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SOCIÉTÉ DE GESTION DES DÉCHETS NUCLÉAIRES

Phase 2 Geoscientific Preliminary Assessment, Observation of General Geological Features

TOWNSHIP OF IGNACE, ONTARIO

APM-REP-06145-0004

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Phase 2 Geoscientific Preliminary Assessment, Observation of General Geological Features, Township of Ignace, Ontario

Report Prepared for

Nuclear Waste Management Organization

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Report Prepared by

SRK Consulting (Canada) Inc.

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Phase 2 Geoscientific Preliminary Assessment, Observation of General Geological Features, Township of Ignace, Ontario

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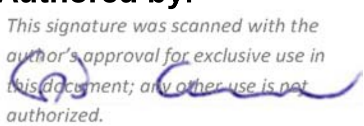

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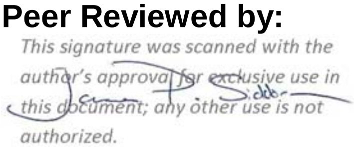

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Cover: Typical Landscape of the Ignace area, Ontario.

Executive Summary

This technical report documents the results of the Observation of General Geological Features (OGGF) activity conducted as part of the Phase 2 Geoscientific Preliminary Assessment, to further assess the suitability of the Ignace area to safely host a deep geological repository (Golder , 2015). This study followed the successful completion of a Phase 1 Geoscientific Desktop Preliminary Assessment (NWMO, 2013; Golder, 2013). The desktop study identified four large potentially suitable areas warranting further studies such as high-resolution surveys and geological mapping.

The purpose of the Phase 2 OGGF activity was to confirm and ground truth the presence and nature of key geological features within the general potentially suitable areas identified in Phase 1 desktop assessment. Geological features were investigated over a period of seven mapping days by two teams of two geologists, and with the aid of one local guide for logistical support. A digital data collection protocol was applied to the documentation and compilation of the observations into a GIS-compatible database. These include bedrock character (lithology, primary fabric, magnetic susceptibility, geomechanical nature), fracture character, bedrock exposure and surface constraints. Representative rock samples were also collected.

Observations were made at a total of 82 locations in the general potentially suitable areas of the Basket Lake, Indian Lake and Revell batholiths identified in the Phase 1 Preliminary Assessment. The field observations identified five domains on the basis of their lithological and structural character. The Basket Lake and Indian Lake batholiths represent two separate domains, while the Revell batholith is subdivided into three domains that correspond to its internal lithological phases: a megacrystic phase domain, a tonalite-granodiorite phase domain, and an intermediate phase domain.

The Basket Lake batholith domain is characterized by fine- to medium-grained, recrystallized, equigranular biotite granodiorite to tonalite with a consistent magnetic susceptibility. The dominant foliation orientation strikes northeast, dips steeply and is defined by the alignment of potassium feldspar and biotite crystals. Bedrock is sparsely fractured to intact. Fault observations are sparse. Rock strength is uniformly very high throughout, except within fault zones. Bedrock is variably exposed, with some areas nearly completely covered by glacial sediments.

The Indian Lake batholith domain is characterized by a grey, medium-grained, equigranular, very weakly foliated to massive biotite granodiorite with a generally high and consistent magnetic susceptibility. Foliation is defined by a very weak preferred alignment of biotite and dips steeply to the northwest or southeast. The bedrock is sparsely fractured to intact. Fracture density is uniformly low except near linear surface features or interpreted faults. Rock strength is uniformly very high throughout except within fault zones. The degree of bedrock exposure is low.

The tonalite-granodiorite phase of the Revell batholith is a spotted white, medium-grained, equigranular, massive granodiorite to tonalite with a uniformly low magnetic susceptibility. Aligned biotite crystals, sheets of accumulated biotite, as well as quartz eyes define the foliation that trends easterly and dips steeply north or south. Bedrock is sparsely fractured to intact. Spacing between fractures decreases markedly in proximity to linear surface features or interpreted faults. Rock strength is uniformly very high except within fault zones. Bedrock is generally well exposed and overburden thickness is low.

The intermediate phase of the Revell batholith is a grey and light pink medium to coarse grained granodiorite with a uniform low magnetic susceptibility. Biotite crystals and quartz eyes define the foliation that dips moderately to the southeast or southwest, or steeply to the northwest. Bedrock is sparsely fractured to intact and fracture density is low, except in the proximity to linear surface features or interpreted faults. Rock strength is generally high, except in association with high intensity rock alteration near the contact with the megacrystic phase. Bedrock is generally well exposed and overburden thickness is low.

The megacrystic phase of the Revell batholith is characterized by a pink to grey inequigranular massive granite with euhedral prismatic potassium feldspar phenocrysts in a medium grained groundmass. The magnetic susceptibility is high throughout. A shallow-dipping foliation is defined by alignment of biotite, quartz eyes and elongated xenoliths. Fracture density is generally low with variations in proximity to fault zones. Rock strength is uniformly very high and bedrock exposure is generally good.

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IMPORTANT NOTICE

1 Introduction

This technical report documents the results of the Observation of General Geological Features (OGGF) activity conducted as part of the Phase 2 Geoscientific Preliminary Assessment, to further assess the suitability of the Ignace area to safely host a deep geological repository (Golder, 2015). This study followed the successful completion of a Phase 1 Geoscientific Desktop Preliminary Assessment (NWMO, 2013; Golder, 2013). The desktop study identified a number of large potentially suitable areas warranting further studies such as high-resolution surveys and geological mapping. The purpose of the Phase 2 OGGF activity was to confirm and ground truth the presence and nature of key geological features of the bedrock units within the potentially suitable areas identified in Phase 1 desktop assessment.

The Phase 2 OGGF activity was completed by SRK Consulting (Canada) Inc. (SRK) and Golder Associates Ltd. (Golder) for the Ignace area in Ontario. The observations were conducted at select readily-accessible locations using the existing road and trail network, where possible. The Phase 2 OGGF activity was undertaken to confirm and ground truth the presence and nature of key geological features. These include: bedrock character (lithology, primary fabric, magnetic susceptibility, geomechanical nature); fracture character; and bedrock exposure and surface constraints.

1.1 Scope of Work and Work Program

The scope of work for the Phase 2 OGGF comprises three stages, including:

- Stage 1: Pre-observation planning;
- Stage 2: Observation of General Geological Features; and
- Stage 3: Synthesis and reporting.

During the pre-observation planning stage, a plan for the observation of general geological features was developed for the four general potentially suitable areas identified in the Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013). These include one area in the southern portion of the Basket Lake batholith, two areas on the eastern and western portions of the Indian Lake batholith and one area in the northern portion of the Revell batholith. Observations were also made within the larger area defining the footprint of available high resolution airborne geophysical coverage (SGL, 2015). During the OGGF stage, geological information was collected in accordance with the work plan defined during Stage 1 (See Section 4 Methodology) and during Stage 3 the information was analysed, compiled and is documented in this report.

The four general potentially suitable areas were investigated over a period of approximately seven mapping days by two teams of two geologists, with the aid of one local guide who worked on alternating days with both teams. Several GIS datasets were used as base maps for the Phase 2 OGGF project, including georeferenced historical geological outcrop mapping, high-resolution satellite imagery and recently-acquired high-resolution geophysical data (SGL, 2015).

1.2 Qualifications of the Team

The SRK Group comprises over 1,500 professionals, offering expertise in a wide range of resource engineering disciplines. The SRK Group's independence is ensured by the fact that it holds no equity in any project and that its ownership rests solely with its staff. This fact permits SRK to provide its clients with conflict-free and objective recommendations on crucial judgment issues. SRK has a demonstrated track record in undertaking independent assessments of mineral resources and mineral reserves, project evaluations and audits, technical reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs.

Employee-owned since its formation in Toronto in 1960, Golder Associates has grown to more than 8,000 employees in offices located throughout Africa, Asia, Australasia, Europe, North America and South America. Golder has a depth of experience and expertise supporting the nuclear industry including approvals and licensing, radioactive waste management, and investigations and engineering for Deep Geological Repositories in Canada, the United States, Sweden, Finland, France, Hungary, and the United Kingdom.

The investigations and compilation of the data presented in this report were completed by Dr. Iris Lenauer (SRK), Mr. Blair Hrabi (SRK), Mr. Charles Mitz (Golder), and Dr. Alex Man (Golder). A brief description of their roles and qualifications is provided below.

Dr. Iris Lenauer, PhD, PGeo (APGO #2473), is a Consultant (Structural Geology) with over 8 years of experience specializing in regional mapping, structural analysis in various tectonic settings, and brittle fault analysis. She has recently completed a regional structural lineament interpretation of the Phoenix project in the Red Lake Greenstone Belt of the Superior Province, and an interpretation of fault network from aeromagnetic data from the Palmarejo project area in Mexico. She is currently involved in the NWMO Phase 2 Lineament Interpretation work in the role of lineament interpreter. Dr. Lenauer was a lead geologist on the Ignace OGGF and is the lead author of this report, responsible for writing sections 1, 5.1, 5.2, 5.3, 5.4, 5.5, and 6.

Mr. Blair Hrabi, MSc, PGeo (APGO #1723) is a Principal Consultant (Structural Geology) with SRK, based in the Toronto office. He is a structural geologist with 18 years of experience gained in the exploration industry, government geological surveys, and academic settings. He has extensive experience in field mapping and structural analysis of Archean and Proterozoic terranes from regional to detailed scales. He has also conducted numerous detailed structural and lithological interpretations of aeromagnetic and electromagnetic data sets and has a special interest in the compilation and integration of diverse data sets to understand the evolution and geometry of complex, mineralized terranes, and to aid in GIS-based structural analyses. Mr. Hrabi was the second lead geologist on the Ignace OGGF project.

Mr. Charles Mitz, MEng, PGeo (APGO #0277) is a senior engineering geologist at Golder with expertise in fractured rock hydrogeology. He was the task leader for the Initial Screening and Phase 1 Geoscientific Assessments for Ignace, and several other communities that have participated in the APM site selection process. Mr. Mitz was the assistant geologist on the Ignace OGGF and was responsible for writing sections 2, and 5.6.

Dr. Alex Man, PEng, is an Associate and senior geotechnical engineer at Golder with a focus on nuclear repository site selection and characterization. He was the task leader for the Phase 1 Geoscientific Assessments for the Creighton, Pinehouse and ERFN communities that have participated in the APM site selection process. Dr. Man was the second assistant geologist on the Ignace OGGF.

Dr. James P. Siddorn, PGeo (Practice Leader; APGO #1314) served as a technical advisor and reviewed a draft of this report prior to its delivery to Golder and the NWMO as per SRK internal quality management procedures.

Mr. George Schneider, MSc, PGeo (APGO #1239) is a Principal and senior geoscientist at Golder with a focus on nuclear repository site selection and characterization. He is the Project Manager to NWMO on this project, was responsible for assembling Section 4, and has provided senior review of this report, as per Golder's quality management procedures.

1.3 Report Organization

This report was prepared by SRK with support from Golder. A general description of the Ignace area, including location, physiography and access is provided in Chapter 2. Chapter 3 summarizes the regional and local geological setting for the Ignace area. The methodology employed to undertake the OGGF activity is provided in Chapter 4. Results are summarized in Chapter 5. A brief summary of the results is included in Chapter 6, followed by references cited in Chapter 7 and a set of figures. In addition, Appendix A at the end of the report includes summary tables of all collected field information.

2 Description of the Ignace Area

2.1 Location

The Ignace area is located within the District of Kenora in northwestern Ontario, along the north shore of Lake Agimak, approximately 250 km northwest of Thunder Bay (Figure 1). The four general potentially suitable areas identified in Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013) comprised the main regions of focus during the field visit (Figure 2). One general potentially suitable area is located on the Basket Lake batholith, to the northwest of the Township of Ignace. There are two general potentially suitable areas on the Indian Lake batholith, one adjacent to, and northwest of the Township, and the other northeast of the Township of Ignace. The fourth general potentially suitable area is on the Revell batholith, to the west of the Township of Ignace (Figure 2).

2.2 Physiography

The Ignace area is covered by a discontinuous mantle of unconsolidated glacial deposits underlain by approximately 3 to 2.6 billion year old bedrock of the Superior Province of the Canadian Shield. Significant deposition of glaciofluvial outwash moraines, which form northwest-trending linear features and fine-textured glaciolacustrine material has resulted in the preservation of a high degree of overburden cover across much the Ignace area, especially in the region to the north of Highway 17 (Figure 2). The Revell batholith has a comparatively low degree of overburden cover. The bedrock is resistant to weathering and contributes to the rolling to rugged topography and numerous lakes that characterize much of the area.

The land surface topography in the Ignace area ranges in elevation from about 350 to 550 metres (m) above sea level, with this amount of relief being expressed over a lateral distance of about 80 km. Bedrock knobs and ridges typically extend above the large lakes in areas underlain by the Basket and Indian Lake batholiths, while the relief is slightly less over the Revell batholith. Topography over the greenstone belts is often in the form of long narrow ridges reflecting differential erosion of the layered metavolcanic and metasedimentary rocks. Many of the bedrock knobs and whalebacks in the Basket and Indian Lake batholiths exhibit a northeast-oriented, ‘drumlinoid’ elongation, suggesting a greater degree of glacial modification of the topography (JDMA, 2013). Glacial striae measured during the OGGF activity with orientations of 018° and 045° indicate recent glacial ice advance from the northeast.

2.3 Accessibility

The Ignace area is generally accessible via all-season arterial transportation routes such as: the Trans-Canada highway (Highway 17), which passes through the centre of the area in an east-west orientation, and through the Township of Ignace; Highway 599, which runs northeast from its intersection with Highway 17 past the Cecil Lake area; and Highway 622, which runs southwest from Highway 17 (Figure 1).

A well-developed network of gravel surfaced logging and recreational roads provides access to within a few kilometres of most areas observed during the OGGF activity, although some of the roads are impassible to all but all-terrain vehicles (ATVs). The area on the Revell batholith can be accessed by local roads southwest of Highway 17 and also from local roads west and east of, and along, Highway 622; however, lands in the north-central Revell batholith remain inaccessible by currently existing roads (Figure 2). The potentially suitable area on the Basket Lake batholiths can be accessed by local roads north of Highway 17. The area on the western portion of the Indian Lake batholith can be accessed by local roads to the north and south of, and along, Highway 17; the area on the eastern part of the batholiths can be accessed by local roads east and west of, and along, Highway 599.

Most of the large lakes in the Ignace area can be accessed by logging roads or ATV trails. A float plane dock, the Ignace Waterdome, is located on Agimak Lake.

3 Summary of Geology

Details of the geology of the area of Ignace are described in the Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013). The following sections provide a brief summary of the regional geological setting and local-scale bedrock geology, structural history and mapped structures, metamorphism, and Quaternary geology. The descriptions below focus on the batholiths where the general potentially suitable areas identified in Phase 1 are located (Revell, Indian Lake and Basket Lake batholiths), their surrounding bedrock units and important structural features.

3.1 Regional Geological Setting

The Ignace area is located in the central portion of the Archean Wabigoon Subprovince of the Superior Province. The Wabigoon Subprovince is further subdivided into three lithotectonic terranes: the granitoid Marmion terrane, the predominantly volcanic Western Wabigoon terrane, and the plutonic Winnipeg River terrane. The Ignace area includes portions of all three terranes. The boundaries between lithotectonic terranes are not sharply defined due to the emplacement of younger plutonic rocks at places along the inferred terrane boundaries (Stone, 2010a).

3.2 Local Geological Setting

3.2.1 Bedrock Geology

The geology of the Ignace area is dominated by large granitic intrusions and associated tonalitic units, including the Indian Lake, Revell, and Basket Lake batholiths, where the four general potentially suitable areas were identified in the Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013; Figure 2). These intrusions were emplaced into the older Raleigh Lake and Bending Lake greenstone belts. These bedrock units exhibit evidence of both ductile and brittle deformation and are transected by at least two suites of undeformed diabase dykes. A description of these three granitic batholiths, associated tonalitic units, and surrounding greenstone belts and dykes is provided in the following subsections.

Intrusive Rocks: Revell Batholith

The Revell batholith is the oldest granitoid intrusion in the Ignace area. It is roughly rectangular in shape, trends northwest, is approximately 40 km in length, and covers approximately 455 km^2. Szewczyk and West (1976) interpreted this batholith to be a sheet-like intrusion approximately 1.6 km thick.

Three different intrusive phases are currently recognized in the Revell batholith (Stone et al., 2010). The oldest phase corresponds to an approximately 2.734 billion years old, medium-grained, foliated, mesocratic biotite tonalite (Stone, 2009) exposed primarily along the western margin of the batholith and in its southern portion. A younger 2.732 billion years old phase (Stone et al., 2010) consisting of coarse-grained mesocratic gneissic hornblende tonalite is found along the western margin of the batholith. The youngest phase, approximately 2.694 billion years old (Buse et al., 2010), consists of mesocratic to leucocratic feldspar megacrystic biotite granodiorite to granite; this phase extends over most of the surface extent of the batholith. A distinctive oval-shaped, K-feldspar megacrystic lithofacies of this younger phase approximately

47 km^2 in areal extent is identified on the central-east portion of the batholith based on previous mapping and interpretation of existing geophysical data (Stone et al., 2011a, 2011b; Stone et al., 2007; PGW 2013).

Intrusive Rocks: Basket Lake Batholith

The Basket Lake batholith is exposed in the northwestern part of the Ignace area (Figure 2). This northwest-oriented batholith is approximately 10 to 15 km in width and more than 30 km in length. Szewczyk and West (1976) estimated the thickness of the northern part of the Basket Lake batholith to be at least 8 km, thinning progressively to 0.5 km to the southeast, forming a tongue-like extension of the main batholith body.

Mapping of the eastern portion of the Basket Lake batholith describes the lithology as hornblende-biotite quartz-diorite to tonalite (Sage et al., 1974). The western-northwestern portion of the batholith consists mainly of leucocratic biotite-rich granodiorite, which changes to granite with subordinate tonalite, quartz monzonite, quartz diorite and a mixed hybrid zone locally developed near the contact with the Bending Lake and Raleigh Lake greenstone belts (Berger, 1988). The contact zone contains white tonalite dykes which crosscut the granodiorite facies of the intrusion, as well as the adjacent metavolcanics. These dykes are interpreted to be a late phase of the Basket Lake batholith (Berger, 1988).

The Basket Lake batholith is commonly foliated, with foliation being weak and mostly defined by alignment of biotite and a fine- to medium-grained character. This suggests that this batholith experienced some degree of ductile deformation (Szewczyk and West, 1976), and that it pre-dates the intrusion of the Indian Lake batholith, as well as the youngest phase of the Revell batholith, as these intrusions are not foliated.

Intrusive Rocks: Indian Lake Batholith

The approximately 2.671 billion years old Indian Lake batholith (Tomlinson et al., 2004) covers a total surface area of about 1,366 km^2 (Figure 2). This batholith has previously been estimated to be a sheet-like intrusion up to 2 km thick (Szewczyk and West, 1976; Everitt, 1999).

The Indian Lake batholith is composed of light grey-white to pale pink biotite granite, typically medium- to coarse-grained, inequigranular, leucocratic, and is massive to weakly foliated. It usually contains a small percentage of biotite (3-5%) and subequal proportions of quartz, plagioclase and potassium feldspar (Stone et al., 1998). Magmatic foliations present in the batholith are defined by the alignment of igneous minerals that delineate concentric patterns in the granite (Stone et al., 1998).

An enclave of biotite-hornblende tonalite to granite, approximately 35 km^2 in area, is mapped within the Indian Lake batholith, extending from the southern portion of the Township of Ignace southward. This enclave is usually coarse, granular and mesocratic and, when hornblende granite is present, it is characterized by large potassium feldspar phenocrysts that are 1 to 5 cm in size (Stone et al., 1998). It is not known whether this tonalitic body is a separate intrusive body, the product of different phases of magmatic injection, or compositional zoning.

Intrusive Rocks: Tonalitic Units

The area surrounding the Basket Lake and Indian Lake batholiths in the Ignace area has been mapped as compositionally heterogeneous tonalitic gneiss and biotite tonalite (Figure 2). The Biotite Tonalite Suite is typically white to grey, medium grained, and variably massive to foliated. Weakly gneissic biotite tonalite to granodiorite is the principal type of rock within this suite. The Biotite Tonalite Suite grades into the Tonalite Gneiss Suite largely through progressive development of a gneissic texture. Intrusions of the Biotite Tonalite Suite show considerable variation in age, ranging from approximately 2.994 to 2.688 billion years (Stone, 2010a).

The Tonalite Gneiss Suite comprises older gneissic, foliated, migmatized tonalite-granodiorite, intruded by younger granitoid batholiths. The Tonalite Gneiss Suite is layered with individual gneissic layers varying compositionally from leucocratic tonalite and granodiorite through mesocratic tonalite and granodiorite to diorite and amphibolite. They range substantially in age from approximately 3.009 to 2.673 billion years old, similar to the variation in age shown by the Biotite Tonalite Suite (Stone, 2010a). The gneiss commonly shows strongly foliated to mylonitic textures and belts of gneiss are spatially associated with zones of high ductile strain such as the margins of large batholiths (Stone, 2010a). Locally, the tonalitic gneiss is gradational in composition to amphibolitic gneiss of volcanic or migmatized sedimentary rock origin, whereas the more felsic phases are gradational to biotite tonalite (Stone, 2010a).

Greenstone Belts

The Raleigh Lake and Bending Lake greenstone belts surround the Revell batholith and are adjacent to the Indian Lake and Basket Lake batholiths. They are composed of alternating units of mafic pillowed metavolcanic rocks and intermediate fragmental metavolcanic rocks, both metamorphosed to amphibolite facies (Figure 2).

The northwest-trending Raleigh Lake greenstone belt occurs north of the Revell batholith and extends over a length of 50 km. The Raleigh Lake greenstone belt is dominated by mafic metavolcanic rocks, and contains approximately 30% intermediate to felsic fragmental metavolcanic rocks (Stone, 2010a). The greenstone belt is intruded by oval, smaller felsic to intermediate plutons such as the Raleigh Lake intrusions, which consist of three epizonal granitic stocks hosted in the metavolcanic rocks of the Raleigh Lake greenstone belt (Figure 2). These small bodies are compositionally similar to the larger granodioritic to granitic batholiths that dominate the Ignace area.

The northwest-trending Bending Lake greenstone belt occurs southwest of the Revell batholith. It is composed of mafic metavolcanic rocks, with subordinate gabbro, intermediate metavolcanic rocks, and clastic metasedimentary rocks (wacke and argillite; Stone, 2010b).

Mafic Dykes

Mafic dykes in the Ignace area include the Wabigoon and Kenora-Fort Frances swarms, emplaced between approximately 2.20 and 1.96 billion years (Osmani, 1991; Figure 2). The Wabigoon dyke swarm constitutes the most prominent dyke generation and extends in a northwest orientation for at least 70 km from Ignace to Lac des Mille Lacs without offsets along any terrane boundaries. Within the Ignace area, the Wabigoon dykes are typically 100 to 200 m in width. Fahrig and West (1986) obtained a K/Ar age of approximately 1.9 billion years for the Wabigoon dykes.

The Kenora-Fort Frances dyke swarm contains hundreds of northwest-trending dykes up to 100 km long and 120 m wide, covering an area of approximately 90,000 km^2 (Osmani, 1991). The Kenora-Fort Frances dykes form clusters in the Melgund Lake area to the northwest of the Revell batholith, and in the Mameigwess Lake area between the Basket and Indian Lake batholiths. The Kenora-Fort Frances dykes are composed of variable amounts of plagioclase, pyroxene, quartz, hornblende, as well as varying degrees of alteration minerals. Southwick and Halls (1987) reported a Rb-Sr age of approximately 2.120 billion years for these dykes.

3.2.2 Structural History and Mapped Structures

Information on the structural history of the area of Ignace and surrounding region is limited. This summary was built using information available for the Wabigoon Subprovince and is largely based on Percival et al. (2004), Bethune et al. (2006), Sanborn-Barrie and Skulski (2006), and Stone (2010a). Five episodes of penetrative strain (D_1 to D_5) affected the central Wabigoon Subprovince (Percival et al., 2004). Gneissic tonalitic rocks (Tonalite Gneiss Suite) commonly show D_1 and D_2 fabrics, overprinted by pervasive, regional D_3 to D_5 fabrics or structures.

The S_1 foliation is a gneissic layering that was folded during D_2 deformation into tight to isoclinal F_2 folds. The geometric and kinematic character of D_1 and D_2 deformation is cryptic as a result of magmatic and structural (D_3-D_5) overprinting (Percival et al., 2004). D_1 and D_2 deformation fabrics are confined to gneissic rocks in the central Wabigoon Subprovince. The best constraints on the age of the early (D_1-D_2) events are approximately 2.725 to 2.713 billion years (Percival et al., 2004).

Two episodes of penetrative strain (D_3 and D_4 of Percival et al. 2004; D_1, D_2 of Sanborn-Barrie and Skulski, 2006), hereby termed D_3 and D_4, affected the supracrustal rocks of the central Wabigoon Subprovince. D_3 and D_4 deformation are interpreted to have occurred prior to 2.698 billion years (Percival et al., 2004). The earliest penetrative deformation (D_3) resulted in northwest-trending F_3 folds and development of an associated S_3 axial planar cleavage. These fabrics are well exposed in the nearby Savant-Sturgeon Lake greenstone belt to the northeast of the area of Ignace where they have been correlated with a northwest-striking foliation (locally known as F_1 and S_1) within the Lewis Lake biotite-tonalite (2.735 to 2.730 billion years; Sanborn-Barrie and Skulski, 2006). In the Raleigh Lake and Bending Lake greenstone belts, within the Ignace area, D_3 structures dominate as shown in the strong north-west grain observed in the supracrustal rocks. East- to northeast-striking D_4 structures locally overprint the northwest-striking S_3 foliation. The S_4 foliation occurs as a moderately to strongly developed schistosity that is characterized by a uniformly steep dip. The S_4 foliation is commonly axial planar to 050-070° trending, steeply plunging F_4 folds (locally known as F_2; Sanborn-Barrie and Skulski, 2006).

Percival et al. (2004) attributed sinistral shear zone development in plutonic and gneissic rocks to D_5 deformation in the central Wabigoon Subprovince, bracketed between about 2.690 billion years (Davis, 1989) and 2.678 billion years (Brown, 2002). These shear zones are associated with significant sinistral strike-slip displacement along the Miniss River fault zone and dextral strike-slip motion along the Sydney-Lake St. Joseph fault zone 150 km north of the area of Ignace (Bethune et al., 2006). Regional differential uplift associated with movement along these shear zone systems continued until ca. 2.400 billion years (Hanes and Achibald, 1998) indicating a protracted D_5 fault history.

The subsequent emplacement of the Kenora-Fort Frances and Wabigoon dykes was followed by pulses of brittle deformation and fault reactivation during the Penokean Orogeny approximately 1.8 billion years ago. Following these deformation stages, late dyke emplacement and presumably fault-joint reactivation associated with the Midcontinent Rift magmatism occurred at approximately 1.150 to 1.130 billion years (Easton et al., 2007).

There are two mapped faults within the Ignace area. One, the Washeibemaga fault, trends east and is located to the west of the Revell batholith (Figure 2). A second unnamed fault is located in the northwestern corner of the Ignace area and trends northeast close to Minnitaki Lake. There are no mapped faults within the four general potentially suitable areas (Figure 2).

In the broader region, the northeast-trending Finlayson-Marmion fault is located south of the Ignace area, and extends northeast from Steep Rock Lake where it intersects and is thought to represent a splay of the east-west trending Quetico fault. The Finlayson-Marmion fault crosscuts the Indian Lake batholith and is interpreted to represent a D_5 shear zone. This fault caused the mylonitization and brittle deformation of the granitoid rocks within the White Otter Lake and Indian Lake batholiths (Schwerdtner et al., 1979; Stone, 2010a). To the south, close to the Quetico Fault, the Finlayson-Marmion fault broadens to a complex braided zone of fault segments, some of which are auriferous (Stone, 2010a). The latest known movement along the associated Quetico fault, and therefore potentially the D_5 Finlayson-Marmion fault, occurred at approximately 1.947 billion years with the development of pseudotachylite (Peterman and Day, 1989). Immediately southeast of the Ignace area, a Wabigoon dyke (1.9 billion years; Buchan and Ernst, 2004) crosscuts the Finlayson-Marmion fault. This indicates that only limited movement could have occurred along the Finlayson-Marmion fault since the intrusion of the Wabigoon dyke swarm.

3.2.3 Metamorphism

Metamorphism in the Central Wabigoon region occurred in late Neoarchean time, from approximately 2.722 to 2.657 billion years ago (Stone, 2010a) and peaked at approximately 2.701 billion years ago (Easton, 2000). The collision of the Western Wabigoon terrane with the Winnipeg River-Marmion terrane at approximately 2.7 billion years (Percival et al., 2006) may have been the cause of this regional metamorphism. Metamorphism in the Central Wabigoon region is generally restricted to greenschist facies, and increases locally to middle amphibolite facies in parts of the greenstone belts (Sage et al., 1974; Blackburn et al., 1991; Easton, 2000; Sanborn-Barrie and Skulski, 2006). Very high grade (i.e., granulite facies) and very low grade (e.g., zeolite facies) metamorphism is largely absent in the central Wabigoon (Stone, 2010b).

A low to medium metamorphic grade overprint is recognized within the rocks of the Ignace area, mainly within the Raleigh Lake and Bending Lake greenstone belts and within marginal zones of the Revell batholith. High metamorphic grade occurs in the Ignace area in tonalite adjacent to plutons and greenstone belts and is accompanied by widespread migmatization of the rocks. In the Raleigh Lake greenstone belt, greenschist facies metamorphism grades into amphibolite facies. In the Bending Lake greenstone belt, mineral assemblages are indicative of variable metamorphic grade, up to amphibolite facies. Rocks at the margins and in narrow extensions of the greenstone belts exhibit higher metamorphic grade than rocks in the core of the belt, implying a degree of contact metamorphism adjacent to the surrounding intrusive bodies (Stone, 2010a).

3.2.4 Quaternary Geology

Information on Quaternary geology in the Ignace area was described in detail as part of the terrain study (JDMA, 2013) carried out during Phase 1 Geoscientific Desktop Preliminary Assessment, and is summarized here.

Quaternary deposits in the Ignace area accumulated during and after the Wisconsinan glaciation. Advancement of the Laurentide Ice Sheet from the northeast across the area deposited a veneer of till throughout the areas mapped as bedrock terrain, with thicker accumulations of till mapped as morainal terrain. During the retreat of the Laurentide Ice Sheet, significant deposition of glaciofluvial outwash and glaciolacustrine plains occurred, with two major end moraines, Lac Seul and Hartman moraines, extending through the Ignace area recording the progressive retreat of the ice sheet.

The Hartman moraine is a significant Quaternary landform in the Ignace area that divides the area into distinct zones based on the thickness of Quaternary deposits (Figure 2). Thicker till, glaciofluvial outwash, and deep-water glaciolacustrine deposits occur north of this moraine, whereas surficial deposits are generally thinner to the south. Areas to the north of the Hartman moraine represent a multitude of islands within a proglacial lake known as Glacial Lake Agassiz that subsequently contracted into a set of large modern lakes.

Recorded depths to bedrock from water well records and diamond drill holes in the Ignace area range from 0 to 80 m, with an average depth of about 7 to 10 m. The thickness of the Quaternary deposits southwest of the TransCanada Highway in the periphery of the Township of Ignace is typically less than 5 m. The thickest overburden is inferred to occur along the axes of the Hartman and Lac Seul moraines (Figure 2).

4 Methodology

The following sections provide an overview of the approach taken for the OGGF activity in the portions of the Basket Lake, Indian Lake and Revell batholiths of the Ignace area that were previously identified as having a potential to meet NWMO's geoscientific site evaluation factors (Golder, 2013). The methods described below include tasks associated with planning, implementation, and reporting of the OGGF activity.

4.1 Pre-Observation Planning

Planning of the Phase 2 OGGF was completed prior to going to the field. The planning stage involved a review of available information for the Ignace area and the general potentially suitable areas, including access. This stage also included the development of a comprehensive list of source data, equipment, and task requirements for the observation of key geological attributes to be made during the activity (Table 1). SRK has exercised all due care in reviewing the supplied information. Whilst SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. The outcome of this stage of the activity was a work plan for the OGGF in the Ignace area.

This work plan identified the proposed daily traverses along which key geological attributes listed in Table 1 would be observed. Identification of key structural and lithological features provided the rationale for locating the planned traverses, although the final location of stations was ultimately determined while in the field.

The key geological attributes are stated in Table 1, along with the methods identified to observe and capture the relevant information. This includes the use of a digital data capturing method, which for this activity used an ArcGIS compatible data-logging instrument (Trimble® or equivalent) along with the GanFeld system software. The GanFeld system is an open source and fully customizable, map-based, field data capture system originally provided in an open file format by the Geological Survey of Canada (Shimamura et al., 2008). Entry of geological information into the GanFeld database follows a simple data collection protocol (Table 1) which directs the observer to the appropriate digital form within the database system to capture the appropriate information for this activity, based on NWMO's objectives.

