URBD 70322 DRILL
LITHOLOGIC SUMMARIES, KENNER, 88-91

60008657

# EXPLANATION OF ROCK UNITS

**Quaternary**

- Qal — Alluvium
- Qg — Terrace or perched gravels
- Ql — Landslides, slumps
- Qag — Older gravels: uplifted and dissected; preserved along faults
- Qc — Colluvium

**Latest Miocene to Pliocene**

- Ts — **Sulfur Group**
  Gravels and fanglomerate, grading downward into alluvial and lacustrine sequence with interbedded volcanics. Typically altered (colored) west of Kamma Range; typically tilted eastward.

**Middle Miocene (?)**

## Kamma Mountains Volcanics

- Tb — **Badger Formation**
  Epiclastic breccia and fanglomerate
- Tbr — Rhyolite flows

— Unconformity —

Intrusions

- Ti — Feldspar porphyry intrusions and dikes

- Tct — **Chocolate Volcanics:**
  Rhyolitic flows and pyroclastics
  - Tct — Fine-grained rhyolite flows with 2-5% plag phenos, ± biotite. Purple-brown outcrops.
  - Tcx — Fine-grained rhyolite flows, 5-15% plag phenos
  - Tcp — Pyroclastic and debris flow breccias
  - Tcxp — Pyroclastics with 5-15% plag phenos
  - Tci — Intermediate flows (andesite, dacite)
  - Tcl — Rhyolite with dark lithics (JTR basement ?) Locally, possible ash-flow tuff.
  - Tce — Epiclastic breccia or sediment; Bud-like.

- Tbv — **Bud Volcanics:** Epiclastic breccia, conglomerate, sandstone and debris flow deposits with interbedded rhyolite flows. Epiclastics green and purple.
  - Tbe — Epiclastic deposits, bedded.
  - Tbc — Chocolate-like rhyolite, interbedded with Tbe. Sparse biotite to several % phenocrysts. Includes TMB.
  - Tbw — Wildrose-like rhyolite, interbedded with Tbe. Aphyric; red-brown or purple.

- Twr / LBT — **Wildrose Rhyolite:** Fine-grained, aphyric rhyolite flows, red-brown or purple. Typically flow-foliated or laminated. Includes LBT.
  - Twd — Intrusive or flow-domes.
  - Twl — Intermediate flows, porphyritic.

- Td — **Dozer Rhyolite:** Fine-grained, aphyric, olive-brown to sage green (locally pink, gray or purple) rhyolite flows. Variable foliation attitudes. Locally includes pyroclastic breccia, undifferentiated.
- Tgg — **Goblin Gulch Dacite:** Fine-grained, aphyric, magnetite-bearing dacite flows. Blocky to planar jointed. Dark brown-weathering, dark gray fresh interior.
- Tkg — **Knob Gulch Breccia:** Pyroclastic breccia, with clasts of Tgg, Twr and Td. Local bedded epiclastic breccias and pebble conglomerate.
- Tt — **Transitional Sequence** Overlying JTrs. Conglomerate, laminated siltstone interbedded with basalt flows.

— Unconformity —

**Mesozoic**

- JTrs — **Metasedimentary Rocks**
  of Clan Alpine Sequence, including black, green and light gray phyllite and green quartzite. Typically quartz-veined.

500'

