NORTH FORKS

"Rite in the Rain"®

WEATHERPROOF

LEVEL BOOK

No. 310

NEVILLE CROSBY INC.

325 WEST SIXTH AVENUE • VANCOUVER, B.C. V5Y1L1

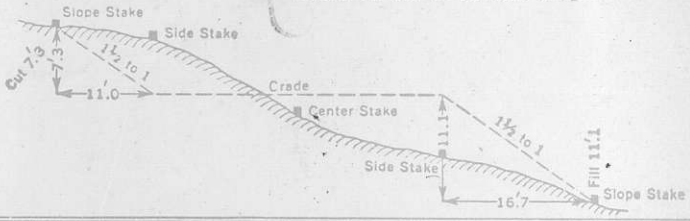
TELEPHONE 604/USE-4343 TELEX 04-507762

MINING, FORESTRY AND DRAFTING SUPPLIES

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1½ to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



Cut or Fill	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	Cut or Fill
	Distance out from Side or Shoulder Stake										
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

"Rite in the Rain"®
WEATHERPROOF

a product of

J. L. DARLING CORPORATION
TACOMA, WASHINGTON 98421 U.S.A.

Lookout Peak Road Aug 10/83

→ 100m from corner at "flat"

125/30E

NF185 + 360 to creek 310me /
ie before creek.

- apparently well banded/ bedded mafic metak or hornfels

- medium grey green, fn xline, ? gritty, no texture readily visible

- spotty Fe carbonate alteration

∠ 140/30NE

- trace Po

→ spur road nearest MAIN LINE

→ argillites at end km from main

∠ 330/40NE
350/30E ⇒ 340/35NE average

- 900 metres total road

hand samples: banded argillites, rusty weathering with thin py lenses elongate parallel to foliation or coarse p. X cutting + lithic wackes with thin argillite stringers
- could be tuffaceous → samples

New Road OFF MAIN

end of highest road 295me

160/30 NE ✓ argillites,

NF 186 no phyllite, uniform wk

obvious defmt

- Fe carb. altered c. xlne

& -Fp dykes

plus white to pale green

"talcose" interbeds to 10%

of sequence

- conformed to foliations

+ appear to be beds

+600m 270me

NF 187 no.

argillites plus ? felsic metalk

150/35 NE

or MTS, foliated, slightly

talcose, light green

→ SAW, no fizz

NF 188 +500m 270me

? Ms or chl schist → arg

340/50 E

— Ms-Chl pegmatitic granite

→ SERICITE SCHISTS

recrystallized quartz-rich
(? schist with ? green fore-sericite
(? carbonated ultramafic) ? intrusive
→ magnetic

Hand samples like Ms-foliated
granites - could be dykes
intruded parallel to foliation?
+
→ sericite semi-schist: light
yellow grey, soft, maybe clastic
- non-magnetic, not Q

just before perpendicular branch
Chl-Ms-Bi schist, original
tuff with some sed. component
no fizz ? sheared gabbro

August

Small Clearcut 225 me e
Silver Creek - Cogburn Creek jct

Spur off end of first switchback

- phyllites, silvery grey, extremely well with poorly defined prismatic porphyr
√ 315/vertical ⊢ 320/vertical
- locally iron stained, sparse, limonitic py
→ argillites
→ Bi-schists with more equant porphroblasts as well as prismatic plus felsic (Q-Fp >> ? orange weathering (non effervescent carb. to 5% of sequence, bands mm to .3m

NF ✓
189

→ chlorite amph ± Bi schists, more massive

⊢ 325/80 NE
jts: 245/70S 35/65NW

- foliation shows slight warp on 10's of microns
- minor Q veins

/83
d

220 m 08-12-1 120 m

foliated to chl schists w. Gt
blasts - porphyroblasts
< likely randomly oriented Bi books

Bi - Gt
to schistose phyllites
ones
→ chlorite schist w. oxidized Gt

+ one 10 cm bed GABBRO

with ↑ Q-Fp component in segregated
bands
- ? ∴ chl >> micas likely
some vc tuff component
→ sample
GVA: could use sheared gabbro ✓
w. smeared Fp, amph but too far
gone to give genetic name

with 5-10% dark green
chlorite rich, gabbro

✓ MAIN ROAD

NF190 + 80m from switchback
- well foliated dark green weather
comp. from chlorite-amph
schist, hard, competent, dark gr
- interbedded w. coarser xline ligh
green schists with light green ?ms
✓ 135/60 NE
- folds on 5m scale X cut.
schistosity

✓

+85m 8-12-2 180me
- well foliated to banded
dark green (fresh + weathered)
amphibolite, markedly harder
+ more competent than previous
- bands defined by slight
differences in felsic content
X-sz ✓ 325/80NE

✓

+20m 8-12-3
- well foliated amphibolites

190 mc

on fresh → ? strongly sheared gabbro or MTV, too finely ? chl. crystalline to tell even on freshly sawed surface

o/c at creek

→ GVA: likely sheared gabbro but best to use descriptive name → AMP-Chl schist - ① veins subparallel to foliation → Amphibolite

/ NO

and pyroxenites
- some felsic segregations
< 2-3%, appear to be pred.
Q-Fp

+10m painted line 84...
probable logging company,
blue + orange

+25m large o/c dark
green weathering (+fresh) massive
? Hbite
pyroxenite, well foliated √ 350/8
- felsic segregations <
in previous + more homog. fr.
gr amphibolite
- sparse meg discontinuous
Q veins
→ well banded dark green
+ more felsic
as well as bands of Bi
spotted 8-12-4 chl ?
schist
- weathered slip surfaces
show pistachio-green ?Ep altern