4.2 OGGF Implementation

Traverses were designed during the pre-observation planning and modified to accommodate the specific logistical considerations of the area. The choice of stations along each traverse were also modified from the pre-observation plan, as needed, to choose locations with maximum exposure or based on logistical considerations.

At each station, lithological and structural features were observed and were collected in accordance with Table 1. In this report, planar structural measurements are recorded as strike and dip following the Canadian right-hand rule, and linear structural measurements are recorded as trend and plunge.

Hand-sized rock samples, generally 1 kg in weight or larger, were collected to provide a representative example of the different rock types observed in the field. Field and sample magnetic susceptibility measurements were obtained from fresh surfaces of outcrop or from the rock samples using a KT-10 magnetic susceptibility meter provided and calibrated by Terraplus Inc. of Richmond Hill, Ontario. The KT-10 is operated with a pin adaptor to improve reliability when used on rough surfaces. The instrument operates an oscillator with an inductive coil to measure the frequency difference between a sample and free air measurements. Field measurements were entered as the average of five individual measurements over a representative portion of outcrop, while sample measurements were entered as the average of five individual measurements taken on a fresh surface of a grab sample. Sample-based magnetic susceptibility measurements are used for this report.

Preliminary geomechanical characterization of the bedrock was undertaken by means of a simple field-based hammer test for intact rock strength (IRS) and a visual estimation of fracture spacing, primarily of joints, for block size determination. Table 2 and Table 3 describe the means by which these geomechanical characteristics are defined.

Table 1: Key Geological Attributes Characterized during the OGGF

Geological Attribute		Method(s)	Data Capture Protocol[1]
Location information		Trimble GPS point Handheld GPS tracklog and waypoints as redundant / backup data	**Station Form** • "Add with GPS" function • Tab 1 • Each observation location has a unique station identification number made up of the two digit year (14), the senior mapper's initials (e.g., BH), and a unique sequential number indicating the order in which the mapping team visited each station during the field visit.
Host rock characterization	Lithology	Visually inspect the rock surface for identification of lithological units and their constituent minerals (e.g., granitic rocks have varying proportions of quartz, K-feldspar and plagioclase plus other minerals including micas, hornblende, etc.) Name the lithological unit(s) in terms of relative abundance at the outcrop scale Collect a small number of representative samples[b] of the dominant lithological unit(s) across the area of interest (will require use of hammer and chisel only) Take digital photographs of representative lithological units across the area of interest	**Lithology Form(s)** • If Intrusive (INT) = Tabs 1, 2a, 5 • If Volcanic Flow or Pyroclastic (VF, VP) = Tab 1 • If Metamorphic (M) = Tab 1, 3 **Sample Form** • Tab 1, Type = 'representative' • Notes **Photo Form** • Tab 1, Notes
Host rock characterization	Structure	Visually inspect the rock surface for identification of rock fabric (bedding, foliations, lineations) and fracture populations Take digital photographs of representative structures[c] Measure and document (by hand with compass and subsequent digital and manual entry) Strike and dip[d] of planar structures[e] Trend and plunge of linear structures	**Structure Form** • Tabs 1, 2 **Photo Form** • Tab 1, Notes
Host rock characterization	Geophysics	Record digitally, five magnetic susceptibility measurements for each identified lithological unit (the mean is entered into the GanFeld database)	**Sample Form[f]** • Tab 1, Type = "chip" • Notes
Host rock characterization	Geomechanics	Undertake field rock strength test[g] Undertake block size/fracture density assessment based on outcrop fracture geometry and spacing[h]	**For density** • FracDense Form • Tab 1 **For strength** • FracDense Form • Tab 2
Fracture characterization		Visually inspect the rock surface for identification of systematic fracture (joint, fault, vein) sets Take digital photographs of representative fracture features Measure and document (by hand with compass and subsequent digital and manual entry) Type (fault, vein, joint) Strike and dip of planar structures Fault, vein or joint spacing Trend and plunge of linear structures Alteration/mineral infill (if any) associated with identified fracture set(s) Relative age relationships	**Structure Form** • Tabs 1, 2 **For spacing** • Structure Form • Tab 2 **For relative age relationships** • Structure Form • Notes **For alteration** • Structure Form • Tab 2 **Photo Form** • Tab 1, Notes
Bedrock exposure and other surface constraints characterization		Visually inspect the area covered during the daily traverse and compare observations at each station against existing overburden coverage map	**Station Form** • Notes

Notes:

1 All observations were recorded in digital format (ArcPAD + GanFeld database) with manual (pen and paper) backup for most pertinent field observations only, unless required due to digital device failure. The data collection protocol refers to NWMO's minimum requirements for digital data capture within the GanFeld database structure. The observer may include additional observations based on perceived importance of that feature in conveying the heterogeneity or homogeneity of a specific outcrop area or larger region. In addition, the 'Notes' tab in all forms can be utilized at the observers discretion in order to capture additional relevant information.

a Lithology Tab 2: Form and Rock Fabric, with Colour Index and Colour (typed in) most useful if it helps to characterize different phases of a multi-phase pluton.

b Samples were stored in bags numbered in accordance with the sample number generated in the GanFeld database.

c The caption entry location in the Notes section of the Photo form was used to link the digital camera number for each photo to the GanFeld generated photo number.

d Strike and dip measurements follow Canadian right-hand rule notation.

e Effort were made to characterize fractures of all dip magnitudes (including horizontal to shallow dipping features).

f Magnetic susceptibility (MS) measurements were recorded on the Sample Form. Type was entered as "chip" and five measurements were captured in the Reason section on the Notes page of the Sample Form.

g Refer to Table 2.

h Refer to Table 3.

Table 2: Field Estimates of Intact Rock Strength

Grade	Description	Field identification
R6	Extremely strong	Specimen can only be chipped with a geological hammer
R5	Very strong	Specimen requires many blows of a geological hammer to fracture it
R4	Strong	Specimen requires more than one blow of a geological hammer to fracture it
R3	Medium strong	Cannot be scraped or peeled with a pocket knife, specimen can be fractured with a single blow from a geological hammer
R2	Weak	Can be peeled with a pocket knife with difficulty, shallow indentation made by firm blow with point of a geological hammer
R1	Very weak	Crumbles under firm blows with a geological hammer, can be peeled by a pocket knife
R0	Extremely weak	Indented by thumbnail

Note: From Barton (1978)

Table 3: Rock Characterization Based on Observed Joint Spacing

Joint Spacing (cm)	Block Size	Description
>100	Massive	Very well interlocked, undisturbed rock mass blocks formed by three or less discontinuity sets with very wide joint spacing
30 – 100	Blocky	Very well interlocked, undisturbed rock mass consisting of cubical blocks formed by three orthogonal discontinuity sets
10 – 30	Very blocky	Interlocked, partially disturbed rock mass with multifaceted angular blocks formed by four or more discontinuity sets
3 – 10	Blocky/disturbed	Folded and/ or faulted with angular blocks formed by many intersecting discontinuity sets
1 – 3	Disturbed	Poorly interlocked, heavily broken rock mass with a mixture of angular and rounded rock pieces
<1	Foliated/laminated/ sheared	Thinly laminated or foliated, tectonically sheared rock, closely spaced schistosity prevails over any other discontinuity set, resulting in complete lack of blockiness

Note: Modified from Hoek (2007)

Capturing observations related to assessing bedrock exposure and other surface constraints was done by manual indication in the field notes and with spatial reference to specific proximal stations.

A summary of the equipment requirements for the OGGF activities, along with information regarding calibration requirements, is provided in Table 4.

Table 4: Equipment Requirements

Equipment	Calibration Required
Compass (Brunton Pocket Transit or similar)	Y – Check magnetic declination setting daily
Digital Camera	N
Trimble (or equivalent) field data collector w/GPS	Y – Check against hand held GPS
ArcPAD + GanFeld software	N
Magnetic Susceptibility Meter (KT-10 or equivalent)	Y – Calibrated by supplier before rental and upon return from rental period / daily check of reading at a reference rock outcrop. Certificate of Calibration to be provided by supplier.
Notebook and Pen	N
Handheld GPS	N
Geological Hammer	N
Sample Bags	N
Personal Protective Equipment	N

A number of daily tasks were identified which align with the objectives of the OGGF activity. These tasks are outlined below in Table 5 along with allocation of responsibility for completing these tasks between the lead and assistant field geologist. This allocation of tasks was followed as a general guideline, noting that the lead field geologist had authority to make decisions in the field on how best to undertake the proposed work to meet the objectives within the schedule and accounting for field access constraints. Daily tasks during the OGGF activity in the Ignace area were undertaken by two teams, each consisting of a lead and an assistant field geologist.

Table 5: Task Allocation

Task	Responsibility
Daily safety de-briefing	Assistant
Daily equipment calibration	Assistant
Host rock lithology characterization	Lead
Host rock structural characterization	Lead
Digital photographs	Lead
Fracture characterization	Lead
Data input into ArcPad	Lead
Manual (pencil and paper) note transcription	Assistant
Magnetic susceptibility measurements	Assistant
Rock strength assessment - Hammer test	Assistant
Bedrock overburden assessment	Assistant
Sample collection (if necessary)	Assistant
Surface constraint assessment	Both
Identification of potential detailed mapping areas	Lead
Daily log write-up and transmittal	Assistant
Daily data back-up and back-up for the back-up	Lead
Planning the next day traverse	Both

4.3 Synthesis and Reporting

Observations captured during the field work were compiled and synthesized from both mapping teams. Data collected included ArcPad/GanFeld data, field notes and sketches, digital photographs, rock samples, and magnetic susceptibility data. Data from the ArcPad/GanFeld system was checked for consistency with field notes. Stations and measurements that could not be entered in the field on the handheld device due to technical reasons were entered manually using ArcPad software on a desktop computer. Field notes from all team members were scanned and compiled together with all digital photographs.

The initial step of the data analysis required all measurements and observations to be classified according to their domain location. Domains were determined based on the lithological and structural observations made across the Ignace area. Field descriptions and photographs were reviewed to extract the key characteristics of the lithology, bedrock structure, fracture characteristics, and bedrock exposure. Foliation planes, joints, and faults were plotted as equal area stereonets and rose diagrams to assess principal orientations and orientation variability.

The deliverables of the OGGF activity, along with this report, are shapefiles with the types of information entered into the GanFeld database. Shapefiles contain station, lithology, structure, fracture density, photo, and sample information. The average magnetic susceptibility measurement is also recorded within the sample shapefile. Magnetic susceptibility measurements are provided in spreadsheet format with clear linkage to the associated station and lithological unit where the measurement was taken. All digital photographs and scanned field notebooks were delivered to NWMO in a zipped folder. Metadata accompanying each shapefile and zipped folder were prepared according to metadata guidelines provided by the NWMO. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK’s investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report.

5 Geological Observation Findings

5.1 Introduction

This section summarizes the field geological observations in the Ignace area based on the work undertaken by Dr. Iris Lenauer and Mr. Blair Hrabi (SRK), assisted by Mr. Charles Mitz and Dr. Alex Man (Golder) from October 8 to 14, 2014. The initial field observations were conducted at selected readily-accessible locations using the existing road and trail network in the Ignace area.

A total of 82 locations were visited by the two mapping teams, primarily within the previously identified general potentially suitable areas on the Basket Lake, Indian Lake and Revell batholiths (Figure 3). The results are preliminary in nature and as such are presented in a factual manner below.

Each observation location has a unique station identification number made up of the two digit year (14), the lead geological mapper's initials (e.g. IL or BH), and a unique sequential number indicating the order in which the mapping teams visited each location during the field visit (Figure 3).

The Phase 2 OGGF activity was conducted to confirm and ground truth the presence and nature of key geological features in the identified areas. This included:

- Bedrock character (lithology, rock strength, magnetic susceptibility, structure);
- Fracture character and spacing; and
- Bedrock exposure and surface constraints.

The following sections describe these geological features based on the results of the initial field observations, which identified five domains on the basis of their lithological and structural character. The Basket Lake and Indian Lake batholiths represent two separate domains, while the Revell batholith is subdivided into three domains that correspond to its internal lithological phases: a megacrystic phase domain, a tonalite-granodiorite phase domain, and an intermediate phase domain (Figure 3).

Domain 1, the Basket Lake batholith domain, was defined based on observations collected at 26 locations. Domain 1 also includes the gneissic tonalite unit surrounding the batholith. Domain 2, the Indian Lake domain, was defined based on observations collected at 15 locations. Of these, 12 were located in the Cecil Lake area in and around the eastern withdrawal area of the Indian Lake batholith. The additional three stations include locations visited at the Butler Quarry in the western withdrawal area of the Indian Lake batholith. The Butler Quarry is located west of the Township of Ignace and immediately north of Highway 17. Domain 3, the tonalite-granodiorite phase of the Revell batholith, was observed at 25 stations on the Revell batholith. Domain 4, the intermediate phase of the Revell batholith, was observed at 5 locations in the central and southern portion of the batholith. Domain 5, the K-feldspar megacrystic phase of the Revell batholith, was observed at 12 stations (Figure 3).

The collected data is provided in a series of tables in Appendix A at the end of the report, including:

- Table A.1 – Stations Visited
- Table A.2 – Lithologies
- Table A.3 – Magnetic Susceptibility Measurements
- Table A.4 – Structures

- Table A.5 – Geomechanical Characteristics
- Table A.6 – Samples
- Table A.7 – Photographs

Nomenclature within the following sections, which was used while collecting the data presented in Appendix A, was adopted from the GanFeld field mapping database.

Where applicable, comments are made below with regard to the relation between these direct field observations and existing information based on the results from the Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013).

5.2 Bedrock Lithology and Intact Rock Strength

The descriptions below provide an overview of the bedrock lithology of the five identified domains, and report the field estimations of intact rock strength (IRS). IRS is directly related to lithology and therefore the results of both are provided together so that any variations between domains can be evaluated. The complete dataset of bedrock lithological observations is included in Table A.2. The intact rock strength is listed in Table A.5.

The observations relating to the lithological character of the five domains are generally consistent with information provided in the Phase 1 Geoscientific Desktop Preliminary Assessment (Golder, 2013). Previous mapping in the Ignace area identified the batholiths and their bounding units based on reconnaissance and more detailed scale investigations (e.g., Sage et al., 1974, Stone 2010a and 2010b). The current work provides additional detail on the lithological heterogeneity within the marginal zones of the Basket Lake and Indian Lake domains, including evidence of minor rock units, such as the presence of mafic dykes and pegmatite dykes. Mapping by Stone et al. (2007, 2011a and 2011b) had previously identified distinct compositional phases within the Revell batholith.

The Wabigoon dykes, observed to crosscut the tonalite-granodiorite of the Revell batholith in several locations, were also previously mapped (Figure 3). The Kenora-Fort Frances dykes, previously identified on bedrock geology maps as crosscutting the Basket Lake and Indian Lake batholiths, were not observed at any location during the OGGF activity.

Field estimations of intact rock strength (IRS) were undertaken in the five domains in order to provide some baseline understanding of rock strength variations for the Ignace area. No direct rock strength information was previously available for rocks in any of the domains. The reference material for the nomenclature used in the descriptions of rock strength is included in Table 2.

5.2.1 Domain 1 – Basket Lake Batholith

Rocks of Domain 1, the Basket Lake batholith domain, are characterized by fine- to medium-grained (0.1-5 mm), recrystallized, equigranular biotite granodiorite to tonalite (Figures 4A and 4B). The granodiorite on the west side of Basket Lake varies considerably in grain size and biotite content. Inclusions of biotite lenses and locally abundant tonalite gneiss panels are present. Numerous pegmatite dykes, with healed margins, crosscut the granodiorite (Figures 4B and 5A). In some outcrops, the pegmatite component constitutes up to 40% of rock mass based on visual estimations (Figure 4B). The area around the northern mapped contact of the Basket Lake batholith with the surrounding tonalite is marked by the presence of magnetite-bearing pegmatite. Graphic texture by intergrowth of quartz and feldspar is observed in the western part of Domain 1.

It was determined that the biotite granodiorite to tonalite bedrock was uniformly very strong (R5) throughout Domain 1, except for intact rock in proximity to local, high-fracture density deformation zones, where bedrock was strong (R4).

5.2.2 Domain 2 – Indian Lake Batholith

Bedrock in Domain 2, underlain by the Indian Lake batholith, is characterized by grey, medium-grained (1-5 mm), equigranular, very weakly foliated to massive biotite granodiorite (Figures 4C and 4D). The granodiorite is locally cut by mostly west-northwest striking pegmatite veins, and also contains panels of foliated amphibolite-tonalite towards its margins.

The bedrock in Domain 2 was uniformly very strong (R5), except for intact rock in proximity to local, high-fracture density deformation zones where bedrock was strong (R4).

5.2.3 Domain 3 – Tonalite-Granodiorite Phase Phase of the Revell Batholith

Domain 3, the tonalite-granodiorite phase of the Revell batholith, covers the majority of the northern and northwestern parts of the batholith. The typical lithology of this domain is a spotted white and black, medium-grained (1-5 mm), equigranular, massive granodiorite to tonalite (Figures 4E and F). The rock is composed of plagioclase, quartz, alkali-feldspar, and biotite, as well as varying amounts of amphibole. Bleaching and alteration is observed near the contact with the intermediate phase. Minor, centimetre-scale, felsic dykes are also observed (Figure 5B).

Domain 3 is the only domain where previously mapped dykes of the Wabigoon dyke swarm were observed. As shown in the existing map (Figure 3), several west-northwest segments of Wabigoon dyke were visited where they cut the tonalite-granodiorite phase of the Revell batholith. The dykes are fine-grained and are composed of millimetre-scale biotite and amphibole (Figure 5C).

The bedrock in Domain 3 is uniformly very strong (R5), including the massive granodiorite to tonalite and the Wabigoon dyke swarm.

5.2.4 Domain 4 – Intermediate Phase of the Revell Batholith

Domain 4, the intermediate phase of the Revell batholith, is characterized by a grey and light pink medium to coarse grained (2-8 mm), moderately to well-foliated granodiorite, which is composed of quartz, plagioclase, as well as varying amounts of alkali-feldspar and biotite. The granodiorite varies in grain size and texture. It contains panels of amphibolite-gneiss (Figure 4G) and is crosscut by pegmatite and aplite dykes (Figure 5D). Near its contact with the megacrystic phase, the granodiorite shows strong silicification and recrystallization of quartz, as well as bleaching.

The intermediate phase of the Revell batholith was generally very strong (R5), except for a slightly decreased strength that was noted in association with the high intensity of observed rock alteration in close contact to the megacrystic phase. The most altered intact rock was characterized as R4, or strong.

5.2.5 Domain 5 – Megacrystic Phase of the Revell Batholith

Domain 5, the megacrystic phase of the Revell batholith, is located in the centre of the Revell batholith. It is oval in shape and is surrounded to the south, southeast and southwest by the intermediate phase of the Revell batholith (Figure 3). The megacrystic phase of the Revell batholith is characterized by a pink to grey inequigranular massive granite with 10-70 mm euhedral prismatic potassium feldspar phenocrysts in medium grained (2-5 mm) groundmass with quartz, plagioclase and biotite (Figure 4H). The phenocryst percentage in the groundmass varies from 20 to 50%. In the core of the intrusive phase, the potassium feldspar phenocrysts display flat igneous layering. Phenocrysts accumulate in pods and layers. Epidote alteration on the potassium feldspar crystals was also observed. Mafic dykes crosscut the megacrystic phase of Domain 5. A 20 cm wide southwest-striking mafic dyke and a 50 cm wide east-striking dyke were observed. The east-striking dyke is associated with a narrow but intense damage zone (Figure 5E), while the southwest-striking dyke displays a cleavage oblique to the dyke walls (Figure 5F).

The bedrock of Domain 5, the megacrystic phase of the Revell batholith, was uniformly very strong (R5).

5.3 Bedrock Magnetic Susceptibility Measurements

Magnetic susceptibility readings were collected at each outcrop, and on the collected hand samples. The complete dataset of magnetic susceptibility measurements are included in Table A.3.

Ground based, magnetic susceptibility measurements were not previously available for the Ignace area. Magnetite was found to be the most common ferromagnetic mineral in the granitoid phases showing high magnetic susceptibility. The absence of secondary mineral development or visible indications of alteration, suggests a primary magmatic origin. Low magnetic susceptibility phases were lacking in magnetite. High magnetic susceptibility was characteristic of the Wabigoon dykes. An overview of the magnetic susceptibility results subdivided by domain is outlined below.

5.3.1 Domain 1 – Basket Lake Batholith

In general, the magnetic susceptibility was consistent across the Basket Lake batholith domain, although outcrop-scale variability was locally erratic reflecting the influence of coarse pegmatitic phases. The Basket Lake batholith exhibited a magnetic susceptibility averaging 0.62 x 10^{-3} SI. The absence of visible indications of alteration suggests that the magnetic minerals are primary in origin.

5.3.2 Domain 2 – Indian Lake Batholith

The Indian Lake batholith is characterized by magnetic susceptibility (1.0 x 10^{-3} SI) similar to that measured for the Basket Lake batholith. There is a generally high and consistent magnetic susceptibility observed on the outcrop scale across the Indian Lake batholith domain.

5.3.3 Domain 3 – Tonalite-Granodiorite Phase of the Revell Batholith

The main tonalitic-granodioritic phase of the Revell batholith (primarily the area north of the central megacrystic phase) has a uniformly low magnetic susceptibility (0.06 x 10^{-3} SI) that appears to be principally attributable to paramagnetic minerals such as biotite. A slightly more variable magnetic susceptibility is inferred for the panels of tonalitic basement encountered in the north-central part of the batholith (e.g., Station 14BH014). Much higher magnetic susceptibilities were measured for the east- to southeast-trending Wabigoon dykes that crosscut the northern part of the batholith. These exhibit magnetic susceptibilities of approximately 12 x 10^{-3} SI.

5.3.4 Domain 4 – Intermediate Phase of the Revell Batholith

The intermediate phase of the Revell batholith exhibits a uniform low magnetic susceptibility (0.07 x 10^{-3} SI) similar to that observed for the main tonalite-granodiorite phase (0.06 x 10^{-3} SI).

5.3.5 Domain 5 – Megacrystic Phase of the Revell Batholith

The megacrystic phase of the Revell batholith exhibited relatively high magnetic susceptibility (2.8 x 10^{-3} SI).

5.4 Bedrock Structure

This section provides a description of the observations made regarding structural fabrics in the bedrock. The primary focus is on the foliations and lineations observed within the five domains. Figure 6 displays a composite plot of data for the Ignace area, including foliation. Figure 7 displays foliation data for each of the five domains. The complete dataset of structural observations are included in Table A.4.

Previous mapping of bedrock structure within the Ignace area was limited to few fabric strike orientations. The current observations identified additional foliation and lineation orientations, and their respective dips and plunges. This includes the documentation of a variation from subhorizontal to steep-dipping foliations, the latter striking predominantly northwest or west.

5.4.1 Domain 1 – Basket Lake Batholith

Domain 1 includes a foliation in the granodiorite to tonalite that is weak to locally strong, and defined by the alignment of idiomorphic potassium feldspar crystals and biotite crystals, and elongated biotite lenses. This weak foliation is likely a primary magmatic fabric. The foliation primarily strikes northeast and dips steeply, but subhorizontal and northwest-striking foliation orientations were also observed (Figures 7A and A').

5.4.2 Domain 2 – Indian Lake Batholith

Domain 2 includes a foliation defined by a very weak preferred alignment of biotite. Locally, amphibole and feldspar crystals also display a preferred orientation parallel to this foliation. This foliation is likely a primary magmatic fabric. The foliation dips steeply between 78° and 88° and trends broadly northeast or southwest (Figures 7B and B'). A weak mineral lineation is observed at several stations in the Indian Lake batholith and plunges steeply to the east-northeast.

5.4.3 Domain 3 – Tonalite-Granodiorite Phase of the Revell Batholith

In Domain 3, a foliation defined by aligned biotite crystals, sheets of accumulated biotite, as well as quartz eyes is generally weak but locally moderate to strong. The foliation trends east-west and dips steeply north or south (Figures 7C and C'). A secondary foliation orientation is shallowly dipping at 10° to 36°, and strikes southwest (Figure 7C). A north-northeast striking foliation is also observed (Figure 7C‘). A moderate mineral lineation associated with northwest-striking foliation is observed in the tonalite-granodiorite phase of the Revell batholith plunging at 11° towards 132°.

A steeply dipping, northwest-striking ductile shear (Figure 5B) was observed at one station (14BH014), displaying rotation and dextral strike-separation of a felsic dyke.

5.4.4 Domain 4 – Intermediate Phase of the Revell Batholith

In Domain 4, a moderate- to well-developed folation is observed throughout. The foliation is defined by the preferred alignment of biotite crystals and quartz eyes. The three measured foliation planes dip moderately to the southeast or northeast, or steeply to the southwest (Figures 7D and D'). A strong mineral lineation oriented 32° towards 291° is locally present in the rocks of the intermediate phase of the Revell batholith. The mineral lineation is not associated with a foliation.

5.4.5 Domain 5 – Megacrystic Phase of the Revell Batholith

Domain 5 includes a foliation defined by the alignment of biotite, quartz eyes and elongated xenoliths. The dominant foliation dips shallowly between 5° and 20° (Figure 7E), parallel to igneous layers defined by the alignment of potassium feldspar phenocrysts. Several steep foliation planes of varying strike orientations are also observed, including dominant northeast-, east-, and northwest-trending orientations (Figure 7E and E').

5.5 Bedrock Fracture Characterization and Spacing

The brittle structure of the five domains is described below based on the field observations of fractures. Most measured fractures are joints with no indication of movement on them, with less common observation of small scale faults with either slickenlines on the fault faces or offset markers indicating movement on the structure. Field observations of joint spacing were undertaken in the five domains in order to provide some baseline fracture data for the Ignace area. The reference material for the nomenclature used in the descriptions of fracture spacing is included in Table 3.

Figure 6 displays fracture data for the Ignace area, including joints and faults, in a set of equal area lower hemisphere stereonets and rose diagrams. Figures 8 and 9 display joint and fault data for each of the five domains. The complete dataset of observations associated with structural and fracture characterization are included in Tables A.4 and A.5.

Overall, the joint spacing for vertical structures ranges from 5–10 cm to >100 cm. All domains exhibit portions whose joint spacing (>100 cm) indicates massive bedrock, while in some cases spacing of up to 50 cm is observed between steeply-oriented joint planes. Increasingly blocky conditions and closer joint spacing were observed in proximity to identified fracture zones. Shallowly-dipping structures, which were observed in all domains, exhibited spacings of sub-metre to metre scale.

Previous information related to fracture orientations is limited to the understanding that Storey (1986) documented joint sets striking 045°, 070°, and 290° in the Butler Quarry area. The relatively few data that were collected during the current work do not allow for any rigorous comparison between past and present results; however, Domains 1 and 2 in the Basket Lake and Indian Lake batholiths do exhibit similar fracture orientations as those documented by Storey (1986). In addition, the current observations were able to define fault damage zones, characterized by increased fracture density, with widths of 20 to 50 m around identified fault zones.

5.5.1 Domain 1 – Basket Lake Batholith

Bedrock is generally sparsely fractured throughout the southern portion of the Basket Lake batholith domain. An increased fracture density was observed in general from east to west across the domain. Fractures observed in this portion of the Basket Lake batholith include structures characterized as joints and faults. Healed dykes and fractures are characteristic of the tonalite phase on the eastern margin of the Basket Lake batholith (Figure 5A).

Joints comprise three steep-dipping sets that exhibit broad trends to the north-northwest, northeast, and east-northeast, as well as one subhorizontal to shallow-dipping joint set (Figures 8A and 10A).

Typically two of the steep-dipping sets are visible at any one outcrop. Not all joint sets are evident at all bedrock exposures.

Fault observations in Domain 1 within the Basket Lake batholith are sparse. Four fault planes were measured in Domain 1. Observed faults include west-northwest, north-northwest, east-northeast, and north-northeast striking faults of moderate to steep dip (Figures 9A and A'). Evidence for sinistral strike-slip movement was observed on west-northwest striking faults, as indicated by steps on the fault plane. Evidence for dextral strike-slip movement was observed on east-northeast striking, as indicated by subtle steps on a quartz vein. Quartz commonly occurs as a coating on fault planes. The observed zone of rock damage adjacent to faults was generally less than 50 m.

Joint spacing in Domain 1 generally varies from 10–40 cm (very blocky) to more than 100 cm (massive) for vertically oriented structures. Tighter joint spacing occurs within and near identified fracture zones, with the dominant fracture set oriented parallel to the fault plane (Station 14BH007). Away from observed surface lineaments outcrops can extend laterally for more than 50 m without a vertical joint (Figure 11A). Observed lineaments often coincided with a zone of high joint density, but the zone of rock damage was generally localized to the fault zone and immediately adjacent rock mass. Vertical exposures exhibit evidence of metre scale spacing on shallow-dipping fractures (Figure 10A).

5.5.2 Domain 2 – Indian Lake Batholith

In Domain 2, the bedrock is generally sparsely fractured to intact. Fracture density was uniformly low except within and immediately adjacent to observed lineaments or interpreted faults (Figure 10B). Fractures observed in this portion of the Indian Lake batholith include structures characterized as joints and faults. In marginal phases within Domain 2, older panels of tonalite contain numerous aplitic and pegmatitic dykes exhibiting complex crosscutting relationships, similar to that seen in Domain 1. The evidence of healed brittle fractures and faults are frequently present within these phases.

Joints include three steeply dipping fracture sets in addition to horizontal sheet jointing (Figure 10C), though in some cases only two of the steeply dipping sets are evident at any one outcrop. The steeply dipping joints include one broadly west- to northwest-trending set, one broadly north-northwest to north-northeast trending set and one northeast to east-northeast trending set (Figure 8B). The horizontal set was only occasionally observed where outcrops encompassed sufficient vertical relief. At the outcrop scale, horizontal sheet joints were expressed in the form of granite pavements and characteristic steps. The zone of rock damage was typically less than 20 m wide and localized to the deformation zone with the adjacent sparsely fractured rock mass.

Faults in the Indian Lake batholith are exposed along road cuts of Highway 599. Two prominent fault sets are observed: one set is subvertical and strikes approximately north-northeast, the other set is subvertical and strikes west-northwest (Figures 9B and B'). Both of these orientations overlap with the orientations of identified joint sets. West-northwest striking faults display slickenside steps, the geometry of which indicates sinistral strike-slip movement (Figure 10D). The zone of rock damage, where fractures are abundant adjacent to observed faults is generally narrow (<20 m). Similar to Domain 1, fault planes often occur in sets of sub-parallel surfaces spaced several centimetres apart and subparallel to the fault planes. Minimal hydrothermal alteration and veining is observed along brittle faults. West-northwest striking faults are locally associated with hematite alteration and, in some cases, pseudotachylite (Figure 10B).

Joint spacing in Domain 2 varies from 10–40 cm (very blocky) to more than 100 cm (massive) for vertically oriented structures. Numerous outcrops are characterized by extremely widely spaced joints (more than 10 m spacing) between vertical joints. Subhorizontal joints were spaced at the sub-metre to metre-scale (Figure 10C).

5.5.3 Domain 3 – Tonalite-Granodiorite Phase of the Revell Batholith

In Domain 3, throughout the main tonalitic to granodioritic phase of the Revell batholith, the bedrock was generally sparsely fractured. Observed fractures in Domain 3 include joints and faults (Figures 8 and 9). Fracture density was low except, as noted above for Domains 1 and 2, in proximity to major fracture zones. Within the zones, spacing between fractures decreased markedly (Figure 10E). The zone of rock damage was generally localized to within 20 m of an observed fault zone and immediately adjacent rock mass. However in some places, such as stations 14BH029 and 14BH030, the presence of closely spaced fractures extends to within 40 to 60 m of a major east-west observed linear surface feature. Within the fault zones, fracture density is generally moderate to abundant and parallel to fault planes with conjugate fracture orientations also observed in several locations (e.g., 14BH029 and 14BH030).

Jointing typically comprises two to three moderate- to steep-dipping sets in addition to a minor set of horizontal sheet joints (Figure 8C). The steep joints displayed a strong northwest-trend with lesser trends to the west-northwest, north-northeast, and northeast (Figure 8C').

In Domain 3, faults dip steeply and predominantly range in strike from west-southwest to west-northwest (Figure 9C'). Mainly dextral slip movement was observed from steps on slickensides of west-striking faults. No mineral infill is documented on the mostly thin fault planes. Some healed faults are filled with quartz (Figure 10F) or chlorite. Local iron oxide staining is observed in the vicinity of the fracture plane. Similar to the Basket Lake and Indian Lake batholiths, localized outcrops of older tonalitic basement encountered along the margins and in the north central part of the tonalite-granodiorite phase of the Revell batholith are crosscut by felsic dykes of varying composition, and show evidence of healed fractures and brittle-ductile faults.

Joint spacing in Domain 3 varies from 10 – 40 cm (very blocky) to > 100 cm (massive) for vertically oriented structures. Numerous whaleback outcrops contain few vertically oriented joints (Figure 11C).