LAC M
1395 GREC
RO
STATE NEVADA COUNTY
DATA BY S. MOORE

# JR Baumunk Contacts

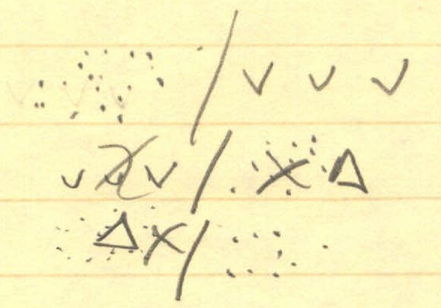
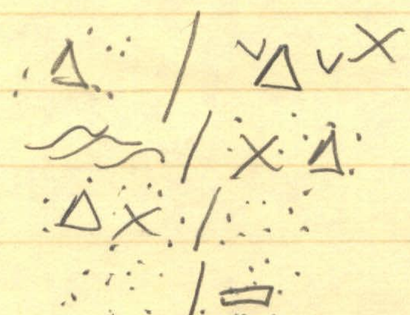
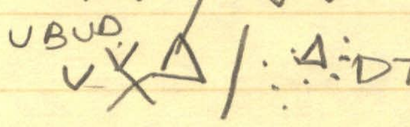
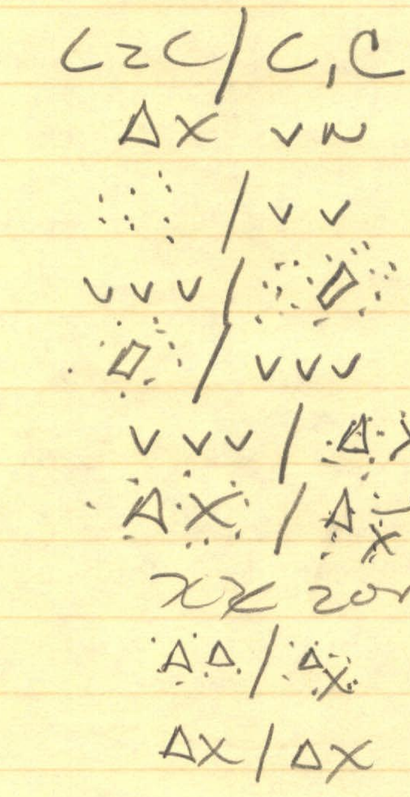
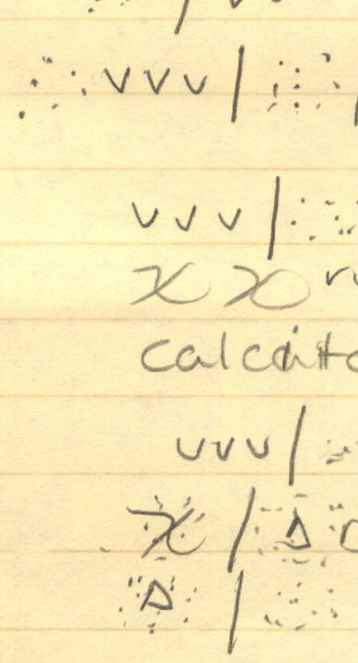
| Section | Footage JR | Footage TRANS | | TD. Elevation TRANS | TD. Elevation JR |
|---|---|---|---|---|---|
| 60° is ΔX ✓ | RL-69A 1128' | | \ | 1179 4254' | |
| F 50° shear | RL-75C 1065.5' | | \ JR is norm stratig 179 & 212 should have hit it | 1071 4248' | |
| F Δ+gouge ? | RL-89C 1135' | | \ | 1152 4305' | |
| F ΔX 62° | 91C 1142.8' | | \ | 1150 4263' | |
| VF ΔX 80° ✓ | RL-92C 1258' – 82° Δ | 1237.6' 80° Δ | \ | 1281 4350' | 4367' |
| F 78° ΔX ✓ | RL-93C 1049 | | \ | 1082 4311' | |
| F ? couldn't tell from pos@ CMW's 109 1074-1079 ✓ | 94C 1179 | 1080 | \ | 1199 4320' | 4408' |
| | 95C 1244.5 | | \ | 1270 4217 | |
| F no angle noted ΔX | 96C 1156.5 | in cont w/ Bud | \ | 1192 4320' | |
| foliat 30-45° near cont ΔX ~90° ✓ | 97C 1152 | | \ | 1252 4242' | |
| F foliat 24-28° ✓ | 98C 1035.2 | *F ΔX 27° 1007.2 | \ | 1061.5 4402' | 4428' |
| F shear contact 55° ✓ | 99C 1204 | 1231-1242 x Δ | \ | 1242 4243' | |
| XX Δ w/ depth ✓ | 100C 1120 | | \ | 1168.5 4284' | |
| XΔ 45° F@ trans ✓ | 101C 1045 | X angle nor noted xΔ 1018 | \ | 1123.5 4353 | 4377 |
| F above no Δ noted ✓ | 104C 1067 | | \ | 1087 4302' | |
| F ΔX @ Trans no Δ noted no F@ shal ✓ | 106C 1120 | 1031 | \ | 1237 4342' | |
| FΔX 60-65° ✓ | 108C 1057 | | \ | 1107 4305' | |
| F@ 1066 80° | 109C 80° to CA 1108 | 1066 F contact ΔX w/ trans JR + Tertiary to 1108 | \ | 1247 4311' | |
| 1067-1074 ΔX no Δ taken ✓ | 112C 1085 | – contact @ 60-70° to CA | \ | 1230 4306' | |
| | * 141 1127' | in cont w/ Bud | \ | 1155 4268 | |
| DT above is all Δ ✓ | 131C 1050 | poss reverse bedded 1019.5 @ 70° | \ | 1078 4250 | 4279 |
| F 20° to CA | 207C 1003.5 | | \ | 1023 4277 | |
| F Qtz/slate Δ ✓ | 185 925 | 895 | \ | 1000 4370 | 4397' |
| F 65° ✓ | 197C 1070 | | \ | 1109 4295' | |
| F in 35° shear ↳ 65° above contact @ ±50° ✓ | 199C 1221 | | \ | 1277 4208' | |

χ X

| Hole # | Contact | | Lithology | Footage |
|---|---|---|---|---|
| RL-100 | 140° | | BUD | 530' |
| RL-123 | 63° | | LBT/BUD | 377' |
| RL-124 | 60° | | gouge zone | 467' |
| | 43° | | " | 474' |
| | 34° | | | 719.6' |
| RL-126 | 686'-691 | 45° | Δ zone | |
| RL-129 | 302' | 62° | gouge | |
| | 385' | 25° | SRF | |
| RL-130 | 447' | 85° | V/LBT | |
| | 613.8' | 40-45° | FAULT | |
| | 638' | 73° | Δ ⁘/vvv | |
| RL-165 | 509.7 | 45° | vv/∴ | |
| | 865' | 60° | ΔΔ zone | |
| | 953.2 | 35° | gouge zone | |
| RL-158 | 525.2 | 68° | vv/∴ | |
| | 598-602 | 60° | gouge zones | |
| RL-191C | 372' | 70°-75° | CT/Δ° CT | |
| | 607' | 62° | gouge Δ | |
| | 686.7' | 70° | gouge | |
| RL-192C | 367.5' | 60° | v̌/LBT | |
| | 639.8' | 60° | Δ/χ | |
| | 654' | 54° | χ/∴χ | |
| | 678.3' | 75° | χ/∴ | |
| RL-193 | 448.4' | 60° | -v/∴ | |
| | 705' | 57° | -∴·/Δ | |
| | 716' | 75° | Δ/vv | |
| | 730' | 54° | vv/χΔ | |
| | 744.2' | 46° | χχ/Δ | |