→ likely sheared gabbro
more spotted → smeared
Fp + amph

→ porphyroblastic

+ Ep along foliation planes

✓

NF191 +380m 100mo

√ 140/70N likely bedding
also chlorite -Bi- ms to
schist o/c in road
beds likely return to
MTS with VC component

+80m small o/c
sericite-ms schist ~~phyllites~~ " to ~~ms~~ sericite schists
w/ sparse gar. size needles
8-12.5 (take sample)
+ rounded garnets

+125m → END at Silver Creek

August 13/8[illegible]

Showing Area (Carol)

8.13.1 ? o/c immed below yard
argillite with some granular
Q bands 865mo
- no √ possible

chl-Ms-Bi schist, again too sheared to be certain of origin

(talcose)
- most mm size needles hard to I.D.

Road

under wires of tower

chert w chl partings
chl. rosettes

-appears to be prod Q-chl rock
+ likely should have been sampled
+ should be enough to get
→ mafic metavolcanic chl-amph Q-rock with some Bi → tuff component (± Gt) → NIS
→ Bi-Q-Fp schists (banded)

MTS >> MTV and MTV have some sed component

(large) xn creek 15m long

→ Al-rich MTS / MTV

actinolite (-hematite)
→ serpentine schist
+ Bi serpentine schists

Plus Chl - Bi schists

↑ 45m d/c
continues as before
downstream, lithologies
little real Δ
→ o/c continues 20 m
then waterfall + impassable
gorge ↑ o/c 840 metres
continues for about 40m
as before

NF 193 ∴ ? 280/60W
- mafic metavc more prominent
part of exposed sequence
SAW -Q-Fp
plus Bi schists

good o/c on hillside to
N not yet yarded

→ to S about 20m into
woods o/c Bi schists
banded w Q-rich layers
+30m from 193 - descent muted for length
of gorge

base

- extremely sheared amph-chl schist → very coarsely crystalline pyroxene-rich rock + Ø → GABBRO

still in +200m to road
gorge
↳ ROAD

NF119 extensive O/C above
20m elevation, continue
until 30m m from main
road
→ spur previously unmapped
- spur bearing 195° from
cat on main road ~~ a
visible except above 119

- end closest to 119 → amph
chl schist to fn. salt +
pepper gabbro texture (med fn gr.
- o/c moss covered difficult
to see foliation
- 4 po
- minor local mn Bi books ? a
- sparse white veins ? Fp
(altered)
+103m end of spur to 90°
middle of o/c
+105m road

ms further o/c
→ NF 028

galileo)

+105m below main
road 850me
small o/c below

+55m start of area
below where prob not yet
yarded

→ top N spur
lines due E -1200m
down

NF 194 +125m 890me
mafic metavo → chl-amp-
schist, banded w Q-rich ba
✓ 205/65NE

+60m o/c continues in
stream
→ to +45m as above

+90m end of line → tu
across 135m

local Ep alteration

Aed

@ 250 m total downline
O/C 50 m to S of
line

aff → total 300 m down

Clear Cuts NE of Showing August 14/

2500 ft

8.14.1 Diff Lake 760 me

Bi schist with thin argillite

wisps to partings

√ 340/65NE

irregular layered Quartz ?

→ Bi-Qt-FP schist w

knots of coarsely xline

→ end of road 840 me

NF195 , +20m 840 me

chlorite - amph schist,

medium, light green, well

foliated √ 325/vert

O/C 70m long 1/ road
start NF195 → Bi-Q-Fp schist

peg

+ coarser xlline py assoc w ↑ Q
?remobilized veins

2755 ft
= 1000 m length
- 1-5% Q "eyes" - mm. subrnd XLS.
+ Chl - amph >> Bi schists
→ mafic metavc ; some variation
in amph Xl size in Q in
places
- trace cpy, 1-2% po, elongate blebs

O/C 70m long // road
start NF195 → Bi-Q-Fp schist

peg

+ coarser xlline py assoc w ↑ Q
?remobilized veins

2755 ft
≡ 1000 m length
- 1-5% Q "eyes" - mm. subrnd XLS
+ Chl - amph >> Bi schists
→ mafic metavc, some variation
in amph xl size in Q in places
- trace cpy, 1-2% po, elongate blebs

o/c → 60 m pred MTV
as before with Q-Fp-
Bi schists, chlorite schists
+ metacherts
MTV dominate
- cm-scale folds on foliae +
folded Q veins

NF196 + 90 m
mafic MTV with some Fp +
felsic-rich lenses to bands, pro.
amph-chl schists, med grn mod
√ 330/70N
with amph ø with → chlorite-rich
coarsely xline patches (? slip
planes) or Chl-Bi schist
- trace coarsely xline py
to 5% oxidized py cubes
on fracture plane
- wide variation in amt of
shear, but for most part
prominent
- locally patchy minor Ep
+ 100 m o/c continues
as before

- very thin bands to lenses Q ± Fp
? segregations or folded veins
- markedly folded elongate
parallel to foliation
← * Chl-amph-Q-Fp-Bi schists