5.5.4 Domain 4 – Intermediate Phase of the Revell Batholith

In Domain 4, bedrock was generally sparsely fractured to intact (massive). Fracture density was low, except in the proximity to observed major linear surface features or interpreted faults where the zone of rock damage was generally localized at the fault zone and the immediately adjacent rock mass.

Observed fracture orientations in Domain 4, including joints and faults, exhibit stronger trends to the northwest and northeast with additional subordinate orientations discernible in the data along north- and east-southeast trends (Figures 8D and 9D). Jointing in Domain 4 typically comprises two to three steeply dipping fracture sets in addition to horizontal sheet jointing (Figures 8D and 10G). The four faults measured in Domain 4 are steeply dipping and west-northwest, north-northeast**,** or northwest-trending (Figure 9D). One measured steep southeast-striking fault displayed horizontal slickenlines and sinistral strike-slip movement. Steep north-northwest-striking faults displayed shallowly plunging slickenlines with dextral strike-slip movement. Hydrothermal alteration on faults is characterized by the presence of quartz, epidote, chlorite and iron-manganese oxides on slickensides. Alteration increased noticeably with proximity to the southern margin of the megacrystic phase; however, fracture density did not significantly increase.

Joint spacing in Domain 4 varies from 10–40 cm (very blocky) to more than 100 cm (massive) for vertically oriented structures. Several outcrops contained only a handful of very widely spaced joints (>10 m spacing).

5.5.5 Domain 5 – Megacrystic Phase of the Revell Batholith

Fracture density was generally low in Domain 5, but was observed to be variable in proximity to fault zones. Fault zones were characterized by abundant closely spaced fractures parallel to the plane of faulting and possible conjugate fractures oriented at 30° to the main fault orientation. In addition, the fault zones observed in the megacrystic phase of the Revell batholith differed in width from those observed in other domains. For example, at 14IL037 (Figure 10H), moderately to sparsely spaced parallel fractures extended across a width of 20 m. A similar fracture zone exceeded 50 m width at 14IL034.

Observed fracture orientations in Domain 5, including joints and faults, were variable but three or four general peak trends can be observed including: northwest, northeast, north, and west (Figures 8E and 9E). Of these, the northwest-trend is most strongly expressed in faults, however the west-northwest trend is most strongly observed as linear surface features. Jointing varied considerably from intact rock pavement with no evident vertical structures, to rock masses transected by up to seven steep-dipping sets (Figure 8E). Horizontal sheet jointing was prominent in outcrops along Highway 622, but only occasionally observable away from the highway due to the absence of sufficient vertical relief.

Faults in Domain 5 are well exposed along road cuts of Highway 622 that transects the megacrystic phase of the Revell batholith. Faults in a variety of strike orientations have been recorded, the most prominent of which are northwest- and north-northeast-striking faults (Figure 9E’). Northwest-striking faults dip mostly steeply to the northeast. North-northeast striking faults dip moderately to steeply towards the southeast (Figure 9E). A subordinate fault set strikes to the east and dips steeply to the north. Northwest-striking fault planes displayed shallowly plunging slickenlines with dextral slip sense. Steeply dipping, east-striking fault planes showed shallowly plunging slickenlines with sinistral slip sense.

Fault planes are covered in a wide variety of minerals, which often form the slickenside. The most common mineral fills in faults are epidote, muscovite and chlorite. Locally, biotite and quartz are also observed as coatings on fault planes. The megacrystic phase of the Revell batholith displays mineral infill on fault planes more commonly than the Indian Lake and Basket Lake batholiths.

In Domain 5, joint spacing varied from 5–10 cm (blocky/disturbed) to more than 100 cm (massive) for vertically oriented structures.

5.6 Bedrock Exposure and Surface Constraints

The following descriptions provide observational information regarding the extent of bedrock exposure, and on any natural surface constraints encountered while accessing the general potentially suitable areas in the Ignace area.

In general, the distribution of exposed bedrock is consistent with the understanding based on the Phase 1 Preliminary Assessment (Golder, 2013). Elongated low ridges are common throughout the Ignace area. To the north of the Trans-Canada highway there is sporadic outcrop which, though generally limited near existing roads and trails, can be very extensive where encountered. To the south of the highway there is a variable distribution of bedrock exposure, and some areas mapped as exposed bedrock may exhibit thin moss or soil cover. Lakeshores within the Basket Lake and Indian

Lake batholiths have a high potential for continuous bedrock exposure. An overview of the bedrock exposure and natural surface constraints by domain is provided below.

5.6.1 Domain 1 – Basket Lake Batholith

Field observations indicate that bedrock is variably exposed over Domain 1 (Figure 11A). The southern portion of Domain 1 is nearly completely covered by glacial sediments. Bedrock is exposed on elongated ridges along the northwestern part of the domain. Terrain between the outcrops is typically overburden covered, generally 1–2 m thick, and particularly dominated by boulder till in low-lying areas to the northwest of Basket Lake. Outcrop is sparse on the mapped southeastern edge of the batholith. East of Basket Lake, exposure is moderate with clean outcrops showing moderate vertical relief. The lakeshores within the Basket Lake batholith have a high potential for continuous bedrock exposure.

Vehicle access to the outcrops of the Basket Lake batholith is possible on logging roads east and west of Basket Lake. In addition, boat access is possible at several different locations to access the extensive shorelines. There are no major constraints on access to the Basket Lake batholith.

5.6.2 Domain 2 – Indian Lake Batholith

Domain 2 spans across two subareas: the western and the eastern subareas in the Indian Lake batholith (Figure 2). Highway 17 extends through the western subarea of Domain 2, and local roads north and south of the highway can be used to access the rest of this part of the batholith. A reconnaissance drive across the area south of Mameigwess Lake, in the western area, showed little bedrock exposure and abundant sand and gravel overburden. One large area of good bedrock exposure is observed in and around the Butler Quarry on Highway 17 (Station 14IL001). There are also some exposures along Highway 17. The lakeshores within the Indian Lake batholith have a high potential for continuous bedrock exposure.

The eastern area of Domain 2 is accessible via Highway 599 and a network of logging roads. Logging roads to the south and southeast of Cecil Lake were accessible by vehicle, whereas smaller roads to the north of Cecil Lake were overgrown and could only be accessed on foot. There is also a boat launch for access to Cecil Lake. Areas north and northwest of Cecil Lake, in the easternmost area of Domain 2, are marked by a low degree of exposed bedrock (Figure 11B). Large areas are flat-lying and covered by a thin layer of overburden, consistently over 50 centimetres thick, and overlain by large (metre-scale) boulders. Where encountered, outcrops were generally well-exposed and extensive. For example, bedrock exposure is good along the shoreline of Cecil Lake, with some vertical exposures of several metres thickness (Figure 4C). Fresh logging activity on the east side of Cecil Lake provided some clean outcrop surfaces. South of Cecil Lake, overburden is several metres thick and the only exposure is bedrock pavement at the base of a sand/gravel pit.

5.6.3 Domain 3 – Tonalite-Granodiorite Phase of the Revell Batholith

In Domain 3, the tonalite-granodiorite phase of the Revell batholith, bedrock exposure is generally good and overburden cover is minimal (Figure 11C). Small ridges with up to several metres of vertical relief are encountered rarely. A series of logging roads south of Highway 17 provide access to the northern portion of Domain 3. At station 14IL025 the road heading further into the tonalite phase becomes impassable by vehicle. Aerial imagery shows this trail ending within several hundred metres of the reached station. From the north, station 14BH026 represents the closest vehicle access into the central portion of the tonalite phase. The absence of logging roads and trails make this central part inaccessible by four-wheel vehicle. There may be the potential for fixed-wing floatplane or helicopter access.

5.6.4 Domain 4 – Intermediate Phase of the Revell Batholith

Domain 4, the intermediate phase of the Revell batholith, is generally well exposed and displays a low overburden thickness. Outcrops are road cuts on Highway 622, and fresh clearings from logging. Fresh clearings provide washed outcrops on hillsides and whalebacks (Figure 11D). Access to Domain 4 is moderately easy from logging roads off Highway 17 and Highway 622. An arcuate lake southwest of Highway 622 prevents overland access to this part of Domain 4. This part of the domain is best accessed via a secondary road east of Highway 622.

5.6.5 Domain 5 – Megacrystic Phase of the Revell Batholith

Bedrock exposure in Domain 5, the megacrystic phase of the Revell batholith, is generally good. There is sparse overburden cover and abundant bedrock outcrop on ridge and on roadcuts along Highway 622. Logging activity east of Highway 622 has created washed hillside outcrops. Access to Domain 5 is very good along Highway 622. Additionally, recent logging roads to the west and east of Highway 622 are accessible by vehicle. Movement by foot through heavily vegetated areas is slow and outcrop quality encountered in the overgrown areas is typically moderate to poor with thick moss cover (Figure 11E). A new large fresh clearing on a logging road west of Highway 622 was observed that may provide future exposure over a large area.

6 Summary of Results

This report presents the results of the Phase 2 Observation of General Geological Features (OGGF) activity conducted in the Ignace area. Observations were made at select readily-accessible locations within areas previously identified on the Basket Lake, Indian Lake and Revell batholiths. The Phase 2 OGGF activity was conducted using a consistent approach to confirm and ground truth the presence and nature of key geological features of these batholiths, including bedrock lithological and structural character, fracture character and spacing, and bedrock exposure and surface constraints. The work included planning, implementation, and synthesis and reporting stages for undertaking the geological observations. Five domains, based on rock unit and internal lithological variation, were identified during the OGGF activity for the purpose of reporting the observations. A summary of the observations for each domain is included below and is summarized in Table 6.

The Basket Lake batholith domain was defined based on observations collected at 26 stations. Bedrock is variably exposed, with some areas nearly completely covered by glacial sediments (e.g., north of Highway 17) and areas of exposure on elongated ridges. The lakeshores within the Basket Lake batholith have a high potential for continuous bedrock exposure. Rocks of the Basket Lake batholith domain are characterized by fine- to medium-grained, recrystallized, equigranular biotite granodiorite to tonalite (Table 6). They exhibit a consistent magnetic susceptibility, with magnetite presumed to be the largest contributor to the measured values. Numerous pegmatite dykes crosscut the intrusive rocks and, in some outcrops, constitute up to 40% of rock mass. The dominant foliation orientation in the Basket Lake batholith strikes northeast and dips steeply and is defined by the alignment of potassium feldspar and biotite crystals. Bedrock is generally sparsely fractured to intact throughout the southern portion of the Basket Lake batholith, though a generally increased fracture density was observed from east to west across the domain. Fractures observed include structures characterized as joints and faults. Fault observations in the Basket Lake batholith are sparse. Rock strength is uniformly very high throughout, except within fault zones identified by their increased fracture density (Table 6).

The Indian Lake batholith domain was defined based on observations collected at 15 stations. Much of the domain is characterized by a low degree of exposed bedrock, with some notable exceptions in the Butler Quarry and some areas along Highway 17. The Indian Lake batholith is characterized by a grey, medium-grained, equigranular, very weakly foliated to massive biotite granodiorite (Table 6). This rock unit exhibits a generally high and consistent magnetic susceptibility with magnetite presumed to be the largest contributor to the measured values. Foliation in the Indian Lake batholith domain is defined by a very weak preferred alignment of biotite and dips steeply to the northwest or southeast. The bedrock is generally sparsely fractured to intact and fracture density is uniformly low except within and immediately adjacent to major observed linear surface features or interpreted faults throughout the Indian Lake batholith domain. Fractures observed in this portion of the Indian Lake batholith include structures characterized as joints and faults. Rock strength is uniformly very high throughout except within fault zones identified by their increased fracture density (Table 6).

Domain 3, the tonalite-granodiorite phase of the Revell batholith, was defined based on observations collected at 25 stations. This domain is generally well exposed with low overburden thickness. The typical lithology of the tonalite-granodiorite phase of the Revell batholith is a spotted white, medium-grained, equigranular, massive granodiorite to tonalite (Table 6). The tonalite-granodiorite domain is crosscut by mafic dykes of the Wabigoon dyke swarm. The domain has a uniformly low magnetic susceptibility that appears to be principally attributable to paramagnetic minerals such as biotite. A much higher magnetic susceptibility was measured for the crosscutting Wabigoon dykes.

Aligned biotite crystals, sheets of accumulated biotite, as well as quartz eyes define the foliation that trends easterly and dips steeply north or south. Bedrock is generally sparsely fractured to intact throughout the domain and fracture density is low except in proximity to major observed linear surface features or interpreted faults where spacing between fractures decreased markedly. Observed fractures include joints and faults. Rock strength is uniformly very high throughout except within fault zones identified by their increased fracture density (Table 6).

Domain 4, the intermediate phase of the Revell batholith, was defined based on observations collected at 5 stations. This domain is generally well exposed and displays a low overburden thickness. The intermediate phase of the Revell batholith is characterized by a grey and light pink medium to coarse grained granodiorite (Table 6). Near its contact with the megacrystic phase, the granodiorite shows strong silicification and recrystallization of quartz. This domain exhibits a uniform low magnetic susceptibility. The foliation in Domain 4 is defined by the preferred alignment of biotite crystals and quartz eyes and dips moderately to the southeast or southwest, or steeply to the northwest. Bedrock is generally sparsely fractured to intact throughout the domain and fracture density is low, except in the proximity to major observed linear surface features or interpreted faults, where a zone of rock damage is generally localized at the deformation zone and the immediately adjacent rock mass. Observed fractures include joints and faults. Rock strength in the intermediate phase of the Revell batholith is generally high, except in association with the high intensity rock alteration observed in close contact to the megacrystic phase where a decrease in strength was noted (Table 6).

Domain 5, the megacrystic phase of the Revell batholith, was defined based on observations collected at 12 stations. Bedrock exposure of the megacrystic phase of the Revell batholith is generally good. The megacrystic phase of the Revell batholith is characterized by a pink to grey inequigranular massive granite with euhedral prismatic potassium feldspar phenocrysts in a medium grained groundmass (Table 6). Sub-metre scale mafic dykes crosscut the megacrystic phase of the Revell batholith. A high magnetic susceptibility measured in Domain 5 is attributed to the existence of magnetite. A shallow-dipping foliation observed in the megacrystic phase of the Revell batholith is defined by alignment of biotite, quartz eyes and elongated xenoliths. Fracture density is generally low in the megacrystic phase of the Revell batholith but was observed to be variable in proximity to fault zones. Observed fractures included joints and faults. Rock strength in the megacrystic phase of the Revell batholith is uniformly very high (Table 6).

Table 6: Summary of Domain Characteristics for the Ignace Area

Domain	Host Rock Character	Fracture Characterization	Bedrock Exposure and Surface Constraints
Domain 1 - Basket Lake batholith Southeastern portion of the Basket Lake batholith	• Fine- to medium-grained (0.1-5 mm), recrystallized, equigranular biotite granodiorite to tonalite; • Contains biotite lenses, locally abundant tonalite gneiss panels and numerous pegmatite dykes constituting up to 40% of rock mass in some outcrops; • Very strong (R5) throughout, except in fracture zones.	• WNW-, NNW-, NNE-, and ENE-striking faults; • Sinistral slip on WNW-striking faults, dextral slip on ENE-striking faults; • Quartz on fault planes; • Typically two steeply dipping fracture sets in addition to horizontal sheet jointing are seen at any one outcrop; • Fracture density increase from sparse to abundant going from east to west, with localized domains of abundant fracture density next to observed lineaments; • Zone of rock damage adjacent to faults generally narrow (<50 m).	• Bedrock is variably exposed with near complete overburden cover in south and increased bedrock exposure to northwest; • Sparse outcrops in southeast; • Moderate access on logging roads east and west of Basket Lake.
Domain 2 - Indian Lake batholith Western and eastern (Cecil Lake) portions of the Indian Lake batholith	• Grey, medium-grained (1-5 mm), equigranular, very weakly foliated to massive biotite granodiorite; • Cut by pegmatite veins and containing panels of amphibolite-tonalite; • Uniformly very strong (R5), except in fracture zones.	• WNW-, NE-, and N-striking faults; • Sinistral slip on WNW-trending faults; • Minimal hydrothermal alteration and veining along most faults, locally observed hematite alteration and pseudotachylite associated with some faults; • Typically 2 to 3 steeply dipping joint sets in addition to horizontal sheet jointing, which is difficult to recognize in outcrops of low vertical relief; • Fracture density is mostly none, sparse to abundant near faults; • Zone of rock damage adjacent to faults generally narrow (<20 m).	• Quaternary cover near Highway 17 (Hartman moraine, various eskers), sparse but large outcrops near Cecil Lake; • Butler Quarry is the primary area of exposed bedrock in the west; • Good access to east block via highway 599, and to west block via Highway 17 and logging roads to north.
Domain 3 – Tonalite-Granodiorite phase of the Revell batholith Northern and northwestern portions of the Revell batholith	• White weathered, spotted white and black fresh, medium-grained (1-5 mm), equigranular, massive granodiorite to tonalite, composed of plagioclase, quartz, alkali-feldspar, biotite, +/- magnetite, bleaching and alteration near contact with megacrystic phase; • Uniformly very strong (R5), except in fracture zones.	• WSW- to WNW-striking faults; • Mainly dextral slip sense on W-striking faults; • Faults with no infill on fault planes; • Localized domains of increased fracture density next to observed lineaments and at the margins of Wabigoon dykes; • Typically two to three moderately to steeply-dipping joint sets in addition to horizontal sheet jointing; • Zone of rock damage adjacent to deformation zones generally narrow (<20 m).	• Generally good exposure with minimal overburden; • Difficult access in area west of megacrystic phase (no logging roads, no large lakes); • Logging roads south of Highway 17 provide access to northern portion of domain.
Domain 4 – Intermediate phase of the Revell batholith Central and southern portion of the Revell batholith	• Grey to light pink medium to coarse grained (2-8 mm), moderately to well foliated, granodiorite, composed of quartz, plagioclase, varying amounts of alkali-feldspar and biotite; • Very strong (R5), except strong (R4) where visibly altered.	• NW- and NE-striking fractures are dominant, including faults, and multiple joint orientations on south margin; • Hydrothermal alteration on faults: quartz, epidote, chlorite and FeO/MnO; • Localized domains of increased fracture density next to observed lineaments; • Typically two to three steeply-dipping joint sets in addition to horizontal sheet jointing;	• Low overburden thickness; • Easy access from logging roads off Highway 17 and Highway 622.
Domain 5 – Megacrystic phase of the Revell batholith Centre of the Revell batholith, transected by Highway 599	• Pink to grey inequigranular massive granite with 10-70 mm euhedral prismatic potassium feldspar phenocrysts in medium grained (2-5 mm) groundmass with quartz, plagioclase and biotite; • Phenocryst percentage in groundmass varies from 20 to 50%, in core of intrusive phenocrysts show flat igneous layering; • Uniformly very strong (R5).	• NW-, NE-, N-, and E-striking fractures; • Dextral slip sense on NW-striking planes, sinistral slip sense on E-striking faults; • Epidote, muscovite and chlorite on fault planes; • Predominantly massive to sparsely fractured; • Up to seven steeply dipping joint sets in addition to the horizontal sheet jointing; • Localized domains of increased fracture density next to observed lineaments; • Zone of rock damage adjacent to deformation zones and dyke contacts generally narrow (<20 m).	• Generally good exposure, and low overburden cover; • Good access through Highway 622 and recent logging roads; • Large fresh clearing on a logging road west of Highway 622 may provide future exposure.

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FIGURES

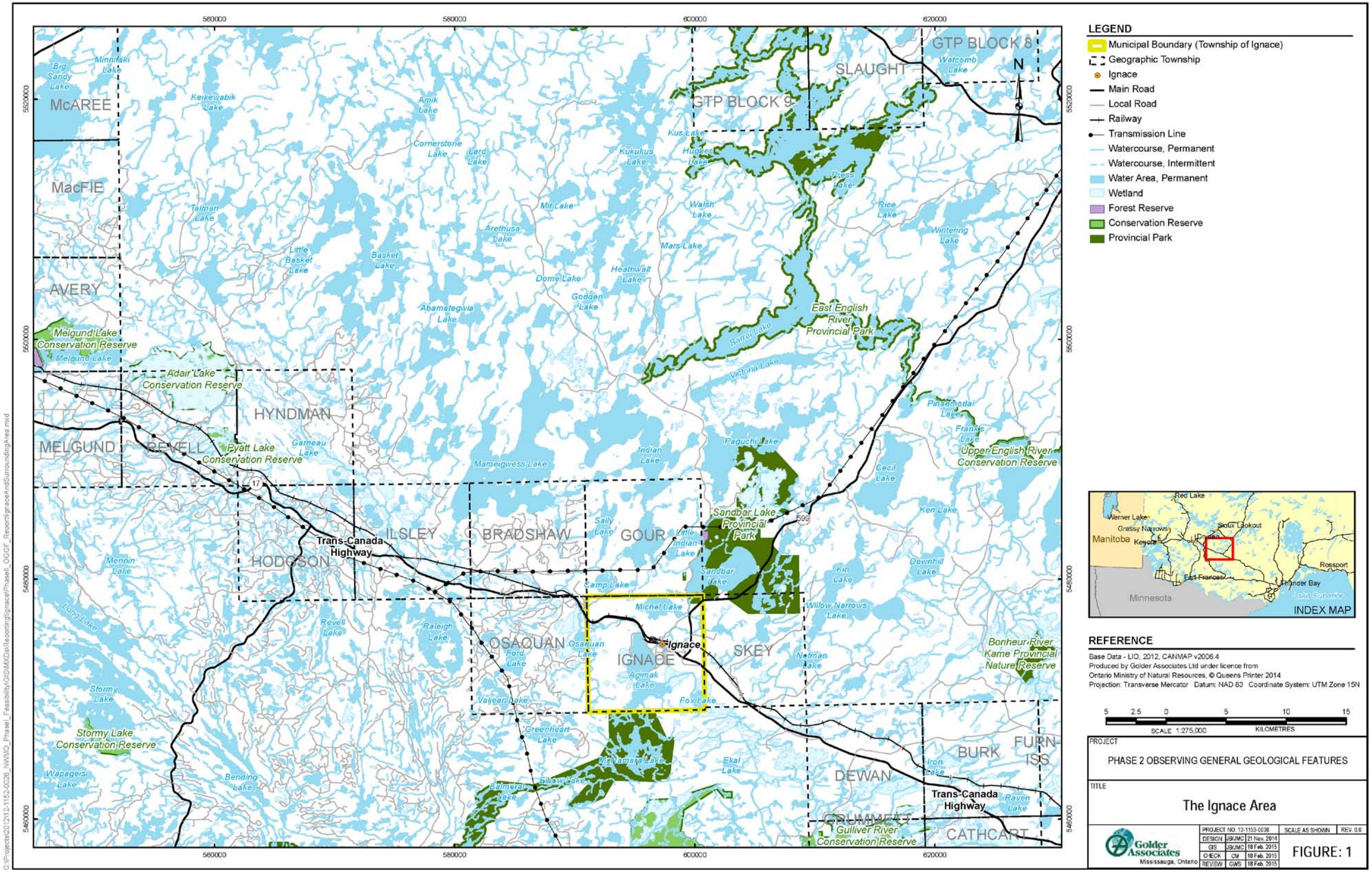

Figure 1: The Ignace Area

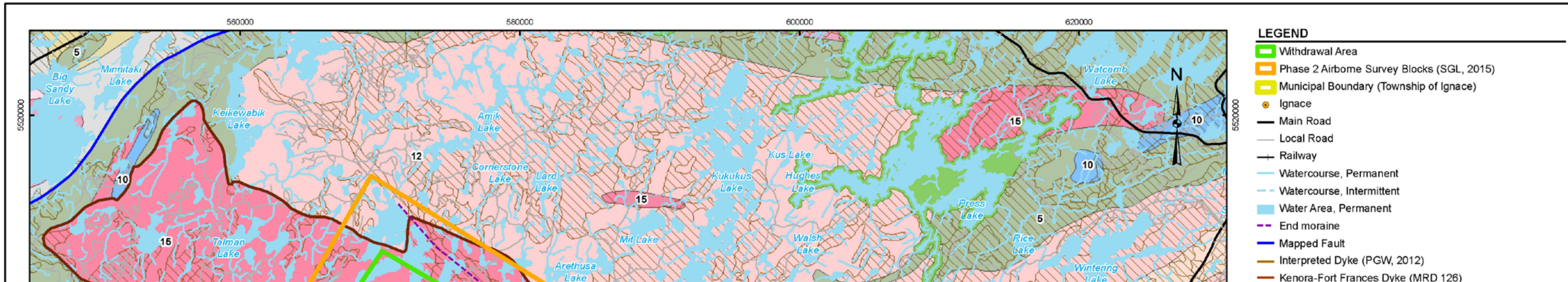

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Figure 2: Bedrock Geology and Overburden Coverage of the Ignace Area

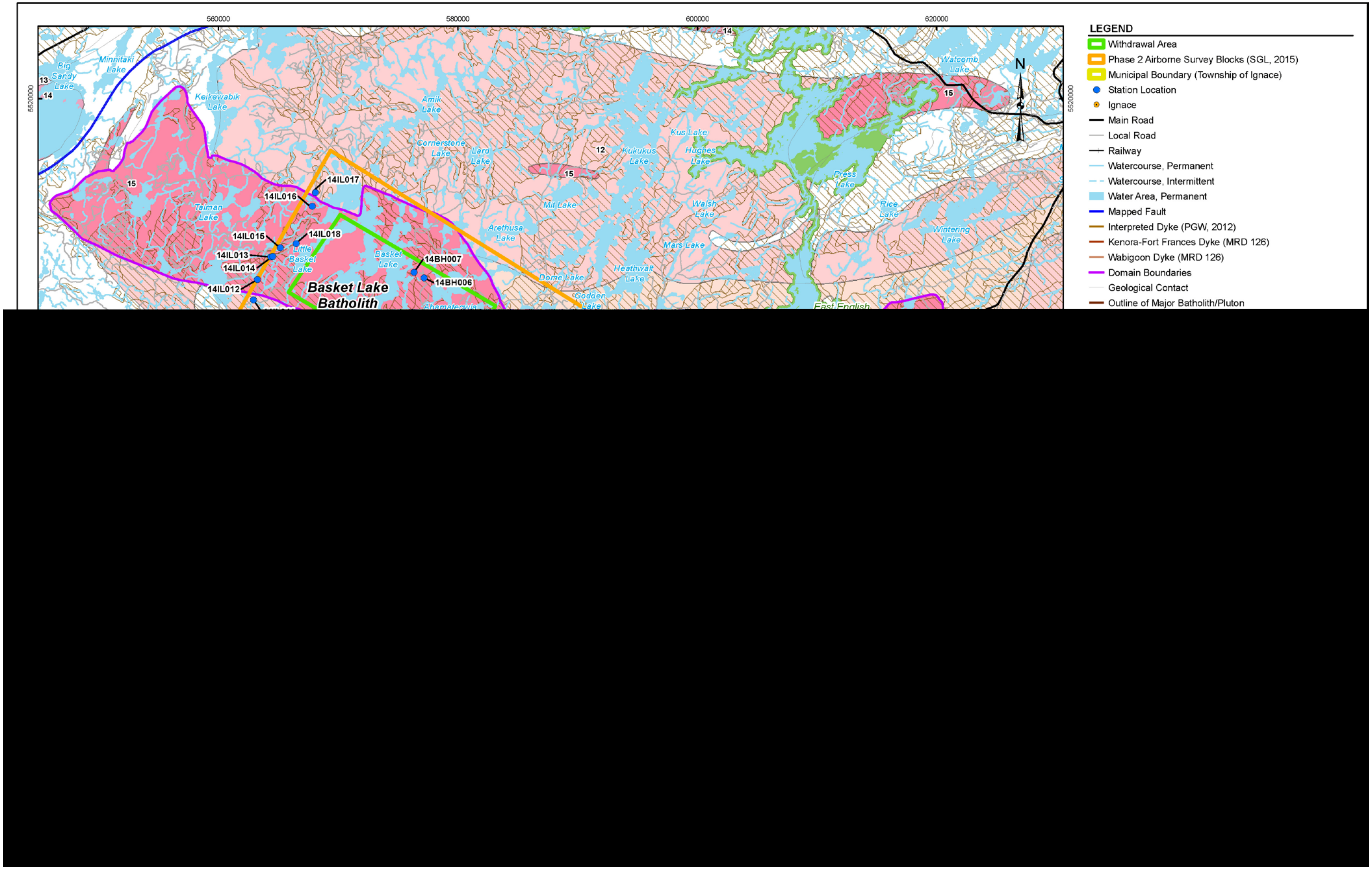

Figure 3: Outcrop Mapping Locations in the Ignace Area

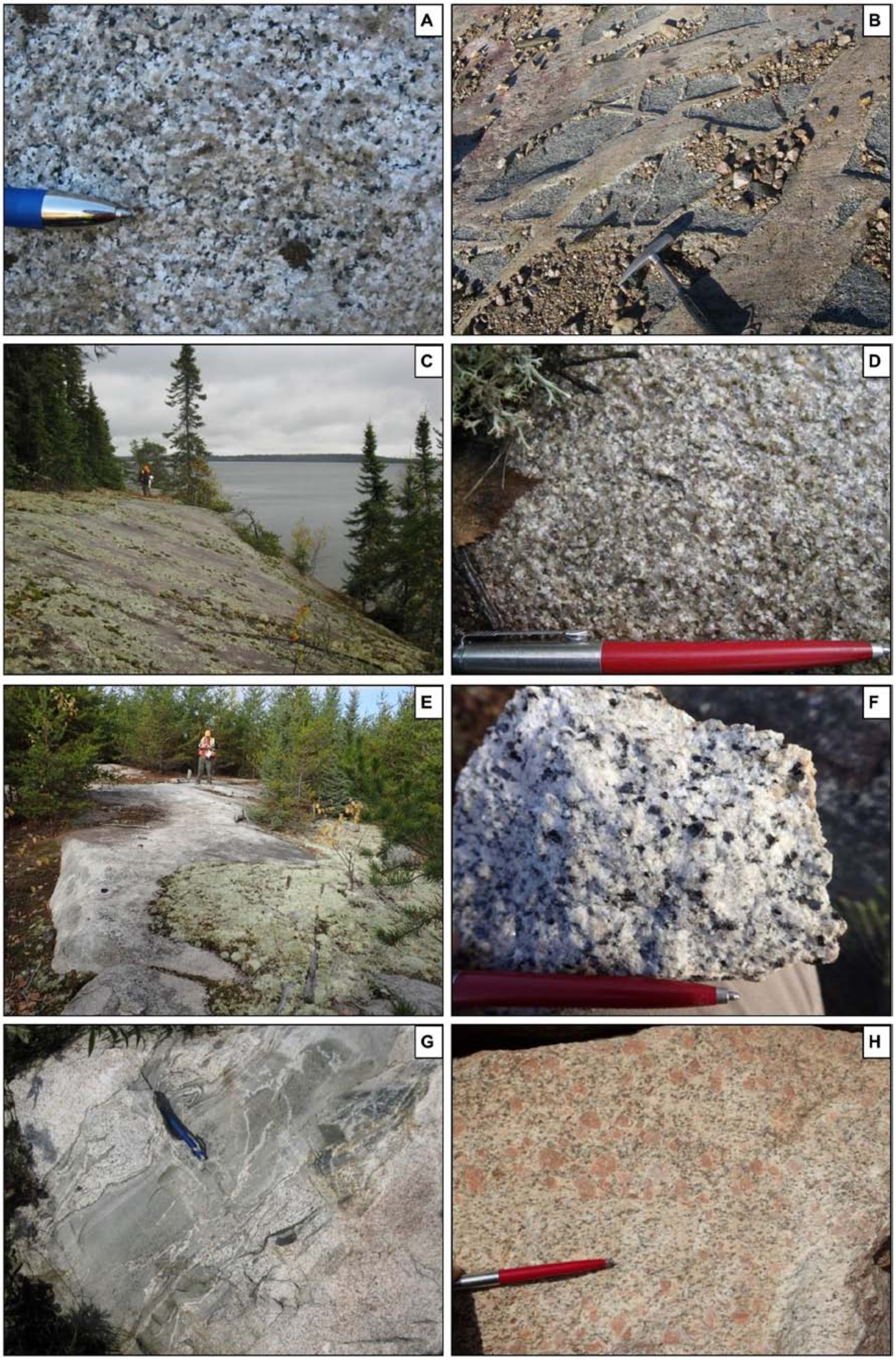
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Figure 4: Representative Lithology of Rock Units in the Five Domains.

A. Domain 1, biotite granodiorite of the Basket Lake batholith. Direction of view is to the southwest (Station 14IL046);

B. Domain 1, tonalite gneiss marginal to the Basket Lake batholith is crosscut by multiple orientations of pegmatite dykes. Direction of view is to the north (Station 14IL045);

C. Domain 2, large outcrop of biotite granodiorite of the Indian Lake batholith (Station 14IL006);

D. Domain 2, inequigranular granodiorite of the Indian Lake batholith. Representative sample photograph (Station 14IL004);

E. Domain 3, clean smooth outcrop of the tonalite-granodiorite phase of the Revell batholith. Direction of view is to the west (Station 14BH013);

F. Domain 3, tonalite phase of the Revell batholith. Representative hand sample photograph (Station 14BH012);

G. Domain 4, heterogeneous composition of the intermediate phase of the Revell batholith showing an amphibolite clast within the medium-grained granodiorite. Direction of view is to the west (Station 14IL031);

H. Domain 5, characteristic cm-sized K-feldspar phenocrysts in the megacrystic phase of the Revell batholith. Representative sample photograph (Station 14BH021).