| Hole # | footage | fault contact degree | Lith |
|---|---|---|---|
| RL-194C | 563.5' | 20° | vv / ⁘ |
| | 701.7' | 60° | xx / ⁘ |
| | 796.3' | 25° | Δ / Δ zone |
| | 818.6 | 60° | vv / ⁘Δ |
| | 824 | 56° | Δ / ⁘ |
| RL-195 | 440' | 60° | vv / ⁘ |
| | 850' | 50° | x / Δ |
| | 853 | 54° | Δ / gouge |
| | 858 | 40-45° | gouge / ⁘Δ |
| | 862 | 70° or 25°/30° | Δ / ⁘ |
| RL-196 | 383' | 60° | vv / ⁘ |
| | 470' | 55° | ⁘ / gouge |
| | 488' | 50° | gouge |
| | 466' | 60° | ⁘ / caCO3 + gouge |
| | 506' | 48° | caCO3 + gouge / ⁘ |
| | 520' | 35° | Δ / ~~DT~~ |
| RL-197 | 598 | 50° | ⁘Δ / vv |
| | 617 | 50° | vv / ⁘ |
| | 1065 | 77° | Δ / Δ |
| | 1070 | 65° | lower SRF contact |
| RL-198 | 494.6' | 50° | ⁘ / ⁘Δ |
| | 545' | 75° | gouge / Δ |
| | 552' | 65° | gouge / Δ |
| | 563' | 80° | Δ / Δ |
| | 570' | 65° | Δ / ⁘Δ |
| | 595' | 70° | CTΔ / DT |
| | 655' | 26° | Δ DT |
| | 653' | 68° | ⁘ / Δ in DT |
| | 720' | 58° | shear ] gouge |
| | | 24° | shear ] |

| | | | |
|---|---|---|---|
| RL-199 | 640' | 33° | ∴/vv |
| | 715' | 45-50° | vv/∴ |
| | 904' | 30° | gouge |
| | 1090' | 30° | ∴/vv |
| | 1190 | 35° | vv/∴ Δ |
| | 1210' | 40° | Δ/gouge |
| | 1215' | 65° | shear |
| | 1222 | 35° | x rubble |
| | 1222 | 50° | JR |
| RL-200 | 586' | 45° | shear |
| | 598' | 50° | x/Δ |
| RL-201 | 578' | 85° | ∴/vv |
| | 660' | 70° | vvv/Δv |
| | 680' | 60° | Δv/vvv |
| | 758.6' | ±35° | Δ gouge zone |
| | 798 | 20° | on Δ |
| | 837.4' | 17° | Δ/∴ |
| | 857' | 80° | Δ zone |
| | 859 | 25° | Δ " |
| RL-202 | 527' | 25-35° | vvv/∴Δ |
| | 634.7' | 60° | ∴/ΔΔ |
| | 642.2' | 60° | ΔΔ/vv |
| | 655 | 65° | Δv/xx |
| | 658.7 | 73° | xx/Δ∴ |
| | 669.5 | 50° | Δ∴/∴x |
| RL-203 | 355 | 20° | vv/∴∴ |
| | 486 | 70° | ∴/∴ speckled |
| | 549.5 | 45° | ∴/cut-bat |
| | 788 | 40° | Δx/vvv |
| | 809 | 50° | vvv/Δx |

| | | | |
|---|---|---|---|
| RL-204C | 646.5' | 25° |  |
| | 680 | 60-65° | |
| | 690 | 65° | |
| RL-205C | 539 | 65° |  |
| | 558 | 58° | |
| | 562 | 65° | |
| | 595 | 50 | |
| | 695.5 | 47° | |
| RL-206C | 672 | 75° |  |
| | 682 | 65-70° | |
| RL-207C | 485 | 60° |  |
| | 538 | 55° | |
| | 652 | 30° | |
| | 710 | 60° | |
| | 728 | 60° | |
| | 743 | 80° | |
| | 750 | 25° | |
| | 975 | 30° | |
| | 1000 | 45° | |
| | 1083.5 | 20° | |
| RL-208C | 610° | 40° |  |
| | 615 | < 60° > | |
| | 617 | | |
| | 621 | 30° | |
| | 627 | 25° | |
| | 640 | 30° | |
| | 642 | 50° | |
| | 652 | 40° | |
| | 665 | 40° | |

| | | | |
|---|---|---|---|
| RL-209C | 358' | 68° | vvv/ |
| RL-210C | 440 | 15° | AVN |
| | 468 | 40° | Ax/ |
| | 566.4 | 65° | $CaCO_3$ x/ |
| RL-241C | 47.3' | 65° | Δ Δ / |
| | 132 | 30° | gouge zone |
| | 135 | 60° | / |
| | 286' | 50° | / volc bxa |
| | 328 | 60° | / vvv |
| | 472-473 | 20-30° | shear |
| | 496 | 45-50° | clay seam |
| RL-242C | 410 | 55° | fresh / alt CT |
| | 538° | 65° | Δ Δ / |
| | 610 | 70° | / |
| RL-243C | 659' | 45° | ΔxΔx |
| | 674.8 | 68°-70° | ΔxΔx |
| | 676.7 | 70° | ΔxΔx |
| KM-3 | 663' | 70-90° | / vv |
| | 713' | 55° | vv / Δ |
| | 749' | 30° | / x |
| | 902' | 80° | / vv |
| | 907 | 60° | vv / clay gouge |
| | 910 | 45° | gouge / DT |

GAIN
pleasure
importance

Escape
pain
rejection
ignored

Interesting!

RB-4 Valley

0-25 OB

25-100 Str alt; fg white to pale green m-s to str silic sugary chips w/ abt white & tan clay. Orig rock?? (KL calls it BUD but I don't think so)

100-135 Str alt fg pale green, tan & white & minor lt? silic frag w/ abt clay & yellow stain Orig rock??

Fault 135-145 Pure fg white silica & silic fg w/ tiny Mc

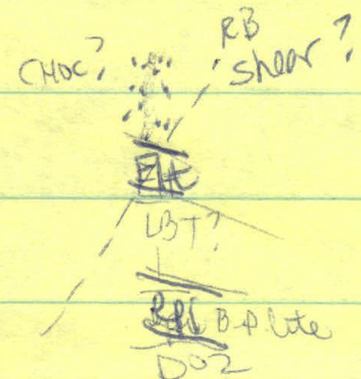
145-155 M-s silic fg & uthr Δ or lt

155 ~215 Mottled md-dk purple grey, flesh & pale green-white vfg w/ flesh & red Feox on abt thin fracts (looks kind of like Wild Rose?) prob w-m to md silic; locally may be lt/fluff bxa?

