02	<0.02											
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
Prep Wash																					
G1-TIM	Prep Blank	0.41	2.56	0.56	1.87	0.28	2.01	0.34	0.08	0.02	0.8	3.8	1.4	36	1.0	1.2	<0.1	<0.1	<0.1	<0.1	1.0
G1-TIM	Prep Blank	0.41	2.67	0.58	1.90	0.29	2.06	0.34	0.08	<0.02	0.9	6.8	1.5	40	1.2	1.3	<0.1	<0.1	<0.1	<0.1	1.1

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		AQ200	AQ200	AQ200
		Hg	**Tl**	**Se**
		ppm	**ppm**	**ppm**
		0.01	**0.1**	**0.5**
STD SO-19	Standard			
STD GS311-1 Expected				
STD GS910-4 Expected				
STD SO-19 Expected				
STD OREAS45EA Expected			0.072	0.78
STD DS11 Expected		0.3	4.9	1.9
BLK	Blank			
BLK	Blank			
BLK	Blank			
BLK	Blank			
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank	<0.01	<0.1	<0.5
Prep Wash				
G1-TIM	Prep Blank	<0.01	<0.1	<0.5
G1-TIM	Prep Blank	<0.01	<0.1	<0.5