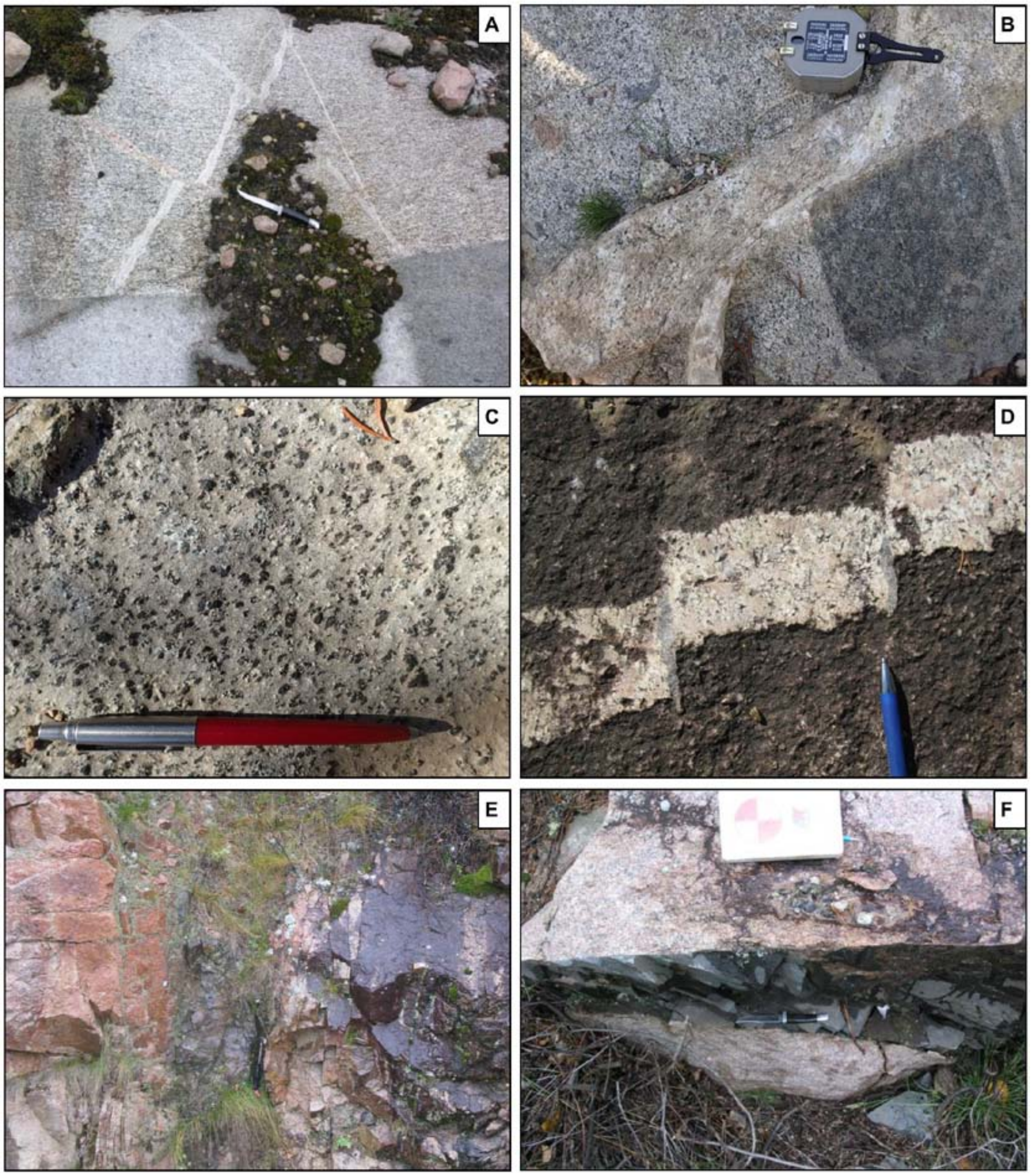

Figure 5: Felsic and Mafic Dykes Observed in the Ignace Area.

A. Domain 1, healed felsic dykes and fractures in the Basket Lake batholith (southeast of Station 14BH007). Direction of view is to the northwest;

B. Domain 3, dextral separation shear zone rotates and offsets felsic dyke within the tonalite gneiss phase of the Revell batholith. Direction of view is to the west (Station 14BH014);

C. Domain 3, amphibole crystals weather out from a mafic dyke of the Wabigoon dyke swarm within the tonalite gneiss phase of the Revell batholith. Direction of view is to the west (Station 14BH014);

D. Domain 4, quartz infill at the intersection of a fault with an aplite dyke that cuts the intermediate phase of the Revell batholith. Direction of view is to the south (Station 14IL022);

E. Domain 5, east-striking, steeply dipping mafic dyke associated with a damage zone in the megacrystic phase of the Revell batholith. Direction of view is to the east (Station 14IL034);

F. Domain 5, small southwest-striking mafic dyke with no associated host rock damage observed. Clearly visible cleavage within the dyke is oriented at an oblique angle to the dyke contact. Direction of view is to the west (Station 14IL037).

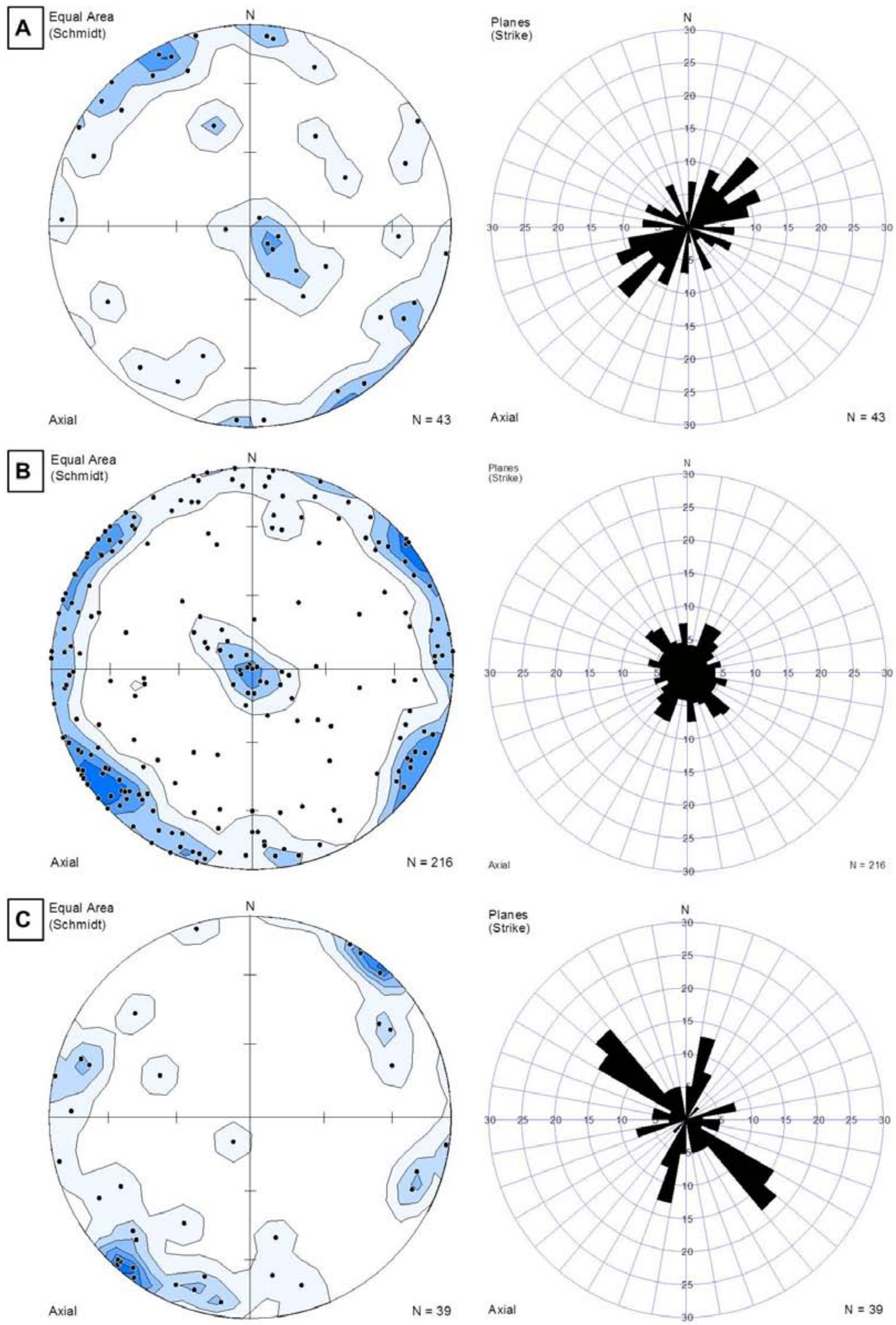

Figure 6: Structural Orientation Data Composite Plots for the Ignace Area.

Data Displayed as Equal Area Lower Hemisphere Stereonet Plots of Poles (left) and Rose Diagrams of Trends of Planes (right).

A. Foliation;

B. Joints;

C. Faults.

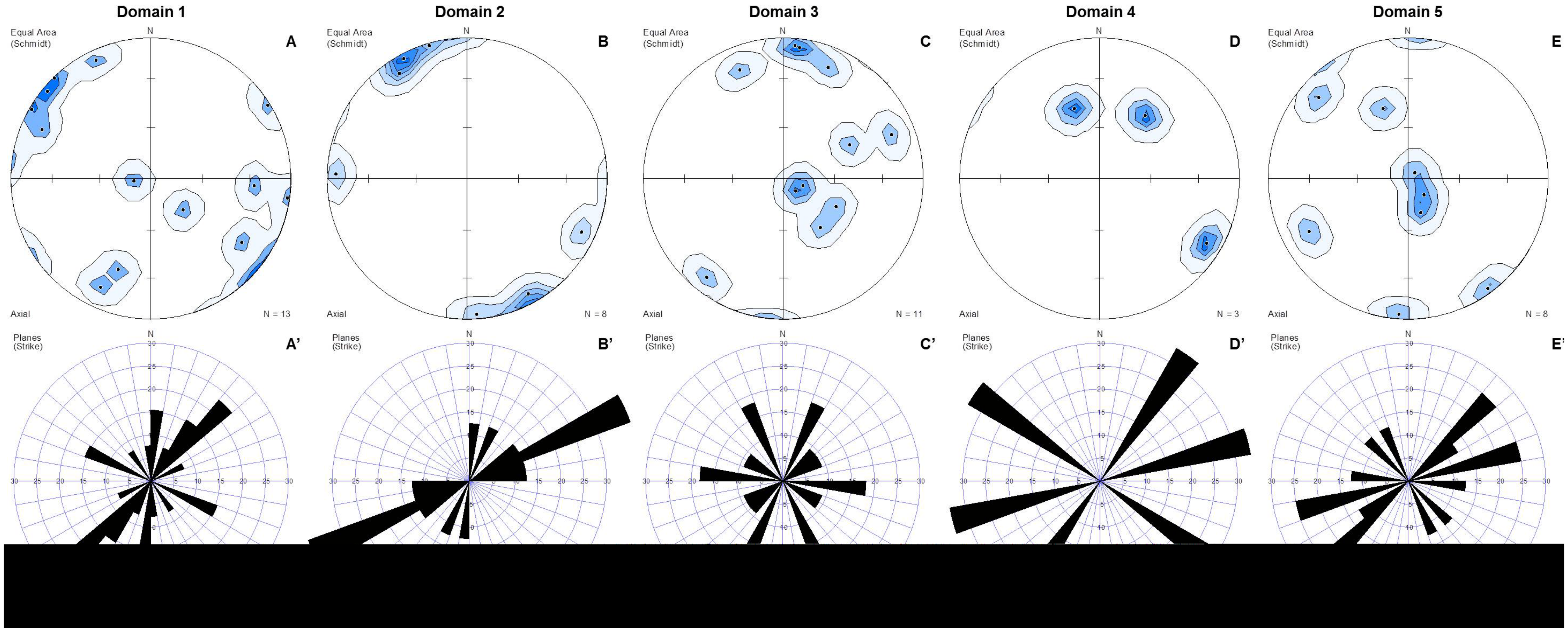

Figure 7: Foliation Orientation Data Plotted for Domains 1, 2, 3, 4 and 5.

Data Displayed as Equal Area Lower Hemisphere Stereonet Plots of Poles to Foliation (Upper) and Rose Diagrams of Trends of Foliation Planes (Lower).

A – A’. Domain 1, Basket Lake batholith;

B – B’. Domain 2, Indian Lake batholith;

C – C’. Domain 3, Tonalite-Granodiorite Phase of the Revell batholith;

D – D’. Domain 4, Intermediate Phase of the Revell batholith;

E – E’. Domain 5, Megacrystic Phase of the Revell batholith.

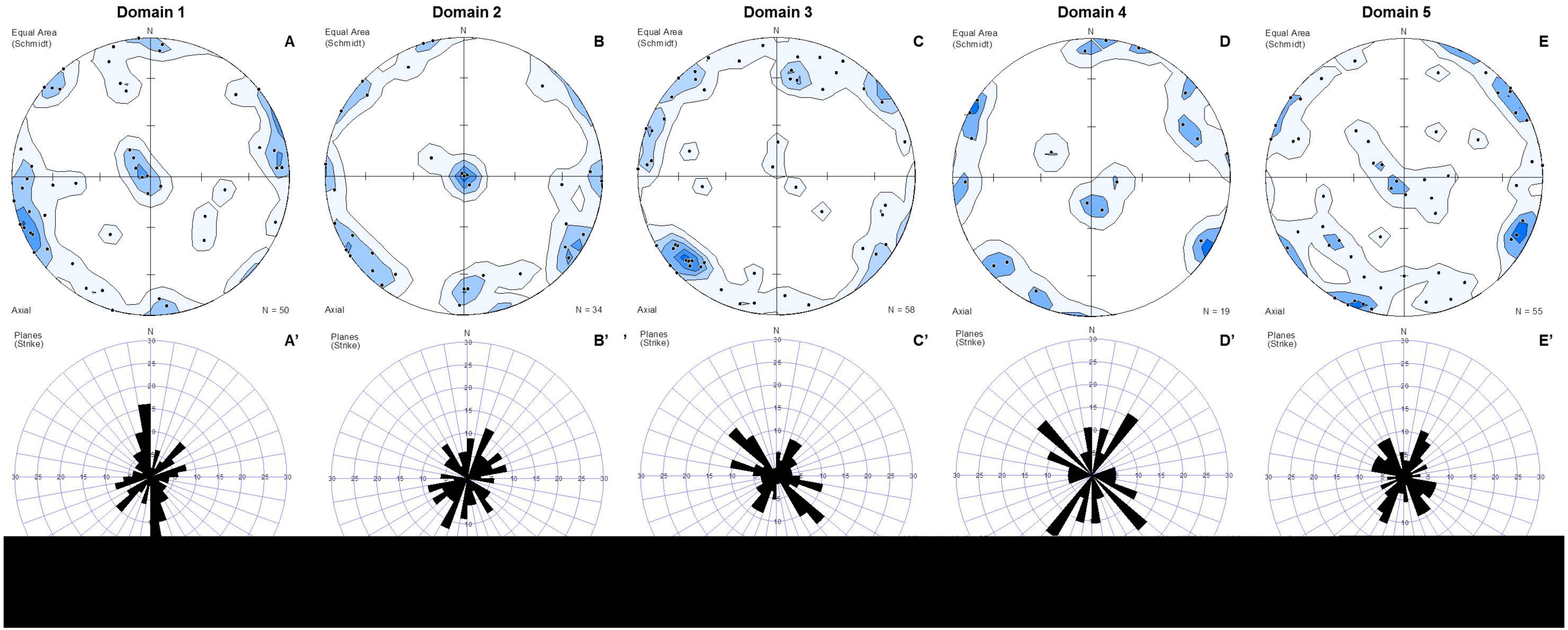

Figure 8: Joint Orientation Data Plotted for Domains 1, 2, 3, 4 and 5.

Data Displayed as Equal Area Lower Hemisphere Stereonet Plots of Poles to Joints (Upper) and Rose Diagrams of Trends of Joint Planes (Lower).

A – A’. Domain 1, Basket Lake batholith;

B – B’. Domain 2, Indian Lake batholith;

C – C’. Domain 3, Tonalite-Granodiorite Phase of the Revell batholith;

D – D’. Domain 4, Intermediate Phase of the Revell batholith;

E – E’. Domain 5, Megacrystic Phase of the Revell batholith.

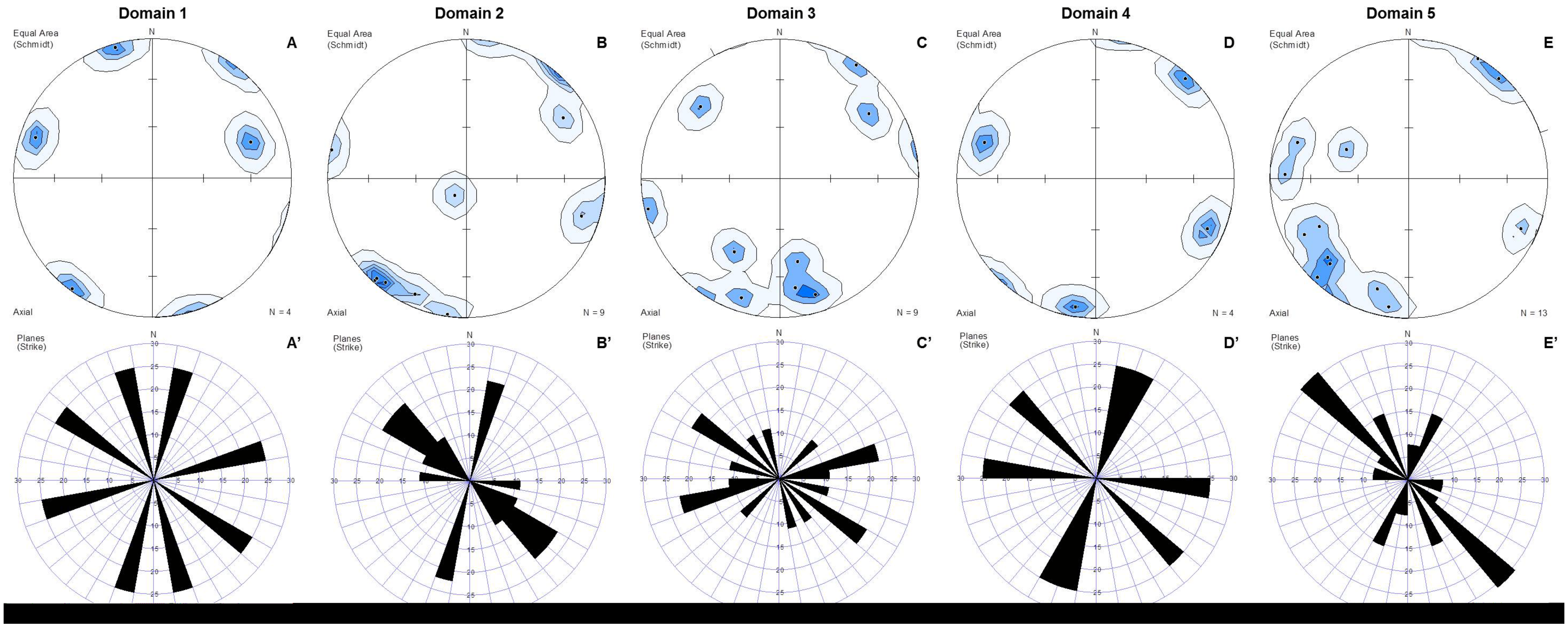

Figure 9: Brittle Fault Orientation Data Plotted for Domains 1, 2, 3, 4 and 5.

Data Displayed as Equal Area Lower Hemisphere Stereonet Plots of Poles to Brittle Faults (Upper) and Rose Diagrams of Trends of Brittle Fault Planes (Lower).

A – A'. Domain 1, Basket Lake batholith;

B – B'. Domain 2, Indian Lake batholith;

C – C'. Domain 3, Tonalite-Granodiorite Phase of the Revell batholith;

D – D'. Domain 4, Intermediate Phase of the Revell batholith;

E – E'. Domain 5, Megacrystic Phase of the Revell batholith.

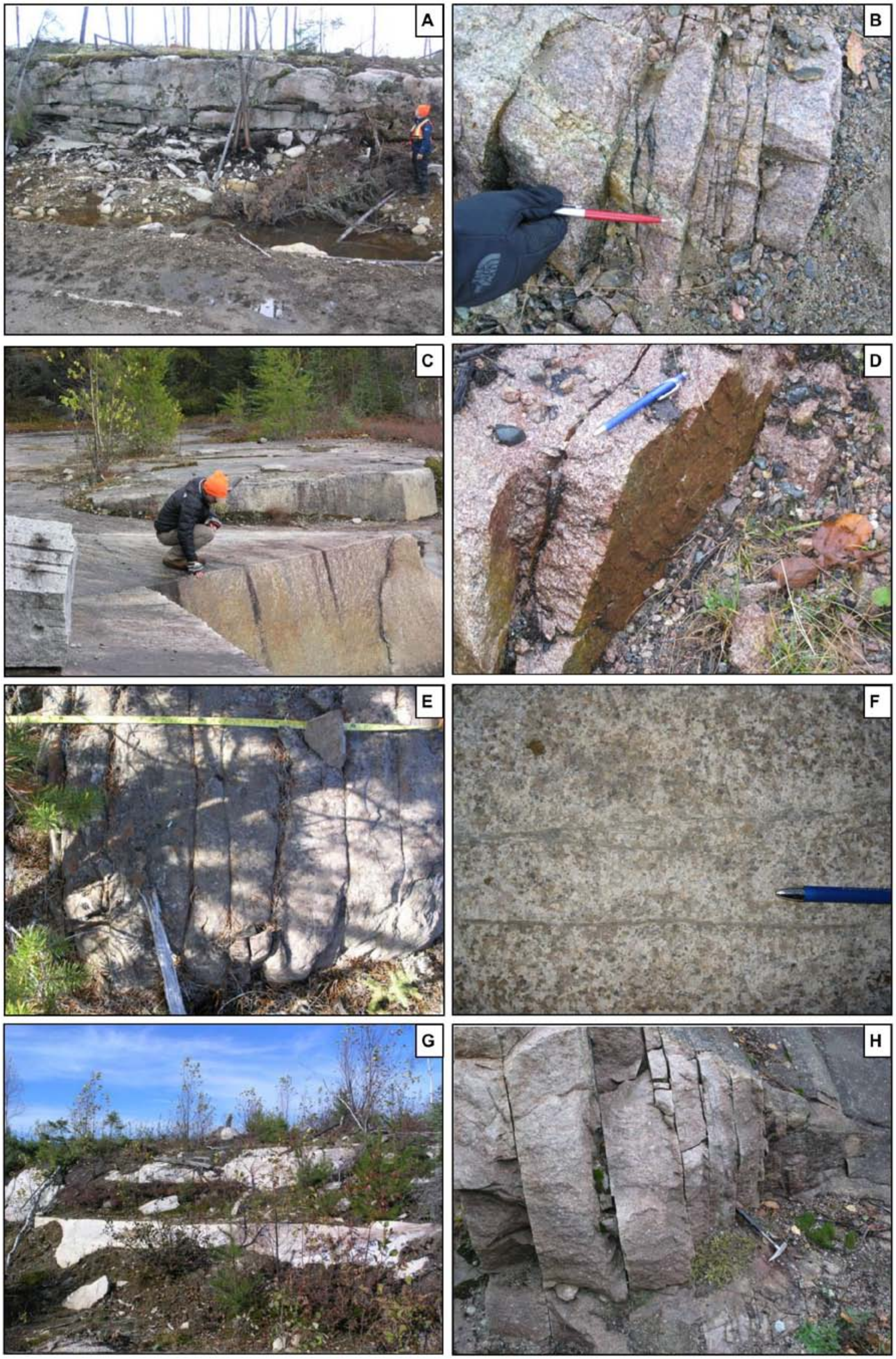
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Figure 10: Fracture Character of Rock Units in the Five Domains.

A. Domain 1, prominent horizontal sheet jointing in the Basket Lake batholith (near Station 14BH008a).

B. Domain 2, closely spaced fractures with pseudotachylyte on some fracture surfaces along Highway 599 to the west of Cecil Lake (Station 14IL003).

C. Domain 2, intact granitic pavement exposed at the Butler Quarry site (Station 14IL001).

D. Domain 2, decimeter-spaced faults with horizontal slickenlines suggest a sinistral sense-of-shear. Direction of view is to the west (Station 14IL004).;

E. Domain 3, closely spaced sub-vertical fractures in the Revell batholith (Station 14BH015).

F. Domain 3, healed fractures filled with quartz in equigranular granodiorite. Direction of view is to the west (Station 14IL026).

G. Domain 4, horizontal jointing with characteristic stepped outcrop exposure (near Station 14IL031).

H. Domain 5, closely spaced vertical fractures at outcrop on Highway 622 (Station 14IL037).

Figure 11: Representative Examples of Bedrock Exposure in the Five Domains.

A. Domain 1, typical bedrock exposure of intact rock in a whaleback exposure east of Basket Lake. Direction of view is to the north (Station 14BH006);

B. Domain 2, typical rolling terrain and limited bedrock exposure in the area underlain by the Indian Lake batholith to the north of Cecil Lake. Direction of view is to the east (Station 14BH002);

C. Domain 3, prominent whaleback outcrop of massive tonalite in the northern Revell batholith. View is to the east (Station 14BH015);

D. Domain 4, typical bedrock exposure with whaleback outcrop in a clearing formed by logging activities. Direction of view is to the northwest (Station 14IL031);

E. Domain 5, typical flat, moss-covered, outcrop with little vertical relief within the megacrystic phase of the Revell batholith. Direction of view is to the north (Station 14IL021).

APPENDIX A

GIS Data Tables

Table A. 1: Stations Visited

Station ID	Visit Date	Easting	Northing	Elevation	Obs Type	Plan ID	Trav No	Station Note
14IL001	10/7/2014	585961	5479350	411.13	outcrop	47	1	• Butler Quarry - south side
14IL002	10/7/2014	585956	5479370	411.93	quarry	47	1	• Butler Quarry - north side
14IL003	10/8/2014	612754	5487720	409.63	outcrop	120	2	• Outcrop at side of road 599, near turnoff to Cecil lake, several m of exposed rock, localized fault within massive rock
14IL004	10/8/2014	612842	5487110	408.33	outcrop	122	2	• Large flat outcrop, lichen-covered, interspersed with clumps of trees
14IL005	10/9/2014	613531	5488450	413.33	outcrop	125	3	• Roadcut on 599, 30m long, ca 1.5m high
14IL006	10/9/2014	613714	5487290	383.73	outcrop	124	3	• Ca 50*15m on shore of Cecil lake, flat top, breaks off steeply into water, on traverse from Stn 122 overburden consistently >50cm, loose boulders
14IL007	10/9/2014	615605	5481350	414.44	outcrop	143	3	• Pavement at base of gravel pit, 3-5m of overburden sand to blocks (round), 10-20m2 exposed rock, most of road to here covered in >5m till
14IL008	10/9/2014	615825	5484130	418.14	outcrop	137	3	• Roadside flat top ca 40m long 2m wide, no vertical faces, abundant boulders in surrounding area
14IL009	10/9/2014	615057	5483430	420.64	outcrop	137-1	3	• Roadcut with isolated exposed ridges, ca 3*1m
14IL010	10/9/2014	614745	5482510	417.34	outcrop	137-2	3	• Rounded blocks, ridge of 20*7m, moss and lichen covered, just west of abandoned trail (area to north very sandy)
14IL011	10/10/2014	562918	5503190	395.12	outcrop	95	4	• Ridge on west side of Basket lake road, moved from original 75, steep cliffs facing road, overgrown mossy, at least 50m extent of outcrop
14IL012	10/10/2014	563239	5504880	388.62	outcrop	95-1	4	• Ridge east of Basket lake road, large exposure on top of hill
14IL013	10/10/2014	564358	5506770	431.12	outcrop	95-2	4	• 10*5m outcrop on west side of basket lake road, fresh surfaces show heterogeneity of lithology
14IL014	10/10/2014	564519	5506820	433.92	outcrop	95-3	4	• Extensive bedrock exposure on both sides of road, >50m, forms slight topo high
14IL015	10/10/2014	565141	5507560	439.82	outcrop	96	4	• Extensive outcrop on s-facing side of ridge, small bedrock exposures on trail up to hill
14IL016	10/10/2014	567825	5511010	408.02	outcrop	96-1	4	• Small hill on west side of road, ca 20m2 of rock exposed under lichen and moss, abundant boulder fields from Stn 96 to here
14IL017	10/10/2014	568076	5512160	412.92	outcrop	96-2	4	• Large ridge ca 50m long with abundant exposure further west
14IL018	10/10/2014	566464	5507890	423.52	outcrop	96-3	4	• Subcrop at roadside, ca 40*10m area with multiple exposed windows, south of large boulder field
14IL019	10/11/2014	564574	5482090	417.33	outcrop	43	5	• Small hill off Tower road, area of abundant small bedrock exposures, ca 10m2 outcrop
14IL020	10/11/2014	564001	5480440	433.73	outcrop	46	5	• Flat outcrops on both sides of roads, abundant small subcrops from highway to here, ca 50m2 outcrop surface
14IL021	10/11/2014	562003	5478680	458.83	outcrop	47	5	• Long north striking ridge of well exposed rock
14IL022	10/11/2014	561106	5478980	418.73	outcrop	25-1	5	• Large (50*20m) flat subcrop next to road, regular outcrops at roadside
14IL023	10/11/2014	560286	5478960	420.63	outcrop	25	5	• Ridge at roadside, south of drop off into steep valley, abundant outcrop also on north side of valley
14IL024	10/11/2014	558796	5480160	406.03	outcrop	24	5	• North trending ridge off the road, a NNW lineament lies to valley to west, abundant small outcrops in clearcut
14IL025	10/11/2014	558934	5479720	392.13	outcrop	23	5	• In steep-walled valley, extensive outcrop on cliff on north side of river
14IL026	10/11/2014	557994	5477510	413.83	outcrop	22	5	• Ca 50m2 subcrop at side of small forest road
14IL027	10/12/2014	570507	5472570	435.03	outcrop	37	6	• 10m2 flat outcrop at side of forest trail, heavily vegetated, but little overburden
14IL028	10/12/2014	568120	5473400	428.93	outcrop	36	6	• Expansive outcrop on hill beside trail, ca 70m2, fresh rock beside trail, abundant outcrops alongside trail
14IL029	10/12/2014	567321	5474120	435.03	outcrop	35	6	• NE-striking ridge, extensive outcrop at edge of forest, ca. 60m2
14IL030	10/12/2014	568065	5472310	431.53	outcrop	36-1	6	• Road intersection with NE-striking ridge, ca 30m long, steep ridge edge on north side
14IL031	10/12/2014	565190	5473360	418.03	outcrop	39	6	• Between end of road and lakeshore, almost continuous outcrop, large clearing with atv trails
14IL032	10/12/2014	569222	5470270	440.93	outcrop	40	6	• Series of 5m long whalebacks in fresh clearcut, outcrops on west side of road covered by moss and lichen
14IL033	10/12/2014	563534	5472220	422.83	outcrop	38	6	• Ca 30m2 of fresh outcrop from logging road building at end of new road
14IL034	10/13/2014	566524	5479800	431.83	outcrop	48	7	• Roadcut on highway 622, ca 100m of ca 3m high outcrop on both roadsides
14IL035	10/13/2014	567863	5479180	441.03	outcrop	44	7	• 20m long 3m high ridge beside trail (drivable but interrupted by beaver dam)
14IL036	10/13/2014	565183	5479310	427.73	outcrop	42	7	• Large cliff 5-8m high with flat top, extends at least 30m along strike, on south side of lake
14IL037	10/13/2014	566079	5478490	424.03	outcrop	41	7	• Continuous roadcut on west side of highway 622, ca 2m high
14IL038	10/13/2014	565976	5476230	441.63	outcrop	27	7	• Small bedrock exposure at end of drivable road, ca 5m2
14IL039	10/13/2014	560333	5476370	440.83	outcrop	20	7	• Small bedrock exposures at base of road, 3 windows ca 5m2, abundant boulders and shrubs
14IL040	10/13/2014	558969	5476510	428.13	outcrop	21	7	• Small bedrock exposures on little hills on both sides of trail
14IL041	10/13/2014	557800	5477650	406.23	outcrop	22B	7	• 22b westernmost reachable point, in valley, 30m2 outcrop on both sides of road
14IL042	10/14/2014	577121	5488700	415.73	outcrop	68-1	8	• 68-1 first exposed bedrock on this road heading north, ca 20m2 of pavement exposed
14IL043	10/14/2014	575812	5492970	423.33	outcrop	69	8	• Ridge SW of road, outcrop ca 8m long, 3m high, 2m wide, rounded and moss-covered
14IL044	10/14/2014	574992	5495300	404.33	outcrop	66	8	• Steep ridge at the edge of two intersecting valleys, abundant outcrop on ridge west of this point, sparse outcrop on trail to here
14IL045	10/14/2014	574916	5495100	411.83	outcrop	66B	8	• On SE side of valley across from 66, large 50m2 flat and freshly polished pavement
14IL046	10/14/2014	578320	5493330	394.63	outcrop	67-1	8	• Small rockblast at end of road, 2m high 7m long wall
14IL047	10/14/2014	578153	5494720	399.03	outcrop	67	8	• Small 5m2 flat outcrop, very sparse outcrop in this area, abundant boulders
14IL048	10/14/2014	576956	5492150	414.43	outcrop	67-2	8	• Large flats on both sides of road, several outcrops in this area
14BH001	10/7/2014	585953	5479350	409.83	outcrop	47	1	• Wp1170, Butler Quarry, close to road and railway, good access, excellent 3D exposure, weakly fractured white weathering hbe tonalite with ghostly panels of tonalite gneiss
14BH002	10/9/2014	619528	5496650	412.13	outcrop	121	2	• Wp1178, P121, trail was overgrown but easily walkable, no barrier to access, large, partly moss covered outcrop on height of land, great view to west, would have made good detailed spot but weakly fractured
14BH003	10/9/2014	612789	5494730	421.03	outcrop	123	2	• Wp1178, near P123, good access via driveable logging road to within w 300m of outcrop, remaining road could be accessed by ATV, large partly moss and pine covered outcrop set in good open reforested area
14BH004	10/9/2014	617790	5489140	412.33	outcrop	126	2	• Wp1189, P126, series of small, low rounded, completely clean due to logging, easy access by drive and walk/ATV, very homogeneous, very weakly fractured
14BH005	10/9/2014	616343	5492660	392.23	outcrop	130	2	• Wp1181, near P130, adjacent to driveable logging road, no access issues, moderate sized, very low lying outcrop, no vertical relief, weakly fractured
14BH006	10/10/2014	577164	5505030	397.52	outcrop	92	3	• Wp1188, near P092, road accessible right to outcrop, large ridge outcrop with 15m vertical relief, weakly fractured, complex lithology