215-300 Green lt - BUD or Bud-like, md-dk green matrix supp w/ angular white frags. Matrix less clayey than normal BUD

300-318 Mottled flesh & green fg (Td?)

318-400 TD Pale grey-green-white fg wk bl no phenos (Td) under scope see hint of very tiny diss phenos?/specks




Could we be collaring in RB shear alt'd Choc, go thru flt/RB shear @ ~150', then into LBT (TWR) then Bud-like epi (Bud lite) then Doz?

RB-10

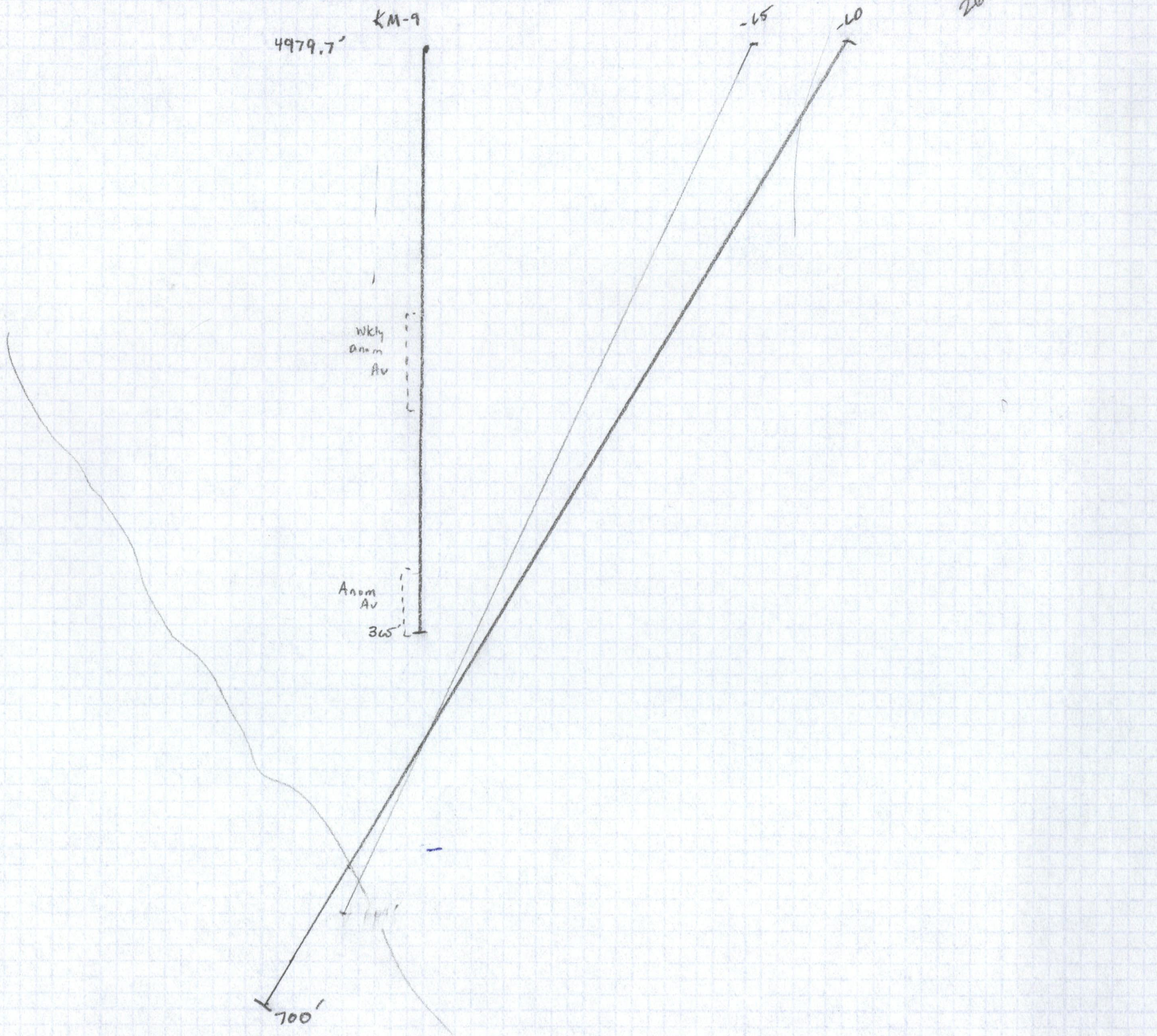
OB 0-65 ?

65-345 md bl, w malt fg (granular) & lt flesh, grey & blue-green, prob either lbt or choc - doesn't look like Dozer! ↓ alt'n, (lt-md grey) w-md silic 225-345

345-375 Md grey-green w/ deep blue green spots & mottles - amygdular?

375- Md-dk grey green amygdular q ϕ ~ fresh

1" = 100'



KM-9

0-20 OB

20-77 Tb? med fg grey w/ tiny dk phenos & 96t dk red-brown silt & clay,

77-240 lt pink-grey & green-grey fg granular, locally lt prob CHOC w-m bl, tty disspy, irreg shaped chips ⬡ ⬡
115-240 Mod grey clays 170-185 str clays
230-240 str clays
Pass wk silic? 180-230

240-352 Med flesh w/ pale green clasts lt or Δ?
w-m silic
(B) flesh pale green
— 325- ↑ alt'n, m-s lt grey clays, 2% py
pass wk silic?