→ o/c nearly continuous

↓ w. ↑Bi, pyrite content ↑? to 2-3% in mm clots to distorted cubes

fn gr

+ 170m total

+100m 800me o/c in
Bi-Q-Fp schist

+90m Bi-MS QFp schists
+metacherts with minor Bi partings, well developed crenulations ↗ 330/vertical
cleavages
Q-rich segregs as laminae, to bed & lenses to boudins
+40m rubbly Cherts with thin black-Bi-MS wisps to partings, wavy

NF197 +60m 875me
? mafic metave with some sed component - coarsely granular amph-Bi-Q-Fp schist, looks more like well foliated intrusive but wide variation in XL size + well defined bands of diff XL size parallel to foliation

creek 2600 ft

o/c essentially continuous

→ vreg, discontin. o/c

2900 ft ??

massive, interlocking X's → GABBRO
hand: Bi-
→ to 1 chl - O schist, only
sparse amphiboles

NF198 +80m

gabbro w. coarsely xline salt + pepper → finely xline amph - chlochist ± Bi

- could be diabasic ø of intrusion or intruded MTVc

- changes in XL size patchy, irregular, patchy Ep

→ sometimes very pronounced shear grad / crenulated chl schist

+30m → well defined finely xline med dark green chl-amph schist, well foliated √ 350/vert

NF199 +100m

- as above √350/85E

+30m road up record clearcut 755m

→ NEW ROAD

→ likely sheared gabbro

Col

2500ft

NF 200 70M from end of road
chlorite-amphibole schist,
light medium green, finely
crystalline; well defined
shear but no foliation
easily visible on large mass
o/c COVER
Plus Bi-Ms-Q-Fp schists
w metacherts → ribbon
cherts, wavy bedded
√ 350/vertical
→ sheared Bi schist
→ ? sheared gabbro mafic
metavc with angular
blocks of very fine
granular quartzose
material in typ amph-
chl schist matrix
- blocks elongate ∥ foli
→ minor BxR
→ return to very wavy
banded metachert
→ chl-Bi schists slightly
spotted

935 m 3100 ft

→ sawed → lithic tuff

- light green medium-cryptalline with dark green 1-5 mm size coarser xline blebs ("clots")
  → ? chlorite porphyroblasts

metacherts to .3 m thick
- granular Q-Fp-Bi ± V. porous
  → MTS

SAWED: Gabbro, may be fragmental? → tuff
Bx size (+64mm)

→165m ± DOWN CREEK

+10m o/c in creek Bi-Ms schists
+ granular metachert

+70m MTS : granular Q-vc
elongate lenses in darker grey
∠ 335/vertical

NF 401 + 5m large o/c well
bedded metacherts, Bi >> chl
schists + peculiar ? tectonic
sheared Bx (lithology)
- strongly foliated with
elongate stretched to sub ∠
fragments hetero
- light grey Fp
- dark grey MTV, finely xline
= coarse Px gabbro (? cumulate)
- light grey finely granular Q
± Bi
- fragments appear stretched, torn
- dark 2m zone sub ∥ to
foliation so appears bed-like

→ metachert
finer xlline matrix Bi → Q-Fp schist
83

890me 2900ft

200+ : → 401
⟶ SHEARED BRECCIA

← no. Chl-Q ± ?Gt

fragment supported, hard to see
matrix comp. but appears to
be dark green chl- amphibole,
finely crystalline
- no fizz

frag. w bands of dark frx
VC to 1.5m x 10cm

+ 50m. o/c as above
continues + at 50m o/c
serpentine schist 40+
strongly sheared foliation
(appears greasy)

NF 402 +10m
- mafic MTV w sheared
camp. ⟷ chl-amph-Bi -
schist

+105m return to road

+20m o/c √355/vert
pinkish granular metachert
w minor Bi sch partings
-way

NF403 +165m. 830me
mafic MTV, chl-amph sch
too sheared → ?gabbro, ie

ne

→ NO! serpentine schist
+ amph - Chl - Q schist
+ Chl - amph schist with
Bi porphyroblasts
- Is. py as discrete cubes

2700 ft

intrusive or basalt

√ 345/vertical
– in places ↑ felsics → salt + pepper → metagabbro
– sparse Q – Fp – amph veins
– open fractures with bleach ⊥ length

+50m prob o/c as above, large amph rosettes in talus
+57m mafic MTV – ?

NF 404 +5m 810me
as above, last of o/c

+40m amph-chl schist w minor Bi as well as fm xl amph ?MTV or metagabbro – MT

→405
NF 404 +145m 810me
– metagabbro – chl-amp – Fp schist, massive
√ 0/vert

MTV: light green finely xline
ampk-chl schist w large
dk green amph rosettes
metagabbro as before
265
2650 ft.