Station ID	Visit Date	Easting	Northing	Elevation	Obs Type	Plan ID	Trav No	Station Note
14BH007	10/10/2014	576329	5505480	388.52	outcrop	92	3	• Wp1190, at P92, 20metre high cliff parallel to a N linear, the E linear is not strongly expressed at all, easy walking from last stn along older logging road, many completely clean outcrops due to logging, possible detail to assess incr in fract density
14BH008	10/10/2014	578587	5501920	431.52	outcrop	93	3	• Wp1193,near P93, logging road younger than FRI photos, see on Garmin imagery, good driveable road to outcrop, good exposure with vertical relief and completely clean
14BH009	10/11/2014	561141	5486980	399.03	outcrop	88	4	• Really trav 3, change X,Y, wp1194, near P088, good access, new logging road, moderate size flat oc, 2m vertical relief only, wp1195 shows more
14BH010	10/11/2014	561140	5486970	398.13	outcrop	91A	4	• Change to trav 3, update X,Y, wp1196, P91A, along major logging road, good access, at distinct lineament
14BH011	10/11/2014	561140	5486970	394.13	outcrop	82	4	• Really Trav 3, change X,Y, wp1197, near P082, very flat small outcrop, closest to NNW mag lineament, only subtle geographic lineament
14BH012	10/11/2014	561145	5486970	391.13	outcrop	16	4	• Wp1198, P016,right beside Tower Road, good access, small exposed outcrop, exposed contact of diabase dyke
14BH013	10/11/2014	558598	5485150	407.43	outcrop	7	4	• Wp1199, near P007, on secondary forestry road on good dry ground, easy access, moderate sized, 1m vertical relief, completely clean
14BH014	10/11/2014	559147	5485350	399.93	outcrop	7-1	4	• Wp1200, P007-1,just off good secondary forestry road, good access, clean exposure, complex intrusive suite, plus structure
14BH015	10/11/2014	557297	5485880	392.22	outcrop	1	4	• Wp1201, P001, beside primary logging road, good access, large number of moderate low rounded clean outcrops in logged area, dyke contact observed
14BH016	10/11/2014	555557	5486650	382.62	outcrop	3	4	• Wp1203, P003, 200m north of a good primary logging road, good access, closest we could get to a major NE trending geographic lineament, but weak aeromagnetic lineament
14BH017	10/11/2014	550753	5487910	370.02	outcrop	49	4	• Wp1205, P049, beside primary logging road, good access, 2 small rounded to whaleback outcrops, completely clean
14BH018	10/11/2014	553301	5487160	395.82	outcrop	50	4	• Wp1206, near P050, beside primary logging road, good access, series of rounded completely clean outcrops, several large clear outcrop clusters between P003 and P047
14BH019	10/12/2014	560003	5472660	416.83	outcrop	30	5	• Wp1208, P030, right at highway, great access, series of moderate sized roadcut outcrops with 6m vertical relief and clean tops
14BH020	10/12/2014	561242	5473500	428.83	outcrop	33	5	• Wp1209, P033, along highway, excellent access , large roadcut outcrop 200m long, 15m high and clean top
14BH021	10/12/2014	563542	5475840	446.73	outcrop	31	5	• Wp1210, also wp1176 from tour, P031,beside highway, great access, long exposure of low clean roadcut 4m high
14BH022	10/12/2014	562649	5474950	427.63	outcrop	-	5	• Wp1212, no planned outcrop, on highway, great access, significant ENE striking brittle ductile fault cutting kspar megacrystic biotite granite
14BH023	10/12/2014	565473	5476370	444.83	outcrop	32	5	• Wp1217, near P032, off driveable secondary forestry road, good access, isolated patch of 2 whaleback outcrops with 3m of vertical relief
14BH024	10/12/2014	564880	5477700	423.93	outcrop	29	5	• Wp1218, along trend if NW lineament from P029, strong aeromagnetic and geographic lineament, beside highway, great access, series of low (1m vert) outcrops
14BH025	10/13/2014	552870	5487680	391.32	outcrop	51	6	• Wp1220, P051, 500m walk in from good secondary forestry road, reasonable access, marked out to be logged soon, 20m vertical relief, mix of exposed and moss covered outcrop
14BH026	10/13/2014	553140	5484900	393.22	outcrop	4	6	• Wp1221, P004, off secondary forestry road, easily driveable, good access, in reforested area, good vertical relief and relatively clean outcrop
14BH027	10/13/2014	556616	5487650	380.22	outcrop	11	6	• Wp1222, P011, 500m walk through seedling new growth from the end of a poor tertiary forestry road, relatively poor access, small low moss covered outcrop, not ideal, hunting a lin intersection, no oc there
14BH028	10/13/2014	558115	5487390	405.12	outcrop	8	6	• Wp1223, P008, beside good secondary forestry road, good access, long linear whaleback outcrop with 3m relief
14BH029	10/13/2014	561543	5482340	424.43	outcrop	13	6	• Wp1224, P013, right beside primary logging road, good access, area of small low outcrops, relatively poor exposure, hunting for E-W neotectonic? fracture, no outcrop on lineament at road, this is closest clean outcrop
14BH030	10/13/2014	560502	5482210	399.43	outcrop	14	6	• Wp1225, P014, beside good secondary forestry road, good access, set of small 2m high outcrops, supposed to hunting evidence of neotectonic fault, a little S of lineament, more ductile strain
14BH031	10/14/2014	581088	5491850	397.33	outcrop	71	7	• Wp1226, P071, long drive in along secondary forestry road, reasonable access, no outcrops along road the entire trip in from highway, this station is NOT clearly outcrop, 2 x 3m x 1m high, could be large erratic
14BH032	10/14/2014	581585	5493120	397.23	outcrop	74	7	• Wp1227, on road near P074, beside good secondary forestry road, good access, 10 x 10m outcrop scraped completely clean, no vertical relief
14BH033	10/14/2014	582838	5499260	409.93	outcrop	91	7	• Wp1229, P091, 30m off good secondary forestry road, was being graded the day we travelled on it, reasonable access, no outcrop at 0P091, this is a small covered outcrop close by, adjacent to long boulder outwash linear that shows clearly on airphoto
14BH034	10/14/2014	583207	5497950	431.63	outcrop	72	7	• Wp1235, along strike of WNW lineament near P072, next to maintained secondary forestry road, moderate sized 10 x 40m outcrop, 4m vertical relief, clean surface
14BH035	10/14/2014	582141	5495370	447.63	outcrop	73	7	• Wp1236, near P073, very low outcrop percentage, just came upon it on return to truck, 80m from secondary forestry road

Table A. 2: Lithology

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
Intrusive Granitoid																				
14BH001	14BH001A	tonalite	amphibole; quartz; plagioclase	main lithology		Mesocratic	white weathering, white fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular							very weak foliation in most of the quarry , with panels of poorly defined compositionally banded but not strongly foliated rock, ie digested tonalite gneiss
14BH002	14BH002A	granodiorite	plagioclase; quartz; alkali-feldsp; biotite	main lithology		Leucocratic	orange white fresh and weathered	Massive	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular							definitely recrystallized texture, fgr dissem biotite, rest of minerals slightly coarser f-mgr, granodiorite to tonalite composition
14BH002	14BH002B	granite	plagioclase; quartz;alkali-feldsp;magnetite	dyke		Leucocratic	red pink fresh and weathered	Massive			Dike-zoned	Coarse grained 5-10mm	Vari-texture							irreg to straight sharp contacts
14BH003	14BH003A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	reddish white weathered and fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular				Biotite			similar texture and biotite to last, dissem mt and colour suggest different oxidation state
14BH003	14BH003B	granite	plagioclase; alkali-feldsp;quartz ;biotite;muscovite	dyke		Leucocratic	red weathered and fresh	Massive			Dike-unzoned	Coarse grained 5-10mm	Vari-texture				Biotite; Muscovite			no mt in this so mag sus is reversed
14BH004	14BH004A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	off white weathered and fresh, slightly pink	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Inequigranular		Plagioclase		Biotite			<5% variably digested diorite xenoliths approximately 20-30cm
Intrusive Dioritoid																				
14BH004	14BH004B	diorite		xenolith		Mesocratic	black and white weathered and fresh	Foliated			Irregular-zoned									20-30cm in size, alligned subparallel to foliation
Intrusive Granitoid																				
14BH005	14BH005A	tonalite	quartz;plagioclase;biotite	raft		Leucocratic	white weathered and fresh	Gneissose			Undetermined	Medium grained 1-5mm	Equigranular				Biotite			remnant panel of gneissic biotite tonalite within mgr bt-mt granodiorite , both cut by pegmatite granite
14BH005	14BH005B	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	light pink weathered and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			main lithology is same bt-mt grdr
14BH005	14BH005C	granite		dyke		Leucocratic	reddish pink weathered and fresh					Coarse grained 5-10mm;Very coarse grained 10-50mm	Vari-texture							cuts both gneissic biotite tonalite and biotite magnetite granodiorite
14BH006	14BH006A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	pink red weathered and fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular				Biotite			main rock contains xenoliths of foliated bt ton
14BH006	14BH006B	tonalite	plagioclase; quartz;biotite ;magnetite	xenolith		Mesocratic	off white weathered and fresh	Foliated			Irregular-unzoned	Medium grained 1-5mm	Equigranular				Biotite			clearly xenoliths on northwest side of outcrop , more dominant on southeastern side
14BH006	14BH006C	granite	plagioclase; alkali-feldsp;quartz ;magnetite	dyke		Leucocratic	reddish pink weathered and fresh	Massive			Dike-unzoned	Coarse grained 5-10mm	Vari-texture							
14BH007	14BH007A	tonalite	plagioclase; quartz;biotite	main lithology		Leucocratic	off white weathered and fresh	Foliated			Undetermined	Medium grained 1-5mm	Equigranular							part of the hill the tonalite is dominant, can see dykes of the bt mt grdr , both cut by later peg, tonalite and grdr are large components of the oc and relative % varies, at wp1189 and 1191, tonalite is dominant
14BH007	14BH007B	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	dyke		Mesocratic	pink weathered and fresh	Foliated			Dike-unzoned	Fine grained 0.5-1mm	Equigranular							see dykes of this into tonalite
14BH007	14BH007C	granite	plagioclase; quartz;alkali-	dyke		Leucocratic	reddish pink weathered and				Dike-unzoned	Coarse grained 5-								tonalite and grdr are large components of the oc and relative % varies

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
			feldsp;magnetite				fresh					10mm								
14BH008	14BH008A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	red weathered , pink fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular				Biotite			about 50% recrystallized bt granodiorite intruded bt bt peg granite
14BH008	14BH008B	granite	quartz;plagioclase;alkali-feldsp;biotite	dyke		Leucocratic	pink weathered and fresh	Massive			Dike-zoned						Biotite			truly pegmatite here, up to 10cm bt plates, sharp contacts
14BH009	14BH009A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	off white weathering and fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular							approximately 60% of oc, recrystallized texture, equigranular, grdr to gran composition
14BH009	14BH009B	tonalite	plagioclase; quartz;biotite	xenolith		Melanocratic	mottled black and white weathered and fresh	Foliated			Irregular-unzoned	Medium grained 1-5mm	Inequigranular							approx 20% xenoliths in oc, melanocratic, 20% mafic minerals
14BH009	14BH009C	granite		dyke		Leucocratic	light pink weathered and fresh	Massive			Dike-unzoned	Coarse grained 5-10mm								approx 20% of oc, leucocraqtic granite to pegmatite dykes
14BH010	14BH010A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Leucocratic	Red weathering and fresh	Massive	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular							Strongly hematite altered biotige grdr to granite
Intrusive Special Cases																				
14BH010	14BH010B	pegmatite dike	biotite	dyke		Leucocratic	Pink weathering and fresh	Massive			Dike-unzoned									Coarse-grained pegmatitic biotite granite-pegmatite
Intrusive Granitoid																				
14BH011	14BH011A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	Light pink weathering and fresh		Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular							recrystalized fine-grained biotite grdr to granite
Intrusive Special Cases																				
14BH011	14BH011B	pegmatite dike				Leucocratic	Light pink weathered and fresh	Massive			Dike-unzoned	Coarse grained 5-10mm	Vari-texture							leucocratic igneous textured coarse grained to pegmatitic granite composition
Intrusive Granitoid																				
14BH012	14BH012A	tonalite	plagioclase; quartz;biotite	main lithology		Leucocratic	off white weathered and spotted fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			tonalite to granodiorite composition, very weakly porph, very weakly foliated, good igneous texture, not recrystallized
14BH012	14BH012B	hornblende gabbro	plagioclase; hornblende	dyke		Melanocratic	dark green weathered and fresh	Massive	Discordant	Unchilled	Dike-unzoned	Medium grained 1-5mm	Equigranular							1-2mm, add 3-5mm to tonalite comment, diabasic texture, contact steps, min 6m , max 30m wide
14BH013	14BH013A	tonalite	plagioclase; quartz;biotite ;magnetite	main lithology		Leucocratic	off white weathering , speckled white and black fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			1-4mm, igneous texture, very similar to last outcrop
14BH013	14BH013B	granodiorite	quartz;plagioclase;biotite	dyke		Leucocratic	light tan weathering , medium grey fresh	Massive	Discordant	Chilled	Dike-unzoned	Very fine grained 0.1-0.5mm	Equigranular							56cm wide dyke, <1cm fine chill, minor component, <2% of outcrop
14BH014	14BH014A	tonalite	plagioclase; quartz;biotite	main lithology		Leucocratic	white weathering and fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm								main lithology
Intrusive Dioritoid																				
14BH014	14BH014B	diorite		xenolith		Melanocratic	dark grey weathering	Foliated			Undetermined									irreg xenoliths carried in tonalite
14BH014	14BH014C	diorite	amphibole;plagioclase	dyke		Mesocratic	dirty light grey weathering and dirty medium grey fresh	Foliated			Dike-unzoned	Coarse grained 5-10mm	Inequigranular		Hornblende;Plagioclase					distinctive, hornblende plagioclase phyric diorite dyke
Intrusive Granitoid																				
14BH014	14BH014D	granodiorite		dyke		Leucocratic	light pink weathering and fresh	Massive			Dike-unzoned	Medium grained 1-5mm								light pink mgr irregular leucocratic felsic dykes cut all other rock types, 3 pahses at least with slight compositional differences
14BH015	14BH015A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	off white weathering , light pink fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm								good igneous texture, 2-5mm, very weak foliation, hematized close to dyke contact, more pink weathering

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
14BH015	14BH015B	gabbro	feldspar;amphibole;pyroxene	dyke		Melanocratic	rusty brown weathering, dark green fresh	Massive			Dike-unzoned	Fine grained 0.5-1mm								good late diabase dyke, looks like hbe-pyx, elongate plag, but not strong diabasic texture , exposed contact on S, 1m covered on N, 20+-1m wide
14BH016	14BH016A	granodiorite	quartz;plagioclase;alkali-feldsp;biotite;magnetite	main lithology		Leucocratic	pinkish white weathering and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Inequigranular				Biotite			good igneous texture, round quartz 5mm, fsp are 1-2mm, bt is 1mm, and mt is vfgr, no foliation discernable
14BH017	14BH017A	granodiorite	quartz;plagioclase;alkali-feldsp;biotite;magnetite	main lithology		Leucocratic	light pinkish white weathering and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			quartz large up to 5mm but not as distinct compared to feldspar
14BH017	14BH017B	granodiorite		dyke		Leucocratic	light pink weathering and fresh	Massive			Dike-unzoned									10cm wide dyke with sharp but indistinct margins
14BH018	14BH018A	granodiorite	plagioclase; quartz;feldspar;biotite;magnetite	main lithology		Leucocratic	light pink white weathering and fresh, light pink orange white fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Inequigranular				Biotite			large quartz to 5mm, not sure if any mt, no magnet, low mag sus as all these have
14BH019	14BH019A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite;magnetite	main lithology		Mesocratic	pink white weathering , pink grey fresh	Foliated	Not observed	Not observed	Pluton	Medium grained 1-5mm					Biotite			igneous texture but strong foliation and lineation, slightly ineq with fsp bigger (7mm) than qtz and biotite , small 5-10cm xens of mafic rich
Intrusive Dioritoid																				
14BH020	14BH020A	diorite	biotite;hornblende;plagioclase	main lithology		Melanocratic	dark grey weathering and fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular							fgr to mgr, 1-2mm, largest component (60%) of outcrop, comagmatic with melano qtz diorite to ton
Intrusive Granitoid																				
14BH020	14BH020B	tonalite	plagioclase; biotite;quartz	main lithology		Melanocratic	grey weathering m, mottled black and white fresh	Foliated			Batholith	Medium grained 1-5mm					Biotite			mgr, 2-5mm, coarser than diorite, probably comagmatic with tonalite
Intrusive Special Cases																				
14BH020	14BH020C	felsic dike		dyke		Leucocratic	Pink to red weathering and fresh	Massive			Dike-unzoned	Medium grained 1-5mm	Vari-texture							main intrusive phase is cut by these three phases of small leucocratic felsic dykes, all bt bearing, fine to medium grained, A siliceous, < 1% mafic, B pale pink, 1-2% 1 mm biotite, C red, <1% mafic
Intrusive Granitoid																				
14BH021	14BH021A	granite	plagioclase; alkali-feldsp;quartz;biotite	main lithology		Mesocratic	pink weathering and fresh	Foliated	Not observed	Not observed	Stock	Medium grained 1-5mm	Inequigranular	K-feldspar			Biotite	K-feldspar		kspar megacrystic biotite granite, mgr 2-5mm groundmass, kspar 8-20mm, foliation is subparallel to igneous layers
14BH022	14BH022A	granite	plagioclase; alkali-feldsp;quartz;biotite	main lithology		Mesocratic	pink weathering and fresh	Foliated	Not observed	Not observed	Stock	Medium grained 1-5mm	Inequigranular		K-feldspar					in megacystic granite pluton at the colour change observed along road, marked by a fault
14BH023	14BH023A	granite	plagioclase; alkali-feldsp;quartz;biotite;magnetite	main lithology		Mesocratic	light pink weathering, pink fresh	Foliated	Not observed	Not observed	Pluton	Medium grained 1-5mm	Inequigranular					K-feldspar		kspar megacrystic biotite magnetite monzogranite, good igneous texture, 1-2cm kspar megacrysts in mgr 1-3mm matrix
14BH024	14BH024A	granite	plagioclase; alkali-feldsp;quartz;biotite;magnetite	main lithology		Mesocratic	light pink weathering, pink fresh	Foliated	Not observed	Not observed	Pluton	Medium grained 1-5mm	Inequigranular				Biotite	K-feldspar		good igneous texture, kspar megacrystic (1-2cm) in mgr (1-3mm) matrix biotite magnetite monzogranite
14BH025	14BH025A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	off white weathering, pale orange white fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Inequigranular		Quartz					good igneous texture, distinct rounded quartz crystals up to 7mm, massive biotite granodiorite
14BH026	14BH026A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	off white weathering, light orange white fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			same as last outcrop , igneous texture, massive biotite granodiorite, quartz not as distinct
Intrusive Special Cases																				

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14BH026	14BH026B	felsic dike	plagioclase; quartz;biotite	dyke		Mesocratic	light green grey weathering, medium grey fresh	Massive	Discordant	Unchilled	Dike-unzoned	Fine grained 0.5-1mm	Inequigranular		Plagioclase					plag porphyitic (1-5mm) in 1mm matrix, bt feldspar porphyritic dyke, probably grdr composition
Intrusive Granitoid																				
14BH027	14BH027A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	off white weathering,orange white fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular							good igneous texture, massive biotite granodiorite
14BH028	14BH028A	granodiorite	plagioclase; quartz;alkali-feldsp	main lithology		Mesocratic	off white weathering and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			same as all the outcrops today, igneous texture, mgr, massive biotite granodiorite
14BH029	14BH029A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Mesocratic	off white weathering and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			same good igneous texture, 1-4mm grains, bt granodiorite
14BH030	14BH030A	granite	plagioclase; alkali-feldsp;quartz ;biotite	main lithology		Leucocratic	pink flesh weathering and fresh	Foliated	Not observed	Not observed	Undetermined	Fine grained 0.5-1mm	Equigranular-Xenomorphic				Biotite			new rock type, igneous texture, locally sheared, leucocratic with <2% biotite, much more red suggests increased kspar
14BH031	14BH031A	granite	plagioclase; alkali-feldsp;quartz ;biotite	main lithology		Leucocratic	light pink weathering and fresh	Massive			Undetermined	Medium grained 1-5mm	Equigranular				Biotite			good igneous texture, equigran, 1-2mm mgr, weakly fractured
14BH032	14BH032A	granite	plagioclase; alkali-feldsp;quartz ;biotite	main lithology		Leucocratic	light pink weathering and fresh	Massive	Not observed	Not observed	Batholith	Medium grained 1-5mm	Vari-texture				Biotite			similar to last suspect outcrop, intruded by irreg cgr to peg dykes of identical composition, likely comagmatic, main lith is mgr 1-5mm
14BH033	14BH033A	granodiorite	plagioclase; quartz;alkali-feldsp	main lithology		Leucocratic	deep pink fresh, reddish pink fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular				Biotite			fgr to mgr 0.8-2mm, recrystallized texture, multiple components including aplite and mafic rich bands, exposure is very poor to see the distribution of rock types
14BH034	14BH034A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	light pink weathering and fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular				Biotite			fgr recrystallized texture (which distinguish it fron Indian Lake Batholith) biotite magnetite granodiorite
14BH034	14BH034B	granodiorite	plagioclase; quartz;alkali-feldsp;magnetite;biotite	dyke		Leucocratic	light pink weathering and fresh	Massive	Discordant	Unchilled	Dike-unzoned	Very coarse grained 10-50mm	Vari-texture							have previously just included peg in same lith, looks very similar in composition, has 2mm magnetite, fgr magnetite in main lith too
14BH035	14BH035A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite ;magnetite	main lithology		Leucocratic	light pink weathering and fresh	Foliated	Not observed	Not observed	Batholith	Fine grained 0.5-1mm	Equigranular				Biotite			very poor exposure but cleared patches are clearly the fgr recrystallized biotite magnetite granodiorite of Basket Lake rather than mgr igneous texture biotite magnetite monzogranite of Indian Lake, includes gneissic tonalite xenos and cut by pegmatite
14BH035	14BH035B	tonalite	plagioclase; quartz;biotite	xenolith		Melanocratic	mottled black and white	Foliated			Undetermined	Medium grained 1-5mm	Equigranular							xenoliths of foliated tonalite
14BH035	14BH035C	granite	plagioclase; alkali-feldsp;quartz ;biotite;magnetite	dyke		Leucocratic	pink		Discordant	Unchilled		Very coarse grained 10-50mm	Vari-texture							vcgr to peg bt +- mt granite pegmatite
14BH036	14BH036A	granodiorite	plagioclase; quartz;alkali-feldsp;biotite	main lithology		Leucocratic	pink weathering and fresh	Foliated	Not observed	Not observed	Batholith	Medium grained 1-5mm	Equigranular							the main lith is similar to last, mgr bt-mt granodiorite here brackets and intrudes xenolithic panel of tonalite gneiss complex, also includes cgr to peg dykes of same composition
14BH036	14BH036B	tonalite	hornblende; biotite	xenolith		Melanocratic	mottled black and white	Gneissose			Irregular-unzoned	Fine grained 0.5-1mm	Equigranular							gneissic recrystallized texture, 11m plan width, true is less, xenolithic panel bound and intruded by biotite granodiorite, complex includes early folded boudinaged pink felsic dykes cut by dark diorite dyke, all cut by bt grdr
14IL001	14IL001A	granite		main lithology	Unmetamorphosed	Leucocratic	grey	Massive	Not observed	Not observed	Undetermined									gneiss xenoliths
14IL002	14IL002A	granite		main lithology		Leucocratic	grey	Massive	Not observed	Not observed	Pluton									

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
14IL003	14IL003A	granite	quartz	main lithology	Unmetamorphosed	Leucocratic	pink on weathered, grey on fresh	Massive	Not observed	Not observed	Pluton	Coarse grained 5-10mm	Equigranular							quartz, kfsp, plag, bt/amph
14IL004	14IL004A	granite	quartz;plagioclase;alkali-feldsp;biotite	main lithology	Unmetamorphosed	Leucocratic	pink on weathered , grey on fresh	Massive	Not observed	Not observed	Pluton									
14IL005	14IL005A	granodiorite	feldspar;alkali-feldsp;quartz;biotite	main lithology	Unmetamorphosed	Leucocratic	grey fresh and pink weatheref	Massive	Not observed	Not observed	Pluton				K-feldspar;Quartz					equigranular mostly, local areas of cm-sized feldspar and qtz phenocrysts, angular quartz, clear feldspar
14IL006	14IL006A	granodiorite	plagioclase; quartz;feldspar;biotite	main lithology	Unmetamorphosed	Leucocratic	grey weathered and fresh	Massive	Not observed	Not observed	Pluton									equigranular 2-5mm crystal size with pegmatitic pods
14IL007	14IL007C	granodiorite	feldspar;plagioclase;quartz;biotite	main lithology	Unmetamorphosed	Leucocratic	grey fresh and weathered	Massive			Pluton									intruded by pegmatite
14IL008	14IL008A	granodiorite	feldspar;alkali-feldsp;plagioclase;quartz	main lithology	Unmetamorphosed	Leucocratic	white weathered, grey fresh	Massive	Not observed	Not observed	Pluton									intruded by E-W striking pegmatite layers
14IL010	14IL010A	granodiorite	quartz;plagioclase;alkali-feldsp;biotite	main lithology	Unmetamorphosed	Leucocratic	white weathered, grey fresh	Massive	Not observed	Not observed	Pluton	Coarse grained 5-10mm	Equigranular							with pegmatite veins, very uniform throughout
14IL011	14IL011A	granodiorite	quartz;alkali-feldsp;feldspar;biotite	main lithology	Unmetamorphosed	Mesocratic	grey weathered, pink-green fresh	Massive			Undetermined	Coarse grained 5-10mm	Equigranular				Hornblende < Biotite			abundant bt, locally chlorite, pegmatite veins, locally well foliated
14IL012	14IL012A	granodiorite	feldspar;biotite;quartz	main lithology	Unmetamorphosed	Mesocratic	grey weathered	Massive	Not observed	Not observed	Undetermined	Coarse grained 5-10mm	Equigranular-Hypidiomorphic							varying grain size from 1mm to 5mm, varying bt content
14IL013	14IL013A	granodiorite	biotite;quartz;feldspar;alkali-feldsp	main lithology	Unmetamorphosed	Mesocratic	black-grey-pink on fresh, grey on weathered	Foliated			Undetermined	Medium grained 1-5mm	Equigranular-Hypidiomorphic							highly variable composition
14IL014	14IL014A	granodiorite	plagioclase;feldspar;quartz;biotite	main lithology	Unmetamorphosed	Leucocratic	light grey on fresh, dark grey on weathered	Massive			Undetermined	Medium grained 1-5mm	Equigranular							grain size variation, crosscut by pegmatite dykes
14IL015	14IL015A	granodiorite	plagioclase;feldspar;alkali-feldsp;quartz;biotite	main lithology	Unmetamorphosed	Leucocratic	grey to pink on fresh and weathered	Massive			Undetermined	Medium grained 1-5mm	Equigranular-Xenomorphic							large variation in qtz grain size, up to 5mm, crosscut by pegmatite dykes
14IL016	14IL016A	granite	quartz;alkali-feldsp;plagioclase;biotite	main lithology	Unmetamorphosed	Leucocratic	white to pink to grey fresh	Massive			Undetermined	Coarse grained 5-10mm	Inequigranular							bt-rich foliated lenses ca 20cm in size, composition and grain size highly variable
14IL017	14IL017A	granodiorite	quartz;feldspar;alkali-feldsp;plagioclase;biotite	main lithology	Unmetamorphosed	Leucocratic	grey weathered, grey to pink fresh	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							variable grain size from average 1-2mm to average 5-8mm
14IL018	14IL018A	granodiorite	quartz;plagioclase;feldspar;alkali-feldsp;biotite	main lithology	Unmetamorphosed	Leucocratic	white to pink fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							local grain size variations, cut by 10-20cm wide aplite dykes
14IL019	14IL019A	tonalite	plagioclase; quartz;biotite;hornblende	main lithology	Amphibolite	Unsubdivided	white weathered, blue-grey fresh	Foliated	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							cut by mafic dyke
14IL020	14IL020A	monzogranite	alkali-feldsp;quartz;biotite;plagioclase	main lithology	Unmetamorphosed	Leucocratic	white wearhered, white to grey fresh	Massive			Undetermined	Coarse grained 5-10mm	Vari-texture							phenocrysts of fsp 1-2cm size, qtz crystal aggregates 5-8mm, crosscut by pegmatitic intrusions
14IL021	14IL021A	monzogranite	quartz;alkali-feldsp;plagioclase	main lithology		Leucocratic	white fresh and weathered	Massive			Pluton	Coarse grained 5-10mm	Inequigranular		K-feldspar;Euhedral;Prismatic;Very coarse grained;25% to					quartz agglomerates 3-8mm, feldspar phenocrysts also collect in pods

