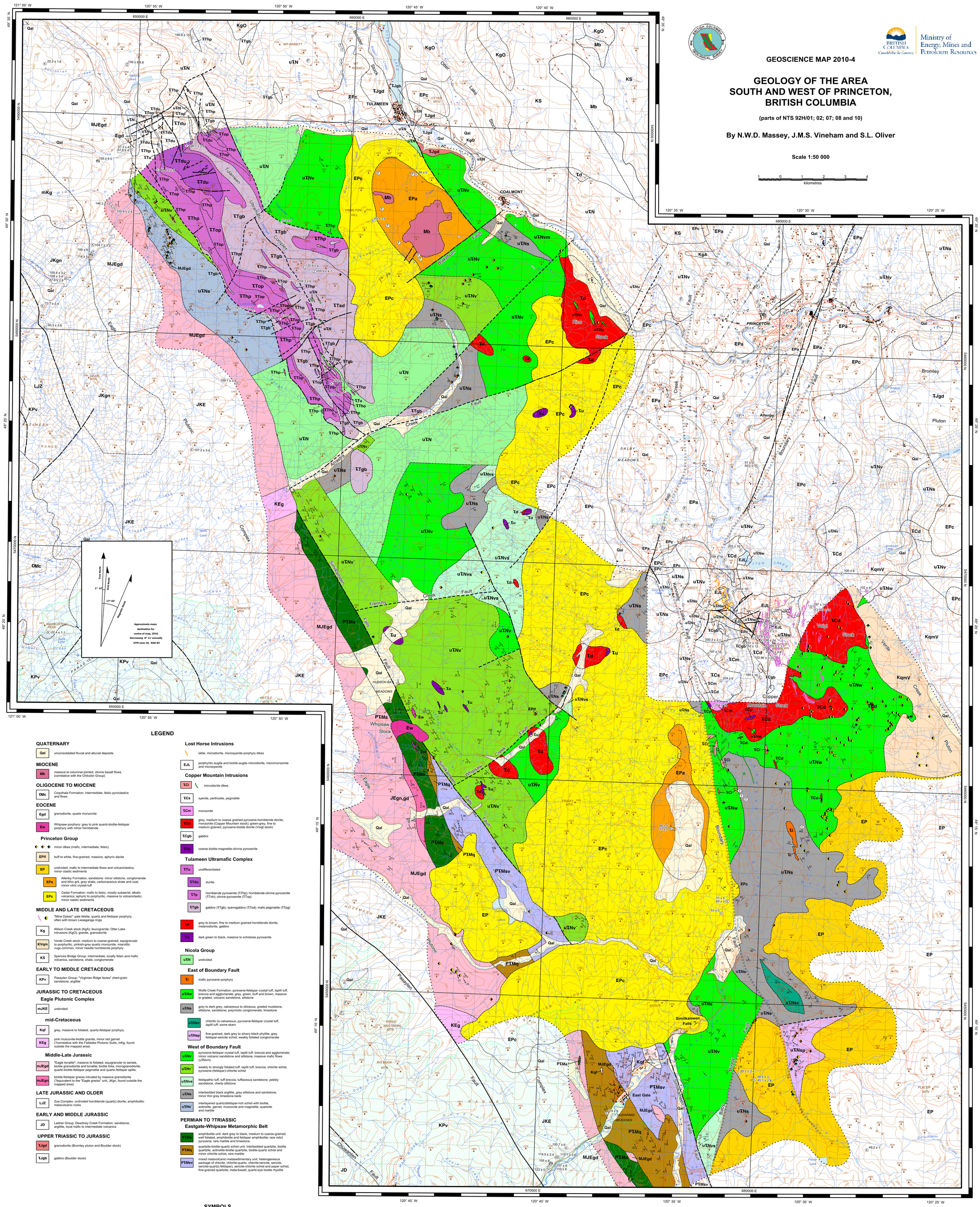

GEOSCIENCE MAP 2010-4

GEOLOGY OF THE AREA SOUTH AND WEST OF PRINCETON, BRITISH COLUMBIA

(parts of NTS 92H/01; 02; 07; 08 and 10)