MTV

hl

2650 ft
w. mm size & eyes
- very dark, finely crystalline

with lesser Bi-Ms schists
± Gt

+ 80m o/c
Bi - chl schist

+ 40m o/c - ∅
Bi - Ms - Gt schist
∫ 360/85E

+ granular metacherts
+ cherty MS

+ >5m large o/c
Bi-Q-Fp schists + granular
chert grade irregular
into gabbro → looks
intrusive → NLS

→ 406
NF 405 ~10m 780 ne
- banded amph-chl schist
± Bi ← likely metagabbro
but can't rule out intrusive
'.' too sheared
- locally Q-rich band
∫ 325/70NE

→ could be due to shear

256afi

→ METAGABBRG

+75m Bi-Q-schists
+metacherts

+150m ⟹ rejoin
major road + continue
to main line

MAJOR ROAD

+60m Bi-Ms-Q schist
o/c

+55m Bi-Q schist w
lenses to nodules chert
very finely banded ≅ 50% Q
/ 330/vertical

+200m Bi-Q granules.
⟹ schist ⊢ 0/vert
+Bi-Q MTS, re cherty

+130 to Creek ⟶ End

august 15/83

Old Man Road
415me just past N 3435
big white

Half Day with G. Dawson
only approx 60 cakes

NF 407 +600m 390me . 2%
amphibole-chl schist ± Bi
in places looks like wacke
→SAW ∫ 20/70W√
- ? o/c or very large
Talus - 3 semi-separate
pieces w/ ≡ foliation
- no talus above or surrounding

NF 408 jct of road to E
→ + 1150 m
??? metased or tuff: medium
grey, finely xline banded on
mm scale with dark bands
+ crenulated cleavages at
angle to bedding
- relatively soft + does not
show elect grains or clasts
- only very faint effervesce
- Sampled ∵ could be tuff

+ minor shear it black material
like argillite ± deformed Φ
+ tr. py to 1% py

- no ~~serpentine~~ serpentine, just smooth surfaces.
→ SAW: lapilli to tuff Bx, sheared elongate fragments, ∴ Ⓠ likely intermediate → intergranular
- ? fresh hammer marks on o/c

chl + Ep gives yellow-green colour

soft, well banded, bedded, no frags visible
- faint to pronounced fizz
→ likely limy argillite or f.gr. claystone (MTS)
- weathering orange brown
→ some dolomitic component to limy dolostone
nce → LIMESTONE
DOLOSTONE

+ 100m fresher, slightly effervescent in matrix, banded light grey material - could be fn gr sericite +Q
→ metasiltstone → MTS
+ 0/60W ✓

395 vc
+190m ✓ 315/80W rusty weathering, black argillites, 1–5% py, markedly deformed on cm → m scale → phyllites
→ white powdery weathering product

+ 60m well bedded Q-lithic wackes in Q-Fp grd mass
- beds 1-2cm → m scale
✓ 90/30S ✓ - ? could be Jt
this appears to separate beds of slightly diff Xl size
- no distinct grading
+ black argillites with foliation
|| "beds" above

+380me

TFp → DOLOSTONE: violent fizz when powdered

75/55W 36.39

408+ 400me
-fine Q-lithic wacke to argillite
- matrix: argillaceous
→ SAW: chert wacke; homog. elongate sheared grey chert fragments in darker cherty matrix

+190m 390me cherty argillites to cherts, deformed, crumbly weathering, abut irreg. Q veins
- po 1-3%
+ Q - lithic wackes as before

+190 → large o/c with sub parallel c. xline CF Q veins
- lst, dark, grey, finely xline with faint wisps of darker grey 1-2% finely xline
PLUS
DLST dark grey slightly limy metasiltstone (?) - fn xline, individual grains not visible
- massive, conchoidal fracture

160/60E ✓

→ cliff above + talus below → 8.15.1

-408 ++

to finely banded slst + ? dlst,
more brown weathering

A.

V. V. thick slst + dlst
408 +++ ? true thickness
→ argillite (cherty) but + 2m certainly
→ argillaceous chert
/ high variable in α frags to
clasts tho. usually frag supported
8.15.1 → Q-Fp tuffwacke
* LW.1 (NF 428) - some more like NTVC
to reworked tuffs.
* lithic wackes resemble tuffs
with squashed angular fragments
resembling lithoplasts/flamme
± Q eyes in phyllitic matrix

limy carg, siltd, lld, lithic wacked → 320m —

+ 80 m w/o talus

+ 120m + 30m talus as above but less limy
prod^v.f^ siltstones to lithic wackes, and dark grey cherts
— talus shows v. flattened frags + good grading
— minor B₁

+ 440m o/c 305mc
chert, pink to grey slightly mottled with pronounced pink bands, only slightly granular.

o/c continuous
+ 90m argillite, rusty weathering very py-rich to 5%
Δ 40/30 NW
— py often c xline w Q
→ continue

limy carg, siltd, lld, lithic
wackes → 320m -

+ 80 m w/o talus

+ 120m + 30m talus as
above but less limy
pred v.f. siltstones to lithic
wackes, and dark grey cherts
- talus shows v. flattened
frags + good grading
- minor B1

+ 440m o/c 305me
chert, pink to grey slightly
mottled with pronounced
pink bands, only slightly
granular.
o/c continuous
+ 90m cargillite, rusty
weathering very po-rich to 5%
S 40/30 NW
- po often c xlns w Q
→ continue

+300m 280m.e
chert tuff, pink grey,
apparently massive
-not graded or a porous
conchoidal fracture

+90m road to E
(+140 EASTERN ROAD
+125) road to N, continue
MAIN ROAD

-Fp
-Q ±Gt
+760m o/c Biosclast,
+ underbedded granular cherts

+80m → stop at Creek
+ return

DJ #4 LCP ≡ 20m into
JOHN MARTIN bush
87085 Jan. 1983

830

910m

→ ? gravel pit on Hicks L. road

Franklin

Helicopter Drop August 16/83

→ subsidiary peak 1530me
- intrusive. finely granular
salt + pepper CI 70 →
30 → gabbro to leucogabbro
O - Fp - amph rock
O
- in places melanogabbro
- flow banded, large leuco
patches → later intrusion