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
															50%					
14IL022	14IL022A	granodiorite	quartz;plagioclase;feldspar;hornblende;biotite	main lithology	Unmetamorphosed	Unsubdivided	grey fresh and weathered	Massive			Undetermined	Medium grained 1-5mm	Equigranular							crosscut by quartz-veins and aplite dykes
14IL023	14IL023A	granodiorite	quartz;feldspar;biotite	main lithology	Unmetamorphosed	Unsubdivided	white weathered grey fresh	Massive			Undetermined	Fine grained 0.5-1mm	Equigranular							crosscut by pegmatite dykes
14IL024	14IL024A	granodiorite	quartz;alkali-feldspar;plagioclase	main lithology		Leucocratic	pink on fresh and weathered	Massive			Undetermined	Fine grained 0.5-1mm	Equigranular							homogeneous
14IL025	14IL025A	granodiorite	quartz;alkali-feldspar;feldspar	main lithology	Unmetamorphosed	Leucocratic	pink to white	Massive			Undetermined	Medium grained 1-5mm	Equigranular							homogeneous
14IL026	14IL026A	granodiorite	plagioclase;feldspar;quartz;biotite	main lithology	Unmetamorphosed	Leucocratic	white fresh, grey weathered	Massive			Undetermined	Coarse grained 5-10mm	Inequigranular							no foliation but crosscut by brittle ductile quartz shears
14IL027	14IL027A	granodiorite	alkali-feldspar;quartz;plagioclase;biotite	main lithology	Unmetamorphosed	Mesocratic	grey weathered, pink fresh	Massive			Undetermined	Medium grained 1-5mm	Equigranular							10%bt, homogeneous throughout outcrop, crosscut by 2 thin (2cm wide) pegmatite dykes
14IL028	14IL028A	tonalite	quartz;plagioclase;biotite	main lithology		Unsubdivided	white weathered, grey to pink fresh	Gneissose			Undetermined	Coarse grained 5-10mm	Inequigranular							variations in colour, pink to yellow staining, especially near faults
14IL029	14IL029A	granodiorite	quartz;feldspar;plagioclase;biotite	main lithology		Unsubdivided	white to pink fresh and weathered	Gneissose	Not observed	Not observed	Undetermined	Coarse grained 5-10mm;Medium grained 1-5mm	Inequigranular							very quartz rich, bt foliation
14IL030	14IL030A	granodiorite	quartz;feldspar;biotite;chlorite	main lithology		Leucocratic	pinkish white on fresh and weathered	Foliated	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							altered, all biotites are degraded to chlorite, staining from fe oxide
14IL031	14IL031A	tonalite	quartz;plagioclase;biotite	main lithology		Leucocratic	white to pink	Gneissose	Not observed	Not observed	Undetermined	Coarse grained 5-10mm	Inequigranular							qtz crystals stained pink, very little biotite, weakly foliated
14IL032	14IL032A	tonalite	plagioclase; quartz;biotite	main lithology		Unsubdivided	white weathered, pink fresh	Gneissose			Undetermined	Medium grained 1-5mm	Equigranular							homogeneous throughout outcrop, isolated biotite pods
14IL033	14IL033A	granodiorite	alkali-feldspar;plagioclase;quartz;biotite	main lithology	Unmetamorphosed	Mesocratic	white weathered, pink to dark grey fresh	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular				Hornblende < Biotite			with fine grained diorite (?) pods
14IL034	14IL034A	monzogranite	alkali-feldspar;plagioclase;quartz;epidote	main lithology	Unmetamorphosed	Unsubdivided	pink to grey, depending on local composition	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular			Schliere		Feldspar;Euhedral;Prismatic;Extremely coarse grained;25% to 50%	Very coarse grained;25% to 50%;Feldspar	kfsp megacryst distribution varies, locally crystals collect in lenses, variation in bt content and grain size
14IL035	14IL035A	monzogranite	alkali-feldspar;plagioclase;quartz;biotite	main lithology	Unmetamorphosed	Unsubdivided	pink to grey fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular					Feldspar;Euhedral;Prismatic;Extremely coarse grained;Very coarse grained;> 50%		
14IL035	14IL035B	monzogranite	alkali-feldspar;feldspar;quartz;biotite	main lithology	Unmetamorphosed	Unsubdivided	pink,on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Coarse grained 5-10mm;Medium grained 1-5mm	Inequigranular					Feldspar;Euhedral;Prismatic;Very coarse grained;25% to 50%		variation in megacryst abundance
14IL036	14IL036A	monzogranite	alkali-feldspar;feldspar;quartz;biotite	main lithology		Unsubdivided	grey to pink on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular					Feldspar;Euhedral;Prismatic;Very coarse		variation in megacrysts percentage

Station ID	Litho ID	Rock Type	Mineral	Occurrence	Metagrade	Colour I	Colour	Rock Fab	Con Group	Contact	Form	Xtal Size	Xtal Form	Flow Align	Phenoxst	Strucother	Ground Mass	Megaxst	Rap Text	Notes
																		grained;25 % to 50%		
14IL037	14IL037A	monzogranite	alkali-feldsp;plagioclase;quartz;biotite	main lithology	Unmetamorphosed	Unsubdivided	grey to pink fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular					Feldspar;Euhedral;Prismatic;Extremely coarse grained;25 % to 50%		variation in megacryst percentage
14IL038	14IL038A	monzogranite	alkali-feldsp;feldspar;quartz;biotite	main lithology	Unmetamorphosed	Unsubdivided	grey to pink fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular	Unsubdivided				Feldspar;Euhedral;Prismatic;Very coarse grained;25 % to 50%		homogeneous throughout outcrop
14IL039	14IL039A	tonalite	biotite;quartz;feldspar	main lithology	Amphibolite	Unsubdivided	white fresh to grey weathered	Foliated	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							contains biotite pods, pegmatite and quartz veins
14IL040	14IL040A	tonalite	plagioclase; quartz;biotite	main lithology		Unsubdivided	white with black spots fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							biotite locally accummulates in pods
14IL041	14IL041A	granodiorite	alkali-feldsp;quartz;plagioclase; biotite	main lithology	Unmetamorphosed	Unsubdivided	pink to grey fresh and weathered	Massive			Undetermined	Coarse grained 5-10mm	Equigranular							grain size up to 1cm
14IL042	14IL042A	tonalite	quartz;feldspar;biotite	main lithology		Leucocratic	white weathered grey fresh	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							biotite pods and pegmatite inclusions
14IL043	14IL043A	granodiorite	feldspar;alkali-feldsp;quartz;biotite	main lithology	Unmetamorphosed	Unsubdivided	pink on weathered and fresh	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							crosscut by abundant pegmatite dykes
14IL044	14IL044A	tonalite	quartz;biotite;plagioclase	main lithology		Unsubdivided	white to dark grey depending on biotite content	Foliated	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Inequigranular							different phases with sharp boundaries of varying biotite content
14IL045	14IL045A	tonalite	quartz;biotite;plagioclase	main lithology		Unsubdivided	medium to dark grey on fresh and weathered	Foliated	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							pods of biotite stretched parallel to foliation
14IL046	14IL046A	tonalite	quartz;feldspar;biotite	main lithology	Unmetamorphosed	Leucocratic	white on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							very little biotite, crosscut by massive pegmatite
14IL047	14IL047A	granodiorite	quartz;leucite;alkali-feldsp;biotite	main lithology		Leucocratic	white on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm								crosscut by pegmatite
14IL048	14IL048A	granodiorite	quartz;feldspar;biotite	main lithology	Unmetamorphosed	Leucocratic	white on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular							locally foliated with biotite schlieren
14IL048	14IL048B	granodiorite	quartz;feldspar;biotite	main lithology		Leucocratic	white on fresh and weathered	Massive	Not observed	Not observed	Undetermined	Medium grained 1-5mm	Equigranular			Schliere				locally foliated with bt schlieren and bt flake alignment
Metamorphic Mafic Rocks																				
14IL007	14IL007A	amphibolite	amphibole; feldspar	minor lithology	Amphibolite			Foliated												within tonalite gneiss
Metamorphic Gneiss																				
14IL007	14IL007B	felsic gneiss	feldspar; plagioclase; quartz	minor lithology	Amphibolite															cut by granodiorite
Metamorphic Mafic Rocks																				
14IL009	14IL009A	amphibolite	hornblende; amphibole; feldspar	main lithology	Amphibolite						> 50%	Porph blast Mineral; Porph blast Form	Hornblende; Knotted [rock]		3mm					equigranular phases and local porphyroblastic phases

Table A. 3: Magnetic Susceptibility Measurements (x 10^{-3} SI)

Station ID	Sample ID	Sample Type	Reason	Check
14BH002	14BH002AG03	chip	mag sus avg., 0.128	2.316
14BH002	14BH002BG04	chip	mag sus avg., 0.719, has mt grains	
14BH003	14BH003AG02	chip	mag sus avg., 0.734, higher than peg due to mt content	
14BH003	14BH003BG03	chip	mag sus avg., 0.147, lower than last , no mt	0.8678
14BH004	14BH004AG02	chip	mag sus avg., 1.197	0.8678
14BH005	14BH005AG01	chip	mag sus avg., 0.685, only two readings successfull, no hand sample to retest	
14BH005	14BH005BG02	chip	no mag sus avg.,, at least 30 failed readings, no hand sample to retest	
14BH006	14BH006AG04	chip	mag sus avg., 0.031	0.0458
14BH006	14BH006BG05	chip	mag sus avg., 0.129	0.1126
14BH008	14BH008AG01	chip	mag sus avg., 0.0616	0.0652
14BH009	14BH009AG01	chip	mag sus avg., 0.0914	0.04
14BH010	14BH010AG01	chip	mag sus avg., 0.861	0.412
14BH011	14BH011AG01	chip	mag sus avg., 0.709 +/- 0.433, bi-modal measurements	
14BH011	14BH011AG01	chip	mag sus avg., 0.7078	
14BH012	14BH012AG03	chip	mag sus avg., 0.0646	0.1532
14BH012	14BH012BG04	chip	mag sus avg., tried repeatedly but could not get measurement, try on hand sample with other meter	11.884
14BH013	14BH013AG03	chip	mag sus avg., 0.037	0.104
14BH013	14BH013BG04	chip	mag sus avg., 0.036	
14BH014	14BH014AG02	chip	mag sus avg., 0.712	
14BH014	14BH014CG03	chip	mag sus avg., 0.100	0.1084
14BH015	14BH015AG03	chip	mag sus avg., 0.022	0.0678
14BH015	14BH015BG04	chip	mag sus avg., 10 attempts, all errors	12.074
14BH016	14BH016AG02	chip	mag sus avg., 0.012	0.0348
14BH017	14BH017AG02	chip	mag sus avg., 0.027	0.0352
14BH018	14BH018AG01	chip	mag sus avg., 0.040, no representative sample, same as on both sides	0.0324
14BH019	14BH019AG02	chip	mag sus avg., 0.279	0.1842
14BH020	14BH020AG04	chip	mag sus avg., 0.3024	1.868
14BH020	14BH020BG05	chip	mag sus avg.,0.117	0.9966
14BH020	14BH020AG01	chip	mag sus avg., 0.0458	0.0324
14BH020	14BH020AG01	chip	mag sus avg., 0.0458	0.1134
14BH021	14BH021AG02	chip	Bimodal fault faces, mag sus average 0.036 main mass, mag sus average 0.615	0.0646
14BH023	14BH023AG02	chip	mag sus avg., 20attempts, all errors	3.014
14BH024	14BH024AG01	chip	mag sus avg., 0.250	
14BH025	14BH025AG02	chip	mag sus avg., 0.079	0.0604
14BH026	14BH026AG03	chip	mag sus avg., 0.048	
14BH026	14BH026BG04	chip	mag sus avg., 0.053	0.0712
14BH027	14BH027AG01	chip	mag sus avg., 0.039	0.0518
14BH028	14BH028AG01	chip	mag sus avg., 0.037	
14BH029	14BH029AG01	chip	mag sus avg., 0.090	
14BH030	14BH030AG01	chip	mag sus avg., 0.032	0.6294
14BH031	14BH031AG02	chip	mag sus avg., 0.642,average of 2 readings	0.8864
14BH032	14BH032AG02	chip	mag sus avg., 0.769 +-0.452, quite variable	0.9014
14BH033	14BH033AG02	chip	mag sus avg., 0.605	1.714
14BH034	14BH034AG03	chip	mag sus avg., 0.110	3.728
14BH034	14BH034BG04	chip	mag sus avg., 0.080+-.058	0.3294
14BH035	14BH035AG01	chip	mag sus avg., 10 attempts, all errors	
14BH036	14BH036AG03	chip	mag sus avg.,	
14BH036	14BH036BG04	chip	mag sus avg.,	
14IL003	14IL003AG01	chip	mag sus 0.052	
14IL003	14IL003AG02	chip	mag sus 0.650, on intact rock	
14IL004	14IL004AG01	chip	mag sus 0.682	
14IL005	14IL005AG01	chip	mag sus 0.051	0.0652
14IL006	14IL006AG01	chip	mag sus 1.36	1.452
14IL007	14IL007BG01	chip	mag sus 0.314	
14IL007	14IL007CG02	chip	mag sus 0.089	
14IL007	14IL007DG03	chip	mag sus 0.287	
14IL008	14IL008BG01	chip	mag sus 0.525, no measurement on granodiorite possible	
14IL008	14IL008CG01	chip	mgt pegmatite	102.98
14IL009	14IL009AG01	chip	mag sus 0.159	

Station ID	Sample ID	Sample Type	Reason	Check
14IL009	14IL009BG02	chip	mag sus 0.494, pegmatite	
14IL010	14IL010AG01	chip	mag sus 1.34, bimodal distribution	
14IL011	14IL011AG01	chip	mag sus 0.283	0.127
14IL011	14IL011BG02	chip	mag sus 0.060	0.082
14IL012	14IL012BG01	chip	mag sus 0.020, kspar rich zones	0.1482
14IL012	14IL012AG02	chip	mag sus 0.205. bt rich zones	
14IL013	14IL013AG01	chip	mag sus 0.831, bt-tonalite gneiss	0.977
14IL013	14IL013BG02	chip	mag sus 0.016, pegmatite	0.7604
14IL013	14IL013CG03	chip	mag sus 0.527,aplite	
14IL014	14IL014AG01	chip	mag sus 0.051	
14IL015	14IL015AG01	chip	mag sus 0.240	0.3186
14IL016	14IL016AG01	chip	mag sus 0.192	
14IL017	14IL017AG01	chip	mag sus 0.097 (away from bt lenses)	0.087
14IL018	14IL018AG01	chip	mag sus 0.548	
14IL019	14IL019AG01	chip	mag sus 0.109	
14IL019	14IL019BG02	chip	mag sus 0.109	
14IL020	14IL020AG01	chip	mag sus 0.146	
14IL022	14IL022AG01	chip	mag sus 0.258	
14IL022	14IL022BG02	chip	mag sus 0.038	
14IL023	14IL023AG01	chip	mag sus 0.036 fine grained gdr	
14IL023	14IL023BG02	chip	mag sus 0.063 coarse grained gdr	
14IL024	14IL024AG01	chip	mag sus 0.037	0.0786
14IL025	14IL025AG01	chip	mag sus 0.010	
14IL026	14IL026AG01	chip	mag sus 0.237	
14IL027	14IL027AG02	chip	mag sus 0.180	0.2454
14IL028	14IL028AG02	chip	mag sus 0.011	0.0292
14IL029	14IL029AG02	chip	mag sus 0.019	0.0244
14IL030	14IL030AG02	chip	mag sus 0.015	0.02
14IL031	14IL031AG01	chip	mag sus 0.021	
14IL031	14IL031DG02	chip	mag sus 0.315	0.026
14IL032	14IL032AG01	chip	mag sus 0.49	0.0094
14IL033	14IL033AG02	chip	mag sus 0.254, dyke 0.516	0.1204
14IL034	14IL033AG01	chip	mag sus - megacrystic	1.944
14IL034	14IL034BG01	chip	mag sus - dyke	0.1634
14IL035	14IL035AG01	chip	mag sus 0.355	
14IL036	14IL036AG01	chip	mag sus 1.13	
14IL037	14IL037AG01	chip	mag sus 0.833	0.48
14IL037	14IL037BG02	chip	mag 0.359, mafic dyke	1.368
14IL038	14IL038AG01	chip	mag sus 0.414	3.462
14IL040	14IL040AG01	chip	mag sus 0.067	0.0722
14IL041	14IL041AG01	chip	mag sus 0.0306	0.034
14IL041	14IL041BG01	chip	mag sus 0.0306	0.0516
14IL042	14IL042AG01	chip	mag sus 0.4686	
14IL043	14IL043AG01	chip	mag sus 0.364	0.0624
14IL044	14IL044AG01	chip	mag sus. 0.051	
14IL045	14IL045AG01	chip	mag sus 0.065	0.8644
14IL045	14IL045CG02	chip	mag sus 0.029, pegmatite	
14IL046	14IL046AG01	chip	mag sus 1.36	1.566
14IL047	14IL047AG02	chip	mag sus 0.335	0.4406
14IL048	14IL048AG02	chip	mag sus 1.03	0.9264

Table A. 4: Structures

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14BH001	Joint	joint	JNTI	182	89			300		• en echelon related fractures related to main break dipping steeply to east away from dip of main joint, no coating or slickenline
14BH002	Joint	joint	JNTI	332	80			400		• 4m to >10m range
14BH002	Joint	joint	JNTI	40	80			600		• only 2, 6m apart, >10m with nothing either side
14BH002	Joint	joint	JNTI	238	6			100		• weathered surface, shallowly dipping , little vertical relief, estimated >100cm
14BH003	Foliation	unknownf	FOLXI	57	78	FOL WEAK	L<<S	0		• very weak foliation in bt mt grdr
14BH003	Joint	joint	JNTI	272	82			1000		• spacing range, 70->1000cm
14BH003	Joint	joint	JNTI	63	77			600		• spacing range, 20->1000cm
14BH003	Joint	joint	JNTI	185	60			700	muscovite;	• spacing range, 30->1000cm, increases to east edge of outcrop which is a good lineament
14BH004	Foliation	unknownf	FOLXI	205	79	FOL WEAK	L<<S	0		• very weak foliation defined by aligned biotite and feldspar
14BH004	Joint	joint	JNTI	178	80			1500		• spacing range, 15-20m
14BH004	Joint	joint	JNTI	240	70			5000		• spacing range , only one on outcrop
14BH005	Joint	joint	JNTI	268	70			0		• only one observed
14BH005	Joint	joint	JNTT	28	99			500		• spacing range 10-800cm, four observed wide range of spacing
14BH005	Joint	joint	JNTI	205	70			0		• no spacing, only one observed
14BH005	Gneiss	gneiss-A-unkn	CLFAXI	245	40	FOL MODERATE	L<S	0		• gneissic foliation in tonalite screen intruded by biotite magnetite granodiorite
14BH006	Foliation	gen2f	FOL2I	40	86	FOL WEAK	L<<S	0		• alignment of bt in grdr, very weak
14BH006	Foliation	gen1f	FOL1I	224	26	FOL STRONG	L<<S	0		• variable strike, also 192/27, 304/75
14BH006	Joint	joint	JNTI	95	85			500		• spacing range , 2 - >10m
14BH006	Joint	joint	JNTI	305	42			300		• spacing range , 2 - >5m
14BH006	Joint	joint	JNTI	190	45			0		• spacing range , only one measured, might be tonalite foliation orientation
14BH007	Fault Brittle	UnknB-Dex	FTDXI	160	64			0	quartz;	• subtle steps on quartz vein, good slickenline
14BH007	Lineation	slickenside	LINSLX	168	6	LIN MODERATE		0		• good slickenline
14BH007	Fault Brittle	UnknB-Sin	FTSXI	74	87			0		• subtle lin and weak steps
14BH007	Lineation	slickenside	LINSLX	264	4	LIN WEAK		0		• subtle lineation and steps
14BH007	Foliation	unknownf	FOLXI	215	68	FOL STRONG	L<S	0		• good foliation in tonalite open folds accentuated by cut
14BH012	Foliation	unknownf	FOLXI	250	74	FOL WEAK	L<S	0		• very weak foliation based on aligned biotite
14BH012	Contacts	Dyke-A	IGCADI	318	85			0		• measured on 50cm exposure, diabase must step to get between outcrops
14BH012	Joint	joint	JNTI	310	70			500		• spacing range, only one observed
14BH012	Joint	joint	JNTI	120	75			100		• spacing range, 80-200cm
14BH012	Joint	joint	JNTV	20	90			100		• spacing range , 30-200cm
14BH012	Joint	joint	JNTI	110	80			70		• spacing range , 50-150cm
14BH012	Joint	joint	JNTI	16	55			150		• spacing range , 15-150cm
14BH012	Joint	joint	JNTV	330	90			35		• spacing range 30-40cm
14BH013	Foliation	unknownf	FOLXI	95	84	FOL WEAK	L<S	0		• very weak but observable foliation
14BH013	Vein	foliation-unknown	VNDXI	95	84			0		• vfgr felsite dyke, 56cm wide, sharp straight contact
14BH013	Joint	joint	JNTI	7	80			500		• spacing range , 80-1000cm
14BH013	Joint	joint	JNTI	50	80			1200		• spacing range 12m, only 2 present , same as other set
14BH014	Shear	Ductile-DexU	SHDXI	30	81	FOL STRONG	L<S	0		• good rotation of foliation into shear
14BH014	Fault-Brittle-Ductile	UnknDB-Dex	BDDXI	195	75			0		• good dextral separation of pink felsic dykes , flat outcrop , can't see lineation
14BH014	Foliation	unknownf	FOLXI	308	78	FOL MODERATE	L=S	0		• good lin plunging shallowly to east
14BH014	Lineation	mineral	LINM1	132	11	LIN MODERATE	L=S	0		• good aligned hbe mineral lineation
14BH014	Contacts	Dyke-A	IGCADI	358	85			0		• this should be dyke contact, 1m wide
14BH014	Joint	joint	JNTI	200	79			0		• 30cm wide zone, 10cm between planes, dextral separation brittle ductile fault
14BH014	Shear	Ductile-SinU	SHSXI	327	79	FOL STRONG		0		• good sinistral separation shearzone rotates and offsets felsic dyke
14BH015	Foliation	unknownf	FOLXI	97	83	FOL WEAK	L<S	0		• weak but discernable foliation
14BH015	Contacts	Dyke-A	IGCADI	110	83			0		• 20+-1m wide late diabase dyke, sharp contact, no significant chill
14BH015	Joint	joint	JNTI	210	5			0		• spacing range, only one
14BH015	Joint	joint	JNTI	70	80			500		• spacing range, only one
14BH015	Joint	joint	JNTI	220	79			45		• spacing range , 45-300cm
14BH015	Joint	joint	JNTI	286	85			10		• spacing range , 10 - 1000cm
14BH015	Joint	joint	JNTI	286	85			70		• spacing range ,5-200cm, some limonite stained
14BH015	Joint	joint	JNTI	220	70			120		• spacing range, 90-300cm
14BH016	Joint	joint	JNTI	218	80			200		• spacing range, 70-600cm
14BH016	Joint	joint	JNTI	296	80			250		• spacing range,150-300cm

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14BH017	Contacts	Dyke-A	IGCADI	95	47			0		• 10cm wide dyke
14BH017	Joint	joint	JNTI	52	85			0		• only 1 on oc, >500cm spacing
14BH017	Joint	joint	JNTI	315	75			700		• spacing range, 500-1000cm
14BH018	Joint	joint	JNTI	27	80			0		• only one observed, >500cm
14BH018	Joint	joint	JNTI	165	85			90		• average spacing range, 7-220cm
14BH019	Foliation	unknownf	FOLXI	164	42	FOL STRONG	L=S	0		• good biotite flattening and elongation
14BH019	Lineation	mineral	LINM1	291	32	LIN STRONG	L=S	0		
14BH019	Fault Brittle	UnknB-horiz	FTUXI	38	84			0	epidote;	• this is one of major movement , great lin but steps go both ways, reactivation in concert with the other fracture sets
14BH019	Lineation	slickenside	LINSL1	216	14			0		• reactivation dextral and sinistral
14BH019	Fault Brittle	B_gen1_unk	FTU1IN	41	31			0		• good lineation and steps , and steeper extension vein
14BH019	Lineation	slickenside	LINSLX	134	29			0	pyrite; quartz;	
14BH019	Vein	extension-unknown	VNBXI	32	77			0	quartz; pyrite;	• steeper extension vein assoc with normal fault
14BH019	Joint	joint	JNTI	37	83			150	chlorite; epidote;	• spacing range 100-200cm, strike slip, both dextral and sinistral
14BH019	Joint	joint	JNTI	173	82			10		• spacing range , 1-30cm, sinistral strike slip
14BH019	Joint	joint	JNTI	108	68			200		• spacing range 30->500cm , sinistral strike slip
14BH019	Joint	joint	JNTI	288	85			100	chlorite; biotite;	• spacing range 25-125cm, dextral strike slip
14BH019	Joint	joint	JNTI	45	30			200	monazite; quartz; hematite;	• spacing range , 70->300cm, normal fault
14BH019	Joint	joint	JNTI	229	28			150	quartz;	• spacing range , 40->200cm, oblique movement but uncertain kin
14BH021	Foliation	unknownf	FOLXI	250	21	FOL MODERATE	L<S	0		• subparallel to igneous layers
14BH021	Fault Brittle	UnknB-Sin	FTSXI	279	82			0		• 4zones 5-50cm wide with closely spaced fracturing , good steps, weak lin
14BH021	Lineation	slickenside	LINSLX	289	15			0		• weak but good steps
14BH021	Fault Brittle	UnknB-Sin	FTSXI	18	73			0		• discrete, good steps
14BH021	Lineation	slickenside	LINSLX	200	10			0		• good steps, poor lin
14BH021	Joint	joint	JNTI	249	83			150		• spacing range 1-200cm, sinistral strike slip, weathered
14BH021	Joint	joint	JNTI	18	73			200		• spacing range 0.5->200cm, sinistral strike slip
14BH021	Joint	joint	JNTI	284	87			200		• spacing range 0.5-300cm, sinistral strike slip, in zones
14BH021	Joint	joint	JNTI	217	20			70		• spacing range 40-100cm
14BH023	Foliation	unknownf	FOLXI	226	13	FOL MODERATE	L<S	0		• good foliation from biotite alignment
14BH023	Joint	joint	JNTI	155	87			150		• spacing range 30-400cm
14BH023	Joint	joint	JNTI	67	80			400		• spacing range 15 - >400cm
14BH023	Joint	joint	JNTI	334	5			40		• spacing range 7 - >50cm
14BH024	Foliation	unknownf	FOLXI	138	5	FOL WEAK	L<S	0		• foliation defined by aligned biotite, weak, could this be magmatic?
14BH024	Fault Brittle	UnknB-Sin	FTSXI	132	86			0		• discrete fractures in higher concentration near NW lineament
14BH024	Lineation	slickenside	LINSLX	134	9			0	epidote;	• add epidote to the fracture, good slicks and steps
14BH024	Fault Brittle	UnknB-Dex	FTDXI	204	77			0	epidote;	• not as strong
14BH024	Lineation	slickenside	LINSLX	207	3			0		• add to fault, possible conjugate, but angle between is high
14BH024	Joint	joint	JNTV	140	90			30	epidote;	• spacing range 0.5 - >200cm
14BH024	Joint	joint	JNTI	329	58			30		• spacing range 1-400cm
14BH024	Joint	joint	JNTI	207	80			30	epidote;	• spacing range 5-90cm
14BH024	Joint	joint	JNTI	186	12			40		• spacing range 8-50cm
14BH025	Joint	joint	JNTI	212	82			400		• spacing range 40-1000cm
14BH025	Joint	joint	JNTI	325	80			1000		• no spacing range possible due to sparseness
14BH025	Joint	joint	JNTI	92	20			400		• spacing range 100 - >400cm
14BH025	Joint	joint	JNTI	98	66			30		• spacing range 10-40cm, only appears in 5m closest to WNW lineament
14BH026	Contacts	Dyke-A	IGCADI	182	51			0		• really a dyke contact, strong fracturing focused here
14BH026	Joint	joint	JNTI	210	13			300		• spacing range 2-400cm
14BH026	Joint	joint	JNTI	72	76			300		• spacing range 15-400cm
14BH026	Lineation	slickenside	LINSLX	251	2			0		• on 072/76 fracture, dextral strike slip fault from steps
14BH026	Joint	joint	JNTV	320	90			300		• spacing range 130 - >500cm, dextral movement
14BH026	Lineation	slickenside	LINSLX	138	5			0		• on 320/90,dextral movement from good steps
14BH026	Joint	joint	JNTV	320	90			300		• spacing range 130 - >500cm
14BH026	Joint	joint	JNTI	6	76			5		• spacing range 3-15cm, only present at this density within 2m of dyke
14BH027	Joint	joint	JNTI	314	79			100		• spacing range 1-200cm
14BH027	Joint	joint	JNTI	84	84			200		• spacing range 5-300cm
14BH027	Joint	joint	JNTI	326	77			200		• no spacing range
14BH027	Joint	joint	JNTV	3	90			100		• spacing range 5-130cm
14BH028	Joint	joint	JNTI	100	76			25		• spacing range 2-200cm
14BH028	Joint	joint	JNTI	280	82			25		• spacing range 2-200cm

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14BH028	Joint	joint	JNTI	317	78			15		• spacing range 8-20cm, but only locally at west end of outcrop
14BH028	Joint	joint	JNTI	135	78			10		• spacing range 4 - >30cm
14BH029	Fault-Brittle-Ductile	UnknDB-Dex	BDDXI	309	77			0	epidote; quartz;	• duplex like structure and qtz vein offset indicate dextral separation
14BH029	Vein	extension-unknown	VNBXI	272	70			0	quartz;	• 7mm wide
14BH029	Fault Brittle	UnknB-Sin	FTSXI	347	87			0	epidote;	
14BH029	Joint	joint	JNTI	316	77			30	epidote;	• spacing range 4-75cm
14BH029	Joint	joint	JNTI	283	61			25	quartz;	• spacing range 6 - >100cm
14BH029	Joint	joint	JNTI	50	70			120		• spacing range 30 - >200cm
14BH029	Joint	joint	JNTI	5	83			25		• spacing range 9-55cm
14BH030	Foliation	unknownf	FOLXI	112	74	FOL MODERATE	L<S	0		• 2cm wide domain of foliation developed in associated with short extensional gash veins
14BH030	Vein	extension-unknown	VNBXI	58	66			0	quartz;	• short gas vein spatially associated with increased foliation domain
14BH030	Joint	joint	JNTI	310	74			50	quartz;	• spacing range 8-140cm
14BH030	Joint	joint	JNTI	60	88			100	quartz;	• spacing range 25-200cm
14BH030	Joint	joint	JNTI	218	34			50		• spacing range 35-90cm
14BH030	Joint	joint	JNTI	37	84			85	quartz;	• spacing range 20-100cm
14BH030	Vein	extension-unknown	VNBXI	271	75			0	quartz;	• straight, long extension vein
14BH031	Joint	joint	JNTI	176	84			0		• only one, >1.5m
14BH031	Joint	joint	JNTI	94	80			0		• only one, >3.0m
14BH032	Joint	joint	JNTI	335	85			600		• spacing range, 75 - >700cm
14BH032	Joint	joint	JNTV	340	90			150		• spacing range, 9-200cm, taken at wp1228, add taken at wp1228 to second fracture density as well
14BH033	Foliation	unknownf	FOLXI	25	64	FOL WEAK	L<S	0		• very weak foliation defined by aligned biotite
14BH033	Joint	joint	JNTI	12	2			15		• spacing range 5-60cm
14BH033	Joint	joint	JNTV	141	90			170		• spacing range, 90 - >200cm
14BH033	Joint	joint	JNTI	72	60			200		• spacing range, 15 - >200cm
14BH034	Foliation	unknownf	FOLXI	11	72	FOL WEAK	L<S	0		• very weak foliation but can distinguish it and has been relatively consistent between outcrops
14BH034	Joint	joint	JNTI	224	8			30		• spacing range 1-50cm
14BH034	Joint	joint	JNTI	312	73			240		• spacing range, 5 - >600cm
14BH035	Foliation	unknownf	FOLXI	30	76	FOL WEAK	L<S	0		• very weak, is change in strike real?
14BH009	Foliation	gen1f	FOL1I	62	40	FOL MODERATE	L<S	0		• in the tonalite xenolith panels, some variability
14BH009	Foliation	gen2f	FOL2I	280	79	FOL WEAK	L<S	0		• very weak foliation in the recrystallized fgr bt grdr to gran main lith
14BH010	Fault Brittle	UnknB-Sin	FTSXI	25	76			0		• Steps indicate sinistral, no Lss, line perpendicular to steps pitches 20 degrees to north
14BH011	Joint	joint	JNTI	9	82			0		• The strong joint set visible in photo
14BH020	Foliation	unknownf	FOLXI	152	35	FOL STRONG	L>S	0		• Variable development, moderate to strong, L=S to L>S
14BH020	Lineation	mineral	LINMX	285	16	LIN STRONG		0		• Hornblende, biotite elongate clots
14BH020	Fault Brittle	UnknB-Dex	FTDXI	334	88			0		• Good steps to give kinematics
14BH020	Lineation	slickenside	LINSLX	153	6			0		• Epidote on surface, excellent lineation
14BH020	Fault Brittle	UnknB-Dex	FTDXIN	162	33			0		• Quartz and sulphide along fault, normal-dextral oblique slip
14BH020	Lineation	slickenside	LINSLX	298	15			0		• Quartz grooved
14BH020	Fault Brittle	UnknB-horiz	FTUXI	171	25			0		• Major fault, not sure of transport direction, foliation intersection lineation shows through on fault surface
14BH020	Fault Brittle	UnknB-Sin	FTSXI	130	52			0		• Minor fault, minor reverse component of movement
14BH020	Lineation	slickenside	LINSLX	302	22			0		
14BH020	Lineation	fold-M	LINFMX	250	15			0		• Fold axis of folded and boudinaged felsic veins
14BH022	Fault-Brittle-Ductile	UnknBD-Sin	BDSXI	70	78			0		• 5-15 cm wide zone of anastomosing chlorite altered rock, good brittle ductile fault
14BH022	Lineation	slickenside	LINSLX	72	5			0		• good chlorite slicken line
14BH023	Foliation	unknownf	FOLXI	126	17	FOL MODERATE	L<S	0		• weak to moderate foliation
14BH036	Foliation	gen2f	FOL2I	356	64	FOL WEAK	L<S	0		• weak foliation in biotite grdr
14BH036	Gneiss	gneiss-A-unkn	CLFAXI	125	26	FOL STRONG	L=S	0		• good gneissocity in the remnant tonalite complex
14BH036	Lineation	mineral	LINM1	106	13	LIN STRONG	L=S	0		• good hbe-bt mineral lineation
14BH020	Joint	joint	JNTV	329	88			20	epidote;	• spacing range , 2-100cm, dextral slip
14BH020	Joint	joint	JNTI	153	50			70	Fe oxide;	• spacing range , 50-100cm, dextral oblique slip
14BH020	Joint	joint	JNTI	44	40			20		• spacing range , 35-250cm
14BH020	Joint	joint	JNTH	30	15			200		• spacing range , 70-400cm
14BH035	Joint	joint	JNTH	209	5			100		• spacing range 10->100cm
14BH035	Joint	joint	JNTV	244	90			500		
14BH036	Joint	joint	JNTI	350	78			30		• spacing range 15-80cm
14BH036	Joint	joint	JNTV	93	85			20		• spacing range 9-45cm
14BH036	Joint	joint	JNTH	56	14			20		• spacing range 10-65cm