By N.W.D. Massey, J.M.S. Vineham and S.L. Oliver

Scale 1:50 000

LEGEND

QUATERNARY

- **Qal** — unconsolidated fluvial and alluvial deposits

MIOCENE

- **Mb** — massive to columnar-jointed, olivine basalt flows (correlative with the Chilcotin Group)

OLIGOCENE TO MIOCENE

- **OMc** — Coquihalla Formation: intermediate, felsic pyroclastics and flows

EOCENE

- **Egd** — granodiorite, quartz monzonite
- **Ew** — Whipsaw porphyry: grey to pink quartz-biotite-feldspar porphyry with minor hornblende

Princeton Group

- minor dikes (mafic, intermediate, felsic)
- **EPif** — buff to white, fine-grained, massive, aphyric dacite
- **EP** — undivided; mafic to intermediate flows and volcaniclastics, minor clastic sediments
  - **EPa** — Allenby Formation, sandstone: minor siltstone, conglomerate and lithic grit, grey shale, carbonaceous shale and coal, minor vitric crystal tuff
  - **EPc** — Cedar Formation: mafic to felsic, mostly subaerial, alkalic volcanics: aphyric to porphyritic, massive to volcaniclastic; minor clastic sediments

MIDDLE AND LATE CRETACEOUS

- "Mine Dykes": pale felsite, quartz and feldspar porphyry, often with brown Liesegange rings
- **Kg** — Allison Creek stock (KgA): leucogranite; Otter Lake intrusions (KgO): granite, granodiorite
- **KVqm** — Verde Creek stock: medium to coarse-grained, equigranular to porphyritic, pinkish-grey quartz monzonite; miarolitic vugs common; minor needle hornblende porphyry
- **KS** — Spences Bridge Group: intermediate, locally felsic and mafic volcanics, sandstone, shale, conglomerate

EARLY TO MIDDLE CRETACEOUS

- **KPv** — Pasayten Group: "Virginian Ridge facies" chert-grain sandstone, argillite

JURASSIC TO CRETACEOUS

Eagle Plutonic Complex

- **mJKE** — undivided

mid-Cretaceous

- **Kqf** — grey, massive to foliated, quartz-feldspar porphyry
- **KEg** — pink muscovite-biotite granite, minor red garnet (?correlative with the Fallslake Plutonic Suite, mKg, found outside the mapped area)

Middle-Late Jurassic

- **mJEgd** — "Eagle tonalite": massive to foliated, equigranular to seriate, biotite granodiorite and tonalite; biotite folia; microgranodiorite, quartz-biotite-feldspar pegmatite and quartz-feldspar aplite.
- **mJEgn** — biotite-feldspar gneiss intruded by massive granodiorite (?equivalent to the "Eagle gneiss" unit, JKgn, found outside the mapped area)

LATE JURASSIC AND OLDER

- **LJZ** — Zoa Complex: undivided hornblende (quartz) diorite; amphibolitic metavolcanic rocks

EARLY AND MIDDLE JURASSIC

- **JD** — Ladner Group, Dewdney Creek Formation: sandstone, argillite, local mafic to intermediate volcanics

UPPER TRIASSIC TO JURASSIC

- **TJgd** — granodiorite (Bromley pluton and Boulder stock)
- **TJgb** — gabbro (Boulder stock)

Lost Horse Intrusions

- latite, microdiorite, microsyenite porphyry dikes
- **EJL** — porphyritic augite and biotite-augite microdiorite, micromonzonite and microsyenite

Copper Mountain Intrusions

- **TCi** — microdiorite dikes
- **TCs** — syenite, perthosite, pegmatite
- **TCm** — monzonite
- **TCd** — grey, medium to coarse grained pyroxene-hornblende diorite, monzonite (Copper Mountain stock); green-grey, fine to medium grained, pyroxene-biotite diorite (Voigt stock)
- **TCgb** — gabbro
- **TCp** — coarse biotite-magnetite-olivine pyroxenite

Tulameen Ultramafic Complex

- **TTu** — undifferentiated
  - **TTdu** — dunite
  - **TTp** — hornblende pyroxenite (TThp); hornblende-olivine pyroxenite (TTop); olivine pyroxenite (TTop)
  - **TTgb** — gabbro (TTgb); syenogabbro (TTsd); mafic pegmatite (TTpg)