→ down to extremely O-Fp
rich intrusive w 10% - 20%
mafics (amph) (Bi) Bi > amph
O - 20 - 30%
Fp - 50% rusty weathering
- rusty weathering
→ granodiorite

→ gabbro

NF 409 +150m 1440me
Weak banded + foliated

→ BEARING 75°

5000 ft

o

→ 10%

FP

4720 ft

✓

chlorite-amphibole schist
± Q ± Fp
- resembles sheared gabbro
more than sheared MTV
- m scale ?125/75N ✓
folds

- Q - Ms
→ Bi >> Chl schists
look very MTS wo. any
large tuff component
- cm scale folds ∫ 160/70E ✓

- Bi-meta chert rocks
+ some rocks resembling
gd

- Bi ± Ms ± Q-Fp schists +

→ chert w Ms-Bi-Q-Fp
schists 110/70N ✓

→ Bi-chl-Q-Fp schist
but Bi >> chlorite
125/60 N ✓

— or foliated part of intrusive
as diorite → leucogabbro
patches

1400me 4590ft

then
ie 400-460
= 460m
1285me 4215ft

Bi-chl mixed in single layer

NF410 opp-side of large tree free area going furthest up
- chl-amph schist, light green, finely crystalline
- weathers distinctive chrome green colour
- no effervescence

- Mc ± Bi - on fracture planes
- no foliation visible
→ ✓ 20/vertical

+ Bi-chl-Q schist

NF411 small creek +140m
strongly sheared, highly foliated + folded chl-amph schists, light medium green
- on size amph porphyroblas
✓ 65/80E

→ all o/c passed to 800m
= 410

+850m

· 570 m 1265 me 4150 ft

→ Serpentinite, non-magnetic
? predecessor

710 1230 me 4035 ft

→ Serpentinite
non magnetic ? predecessor

descent into next valley

DESCENT

NF 412 ≡ 850m

peculiar chrome to bright green weathering amph-chl schists w. silvery Ms along cleavage planes + in places Ms porphyroblasts

- massive, competent

?45/70NW? ✓

- sparse patchy Ep alteration

ASCENT

? very large talus block or

- Bi-Q O/C

Ep schist w metachert

DESCENT 1200m 1240me

NF413

Mafic MTV, chl-amph schist, banded w felsic ve

- return to dark grn colour

finely foliated

√ 130/vertical ✓

Saddle W. stream 1120me

3675ft

1255me 4120ft
serpentinite

→ SADDLE 985m 1180me

1220me 1100m 3870ft

4070ft

1300m 1215me 3985ft

negatives

1490m total

NF414 good o/c
??? granodiorite → granitic
intrusive to chert ✓
? mafic metavolc – chl – Q
but appears granular – Q rich ± Bi
+ contains very small fine
Qt → cherty metased
– 1% po locally
– could be dykes or sills
o/c too moss covered + weathered
but elsewhere good chl-amph
schist ± Bi, dark green, finely
xline ✓ 315/70 NE ?

→ o/c of Bi-Q-Fp schists
→ chl schists, coarsely
xlline
→ v. l. yellow amph
rosettes → amph schist

+100m DESCENT
Q
→ Bi schists
banded Bi Q schists
✓ 160/vert

1125 me ± 1510 m 3690 ft

→ Crest

1610 m

⇒ 1650 m saddle

1673 - 1100 me. → ASCENT

1800 m 1138 m ~ 3610 ft.

3710 ft

NF415 Stream w. Ø/C above
B. - chl - Q schist
- likely basic tuff rather
than MTV
- surrounding talus more
typ. dk green finely xlline
amph - chl schist w irreg
metasomatic Fp - Q patches

→ 1915m 1145me
metachert .3m to
wavy/ banded ribbonchert

NF416 + 1970 1180mo
Bi schist >> amph-chl
schist, relatively massive
- plus Bi-chl-Q schists
+ in places resembles
schistose gabbro

↑ 180/ vertical → then
banded metachert +
granular Bi-Q-Fp schists
+ chl-ms schists

1840 1135m
3723ft

minor descent/ascent

3756 ft

3870 ft

prod MTS

SIDE HILL + UP

-chl
+ MTS Bi schists as before

- E edge of largest green valley

NF 417 √ 340/vertical 2230
large o/c in green valley see air photo
MTV: light green, salt + pepper chl-amph schist but looks gabbroic
- thin felsic segregations
- rare cm sized darker green amphibole

→ chl-Bi schists

→ Stop Mapping 4:30 pm

August 18/83

Talc Creek - Clear Cut N of Road, 2nd from End

main Road 810 me

1200 me 2060 m 3936 ft

2180 1185 me 3885 ft

1190 me 3900 ft

2 dunite - peridotite
9
1 metagabbro + diorite
9.
8 phyllite, metachert, metagraywacke

end of road 1000 m e

8.18.1

argillite, grey, well foliated with thin lenses to bands of granular chert < 5%

√ 100/60E (N)

to phyllite

+45m phyllites compact soft, silvery, much less friable than previous 125/50E (N)