352-365 m-s grey clays / alt as above but most chips fg lt grey granular ⬡ w 1-2% disspy Prob CHOC

140-145 .17 ppm

165-225 .1 → .9 ppm

325-330 1.93 ppm

345-365 .2 → .9 ppm

RE-2

0-220 FeOx
220-305 buff + grn alt
305-365 flesh + grn alt
365-400 flesh alt
400-435 gray buff silic fault
435-455 str buff clay gouge
455-TD Dozer
455-475 lt sg grn DT
475-820 purple + local grn DT
190-195 Str white clays
195-200 white clays + hematite

45-50 2' cavern - prob. fault w/ SiO2
5-30 m to S +++ Sulf. vns local Δ
m to ms silicification

CT / Bud @ 140'
BUD / LBT @ 307'
LBT / DT @ 455'

SRF unmineralized
390-400 str white clays
400-435 str XXX chalcedonic local Δ
435-455 str. ≈≈ gray + alunite?

85-95 str red clays
170-185 fracture zone w/ m SiO2 FeOx clay filled +++

RL-4

overburden 0-40'

40-78 golden oxide well silicif. FGT - poss fault zone

78-117 grn v. clay rich BUD like lit.

117-125 FAULT - potential upper clays above silicif.
zone
→ peach + green

125-215 lithic lapilli tuff - LBT vs Tmb lt. grayish tan
*195-215 peach alt which carries values
145-150 clay zone

215-325 densely welded v. fn gr. tuff Tmb vs. LBT
* actually has dozer appearance, lt army green

Δ on either side of $CaCO_3$ zone ← 310-315 pure $CaCO_3$ 215-225' peach alt
w/ local flo texture

325-515 Definatly "BUD" like epiclastic
w/ clay rich matrix w/ local
mottling of black matrix breccia look

515-565 lithic lapilli tuff - more LBT like
may be local - or somewhat
pervasive hydrothermal Δ w/ assoc. $SiO_2$
w/ m-s calcite veining
perv. argillic + bl
* 535-555 poss fault

565-585 sage green "dozer" tuff - v. fn gr. +
densely welded

1.

RL-11 Valley

0-25 OB

25-115 flsh (lt-med) ± pale green fg m-s silic chps ± some lit or Δ? (pale green clusts in med flsh matrix) w/ abt wht ± tan clay. Str alt

Str alt

Protolith? (CHOC??)

115-158 M-Str to Str silic wht ± lt grey fg ± lit w/ md-abt diss py, some Dr Q

Fault 158-175 Str silic pure qtz - lt grey qtz ± silic Δ w/ minor diss py/Mc

[same fault @ 135-145 in RL 4??]

175-200 lt pink-flsh fg w/ m-str x to Δ ± some chps wht-grey fg qtz, some fg py granular under scope

200-305 lt pink fg granular w/ md x, q diss py M to m-s alt'n ~5% chps md-dk grey - abt fg py

290-305 str silic, local Δ w/ x ± abt py - Struct?

305-435 White w/ just a hint of pink fg (fg granular under scope - finer than rock above) w/ 1-2% tiny dk phenos? Prob w-md silic? locally w/ brown FeOx @ 340-347, 415-422 (Dozer?) (w-m)

435-480 Md grey green fg (less bleached/alt version of above) (Dozer?) WK

Why do we have values @ bottom?

RL-11

0-25 OB
25-120 FG to porphyritic tuff peach tan tint local grn argillic clay alt
25-65 st arg. clay alt white to lt grn clays
65-120 m dim clays
15-25 brecciated

120 - FGT - peach tan, buff ↑ x ↓↓ ~
FG to sacroidal ↑ mc + py ↑ perv. bl 125-130 amber brn chalced
local Δ 135-140 145-155 x Δ for sure
137-150 ↑ bl

* FAULT 164-190
gray buff 164-175 str. xxx Δ
peach 175-190 str. perv. Δ ↓ x ↑ ~
195-200 local Δ
w/ sericitic alt.
190-350 ↑ bl to ms buff w/ peach mottles becomes more sacroidal
230-235 ↑ x
200-215 Δ vs LLT X + ~
190-300 w/ tan pink mottling
260-265 Δ w/ silk w/ holding together argillic alt rock fabric

310-325 poss LLT or local Δ
245-250 Δ + x
285-290 x Δ locally
295-300 local Δ + 300-305
270-275 w/ wh clay
275-280 tan clay

255-260+265 Δ pink matrix w/ wite clasts
335-350 w/ local limon + m ≈
FGT 355-400 s bl pure white sacroidal
380-400 w/ local amber brn chalcedonic veining

405-440 ↓ bl to w w/ intermill limon w/ no-fracts

FGT 440-480 mottled buff + grn sage FGT

RL-23

0-60 weakly FeOx Bud
w-m purw bk + r w/ local X

60-155 CT FGT
75-85 Δ w/ burg-red matrix
85-90 bk white
60-95 purw. silicified w/ m FeOx gold
purw. X_K veining
95-155 well bleached w/ wk intermitt
145-155 wkly hemitite FeOx

155-193 FGT locally lit rd - could questionably be Bud
wh local bud like texture
buff to lt grn → purw. grn
trace intrusn grn

193-310 LBT - mixed FGT, LCT ± VBxa
predom wh - lt sage grn ± buff

310-545 LBT - fgt + lit + volc bxa
purw. bk buff/white w/ local peach
to 465
335-360 strong flesh
360 - lt grn comes in w/ flesh mix
360-465 flesh + grn
465-545 predom lt grn + buff

FAULT 535-565
535-545 Stv calcite veining
545-565 stv green clay gouge + $CaCO_3$