- **Td** — grey to brown, fine to medium grained hornblende diorite, melanodiorite, gabbro
- **Tu** — dark green to black, massive to schistose pyroxenite

Nicola Group

- **uTN** — undivided

East of Boundary Fault

- **Ti** — mafic pyroxene porphyry
- **uTNw** — Wolfe Creek Formation: pyroxene-feldspar crystal tuff, lapilli tuff, breccia and agglomerate; grey, green, buff and brown, massive to graded, volcanic sandstone, siltstone
- **uTNs** — grey to dark grey, calcareous to siliceous, graded mudstone, siltstone, sandstone; polymictic conglomerate; limestone
  - **uTNsv** — chloritic to calcareous, pyroxene-feldspar crystal tuff, lapilli tuff; some skarn
  - **uTNsp** — fine-grained, dark grey to silvery black phyllite; grey feldspar-sericite schist; weakly foliated conglomerate

West of Boundary Fault

- **uTNv** — pyroxene-feldspar crystal tuff, lapilli tuff, breccia and agglomerate; minor volcanic sandstone and siltstone; massive mafic flows (uTNvm)
- **uTNv'** — weakly to strongly foliated tuff, lapilli tuff, breccia; chlorite schist, pyroxene-(feldspar)-chlorite schist
- **uTNvs** — feldspathic tuff, tuff breccia, tuffaceous sandstone, pebbly sandstone, cherty siltstone
- **uTNs** — interbedded black argillite, grey siltstone and sandstone; minor thin grey limestone beds
- **uTNs'** — interlayered quartzfeldspar-rich schist with biotite, actinolite, garnet, muscovite and magnetite; quartzite and marble

PERMIAN TO ?TRIASSIC

Eastgate-Whipsaw Metamorphic Belt

- **PTMa** — amphibolite unit: dark grey to black, medium to coarse-grained, well foliated, amphibolite and feldspar amphibolite; rare relict pyroxene; rare marble and limestone.
- **PTMq** — quartzite-biotite-quartz schist unit: interbedded quartzite, biotite quartzite, actinolite-biotite quartzite, biotite-quartz schist and minor chlorite schist; rare marble
- **PTMsv** — mixed metavolcanic-metasedimentary unit: heterogeneous package of chlorite, chlorite-quartz, chlorite-sericite, sericite, sericite-quartz(-feldspar), sericite-chlorite schist and paper schist; fine-grained quartzite; meta-basalt; quartz-eye biotite rhyolite

SYMBOLS

- Geological contact (defined, approximate, assumed, transitional)
- Limit of Quaternary
- Faults (definite, approximate, assumed)
- Normal faults (approximate)
- Thrust faults
- Bedding (inclined, vertical, overturned, pillows) — 56, 80, 22
- Schistosity (inclined, vertical) — 65
- Secondary schistosity (inclined, vertical) — 35
- Cleavage (inclined, vertical) — 80
- Gneissosity (inclined) — 57
- Lineation (plunge indicated) (unclassified, rod structure, mineral, crinkle) — 10, 22, 15, 25, 14
- Axis of minor folds (plunge indicated)
- Fossil location (macrofossil and palynology; conodont) — F, f
- Geochronological sample locations (age shown in Ma ± 2s) (K-Ar, whole-rock or minerals; Ar-Ar mineral; Rb-Sr WR-mineral; U-Pb, titanite; U-Pb, zircon) — K, Ar, Rb, U, Z
- (derived from BC Ages (Breitsprecher & Mortensen, 2004) and Mihalynuk et al., 2010; only samples with accurate locations are displayed)
- Contour (100m interval) — 1200
- Spot height (height in metres) — 1844
- Road (paved, gravel)
- Railroad (abandoned)
- Transmission line
- Pit outlines
- Buildings
- Provincial Parks

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Base map derived from TRIM (Terrain Resource Inventory Management) 1:20 000-scale topographic database, British Columbia Ministry of Environment, Lands and Parks.

North American Datum 1983 (NAD83), Universal Transverse Mercator (Zone 10) projection