? more baked than previous

- rusty weathering, fn ms flakes

→ siltstone

- locally to 10% very finely crysta Py

→ 75m end of o/c

130 o/c fn siltst to arg 1-2% Po finely banded

- to Bi - Q-Gt schist I

ms/Bi bands w. argillite

⊥ 115/70E

990me 125m from end

/

Plane

+40m siltst/arg.
+20m large rusty weathering o/c
micaceous phyllites w. mm
py cubes + very ($\frac{x}{}$line) finely diss
∫ 110/70E
→ 50m creek w. o/c
argillites/phyllites ↑ ms +
lighter coloured w ms mm flakes
+ fine Bi spots in white
ground mass   NO!
→ dark green ? amphibolite
w. Bi each apparently in separate
bands
→ NF 418 of most volcanic appearing
material   ∫ 125/65E
-could be MTV/MTS contact
or small intrusion

-could entire area be meta
aureole w Bi hornfels

NF 419 + 5m o/c on opposite side
of creek

py to +40% in select bands

→ sericite - Bi phyllite, rescue spots

or MTV - py 15%
porphyroclasts

→ Q-Fp - Hb - sericite - Bi (MTS) schist
- py along open fractures

→ could be fault contact or intrusive if all shearing events are regional

Hb - plagioclase semi schist →
amphibole - chl semi schist
amph - plag - chl semi - schist

→ mafic metavc → mod grn chl - amph schist with salt + pepper texture → gabbro - elongate blebs → amygdules
→ B flow → no -

+ 260 m new road → fork

NF420 like 419
mafic MTV with probable amygdules → no - METAGABB
- large cliff - like O/C
varying from + 30% amygdules to < 9%, in fn xline med green ground mass
√ 120/75E local colour band

+ 80 m MTV, as before ?
meta amygdules 420+

NF421 + 30 m 900 me
- massive rusty weathering
mafic MTV → NO
- no amygdules
- fgdn, Pl. po to 3%

amph dark + ? chlorite near chlorite boundary but some remains
→ Metagabbro
close - slightly magnetic
- porphyroclasts

900mE
METADIORITE
RO to DIORITE
HUMUNGOUS - only looked at top
→ likely METAGABBRO as above
→ look more like Fp clasts
→ Fp porphyroclasts

→ METAGABBRO

→ chlorite - amphibole schist to semi-schist, medium, green, medium crystalline
→ METAGABBRO to METADIORITE

→ continue along main road to MAIN at 70m.

NF422 creek 860me
→ gabbro to leucogabbro
→ diorite
G < LG < D
- well foliated + colour banded 135/vertical ✓
- samples from material like 419

+265m 845me
- Bi phyllites ✓ 150/75E ✓
- prob. O/C

+214 MAINLINE

+1700 m → O/C in small creek
- deformed talc + serpentine schists plus poorly defined BXR with up to m sized angular heterogeneous fragments
- most distinctive fragments

620Mo → FAULT
sheared UM

are ultramafics with a very dark green finely crystalline ground mass and distinctive yellow brown PX phenocrysts
- poor exposure

→ serpentinite amphibolite (light green → tremolite)
→ sheared ULTRAMAFIC

- no consistency to attitude

+250m 575mE
- looks like metagabbro to metadiorite gabbro to metamelanite
- well foliated 115/vertical

o/c contains +50m, +10m well defined colour bands + patches to bands C. xline dark green amphibolite, w/ up to 10% finely xline B, trace Cpy

8.18.3

8.18.4

gabbro

amph - grey plag - chl
semi-schist
- very well foliated
both - py 2-3% → in places po 2-3%

+225m large massive o/c
light grey weathering
- resembles previous
gabbro, but coarser xline
dark green amphiboles very
abnt locally
- well foliated w amph.

+50m Creek w large o/c
Excellent exposure of very
large scale megabreccia
→ large fractured zone
- heterogeneous, angular,
stretched, sheared blocks
- frag: white metachert
plag-amph ?cumulates
amphibolites
Fp-Ø amphibolites
various gabbros
- matrix comp variable & amph

- abnt Q-Fp veins including
tension/ladder veins
- μ faults in bands of individual
frags

8.18.5 → METAGABBRO to
meta DIORITE

535Ma

i frags themselves highly foliated + elongate parallel to foliation in matrix
- foliat in frag not neces parallel to foliation in matrix
- sparse zones of serpentine schist

+625m o/c small in part
Bi phyllites ✓?120/50✓
to Bi schist
→ Bi-(?)-schist to granular Q with minor Bi partings MII

+ 1.1km ✓ 130/vert ✓
as before with the same wavy banded chert
are ↑ over phyllites
→ phyllite

NF423 +200m large o/c
greenish weathering chl-amph schist, finely crystalline
10's m scale folds 150/80E✓
- mm thick felsic bands
+ ? phenocrysts to lenses

d

415ma

385ma likely metagabbro with Fp phenocrysts to phenodasts
- well foliated + banded
- amph + chl. schist
(? trace serpentine)

+100 Cm
Bi-chl-Q-Fp schists w
lenses to bands metachert

NF 424 + 50m 375me
- mafic MTV as before
120/70NE

+ 100m → argillites w MS of
√ 160/60E
+ lost, dk grey, finely xline
w thin chert lenses to bands

+ 100m phyllites + 50m o/c

august 19/83
Garbage Dump Road off Hicks L
jct E-W 435me
NF 425 end of road as it starts to go
argillite, dark grey, → finely
finely xline py √ 270/40N
- rusty weathering o/c appears
massive but is well folded
PLUS ? MTV: dark green gre