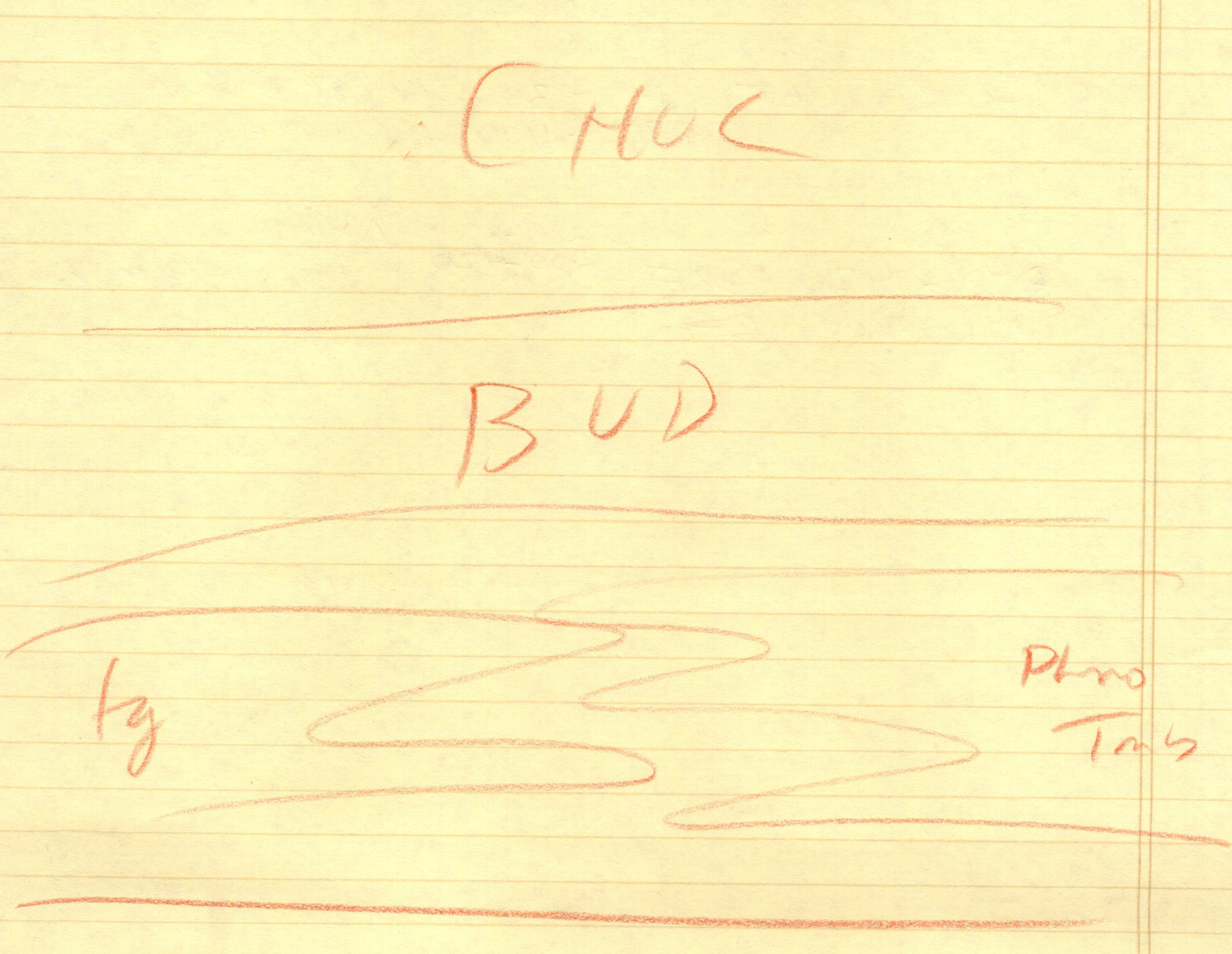
545 - TD definate SLT - DT

RE-24

0-60 Bud
60-70 FAULT
60-140 FGT - CT like
102-109 ft fractured
Fault —— 140-155 poss fault zone - w/ Bud caught up in it
local white clays
+ red-org clays > + grn + gry
local A
140-420 LBT 140-300 flesh + grn
*300-400 flesh + gray

380-400 ΔXΔX
380-420, SRF - ~~400~~ 375 of calcite + grn gouge
420-480 DT

165 Tmb ✓ example
207?



9-17
east
ser. chg

RE-25

0-65 v. fine dense siliceous CT weak
limonite + hemitite, perv. well silicif.
30-35 fault zone rubble
17-19' cavern
32-35' fractured

65-150 POSS "Bud like" lit oxidized to 140'
105-120 silicified to local Δ
125-130 str clay
157-180 perv. str bl local argillic alt

150-345 MIXED FGT ; local LCT
LBT - similarity
150-245 flesh + grn coloration
(205-210 XX + local Δ
205-220 poss fault zone
* 245-300 Buff + FLESH coloration
* 300-345 ↑ white bleach ↓ peach-flesh
str STKWK qtz
335-345 str post drilling FeSO4

345-385 fine grained to flow banded
tuff weakly bleached fairly dense
w-m sage grn mottling
poss local Δ

FAULT? 365-370 local hydro ΔX
380-385 definate hydro therm ΔX

385-1610 Peach + grn FGT - LBT like
465-570 more sacroidal eatin out
texture w ↑ argillic alt

570-585 Bud like
585-610 FGT

610-640 Dozy FGT - gray
600-640 Dozy
600-610 bl DT

RL-29

142

0-60 CT - bl + local ~
20-25 fractured
25-35 ↑ bl ↑ ≈

60-100 FAULT intense clay } 60-70
white + orange
70'-100 ΔXAXΔX w/ LLT grn texture
↳ w/ secondary Δ only locally

60-285 Bud - LLT oxidized to 185'
125-145 Stv. bl + stv. white clay
potential fault zone { 185-195 strong gray white clay
180-185 Δ " grn clay