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14BH036	Joint	joint	JNTI	38	60			20		• spacing range 4-50cm
14BH036	Joint	joint	JNTI	264	50			25		• spacing range 7-30cm
14BH036	Joint	joint	JNTI	9	48			40		• spacing range 30-100cm
14BH036	Joint	joint	JNTI	280	70			6		• spacing range 2-15cm
14BH007	Joint	joint	JNTV	168	80			40		• spacing range 5-100cm
14BH007	Joint	joint	JNTI	340	70			30		• spacing range 2-150cm
14BH007	Joint	joint	JNTH	30	10			200		• spacing range 100-500cm
14BH007	Joint	joint	JNTV	74	87			200		• spacing range 100-500cm
14BH008	Joint	joint	JNTH	52	20			500		• spacing range 500-500cm
14BH009	Joint	joint	JNTI	216	40			500		
14BH009	Joint	joint	JNTI	176	80			500		
14BH009	Joint	joint	JNTH	48	15			100		• spacing range 50-100cm
14BH010	Joint	joint	JNTV	338	88			70		
14BH010	Joint	joint	JNTI	5	75			150		
14BH010	Joint	joint	JNTI	70	77			100		
14BH011	Joint	joint	JNTI	165	70			0		
14BH011	Joint	joint	JNTV	12	85			0		
14IL001	Fault Brittle	B_gen1_unk	FTU1I	305	12			80	calcite; chalcocite; chlorite;	• anastomosing
14IL001	Fault Brittle	B_gen1_Sin	FTS1V	148	71			500	quartz;	• terminates on subhorizontal fracture
14IL001	Lineation	slickenside	LINSLX	40	15			500		• to flt 148/71
14IL003	Fault Brittle	UnknB-Dex	FTDXV	312	88			1	chlorite;	• pseudotachylite also in secondary planes
14IL003	Lineation	slickenside	LINSLX	131	1			0		
14IL003	Joint	joint	JNTH	302	84			0.5	chlorite;	• spacing min 0.5cm to 25cm range in fracture zone of 25m, intact rock immediately north with spacings up to 6m
14IL003	Joint	joint	JNTI	274	76			15		• 5-20cmspacing range, only in fracture zone
14IL003	Joint	joint	JNTH	11	6			80		• 10cm to >1m spacing, measurement on open surface
14IL004	Joint	joint	JNTV	214	76			100		• m2m deep
14IL004	Joint	joint	JNTV	218	85			1000		• frost wedge, spacing 1m to 10m
14IL004	Joint	joint	JNTV	305	75			100000		• only single fracture
14IL004	Joint	joint	JNTV	52	85			1000		
14IL005	Foliation	unknownf	FOLXV	266	86	LIN WEAK	L<<S	0		• very weak alignment of bt
14IL005	Lineation	Primary	LINPP	82	82	LIN WEAK	L<<S	0		• defined by elongated qtz, very weak
14IL005	Fault Brittle	UnknB-Sin	FTSXV	188	88			5	chlorite; hematite;	• 10cm2 flt pln, sin slip from steps
14IL005	Lineation	slickenside	LINSLX	26	15			0		• to 188/88
14IL005	Joint	joint	JNTV	43	90			80		• 20-100cm spacing range
14IL005	Joint	joint	JNTH	29	22			50		• 1-150cm spacing range
14IL005	Fault Brittle	UnknB-Sin	FTSXV	308	84			0		• several parallel planes 2cm spacing, riedels for sense
14IL005	Lineation	slickenside	LINSLX	132	12			0		• to 308/84
14IL005	Fault Brittle	UnknB-Sin	FTSXV	312	86			0		• hematite on fpl, 10cm2,5-10cm spacing
14IL006	Foliation	unknownf	FOLXV	74	88			0		• very weak, defined by biotite
14IL006	Joint	joint	JNTV	340	89			2000		
14IL006	Joint	joint	JNTV	73	90			15000		
14IL007	Foliation	unknownf	FOLXV	2	83			0		• biotite defines foliation
14IL007	Fault Brittle	UnknB-Sin	FTSXV	12	89			100		• lineation not visible
14IL007	Joint	joint	JNTV	259	62			100		• 0.5-150cm range
14IL007	Joint	joint	JNTV	320	75			40		• 5-100cm spacing range
14IL008	Fault Brittle	UnknB-horiz	FTUXV	198	76			500		• 1cm wide crack, 3m length
14IL008	Vein	net-unknown	VNEXV	282	85			0		• pegmatite veins in granodiorite
14IL008	Joint	joint	JNTV	325	90			1		• 1-5000cm, single zone 50cm wide, no other on whole outcrop
14IL008	Joint	joint	JNTI	206	85			400		• 30->600cm spacing range
14IL009	Foliation	unknownf	FOLXI	242	82			0		• defined by amphibole
14IL009	Joint	joint	JNTH	55	2			30		• limited visibility for frac spacing, plane orientation may be off, amphibolite
14IL010	Foliation	unknownf	FOLXV	62	86			0		• very very weak, bt defined
14IL010	Fault Brittle	UnknB-Dex	FTDXV	294	80			300		• 3m2 fault plane
14IL010	Lineation	slickenside	LINSLX	300	3			0		• on fsp, to 294/80
14IL010	Foliation	unknownf	FOLXV	62	86			0		• very very weak bt alignment
14IL010	Joint	joint	JNTV	354	83			300		• 4-600cm spacing range
14IL010	Joint	joint	JNTV	77	90			500		
14IL010	Joint	joint	JNTH	160	2			60		• 20-+100cm spacing range

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14IL011	Cleavage	unknown_cleav	CGXV	215	76			0.5	epidote;	• fine grained rock between anastomosing cleavage planes
14IL011	Foliation	unknownf	FOLXI	183	63	FOL STRONG	L<S	0.2	biotite;	• localized strong foliation
14IL011	Lineation	mineral	LINMX	290	53	LIN MODERATE	L<S	0.2	biotite;	
14IL011	Joint	joint	JNTI	344	80	LIN MODERATE	L<S	100		• range 10-400cm spacing
14IL011	Joint	joint	JNTI	200	85	LIN MODERATE	L<S	80		• range 0.3-+100cm spacing
14IL011	Joint	joint	JNTI	356	5	LIN MODERATE	L<S	100		• range 50-+100cm spacing
14IL012	Shear	Ductile-Unkn	SHUXI	180	84	LIN WEAK	L<S	0.1		• 20cm wide bt-schist within massive granite with equigranular bt
14IL012	Foliation	unknownf	FOLXI	295	74	LIN WEAK	L<<S	0.5		• alignment of idiomorphic kfsp
14IL012	Joint	joint	JNTV	42	85	LIN WEAK	L<<S	300		• 10-400cm spacing range
14IL012	Joint	joint	JNTV	136	74	LIN WEAK	L<<S	200		• 100-+200cm spacing range
14IL012	Joint	joint	JNTH	74	54	LIN WEAK	L<<S	100		• 80-+200cm spacing range
14IL013	Foliation	unknownf	FOLXI	290	58	LIN WEAK	L<<S	0		• leucosome-melanosome layering, bt alignment
14IL013	Joint	joint	JNTV	40	90	LIN WEAK	L<<S	300		• 200-400cm spacing range
14IL013	Joint	joint	JNTI	293	78	LIN WEAK	L<<S	100		• 3-400cm spacing range
14IL014	Joint	joint	JNTV	325	80	LIN WEAK	L<<S	5		• 0.5-30cm spacing range
14IL014	Joint	joint	JNTV	355	82	LIN WEAK	L<<S	5		• 0.5-30cm spacing range
14IL014	Joint	joint	JNTV	263	83	LIN WEAK	L<<S	25		• 2-50cm spacing range
14IL015	Fault Brittle	UnknB-horiz	FTUXI	306	88	LIN WEAK	L<<S	0		• secondary tension fracture
14IL015	Fault Brittle	UnknB-Sin	FTSXI	19	78	LIN WEAK	L<<S	0		• main flt plane
14IL015	Lineation	slickenside	LINSLX	31	6	LIN WEAK	L<<S	0		• main flt plane 306/88
14IL015	Joint	joint	JNTV	334	84	LIN WEAK	L<<S	50		• 10-300cm range spacing
14IL015	Joint	joint	JNTV	286	90	LIN WEAK	L<<S	50		• 2-200cm range spacing
14IL015	Joint	joint	JNTV	355	45	LIN WEAK	L<<S	100		• 3-200cm range spacing
14IL016	Foliation	unknownf	FOLXV	148	88			100	biotite;	• in biotite rich lenses
14IL016	Joint	joint	JNTV	300	82			200		• 6-300cm spacing range
14IL016	Joint	joint	JNTV	350	90			300		• 5-400+cm spacing range
14IL017	Foliation	unknownf	FOLXV	188	88			0		• especially in fine grained areas
14IL017	Joint	joint	JNTV	266	77			100		• 1-200+cm spacing range
14IL017	Joint	joint	JNTV	359	78			150		• 80-200+cm spacing range
14IL017	Joint	joint	JNTH	230	50			100		• 30-200cm spacing range
14IL018	Foliation	unknownf	FOLXV	46	89			0		• weakly aligned biotite
14IL018	Foliation	unknownf	FOLXV	30	88			0.2		• tightly spaced cleavage
14IL018	Vein	net-unknown	VNEXV	222	86			0		• 20cm wide aplite dyke
14IL018	Joint	joint	JNTV	327	90			20		• 3-8cm spacing range
14IL018	Joint	joint	JNTV	51	90			80		• 45-100cm spacing range
14IL018	Joint	joint	JNTV	85	90			50		• 3-100cm spacing range
14IL019	Foliation	unknownf	FOLXI	158	72			0		• bt alignment, well defined foliation
14IL019	Vein	extension-unknown	VNBXV	222	84			0		• Qtz extension lenses, chl on vein edges
14IL019	Joint	joint	JNTV	20	85			600		• 20-600+cm spacing range
14IL019	Joint	joint	JNTI	98	60			200		• 150-250+cm spacing range
14IL019	Joint	joint	JNTV	316	90			300		• 200-400+cm spacing range
14IL019	Joint	joint	JNTI	20	85			100		• 3-600cm spacing range, overrides previous spacing range
14IL019	Shear	Ductile-DexU	SHDXI	122	89			0		• qtz v at angle to main fault
14IL019	Foliation	unknownf	FOLXI	68	72			0		• overrides prev foliation
14IL020	Foliation	unknownf	FOLXI	234	86			0		• elongated qtz eyes, mica
14IL020	Joint	joint	JNTV	22	90			800		• 160-1000cm spacing range
14IL020	Joint	joint	JNTV	294	90			800		• 200-900cm spacing range
14IL021	Foliation	unknownf	FOLXI	42	75			0		• quartz ellipses, very faint, parallel to bt-enveloped xenolith
14IL022	Vein	extension-unknown	VNBXV	138	89			0		• sinistral off set of pegmatite dyke on vein
14IL022	Foliation	unknownf	FOLXV	274	86			0		• bt defined, weak
14IL022	Joint	joint	JNTV	16	90			100		• 5-650cm spacing range
14IL022	Joint	joint	JNTV	300	90			500		• 200-600cm spacing range
14IL022	Joint	joint	JNTV	333	75			200		• 15-300cm spacing range
14IL023	Vein	extension-unknown	VNBXI	28	89			1		• surrounded by fine grained rock
14IL023	Fault Brittle	UnknB-Dex	FTDXI	302	52			0		• thin fault, series of parallel
14IL023	Lineation	slickenside	LINSLX	314	2			0		• dextral steps, to 302/52
14IL023	Fault Brittle	UnknB-Sin	FTSXI	262	68			0		• thin flt with secondary fractures
14IL023	Lineation	slickenside	LINSLX	252	13			0		• sinistral steps, to 262/68
14IL023	Foliation	unknownf	FOLXI	153	44			0		• coarse alignment of bt

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14IL023	Joint	joint	JNTI	316	55			40		• 7-60cm
14IL023	Joint	joint	JNTI	250	62			50		• 10-200cm spacing range
14IL023	Joint	joint	JNTI	270	60			80		• 8-140cm spacing range
14IL024	Joint	joint	JNTV	150	82			40		• 5-120cm spacing range
14IL024	Joint	joint	JNTV	207	80			200		• 15-200+cm spacing range
14IL025	Fault Brittle	UnknB-Dex	FTDXI	288	79			0		• steps for shear sense
14IL025	Lineation	slickenside	LINSLX	248	25			0		• to 238/78
14IL025	Fault Brittle	UnknB-Sin	FTSXI	253	76			0		• steps for shear sense
14IL025	Lineation	slickenside	LINSLX	67	4			0		• to 253/76
14IL025	Fault Brittle	UnknB-horiz	FTUXI	258	51			0		• steps for shear sense
14IL025	Lineation	slickenside	LINSLX	292	22			0		• normal slip, to 258/51
14IL025	Fault Brittle	UnknB-Dex	FTDXI	42	66			0		• steps, clear lineation
14IL025	Lineation	slickenside	LINSLX	210	23			0		• to 042/66
14IL025	Joint	joint	JNTI	240	76			10		• 0.5-25cm spacing range
14IL025	Joint	joint	JNTI	304	58			1		• 0.2-3cm spacing range
14IL025	Joint	joint	JNTV	50	82			10		• 0.5-15cm spacing range
14IL025	Joint	joint	JNTI	347	50			20		• 2-40cm spacing range
14IL025	Joint	joint	JNTI	210	78			10		• 1-15cm spacing range
14IL025	Joint	joint	JNTV	175	90			5		• 3-10cm spacing range
14IL025	Joint	joint	JNTH	178	26			50		• 30-100cm spacing range
14IL026	Vein	extension-unknown	VNBXV	250	88			0		• 1cm wide
14IL026	Joint	joint	JNTV	141	88			100		• 30-300cm spacing range
14IL026	Joint	joint	JNTV	292	66			200		• 50-300cm spacing range
14IL027	Foliation	unknownf	FOLXV	334	88			0		• defined by long axis of biotite pods
14IL027	Vein	extension-unknown	VNBXV	338	88			0		• pegmatite dykes
14IL027	Joint	joint	JNTV	102	80			250		• 240-500+cm spacing range
14IL027	Joint	joint	JNTV	4	99			700		
14IL028	Foliation	unknownf	FOLXH	225	10			2		• defined by biotite, clearly visible
14IL028	Fault Brittle	UnknB-Sin	FTSXV	124	88			2		• steps for shear sense, fe oxide staining
14IL028	Lineation	slickenside	LINSLX	304	4			0		• to 124/88
14IL028	Joint	joint	JNTV	138	80			90		• 10-150cm spacing range
14IL028	Joint	joint	JNTV	358	80			20		• 10-30cm spacing range, only within fault domain
14IL028	Joint	joint	JNTH	190	15			90		• 50-150cm spacing range
14IL029	Foliation	unknownf	FOLXH	200	12			0		• sheets of accumulated biotite
14IL029	Joint	joint	JNTV	170	90			90		• 2-200cm spacing range
14IL029	Joint	joint	JNTH	252	20			0		
14IL029	Joint	joint	JNTV	87	80			250		• 100-500cm spacing range
14IL029	Cleavage	unknown_cleav	CGXV	202	75			0.5		• 10cm wide zone
14IL030	Cleavage	unknown_cleav	CGXI	212	74			1		• weathered out surfaces
14IL030	Vein	extension-unknown	VNBXV	317	86			0		• 8cm wide
14IL030	Fault Brittle	UnknB-horiz	FTUXI	144	68			0		• well smoothed fault plane
14IL030	Lineation	slickenside	LINSLX	100	34			0		• striae on smooth slickenside 144/68
14IL030	Foliation	unknownf	FOLXI	233	36			0		• elongated elliptical qtz, bt
14IL030	Joint	joint	JNTV	34	90			90		• 10-150cm spacing range
14IL030	Joint	joint	JNTV	315	75			90		• 60-200cm spacing range
14IL030	Joint	joint	JNTH	32	28			0		• qtz filled (also the 315/75 set)
14IL031	Cleavage	unknown_cleav	CGXV	280	88			0		• tightly spaced with boudinaged pegmatite vein
14IL031	Joint	joint	JNTV	28	90			200		• 60-1000cm spacing range
14IL031	Foliation	unknownf	FOLXH	70	44			0		• elongated qtz, weak foliation intensity
14IL032	Foliation	unknownf	FOLXH	208	35			0		• elongated quartz
14IL032	Joint	joint	JNTV	110	90			30		• 7-70cm spacing range
14IL032	Joint	joint	JNTV	210	80			30		• 15-50cm spacing range
14IL032	Joint	joint	JNTV	96	90			50		• 35-68cm spacing range
14IL032	Joint	joint	JNTH	280	15			0		
14IL033	Foliation	unknownf	FOLXV	211	78			0		• alignment of bt and elongated qtz
14IL033	Joint	joint	JNTV	296	80			90		• 5-300cm spacing range
14IL033	Joint	joint	JNTV	18	80			100		• 30-500cm spacing range
14IL033	Vein	extension-unknown	VNBXV	164	78			0		• pegmatite dyke, 3cm
14IL034	Fault Brittle	UnknB-Dex	FTDXI	332	74			0		• qtz on fault plane, 1cm spaced cleavage, 4m2 fault plane

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14IL034	Lineation	slickenside	LINSLX	321	11			0		• to 332/74
14IL034	Fault Brittle	UnknB-Dex	FTDXI	316	70			0		• quartz and epidote on fault plane, shear sense from steps
14IL034	Lineation	slickenside	LINSLX	320	19			0		• to 316/70
14IL034	Vein	extension-unknown	VNBXV	89	89			0		• 50cm wide mafic dyke
14IL034	Fault Brittle	UnknB-horiz	FTUXV	2	78			0		• minor fault set with epidote on fault plane, 30cm2 fault plane surface
14IL034	Lineation	slickenside	LINSLX	2	10			0		• to 002/78
14IL034	Fault Brittle	UnknB-horiz	FTUXI	25	41			0		• epidote and bt on fault plane
14IL034	Lineation	slickenside	LINSLX	192	26			0		• to 025/41
14IL034	Fault Brittle	UnknB-Dex	FTDXI	313	86			0		• epidote on fault plane
14IL034	Lineation	slickenside	LINSLX	76	14			0		• to 313/86
14IL034	Fault Brittle	UnknB-Dex	FTDXI	332	62			0		• epidote on fault plane
14IL034	Lineation	slickenside	LINSLX	144	13			0		• to 332/62
14IL034	Fault Brittle	UnknB-Dex	FTDXI	313	72			0		• striae, slip sense from steps
14IL034	Lineation	slickenside	LINSLX	100	6			0		• to 313/72
14IL034	Joint	joint	JNTV	318	62			150		• 30-400cm spacing range
14IL034	Joint	joint	JNTV	200	80			300		• 140-1000cm spacing range
14IL034	Joint	joint	JNTH	320	10			70		• 30-150cm spacing range
14IL034	Joint	joint	JNTH	292	38			1.5		• 30cm wide cleavage zone
14IL034	Joint	joint	JNTI	35	90			150		
14IL034	Joint	joint	JNTI	60	75			100		
14IL035	Joint	joint	JNTI	184	70			1000		
14IL035	Joint	joint	JNTH	25	20			150		
14IL035	Joint	joint	JNTV	292	85			0		• single fracture
14IL035	Foliation	unknownf	FOLXI	332	69			0		• defined by biotite
14IL036	Fault Brittle	UnknB-horiz	FTUXV	286	71			0		• no slip sense evident, no clear slickenlines
14IL036	Joint	joint	JNTV	138	80			0		• no slip sense evident, no clear slickenlines
14IL036	Joint	joint	JNTI	260	80			0		• no slip sense evident, no clear slickenlines
14IL036	Joint	joint	JNTI	282	70			0		• main cliff face
14IL037	Fault Brittle	UnknB-Dex	FTDXV	120	89			0		• chlorite coating on 3m2 fault plane
14IL037	Lineation	slickenside	LINSLX	127	13			0		• to 120/89
14IL037	Joint	joint	JNTI	128	85			30	chlorite; muscovite; epidote;	• 2-90cm spacing range
14IL037	Joint	joint	JNTI	20	70			0		
14IL037	Joint	joint	JNTH	266	10			25		• 10-70cm spacing range
14IL039	Foliation	unknownf	FOLXI	126	46			0		• elongated biotite
14IL039	Vein	extension-unknown	VNBXV	189	88			0		• quartz fill 1cm
14IL039	Joint	joint	JNTI	352	45			0		• quartz fill 1cm
14IL039	Joint	joint	JNTI	266	75			0		• quartz fill 1cm
14IL040	Joint	joint	JNTV	45	90			0		• quartz fill 1cm
14IL040	Joint	joint	JNTV	145	82			0		• quartz fill 1cm
14IL040	Joint	joint	JNTV	102	60			0		
14IL040	Shear	Ductile-Unkn	SHUXI	153	41			0.5		• tightly spaced cleavage, steepens to NE, at least 10cm wide
14IL041	Shear	Ductile-Unkn	SHUXI	325	76			0.5		• tightly spaced cleavage, steepens to NE, at least 10cm wide
14IL042	Foliation	unknownf	FOLXV	110	85			0		• biotite flakes and elongated quartz
14IL042	Joint	joint	JNTV	5	90			500		
14IL042	Joint	joint	JNTV	215	75			500		• 100-1000cm spacing range
14IL042	Fault Brittle	UnknB-horiz	FTUXV	31	75			0		• undulating fracture with staining of Fe on edges
14IL043	Vein	extension-unknown	VNBXI	152	70			0		• 80cm wide pegmatite dyke
14IL043	Joint	joint	JNTH	280	10			70		• 25-140cm spacing range
14IL043	Joint	joint	JNTV	44	80			0		• ridge edge
14IL043	Joint	joint	JNTV	355	60			0		• ridge edge
14IL044	Foliation	unknownf	FOLXH	352	10			0		• biotite
14IL044	Joint	joint	JNTV	215	22			200		• 150-500cm spacing range
14IL044	Joint	joint	JNTV	48	85			150		• 10-300cm spacing range
14IL045	Foliation	unknownf	FOLXV	65	82			0.5		• defined by biotite
14IL045	Joint	joint	JNTH	250	15			0		
14IL046	Fault Brittle	UnknB-Sin	FTSXI	46	78			0		• 20cm2 fault plane, quartz steps for slip sense
14IL046	Lineation	slickenside	LINSLX	37	8			0		• to 045/78
14IL046	Joint	joint	JNTH	22	50			50		• 20-120cm spacing range
14IL048	Foliation	unknownf	FOLXV	72	75			0		• local schlieren and biotite flakes

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14IL048	Joint	joint	JNTV	218	80			600		• 300-900cm spacing range
14IL005	Joint	joint	JNTI	307	88			10		• range 1-150cm spacing, most abundant set
14IL005	Lineation	slickenside	LINSLX	124	8			0		• to 312/86
14IL005	Fault Brittle	UnknB-Sin	FTSXV	210	82			5	chlorite; quartz	• 3 m2 flt pln, sin slip from riedel shear geometry
14IL005	Lineation	slickenside	LINSLX	22	16			0		• to 210/82
14IL005	Fault Brittle	UnknB-Sin	FTSXV	52	86			0.5	hematite	• 10 cm2 flt pln, sin slip from steps
14IL005	Lineation	slickenside	LINSLX	124	8			0		• to 052/86
14IL005	Fault Brittle	UnknB-Dex	FTDXV	138	84			5	chlorite; biotite	• 1m2 flt pln, strong lineation
14IL005	Lineation	slickenside	LINSLX	18	14			0		• to 138/84
14IL007	Fault Brittle	UnknB-Dex	FTDXV	0	85			0		• 3m2 fault plane, dextral slip defined by steps
14IL007	Cleavage	Cleavage	CLVG	300	90			0.5		• penetrative cleavage
14IL007	Lineation	Slickenside	LIN	349	17			0		• to 000/85
14IL008	Fault Brittle	UnknB-horiz	FTUXV	142	82			0		• pseudotachylite, 20cm wide damage zone
14IL010	Fault Brittle	UnknB-Hor	FTHXV	90	82			0		• weak lineation on feldspar crystals, 50cm2 fault plane
14IL010	Lineation	slickenside	LINSLX	70	2			0		• to 090/82
14IL010	Fault Brittle	UnknB-Sin	FTSXV	252	86			0		• slip sense from steps
14IL010	Lineation	slickenside	LINSLX	342	1			0		• to 252/86
14IL013	Foliation	unknownf	FOLXI	292	64	LIN WEAK	L<<S	0.2		• biotite grain alignment
14IL015	Fault Brittle	UnknB-horiz	FTUXI	228	78	LIN WEAK	L<<S	0		• very small surface of fault exposed, Qtz slickenlines
14IL015	Lineation	Slickenside	LINSX	36	27	LIN WEAK	L<<S	0		• to 228/78
14IL015	Vein	extension-unknown	VNBXV	304	86			0		• 3cm wide, dilational texture shown by quartz crystals growing inwards from vein walls
14IL016	Foliation	unknownf	FOLXV	208	89			0	biotite;	• orientation of biotite lenses
14IL017	Foliation	unknownf	FOLXV	185	88			0		• within coarse biotite lenses
14IL017	Fault Brittle	UnknB-horiz	FTUXI	322	80			0		• small fault surface, 2cm2, no shear sense visible
14IL017	Lineation	Slickenside	LINSX	158	15			0		• to 322/80
14IL018	Vein	net-unknown	VNEXV	47	85			0		• 10cm wide aplite dyke
14IL022	Vein	extension-unknown	VNBXV	226	86			0		• pegmatite dyke
14IL022	Vein	extension-unknown	VNBXV	32	82			0		• sinistral offsetting quartz vein
14IL022	Vein	extension-unknown	VNBXV	114	84			0		• pegmatite dyke
14IL023	Fault Brittle	UnknB-Dex	FTDXI	292	45			0		• thin fault, series of parallel
14IL023	Lineation	slickenside	LINSLX	157	14			0		• dextral steps, to 292/45
14IL023	Lineation	slickenside	LINSLX	52	14			0		• sinistral steps, to 253/73
14IL023	Fault Brittle	UnknB-Dex	FTDXI	253	73			0		• series of parallel faults
14IL023	Foliation	unknownf	FOLXI	154	43			0		• coarse alignment of bt
14IL028	Foliation	unknownf	FOLXH	214	8			1		• defined by biotite, cm spacing
14IL029	Foliation	unknownf	FOLXH	295	12			0		• alignment of biotite
14IL031	Fault Brittle	UnknB-horiz	FTUXI	318	84			0		• chlorite and MnO on fault plane
14IL031	Lineation	Slickenside	LNSX	32	21			0		• to 318/84
14IL032	Foliation	unknownf	FOLXH	238	20			0		• elongated quartz
14IL037	Lineation	slickenside	LINSLX	30	74			0		• to 309/84
14IL037	Lineation	slickenside	LINSLX	132	15			0		• to 309/84
14IL037	Fault Brittle	UnknB-Dex	FTDXV	309	84			0		• two lineation directions, dextral slip sense from steps, chlorite on fault plane
14IL037	Fault Brittle	UnknB-Dex	FTDXV	322	80			0		• riedel fractures to main fault plane, dextral slip sense from steps
14IL037	Lineation	slickenside	LINSLX	296	14			296	14	• to 322/80
14IL037	Lineation	slickenside	LINSLX	132	5			0		• to 268/86
14IL037	Fault Brittle	UnknB-Down	FTNXV	309	84			0		• two lineation directions
14IL037	Fault Brittle	UnknB-horiz	FTUXI	178	86			0		
14IL037	Lineation	slickenside	LINSLX	32	6			0		• to 308/75
14IL037	Lineation	slickenside	LINSLX	22	28			0		• to 018/72
14IL037	Fault Brittle	UnknB-Dex	FTDXV	308	75			0		• Fe oxides on fault planes, dextral slip from steps, 20cm2 fault plane
14IL037	Fault Brittle	UnknB-Sin	FTSXV	308	72			0		• clear biotite on fault plane, R', slip sense from steps, set of 4 parallel fault planes
14IL037	Lineation	slickenside	LINSLX	108	14			0		• to 114/88
14IL037	Fault Brittle	UnknB-Sin	FTSXV	308	75			0		• muscovite on fault plane (up to 3mm crystals), slickenline on chlorite
14IL037	Lineation	slickenside	LINSLX	143	16			0		• to 300/86
14IL037	Fault Brittle	UnknB-horiz	FTXXV	300	86			0		• epidote and quartz on uneven fault surface (30cm2)
14IL037	Fault Brittle	UnknB-Dex	FTDXV	292	78			0		• slip sense from steps, biotite on fault plane
14IL037	Lineation	slickenside	LINSLX	124	24			0		• to 292/78
14IL037	Lineation	slickenside	LINSLX	350	33			0		• to 348/75
14IL037	Fault Brittle	UnknB-Up	FTUXV	348	75			0		• biotite on fault plane (10cm2), steps for slip sense

Station ID	Type	Subtype	Symbol	Azimuth	Dip	Intensity	Fabric	Struc Space	Struc Infil	Notes
14IL037	Lineation	slickenside	LINSLX	254	27			0		• to 252/64
14IL037	Fault Brittle	UnknB-Sin	FTSXV	252	64			0		• quartz on fault plane (3m2), at low angle to dyke, coarse steps in dyke at intersection, slip sense from dyke steps
14IL037	Vein	extension-unknown	VNBXV	252	68			0		• 20cm wide mafic dyke
14IL040	Shear	Ductile-Unkn	SHUXI	148	84			0.5		• steep NE shear zone boundary in NE
14IL040	Vein	extension-unknown	VNBXV	113	80			0		• 2cm wide aplite dyke
14IL042	Foliation	unknownf	FOLXV	318	75			0		• elongated quartz crystals
14IL045	Foliation	unknownf	FOLXV	68	84			0.5		• well defined biotite foliation

Table A. 5: Geomechanical Characteristics

Station ID	Type	Density	FD Def	Hardness	RH Details	RH Def	Notes
14IL001	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	
14IL003	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• GSI 40-50, 3m north is massive with GSI 70-85
14IL004	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL005	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• fault domain: GSI 25-35
14IL005	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• away from fault domain, GSI 50-60
14IL006	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 90-95
14IL007	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14IL008	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 90-95
14IL009	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14IL009	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 80-90
14IL010	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL011	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14IL011	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	
14IL012	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 65-75
14IL012	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	
14IL013	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 65-75
14IL014	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Strong	R4	Fractured if >1 hammer blow	• GSI 35-45
14IL015	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 55-65
14IL016	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 65-75
14IL017	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 65-75
14IL018	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14IL019	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14IL020	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL021	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 90-95
14IL022	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14IL023	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14IL024	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14IL025	Brittle	Very abundant	disturbed - poorly interlocked; joint spacing <3cm	Very Strong	R5	Fractured if many blows	• GSI 20-30
14IL026	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14IL027	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL028	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 55-75, high fracture density near faults
14IL029	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 50-70
14IL030	Brittle	Sparse	blocky; joint spacing 30-100cm	Strong	R4	Fractured if >1 hammer blow	• GSI 40-60
14IL031	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL032	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14IL033	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 50-70
14IL034	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70, moderate to abundant within discrete zones GSI 35-45
14IL035	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL037	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 40-50
14IL038	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL039	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14IL042	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL043	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14IL044	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14IL046	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14IL047	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14IL048	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH002	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85, looking on horizontal plane >10m, vertical plane >1m
14BH003	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-85, varied across the outcrop, east side has strong set of west dipping joints
14BH004	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85, even close to lineament not strongly fractured
14BH005	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH006	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 70-85
14BH012	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-70
14BH012	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 45-65
14BH013	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH014	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85

Station ID	Type	Density	FD Def	Hardness	RH Details	RH Def	Notes
14BH015	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• GSI 35-55, at contact there us far more fracturing in bith diabase and adjacent tonalite to granodiorite
14BH015	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85, this is 20m from dyke
14BH016	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH017	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH018	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14BH019	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• GSI 20-30
14BH021	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14BH023	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 55-65
14BH024	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14BH025	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH026	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70, in massive biotite granodiorite
14BH026	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• GSI 40-50, in biotite plagioclase phyric felsic dyke
14BH027	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 55-65
14BH028	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 40-50, grades from abundant at north face along lineament to moderate within 1.5m, and then to sparse beyond 1.5m
14BH029	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 45-55
14BH030	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 45-55
14BH031	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 65-75
14BH032	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 80-90
14BH032	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 70-80
14BH033	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14BH034	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14BH020	Brittle	Moderate	very blocky; joint spacing 10-40cm	Very Strong	R5	Fractured if many blows	• GSI 50-60
14BH035	Brittle	Sparse	blocky; joint spacing 30-100cm	Very Strong	R5	Fractured if many blows	• GSI 60-70
14BH036	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Very Strong	R5	Fractured if many blows	• GSI 45-55
14BH006	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 70-85
14BH007	Brittle	Abundant	blocky-disturbed; joint spacing 3-10cm	Strong	R4	Fractured if >1 blows	• GSI 30-50
14BH009	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 55-85
14BH008	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85
14BH010	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 55-75
14BH011	Brittle	None	massive; joint spacing > 100cm	Very Strong	R5	Fractured if many blows	• GSI 75-85