110/50

→ amph - chl schist
- may → or may not be metagabbro

lake

Continues

w N Dawson start 230mo

down 525mo

y → GABBRO igneous-textured
relatively c. grained

- amph - chl. semi-schist
could be MTS → SAW
but other samples typical
metagabbro 2-3% po
to diabase, fine xline
dark green, fresh
- poorly foliated
- enclose Hb phenocrysts
may be superimposed on more
equigranular gabbro texture

+100m o/c massive appearing
arg → fine siltstone
- to hornfels dark grey,
finely xline, Q-rich
hard rock

+ 150m to midpoint of valley
+10m o/c argillite, hornfelsed
argillite to hornfels as
above plus v pale pink cordi
- very fractured, folded
Plus gabbro, banded,
well foliated

SAW → igneous texture

locally
to 5%, mod rxns, embedded clts

8.19.1 ⇒ MTS near gabbro contact

ordal fracturing chert

d/c continues +95m

zones of light yellow, limonite stained fractured argillite (? sulphide bleached) extend out from fractures/cleavages
- no consistency to foliation
→ ↑ phyllites, fn siltst

*

→ assoc. w. abut Q veins ✓
↑ no sign intrusive 60 ∫ 55N
lactivity +45m 540me

- very contorted ✓ argillites
∫ 255/40N
small faults

+100m phyllites w abut Q veins 1-2% po
- ↑ grade ∴ some amphibole

→ 100m argillites, black ✓
∫ 235/25E
→ argillites w. min. chert bands lighter grey in colour, in places → sericite schists, tho mostly phyllites
- very contorted weather yello
+150m ∫ 280/30N

8·19·2

T)5m

⇒H6

w-grey

+30m → aplite dyke X cuts phyllite

+65m return to dark grey
phyllites, rusty weathering
✓ 275/40N at edge
of large creek ✓

+310m argillites 130/50N ✓
Just after creek 515me

+ 740m 480me → ok ✓
alone in waterfall phyllites
to sericite schists in talus

+160m dark grey argillites in
creek + Bi-[illegible] schist ✓
slightly dumped 80/40E

+ 180m phyllites 460me

→ phyllites, dark grey,
+50m ringing like slate, rusty weathering
105/58N
— min Q veins sub ∥ foliation

8.19.2

+50m MEETING .

Showing area   aug 20/83

- 200m along road from GVA line at NF032 +5m
or NF034 -25m

- downslope towards NORTH FORK Creek, straight line distance = 200m distance, on bearing near ⊥ slope 125° for 85m → 170° to maintain direction ⊥ slope. → 105m (cliff) → FLAG + divert around cliff + 30m straight line to middle of creek.

NF 425A 535m
well foliated amph-chl schist, med dark green, finely xlline, irreg discont Q veins.
- trace Po
homogeneous   ∫ 190/80W

2080 total

plus Q>>Bi^ms schists
to wb chert, including
some "chert Bx" beds
(homog. stretched l grey
chert fragments in darker
grey matrix)
- MTV confined to woods at
edge of creek

→ 200m up creek, no
mapping between stations
+ 55m to avoid cliffs
→ 110° bearing + slope

NF426 ± 30m small o/c
: MTV too dark to see
except for good prismatic
amph xls in dark finely
xline rock
1-2% finely xline P.
→ Road at 650 m, +126m
length 145m up road to NF034

+375m to middle of bridge
1145
520

→ Q-Bi schists ± G
village wall S/D
as previously

5?0 Ma
→ MTS amph (Hb)-Q-Bi
schist
- foliated Hb on foliation planes
and stretched crystalline
Q + Bi groundmass
- interlocking crystals are
metamorphic

Bear Creek Aug. 21/83

Main Road 4.9 km in

Continue from Gd / Qd-Di o/c

+400m creek w deep gorge + road 8-21-1 more Q-rich than previous Qd with slight pinkish cast to some Fp → Gd

PLUS patchy fuzzy rusty weathering ms-rich ±Q

+300m 8-21-2 return to more typical grey tones → +10% Q → Q dilute to pinkish tan Fp

+300m as above

+450m 8-21-3 ↑Bi, CI = 30
↑Q → Gd

+150m rusty-weathering roof pendant homfelsed cherty

Q 30% GRANODIORITE
Fp 55% Kspar = 10%
mafics: Bi, Hb 15%

very homog salt + pepper
w/o multiple ø or xenoliths
vmed fn grained, up to 10%
Hb phenocrysts

↓Q ↑Bi less to
w/o perk tows → plag > 2/3 total Fp
→ Q DIORITE → Granodiorite

420 me

380 me - coarser crystalline
Bi granodiorite

Q > Fp >>
MTJ ⇒ Ms-B schist ± green
? amph or chl

- banded, swirled
  - po 1-2%
  - may be some tuff component but v dk chert, green tuff could be chl or amphibole

+160 m → 8.21.4
↑Q + mafics → 40 →
Gd

+100m road to N previously mapped 345 me

+ 300m 310me
edge of most recent clearcut
→ Gd med c. xtline with less Q than previously

+400m humpbacked roof pendant with Po locally 5%
pred chert - tuff MTS
- Xcut by ultra mafic dyke, weathering spheroid shell
- pendant +100m contact