250-285 Poss fault! 250-270 intense
lt sage grn waxy clay
270-285 mod ≈ grn + gry + white

285-440 LBT
285-370 blush + grn
370-425 pure blush LBT

425-440 SRF XAXA

440-TD DT
440-475 w bl

RL-30

0-13 well silicified; local Δ + ms bl

13-165 Mixed FGT + LLT buff + grn
questionable texture destroyed Bud
could also be LBT however
breaks up into small sub-rounded grains
~3-7 mm wide - no brittle angles
perv. um to ms bleaching

165- 223 FGT perv. bl & argillized
hangingwall 170-185 w-m gray clay
argillic alt.
FAULT → 185-202 bl buff to translucent
well silicified + Δ

223 - TD w bleached; whitey argillic SGT
w/ wk shimmery fine sacroidal texture

RL-33

0-15 OB
15-85 FGT Intermittently XΔ 15-35 ms bl
prev. XX all oxidized
35-70 Fault zone S prev XX + Δ
buff to lt grn
local lim/hem clays
70-85 ↓ bl + x local Δ

85-253 BUD w/ grn clay matrix somewhat
LLT upper zone texture destroyed
due to influence of fault @
FAULT (115-130) w/ inclins down to 145°
↳ w/ slick/local blk matrix Δ 100-110
145-180 S ~ to gouge
245-260 BUD into FGT transitional

possible fault 245-265 or just gradational contact

253-300 FG to granular tuffs
prev. bleached - m
lt grn buff coloration
275-290 5-10% dk gll. bx chips

300-465 FGT - granular w/ welded shards
300-378 m bl
w-m ~
378-465 ↓↓ alt

RL-34

0-14' OB

14- FGT pur. bleached

0-33 m ≈ m-wll oxidized ms bl

14-30 local Δ

20-30 str lim clay

FAULT 33-80 ms bl lt sage green
chalcedonic color
pur. silicified

70-80 well fractured
↳ main zone of faulting
w/ limon clay

80-95 FGT granular whey x

95-140 v. strong bleaching
silicified + m to ms ≈

140-150 m bl w/ burnt brown oxide

150-205 lt sage green
w-mbl
weak welded shard fabric

205-300 DT
w/ welded shard fabric
intermitt. w/ m bl
w/ burnt brown oxide

may all be DT ?

RL-39

0-10 OB

10-40 FGT ~~m~~ x yellow grey tan
~~m~~ ~ questionably locally Δ

35-40 Δ chg @ pink dust

40-70 FGT

40-55 ↓ X ↓ FeOx wk ↑ ~

50-55 poss loc Δ @ lithic

poss FAULT — 55-70 str lim Ox SXX FGT

70-90 FGT buff to peach tan
m to ms peach tan clays
SXXX grey white FGT

FAULT? 90-100 Interbedded SX Δ FGT buff to hint gray green w/ strong clay inserbids

100-160 Intense argillic clay zone
100-120 str white clays
(note says in grn bud epi)

POSS. FAULT 105-125 biege to tan clay ± VAR %
silic grey-tan chips
115-125 clay + ~50% siliceous
tan chips v. lg return

Bud? 125-160 green clays - intense

Bud? 160-223 Volcaniclastic - w/ mixed FGT
Volclst is very Budlike if not local X

200-223 w/ Black matrix & characteristics - w/ black jurassic shale frags

Fault? 223-265 Mixed lithologies
buff X granular FGT, w/ basement
silicif shales ⊕ bud epiclastic
locally Δ, local gray + white clays →



OVER

RL 39 cont

265-355 Bleached - m-s FGT, DT
w/ zones of burnt brown oxide: 265-290
305-325
340-355 is w
265-270 ms xxx
w-m x perv w~
*355-370 LV gag/green
w be welded (siliceous) FGT
hard slow drilling

RL 42 (Saddle Flt)

0-45 dk purple fg, prob Is unit (WK) (mottled dk & red under scope)

45-50 md grey-green clay (saddle fault?)

50-155 lt tan fg no phenos w-m bl Td

155-450 md (fresh) green-grey / sage green fg no phenos Td, wk bl 390-420

tiny dk specks / phenos / disspd ? under scope

RL 43 (Saddle Flt / South Ridge)

BUD-dry or Budlite

0-95 yellow-grey-green lt & clay `BUD-like

95-310 md grey (fresh) vfg no phenos prob Td?

(tiny dk specks under microscope)

RL 44

0-~~80~~ 110 white w/ orange tan stain vfg w-m bl Td

65-85 prob a little more alt'd

110-430 Md green-grey/sage green fg no phenos

fresh td

VWK bl 230-250, 325-345

KL 45

0-100 lt grey-tan v fg no phenos wk bl Tcl
w/ wk x 50-65°

100-235 md green grey fg ~fresh Tcl

235-248 fault? wk bl fg Tcl w/ 5% chips black
vein? KK notes black water when drilling

248-490 md green grey fg ~fresh Tcl
vwk bl 410-430
w/ ~~ mottles - descent fb? 445-490

RL-56

0-30 O.B.
(All Choc?)
30~115 fg granular lt grey-white md alt (to m-s) w/some lt grey clays, w-m X, 2% diss pg, md silic?
115~285 fg granular lt grey white w-m to m alt (less clays), w-mselic, 1-2% diss fg pg-speckled
285~330 Structure? m-s silic fg w/ md-dot X - qtz+ py vnlts, minor △ 2-5% dk grey chips-alt fg py; some DrQ
330-450 pale pink-grey-white fg(sugary) md alt w/ 1-4% diss py (some cubes) (speckled w/diss py) similar to 115-285, ± Wk qtz+ py X