Table A. 6: Samples

Station ID	Sample ID	Sample Type	Reason
14BH002	14BH002AG01	representative	• representative recrystallized biotite granodiorite
14BH002	14BH002BG02	representative	• representative varitextured coarse-grained to pegmatitic granite
14BH003	14BH003AG01	representative	• representative biotite magnetite granodiorite
14BH004	14BH004AG01	representative	• representative lithology
14BH006	14BH006AG01	representative	• representative recrystallized biotite granodiorite
14BH006	14BH006BG02	representative	• representative foliated biotite magnetite tonalite
14BH006	14BH006CG03	representative	• big sample of pegmatite cutting tonalite
14BH012	14BH012AG01	representative	• representative biotite tonalite with good igneous texture
14BH012	14BH012BG02	representative	• representative diabase dyke
14BH013	14BH013AG01	representative	• representative biotite +- magnetite tonalite, very similar to last outcrop
14BH013	14BH013BG02	representative	• small representative sample
14BH014	14BH014CG01	representative	• hornblende plagioclase phyric diorite dyke
14BH015	14BH015AG01	representative	• representative biotite tonalite to granodiorite
14BH015	14BH015BG02	representative	• representative hornblende pyroxene diabase dyke
14BH016	14BH016AG01	representative	• representative massive biotite magnetite granodiorite
14BH017	14BH017AG01	representative	• representative leucocratic biotite magnetite granodiorite
14BH019	14BH019AG01	representative	• representative foliated biotite tonalite
14BH021	14BH021AG01	representative	• 2 pieces, representative kspar megacrystic biotite granite , weathered and fresh
14BH023	14BH023AG01	representative	• representative kspar megacrystic biotite magnetite monzogranite
14BH025	14BH025AG01	representative	• representative massive biotite granodiorite
14BH026	14BH026AG01	representative	• representative massive biotite granodiorite
14BH026	14BH026BG02	representative	• representative plagioclase phyric biotite fp felsic dyke
14BH031	14BH031AG01	representative	• representative massive biotite granite
14BH032	14BH032AG01	representative	• representative main lithology, massive biotite monzogranite
14BH033	14BH033AG01	representative	• representative recrystallized biotite granodiorite to granite, plus variations
14BH034	14BH034AG01	representative	• representative recrystallized biotite magnetite granodiorite
14BH034	14BH034BG02	representative	• representative very coarse-grained to pegmatitic felsic dyke of same composition as last
14BH008	14BH008AG01	representative	• representative fine-grained, equigranular, mesocratic, biotite granodiorite
14BH020	14BH020AG01	representative	• representative grey weathering quartz diorite to tonalite
14BH020	14BH020BG02	representative	• representative fine-medium grained, dark grey weathering biotite-hornblende diorite
14BH020	14BH020CG03	representative	• representative, 3 small samples of the 3 felsic dyke types
14BH030	14BH030AG02	representative	• representative pink, leucocratic, igneous textured, fine-grained, biotite monzogranite composition, main lithology
14BH036	14BH036AG01	representative	• 2 pieces, representative main biotite granodiorite and related leucocratic felsic dyke
14BH036	14BH036BG02	representative	• representative hornblende-biotite tonalite gneiss
14IL005	14IL005AG02	representative	• sample label IG125
14IL006	14IL006AG02	representative	• sample label IG124
14IL009	14IL009AG03	representative	• amphibolite, sample label IG137-1
14IL009	14IL009BG04	representative	• magnetite-pegmatite, sample label IG137 -1
14IL011	14IL011AG03	representative	• biotite granite
14IL011	14IL011BG04	representative	• pegmatite with dyke
14IL012	14IL012AG03	representative	• shear zone, biotite rich
14IL013	14IL013AG04	representative	• biotite gneiss-tonalite
14IL015	14IL015AG02	representative	• granodiorite
14IL017	14IL017AG02	representative	• grain size variation
14IL024	14IL024AG02	representative	• coarse and fine granodiorite
14IL027	14IL027AG01	representative	• granodiorite
14IL028	14IL028AG01	representative	• representative lithology
14IL029	14IL029AG01	representative	• granodiorite gneiss
14IL030	14IL030AG01	representative	• altered granodiorite

Station ID	Sample ID	Sample Type	Reason
14IL031	14IL031AG03	representative	• tonalite
14IL031	14IL031BG04	representative	• mafic dyke
14IL033	14IL033AG01	representative	• granodiorite
14IL034	14IL034AG01	representative	• k-feldspar megacrystic lithology
14IL034	14IL034BG02	representative	• mafic dyke
14IL039	14IL039AG01	representative	• tonalite
14IL042	14IL042AG01	representative	• tonalite
14IL047	14IL047AG01	representative	• granodiorite
14IL048	14IL048AG01	representative	• granodiorite

Table A. 7: Photographs

Station ID	Photo No	Category	Scale	Direction	Caption
14BH001	1	minor lithology	hammer	S	• 0001, banded panel in white tonalite, with strong subhorizontal fracture with en echelon related fractures
14BH001	2	structure	hammer	S	• 0002, banded panel in white tonalite, with strong subhorizontal fracture with en echelon related fractures
14BH001	3	structure	pen/pencil	E	• 0003, discrete fracture with well defined subhorizontal slickenline in sinistral movement, close up
14BH001	4	structure	hammer	NE	• 0004, discrete fracture with well defined subhorizontal slickenline in sinistral movement, face of fracture
14BH002	1	outcrop	person	E	• 0007, rep outcrop shot
14BH002	2	major lithology	pen/pencil	E	• 0008, representative recrystallized leucocratic biotite granodiorite to tonalite
14BH002	3	dyke/vein	hammer	E	• 0009, representative intrusive relationships
14BH003	1	outcrop	person	S	• 0010, representative outcrop
14BH003	2	major lithology	pen/pencil	S	• 0011, rep main lithology
14BH003	3	structure	person	S	• 0012, good set if joints dipping 60 to west
14BH004	1	outcrop	person	SW	• 0013, representative outcrop
14BH004	2	major lithology	pen/pencil	N	• 0014, representative lithology
14BH004	3	texture	pen/pencil	S	• 0015, partly digested diorite xenolith
14BH005	1	outcrop	person	W	• 0016, representative outcrop , low flat, no edges
14BH005	2	texture	hammer	N	• 0017, representative intrusive relations
14BH005	3	dyke/vein	hammer	N	• 0018, tonalite screen cut by pegmatite
14BH005	4	dyke/vein	hammer	N	• 0019, representative biotite magnetite granodiorite cut by pegmatite
14BH006	1	minor lithology	pen/pencil	N	• 0027, rep tonalite hand sample
14BH006	2	major lithology	pen/pencil	N	• 0028, representative biotite granodiorite
14BH006	3	outcrop	person	N	• 0029, representative nature of outcrop
14BH006	4	minor lithology	pen/pencil	SE	• 0030, pink grdr cut by pink peg, add 0027,0028,0029 to prev photos
14BH006	5	minor lithology	hammer	SE	• 0031, representative biotite tonalite xenoliths cut by pegmatite in recrystallized biotite granodiorite
14BH006	6	dyke/vein	hammer	N	• 0032, at wp1189, peg and fine-grained granite intrude tonalite gniess panel
14BH007	1	outcrop	person	N	• 0033, representative outcrop and good expression of strong fracturing next to lineament
14BH007	2	structure	GPS	N	• 0034, strong subhorizontal and steep fracture sets next to lineament
14BH007	3	structure	person	NW	• 0035, open fold of tonalite gniess accentuated by the slice through on vertical face
14BH007	4	structure	hammer	NW	• 0036, closeup of 3 strong fracture sets
14BH007	5	outcrop	see Caption field	SW	• 0037, no scale except trees, two lineaments express by the two vertical faces, the nnW trending one facing this shot has stonger fracturing parallel to it
14BH007	6	major lithology	hammer	NW	• 0038, at wp1191, multiple dyke phase cutting tonalite
14BH007	7	dyke/vein	hammer	NW	• 0039, at wp 1191, multiple peg and gran dyke phases intruding tonalite, in turn cut by later diorite-ton at bottom of photo
14BH007	8	major lithology	hammer	N	• 0040, at wp 1191, multiple peg and gran dyke phases intruding tonalite, in turn cut by later diorite-ton at bottom of photo, with lone later peg on left
14BH007	9	dyke/vein	hammer	NW	• 0041, at wp1191, peg cutting mgr tonalite in turn cut by f-mgr bt grdr of Basket Lake
14BH008	1	outcrop	person	N	• 0042, representative outcrop in recently logged area

Station ID	Photo No	Category	Scale	Direction	Caption
14BH008	2	major lithology	hammer	E	• 0043, red bt peg intruding red bt grdr-gran Basket Lake host
14BH008	3	minor lithology	hammer	E	• 0044, 10cm biotite plates in peg
14BH008	4	major lithology	pen/pencil	E	• 0045, representative close-up of bt grdr to gran main lith
14BH009	1	outcrop	person	E	• 0046, Large erratic, cabin-sized bolder
14BH009	2	outcrop	person	SW	• 0047, Representative low outcrop in logged area
14BH009	3	major lithology	hammer	NE	• 0048, Three lith. in picture, tonalite by hammer handle, grdr and peg in foreground
14BH009	4	structure	person	SE	• 0049-0052, Strong horizontal fracturing
14BH011	1	outcrop	person	NE	• 0053, Representative outcrop, small pavement right beside outcrop
14BH011	2	structure	hammer	S	• 0054, Dominant north south joint set
14BH012	1	outcrop	person	NE	• 0060, 0061,representative outcrop
14BH012	2	major lithology	pen/pencil	N	• 0062, 0063, weathered and fresh, representative biotite tonalite lith close up
14BH012	3	minor lithology	pen/pencil	S	• 0064, representative diabase composition close up
14BH012	4	dyke/vein	compass	N	• 0065, 0066, exposed diabase dyke contact
14BH012	5	minor lithology	compass	NW	• 0067, good fracturing and two glacial striae directions at 228 and 080
14BH013	1	dyke/vein	compass	N	• 0068, felsite dyke cutting tonalite
14BH013	2	outcrop	person	W	• 0069, representative clean outcrop
14BH013	3	dyke/vein	compass	N	• 0070, narrow dykelet and vein cutting tonalite
14BH014	1	outcrop	hammer	W	• 0071, representative outcrop
14BH014	2	major lithology	compass	W	• 0072, complex with diorite xenoliths and felsic dykes
14BH014	3	structure	compass	W	• 0073, sinistral separation shear
14BH014	4	structure	compass	W	• 0074, dextral separation brittle-ductile fault offsetting felsic dykes
14BH014	5	dyke/vein	compass	W	• 0075, hammer at contact of hornblende plagioclase phyric diorite dyke
14BH014	6	minor lithology	pen/pencil	W	• 0076, representative hornblende plagioclase phyric diorite dyke
14BH014	7	structure	compass	W	• 0077, good dextral separation shearzone rotates and offsets felsic dyke
14BH015	1	outcrop	person	N	• 0078, whaleback outcrop
14BH015	2	outcrop	person	W	• 0079, Tyson at contact, dyke to right , ton-grdr to right
14BH015	4	major lithology	pen/pencil	W	• 0080, 0081, representative tonalite to granodiorite composition
14BH015	3	minor lithology	pen/pencil	W	• 0082, representative diabase composition
14BH016	1	outcrop	person	E	• 0083, representative rounded outcrop
14BH016	2	major lithology	pen/pencil	N	• 0084,representative massive biotite magnetite granodiorite to tonalite
14BH017	1	outcrop	person	E	• 0085, representative rounded to whaleback outcrops
14BH017	2	dyke/vein	pen/pencil	W	• 0086, 10cm wide felsite dyke
14BH018	1	outcrop	person	S	• 0087, representative rounded outcrop with sparse joint set
14BH018	2	major lithology	pen/pencil	S	• 0088, representative massive leucocratic biotite-magnetite? granodiorite to tonalite
14BH019	1	outcrop	person	NE	• 0093 ,representative outcrop, 0094 to 0099 still need to be added
14BH019	2	outcrop	person	NW	• 0094-0096, Panorama of outcrop
14BH019	3	structure	pen/pencil	NW	• 0097, North-west striking major fault with good slicken lines
14BH019	4	structure	hammer	NW	• 0098, North-west striking major fault with good slicken lines
14BH019	5	structure	pen/pencil	NE	• 0099, Vertical extension vein associated with north-east dipping normal fault
14BH020	1	outcrop	person	N	• 0100, Representative road cut outcrop
14BH020	2	structure	hammer	SE	• 0101, Fault, several strands

Station ID	Photo No	Category	Scale	Direction	Caption
14BH020	3	structure	pen/pencil	NE	• 0102, Lineation on same fault surface
14BH020	4	outcrop	person	NW	• 0103, Representative road cut outcrop on west side of highway
14BH020	5	outcrop	person	W	• 0104-0106, Panorama of rock types, melanocratic tonalite to quartz diorite moving from south to north
14BH020	6	structure	hammer	W	• 0107, South-west dipping, normal displacement fault
14BH020	7	minor lithology	hammer	W	• 0108, Felsic dykes intruding the diorite
14BH020	8	minor lithology	hammer	W	• 0109, Siliceous felsic dyke (A) cutting diorite to tonalite
14BH020	9	minor lithology	hammer	W	• 0110, Red felsic dyke (C) cutting diorite to tonalite
14BH020	10	minor lithology	hammer	W	• 0111, Pale pink felsic dyke (B) cutting diorite to tonalite
14BH020	11	minor lithology	hammer	SW	• 0112, 0113, 0114, Folded and boudinaged felsic veins
14BH020	12	minor lithology	hammer	SE	• 0115, Boudinage of dyke
14BH021	1	outcrop	person	SW	• 0116, representative outcrop
14BH021	2	structure	hammer	NW	• 0117, shallowly SE dipping joint
14BH021	3	structure	hammer	NW	• 0118, hammer on lin, steep E dipping sinistral strike slip fault shallow joint cuts across
14BH021	4	structure	hammer	NW	• 0119, 0120, 0121, 50ccm sinistral strike slip fault zone
14BH021	5	major lithology	pen/pencil	N	• 0122,124, rep kspar megacrystic biotite granite , 0122 has magmatic layers subparallel to foliation at pen
14BH022	1	structure	person	SW	• 0125, looking at 250 degrees, brittle ductile fault zone cutting megacrystic granite
14BH022	2	structure	person	SW	• 0126, looking at 250 degrees, brittle ductile fault zone cutting megacrystic granite
14BH022	3	structure	person	NE	• 0127, looking at 070 degrees, brittle ductile fault zone cutting megacrystic granite
14BH022	4	structure	see Caption field	NE	• 0128, car for scale, brittle ductile fault zone cutting megacrystic granite
14BH023	1	outcrop	person	E	• 0133, 0134, representative low whaleback outcrops
14BH023	2	major lithology	pen/pencil	S	• 0135, crowded kspar megacrystic biotite magnetite monzogranite
14BH023	3	texture	pen/pencil	E	• 0136, high magnetite content attracted to magnet
14BH024	1	outcrop	person	NE	• 0137, representative outcrop, gap between is the lineament
14BH024	2	structure	hammer	NW	• 0138, stronger fracturing with sinistral strike slip movement near lineament
14BH025	1	outcrop	person	N	• 0144, representative outcrop with good vertical relief
14BH025	2	major lithology	pen/pencil	N	• 0145,0146, representative massive biotite granodiorite
14BH025	3	outcrop	person	W	• 0147, representative outcrop massive even on the vertical
14BH026	1	outcrop	person	W	• 0148, representative vertical relief of outcrop
14BH026	2	dyke/vein	hammer	W	• 0149, 0150, sharp but stepped contact of bt fp dyke
14BH026	3	minor lithology	pen/pencil	W	• 0151, representative plagioclase phyric biotite felsic dyke (fp)
14BH027	1	outcrop	person	W	• 0152, representative small low outcrop
14BH027	2	major lithology	pen/pencil	W	• 0153, representative massive biotite granodiorite
14BH028	1	outcrop	person	W	• 0154, representative low, linear whaleback outcrop beside strong lineament
14BH028	2	major lithology	pen/pencil	N	• 0156, representative massive biotite granodiorite
14BH029	1	outcrop	person	SW	• 0157, representative low small outcrop
14BH029	2	structure	compass	W	• 0158, qtz veins and dextral separation brittle ductile fault
14BH029	3	structure	compass	SW	• 0159, "duplex" structure in brittle ductile fault
14BH029	4	structure	compass	W	• 0160, quartz vein at pen and markers with dextral separation

Station ID	Photo No	Category	Scale	Direction	Caption
					of 33 and 40cm
14BH030	1	outcrop	person	S	• 0161, representative outcrops
14BH030	2	structure	compass	NE	• 0162, foliation domain at pen, plus short extension gash vein
14BH030	3	structure	compass	N	• 0163, pen on foliation
14BH030	4	dyke/vein	compass	NW	• 0164, NW trending long straight quartz vein
14BH030	5	dyke/vein	compass	SW	• 0165, SW trending long straight quartz vein
14BH030	6	dyke/vein	compass	S	• 0166, S trending sigmoidal gash quartz vein
14BH030	7	major lithology	pen/pencil	N	• 0167, representative leucocratic pink fgr bt granite
14BH031	1	outcrop	person	N	• 0173, representative outcrop, NOT clearly outcrop , could be large erratic
14BH031	2	major lithology	pen/pencil	S	• 0174, rep massive mgr bt granite
14BH032	1	outcrop	person	W	• 0175, representative flat clean outcrop
14BH032	2	major lithology	pen/pencil	W	• 0176, 0177, representative main lithology, massive biotite monzogranite
14BH032	3	dyke/vein	pen/pencil	SW	• 0178, pegmatite of same composition intruding massive biotite monzogranite
14BH032	4	outcrop	person	SW	• 0179, representative outcrop with better exposure and increased fracture density
14BH033	1	see Caption field	person	SW	• 0180, 0181, boulder outwash linear at wp1230
14BH033	2	see Caption field	person	N	• 0182, 0183, boulder outwash linear at wp1231
14BH033	3	outcrop	person	NE	• 0184, representative covered small outcrop
14BH033	4	major lithology	pen/pencil	N	• 0185, 0186, representative variation in rock type
14BH033	5	major lithology	pen/pencil	N	• 0187, representative main lithology
14BH036	1	outcrop	person	N	• 0189, cliff face parallel to lineament
14BH036	2	outcrop	see Caption field	NE	• 0190, representative outcrop view on the top of the outcrop
14BH036	3	minor lithology	pen/pencil	N	• 0191, gneiss fabric in the tonalite gneiss remnant
14BH036	4	major lithology	compass	NW	• 0192, 0193, pink bt grdr -gran intruding ton gneiss complex/ folded felsic dykes/diorite intrusive
14BH036	5	structure	compass	W	• 0194, little strike separation on lineament forming fracture
14BH036	6	minor lithology	hammer	W	• 0195, north contact of tonalite gneiss
14BH034	1	outcrop	person	NE	• 0196, representative moderate sized clean outcrop of recrystallized biotite magnetite granodiorite
14BH034	2	dyke/vein	hammer	NW	• 0197, pegmatite intruding recrystallized biotite magnetite granodiorite
14BH034	3	dyke/vein	pen/pencil	NW	• 0198, pegmatite intruding recrystallized biotite magnetite granodiorite close up
14BH035	1	outcrop	compass	NE	• 0199, representative moss covered low outcrop
14BH035	2	major lithology	pen/pencil	NW	• 0200, representative fgr recrystallized biotite magnetite granodiorite
14IL001	1	structure	person	N	• 7833, overview of outcrop
14IL003	1	structure	hammer	NW	• 7834-7835, fault zone
14IL003	2	outcrop	person	N	• 7836,overview of outcrop
14IL004	1	outcrop	person	SE	• 7837, representative photo of outcrop
14IL004	2	structure	person	S	• 7838, large open fractures at edge of outcrop
14IL004	3	major lithology	pen/pencil	S	• 7840, representative composition
14IL005	2	structure	pen/pencil	W	• 7843, two fault sets, one trending NW, one trending NE
14IL005	3	structure	pen/pencil	W	• 7844, sinistral steps on NW-striking fault plane

Station ID	Photo No	Category	Scale	Direction	Caption
14IL005	1	outcrop	person	NW	• 7845, overview of outcrop
14IL005	4	structure	pen/pencil	NW	• 7846, chlorite biotite lineation on fault plane 210/82 lin022/16
14IL005	5	structure	pen/pencil	SW	• 7847, slickenlines on NW-striking fault
14IL005	6	major lithology	pen/pencil	NW	• 7848, representative lithology, Kfsp and Qtz phenocrysts
14IL006	1	outcrop	person	S	• 7849, overview of outcrop size
14IL006	1	outcrop	person	S	• 7849, overview of outcrop size
14IL006	2	major lithology	pen/pencil	N	• 7850, pegmatite pods
14IL006	3	outcrop	person	W	• 7851, overview outcrop from other side
14IL006	4	outcrop	person	N	• 7852, 100m W of station 124, good outcrop along shoreline
14IL007	1	major lithology	pen/pencil	W	• 7853, contact amphibolite tonalite gneiss crosscut by pegmatite
14IL007	2	outcrop	person	N	• 7854, extent of outcrop
14IL007	3	major lithology	pen/pencil	W	• 7855, representative lithology granodiorite
14IL008	1	outcrop	person	N	• 7856, overview outcrop
14IL008	2	major lithology	hammer	W	• 7857, pegmatite with coarse Kfsp crystals, graphic intergrowth, exsolution of microcline
14IL008	3	major lithology	hammer	W	• 7858, pegmatite phase with fsp megacrysts in granodiorite
14IL008	4	structure	hammer	SW	• 7859, pseudotachylite and chlorite on fault plane
14IL009	1	outcrop	hammer	NE	• 7860, overview amphibolite-pegmatite
14IL009	2	minor lithology	hammer	NE	• 7861, magnetite megacrysts in pegmatite
14IL009	3	major lithology	pen/pencil	NE	• 7862, blastic amphibolite with multiple pegmatite veins
14IL010	1	outcrop	person	N	• 7863, overview outcrop
14IL010	2	major lithology	pen/pencil	E	• 7864, representative lithology
14IL011	1	outcrop	hammer	N	• 7867, ridge edge with steep foliation, abundant ridges with mossy rock exposure
14IL011	2	structure	pen/pencil	N	• 7868, shear zone with tightly spaced cleavage
14IL011	3	structure	pen/pencil	NW	• 7869, down-dip lineation in shear zone
14IL011	4	structure	pen/pencil	W	• 7870, foliation detail
14IL012	2	structure	hammer	N	• 7872, 20cm wide shear zone, along strike continuity of at least 5m
14IL012	1	outcrop	see Caption field	NW	• 7873, overview of outcrop, book for scale
14IL012	3	structure	hammer	E	• 7874, foliation in granitic rock
14IL013	1	outcrop	person	NW	• 7875, overview outcrop
14IL013	2	major lithology	hammer	N	• 7876, typical compositional and textural variation
14IL013	3	major lithology	hammer	N	• 7877, typical compositional and textural variation
14IL014	1	outcrop	person	S	• 7878, overview outcrop
14IL014	2	major lithology	hammer	NW	• 7879, overview lithology, pegmatite dyke and pseudotachylite fault
14IL014	3	structure	hammer	W	• 7880, pseudotachylite fault
14IL015	2	major lithology	hammer	NE	• 7884, representative lithology, inequigranular granodiorite
14IL015	1	outcrop	person	SW	• 7885, outcrop overview
14IL016	1	outcrop	person	SE	• 7886, overview outcrop
14IL016	2	major lithology	hammer	pen/pencil	• 7887, representative lithology heterogeneous coarse to medium grained granodiorite ve lithology, inequigranular granodiorite
14IL017	1	outcrop	person	E	• 7888, outcrop on high ridge
14IL017	2	structure	pen/pencil	W	• 7889, foliation in bt lens
14IL018	1	outcrop	person	NE	• 7890, outcrop overview

Station ID	Photo No	Category	Scale	Direction	Caption
14IL018	2	structure	hammer	NW	• 7891, aplite dyke crosscutting granodiorite, joints trending NNW do not offset dyke
14IL019	1	outcrop	person	W	• 7892, small outcrop between trees
14IL019	2	structure	hammer	W	• 7893, small dilational faults filled with qtz and chl
14IL019	3	major lithology	hammer	W	• 7894, contact hbl tonalite to dyke
14IL020	1	outcrop	person	NW	• 7895, overview outcrop
14IL020	2	major lithology	pen/pencil	NE	• 7896, kfsp phenocrysts, pen marks strike of foliation
14IL021	1	outcrop	person	N	• 7897, overview of outcrop
14IL021	2	structure	hammer	W	• 7898, bt enveloped xenoliths
14IL022	1	outcrop	person	W	• 7899, overview outcrop
14IL022	2	minor lithology	pen/pencil	S	• 7900, fsp megacrysts in dyke
14IL022	3	structure	pen/pencil	S	• 7901, offset of pegmatite dykes
14IL022	4	structure	pen/pencil	S	• 7902, offset of pegmatite dykes
14IL022	5	structure	pen/pencil	S	• 7903, offset of pegmatite dykes
14IL023	1	outcrop	person	NE	• 7904, overview outcrop
14IL023	2	major lithology	pen/pencil	NW	• 7905, hbl gdr
14IL023	3	major lithology	pen/pencil	N	• 7906, fine grained gdr
14IL024	1	outcrop	person	NW	• 7907, overview outcrop
14IL025	1	structure	pen/pencil	NE	• 7908, fault plane with sparse lineation
14IL025	2	structure	hammer	N	• 7909, tightly spaced cleavage
14IL025	3	outcrop	person	NE	• 7910, overview outcrop
14IL025	4	structure	pen/pencil	N	• 7911, secondary fractures for shear sense
14IL025	5	structure	pen/pencil	NW	• 7912, steps for shear sense
14IL026	1	outcrop	person	SE	• 7913, overview outcrop
14IL026	2	major lithology	pen/pencil	W	• 7914, representative lithology coarse leucogranodiorite
14IL026	3	structure	pen/pencil	W	• 7916, brittle ductile splays on quartz-filled shear
14IL027	1	outcrop	person	SE	• 7918, overview outcrop
14IL027	2	structure	pen/pencil	E	• 7919, elongated bt pod
14IL028	1	outcrop	person	NE	• 7920, overview outcrop
14IL028	2	structure	pen/pencil	NE	• 7921, slickenline and sinistral steps
14IL028	3	structure	pen/pencil	NE	• 7922, slickenline and sinistral steps
14IL028	4	structure	hammer	SE	• 7923, fe-oxide staining around fault
14IL028	5	major lithology	pen/pencil	E	• 7924, representative lithology with subhorizontal foliation
14IL029	1	outcrop	person	N	• 7925 overview outcrop
14IL029	2	structure	pen/pencil	N	• 7926 biotite sheet for foliation orientation
14IL029	3	structure	pen/pencil	NW	• 7927, tightly spaced cleavage
14IL030	1	major lithology	person	SW	• 7929 overview outcrop
14IL030	2	structure	hammer	NW	• 7930 qtz vn perpendicular to foliation
14IL030	3	structure	pen/pencil	W	• 7931-7932 slickenlines on smooth fault plane
14IL030	4	structure	pen/pencil	W	• 7931-7932 slickenlines on smooth fault plane
14IL030	5	structure	pen/pencil	NW	• 7933 foliation by bt qtz
14IL031	2	dyke/vein	hammer	S	• 7935 foliated mafic dyke with boudinaged pegmatite vein
14IL031	3	dyke/vein	hammer	W	• 7936 contact dyke to tonalite, unfractured
14IL031	1	outcrop	person	NW	• 7937 overview outcrop
14IL031	4	minor lithology	hammer	W	• 7938 contact aplite dyke and fsp megacryst xenolith
14IL031	5	dyke/vein	hammer	W	• 7939 pegmatite dyke striking north
14IL031	6	minor lithology	hammer	W	• 7940 kfsp megacryst dyke in tonalite
14IL031	7	minor lithology	hammer	W	• 7941 kfsp megacryst dyke in tonalite

Station ID	Photo No	Category	Scale	Direction	Caption
14IL032	1	minor lithology	pen/pencil	NW	• 7943 folded amphibolite
14IL032	2	minor lithology	pen/pencil	NW	• 7944 folded amphibolite
14IL032	3	outcrop	person	NE	• 7945 overview outcrop
14IL032	4	minor lithology	hammer	SE	• 7946 pegmatite pod
14IL033	1	outcrop	person	NW	• 7947 overview outcrop
14IL033	2	minor lithology	hammer	NW	• 7948 contact fine grained pods
14IL033	3	minor lithology	hammer	NW	• 7949 dyke contact
14IL034	1	structure	pen/pencil	NE	• 7950 calcite-epidote slickenlines
14IL034	2	dyke/vein	hammer	E	• 7951 mafic dyke associated with damage zone on both sides of dyke
14IL034	3	structure	pen/pencil	E	• 7952 subhorizontal cleavage with fault gouge in centre
14IL034	4	structure	pen/pencil	E	• 7953 subhorizontal cleavage with fault gouge in centre
14IL034	5	structure	pen/pencil	E	• 7954 subhorizontal cleavage with fault gouge in centre
14IL034	6	major lithology	pen/pencil	E	• 7955 feldspar megacrysts
14IL034	7	structure	pen/pencil	W	• 7956 lineation on epidote and biotite
14IL034	8	structure	pen/pencil	W	• 7957 lineation on epidote and biotite
14IL034	9	major lithology	hammer	W	• 7958 contact between two distinct compositional phases
14IL035	1	outcrop	person	NW	• 7960 overview outcrop
14IL035	2	major lithology	hammer	W	• 7961 representative lithology
14IL035	3	structure	pen/pencil	E	• 7962 foliation defined by biotite
14IL036	1	outcrop	person	NW	• 7966 overview outcrop
14IL036	2	outcrop	hammer	NW	• 7967 cliff face from below
14IL037	1	outcrop	person	S	• 7969-7970 overview outcrop
14IL038	1	outcrop	person	S	• 7984 overview outcrop
14IL039	1	major lithology	person	SW	• 7985 overview outcrop
14IL039	2	structure	pen/pencil	SE	• 7986 brittle ductile shear with dextral slip
14IL039	3	structure	pen/pencil	SW	• 7987 brittle ductile shear with dextral slip surrounding pegmatite vein
14IL039	4	structure	pen/pencil	SW	• 7988 flow of foliation around quartz veins
14IL040	1	structure	hammer	SE	• 7989 shear zone
14IL040	2	structure	pen/pencil	NE	• 7990 top of shear zone
14IL040	3	major lithology	pen/pencil	NE	• 7991 representative lithology
14IL040	4	outcrop	hammer	SE	• 7992 overview outcrop
14IL040	5	dyke/vein	hammer	SW	• 7993 aplite dyke
14IL041	1	structure	pen/pencil	NW	• 7994 shear zone
14IL042	1	outcrop	person	NW	• 7995 overview outcrop
14IL042	2	major lithology	pen/pencil	N	• 7997 representative lithology
14IL043	1	outcrop	person	NE	• 7998 overview outcrop
14IL044	1	outcrop	see Caption field	N	• 8002 outcrop from distance
14IL044	2	major lithology	hammer	W	• 8003 representative lithology with pegmatite dyke
14IL044	3	outcrop	person	NE	• 8004 overview outcrop
14IL044	4	structure	hammer	NW	• 8005 tightly spaced cleavage horizontal
14IL044	5	major lithology	pen/pencil	N	• 8006 foliated tonalite crosscut by aplite dyke
14IL045	1	major lithology	hammer	N	• 8007 tonalite gneiss crosscut by dykes

Station ID	Photo No	Category	Scale	Direction	Caption
14IL045	2	minor lithology	hammer	SE	• 8008 pegmatite dyke crosscutting granodiorite
14IL045	3	minor lithology	hammer	SE	• 8009 pegmatite dyke crosscutting granodiorite and tonalite
14IL045	4	outcrop	person	SE	• 8010 overview outcrop
14IL045	5	texture	pen/pencil	S	• 8011 graphic texture pegmatite
14IL046	1	outcrop	person	S	• 8013 overview outcrop
14IL046	2	major lithology	pen/pencil	SW	• 8014 representative lithology
14IL047	1	outcrop	person	S	• 8017 overview outcrop
14IL048	1	outcrop	person	SE	• 8018 overview outcrop
14IL048	2	structure	pen/pencil	SE	• 8019 foliation
14IL048	3	major lithology	pen/pencil	SE	• 8020 representative lithology