Cl 30, Q + 40%
mod coarsely xline some kspar
trace po → Granodiorite

8.21.5 Cl-15 Bi > Hb
Q 30%
no kspar → Qd

→ Qd as before

+520m edge clear cut into woods
+30m o/c 235me
hornfelsed cherty rock
po to 10%

+700m edge of second clearcut
180me o/c
hornfelsed argillite, dark black,
finely micaceous(?), very
hard, competent, unfoliated
tho. soft th po

+150m o/c 165me
hornfelsed cherty rock
th po

+250m o/c 165me
MTS ? hornfelsed cherty
th argillaceous po 2-3%
85/40NW

+50m o/c as before

+400m o/c 105me

rubbly weathering argillites to debris

to ? weathered intrusive

likely clay altered tuff or wacke w/ Qveys

→ very shattered + contorted
→ probable fault as also lithologies weathered ?altered

+100m main road (to 248k

Old Main Road 410mE

+55m o/c √ 105/55S
argillites, v. ty weathering

+115 phyllites → argillites
- slumped

NF 427 +45m 440mE
amph-chl schist, med. grn, fmely vxline, massive o/c

8·21·6 # HARRISON LAKE GROUP
∴ distinct light grey colour
→ SAW
- ? fragments : Q, Fp, arg sparse
lagenerthic, → lithic wacke
well packed heterogeneous

J)

→ MTV
- irreg discontinuous Q
veins, chl qt along slip
slips
- minor Ms or Bi on same
surfaces

+ 425m peters out

Return to area of "lithic
wackes for 2 samples

NF 428 ? tuff or wacke,
fragment supported Q, Fp
dominant, angular frag in
dark grey quartzose matrix

NF 429 . as above
- hard to tell if quartzose
fragments are lithic or not

Note : widely divergent
degree of shear & def.
fragment + matrix defin

well layered, may be graded

both tuffwackes + lithic wackes + Qwackes are present
- depnt. varies from lithoplaske to strongly tectonic

NORTH FORK

- Main Road between sections of Old Main Road
  - alit talus blocks + hard to tell o/c

NF430

+90m probable o/c
mafic metavc - amph-chl semi-schist
- faint (? continuous) banding suggests tuffs
? trace Po
- slightly displaced → no S/D

+ series of talus blocks Bi - Q schist

NF431 MTV large diff o/c
+440m as above with Bi along cleavage planes
345/50W

LEVEL

graphitic in places

vanhedral c.
xline in
cherty band

— ? trace cpy ✓

plus
Intermixed with more abundant
py in black argillite
(GVA)

8·25·1

distinctly laminated → tuff

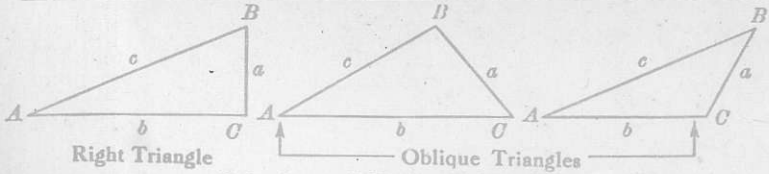
Waterfall (Rainbow Falls)
+220 m
pred. graphitic argillite
to cherty argillites &
lesser pure Chert bands
- abnt Q veins + deformt

S 140/70 N
S 020/30 E
→ to phyllites on opp side
of creek
- crenulation, kinks
cm → 10's metre folds
- isoclinal folds,
minor folds/slips +
o/c scale faults, impossible
to tell disp
- py ↑ along specific
laminae to 10% +
very finely diss - on
specific planes as nm cubes
- minor sericite schists in
talus

LEVEL


Dan

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

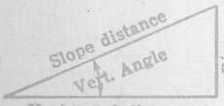
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a\sqrt{1 + \frac{b^2}{c^2}}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B, b = \sqrt{(c+a)(c-a)} = c\sqrt{1 - \frac{a^2}{c^2}}$
A, a	B, b, c	$B = 90° - A, b = a \cot A, c = \frac{a}{\sin A}$
A, b	B, a, c	$B = 90° - A, a = b \tan A, c = \frac{b}{\cos A}$
A, c	B, a, b	$B = 90° - A, a = c \sin A, b = c \cos A,$

Solution of Oblique Triangles

Given	Required	
A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}, C = 180° - (A + B), c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180° - C, \tan \frac{1}{2}(A - B) = \frac{(a-b)\tan \frac{1}{2}(A+B)}{a+b}$, $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a+b+c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s-b)(s-c)}{b\,c}}$, $\sin \frac{1}{2}B = \sqrt{\frac{(s-a)(s-c)}{a\,c}}, C = 180° - (A + B)$
a, b, c	Area	$s = \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{b\,c \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = 5° 10′. From Table, Page IX. cos 5° 10′ = .9959. Horizontal distance = 319.4 × .9959 = 318.09 ft.

Horizontal distance also = Slope distance minus slope distance times (1 — cosine of vertical angle). With the same figures as in the preceding example, the following result is obtained. Cosine 5° 10′ = .9959. 1 — .9959 = .0041. 319.4 × .0041 = 1.31. 319.4 — 1.31 = 318.09 ft.

When the rise is known, the horizontal distance is approximately:—the slope distance less the square of the rise divided by twice the slope distance. Thus: rise = 14 ft., slope distance = 302.6 ft. Horizontal distance = $302.6 - \frac{14 \times 14}{2 \times 302.6} = 302.6 - 0.32 = 302.28$ ft.