RL-63

0-10 FeOx + Δ + x goedum FGT
10 - Mixed LLT + FGT → ? Bud-texture destroyed ?
buff w/ hint green
70-85 w/ local secondary ΔXΔX
hanging wall argillic alt { 90-145 strong limon clays
145-185 interm. red org clay + limon clay 160-165 / 175-180 > tr clays

FAULT { 150-155 ΔXΔX
155-185 bl white to translucent ΔXΔXΔ

185 Ox/RE Boundary

185 - 230 Bleached to buff white local gray clays
FGT Intermittently oxidized limon
w/ tr burnt red clays
220-230 ms limon clays

230 - TD SGT - DT el sage green
FGT - finely sacroidal texture

RL-64

0-33 OB

FAULT 33-110 well bleached ± silicified FGT to granular
relict text? local Δ
most prob. FGT
33-55 > strong limon clay
75-90

~~EGT up + bl + x wk green hue~~

110-145 pew. silic w-m
mixed FGT ± poss. cladonic grain LLT
intermitt Δ chalced silicif
limon clay frack

FAULT 145-160 chalcedonic silicif
weak cladonic micrfrags
local Δ poss caught some
bud up into it?

160-200 Intense argillic clay alt + bl
w/ post drilling sulf. discolor
granular tuff
local white chalced ms
sericite

200-235 m ~ FGT
local Δ tuff - (? LGT) ?
white to hint green

235-335 FGT - locally granular
m bl+ ~ to 260'
w/ welded tuff texture ↑ w/ ↓ in bl+

RE-66

0-105 CT-FGT bl+XX+FeOx
105-170 Bud bl+FeOx local + local, Xc - texture destroyed
170-335 flesh + grn LBT FGT+LLT
275-300 S ≈ - white
280-335 ↑↑ bl
235-250 mustard green gouge
335-455 flesh LLT-LBT
455-467 LBT/DT cont
455-467 SRF grn gouge + $CaCO_3$
467-505 bl DT
505-TD reg DT
425-435 chalced silicific
440-450 white clay

RL-73

0-15 OB
15-30 Intense up portion XXX locally
w intense clays below

30-415 DT FGT w sage grn
m bl to 200
wk to tr bl to fresh to 415'

RL-74

0-105 Mix of med grey fg w/ very tiny dk phenos covered by dk red clay & lit of fg grey w/ red brown matrix
Hard to tell where bedrock is, possibly @ ~25'?
Could be Badger?? Fresh,

M-S str 105-235 lt grey, white abt clayp M-S str arg, 2% fg py

235-400 lt grey-white w/ hint of flesh granular fg, prob md silic, 1-2% diss py (some cubes)
↑ silic w/ some △ 280-295
w-m silic w/ trace py 300-400
md clayp 370-390

400-475 lt green-grey w/ minor orange blotches fg w/ 1-2% diss py (some cubes), granular, prob wk silic, md bl
locally orange color more abt along fine fractures

475-493 M-S silic fg md green-grey w/ 1-2% diss py

493-510 Same as 400-475

510-515 M-S silic + some si △ (to granular)

515-605 lt grey green & pink fg w/ 1-2% diss py w-m

605-685 mottled flesh-orange md alt fg granular, locally clastic text
prob orig 1-2% diss py - much is ox now, 1-2% grey chips w/ alt fg py

685-695 larger chips fg green granular (md silic?) w/ md si x

695-775 same as 605-685

RL 74 cont

~~0880 (808~~

775 – 785 Mix of ↑ & ↓ some clay

785 – 935 lt green-white to grey-white very fg wl 1-2%
very f.g. phenos or disspy (possibly Dezes) w-m to wk
wk brown FeOx @ 825-830

# RL 76

0-50 Prob. O.B. (partly Badger?) Mix of med-dk grey fg, lt tan fg, & red brown soil

50-80 M-S arg/ abt clayp lt grey-tan soft

80-~~290~~275 lt-md grey w/ flesh & green mottles (subdued) granular fg, ~2% diss (some cubes) py, prob w-m silic, w-m - md arg

80-100 Md Silic

100-155 Md clayp

155-165 Struct? M-S silic - fg silica

285-290 Md clayp

275-305 clastic Δ or lit? Mod M-S silic, green clasts in md-dk orange flesh matrix, some clay

305-315 M-S clayp/gouge - md grey & silic chips

Fault 315-353 Pale green-grey white vfg str silic locally fine Δ wk py

353-370 Brown FeOx stained coarser (SS size) fgt, md clayp (m-salt)

370-440 Md green grey fine clastic - either coarser tuff or fine lit/epi; undirscope can see fine fragmental, pocked surface, wk brown FeOx stain prob w-m clay alt?. Granular (fine SS size)

440-470 Mottled green & white granular w/ md brown FeOx stain M to M-S alt 2% chips fg grey - dpt disspy

Struct?

470-510 Med grey green weird texture: fg 'Φ', groundmass is fg grey w/ tiny dk specks, w/ 'Φ' - prob amygdules? <~1mm field w/ dlc green waxy looking chale? W-md alt

RL 76 Cont

510-625 Same e above but less bleached/alt, olive grey w/ dk green filled 'amygdules' for WK

- sometimes amyg fill is blended

# RL 77

0-58 OB (part Badger?)

58-300 lt grey fg (w-m below ~150') to md arg/clay (liss clay 135↓ md to m salt but thats where they went wet - some washed out?)
granular- w-m to md Silic? w/ TR-2% diss fg py
wk qtz x minor DrQ

220-250 ↑ Silic, x & some Si Δ, minor grey chips - abt fg py

280-300 w/ ~ 1-3% chips vfg brown chalc

300-320 larger chips pale pink fg MS Silic w/ DrQ + py vnts

320-400 Pale pink-grey fg w-m Md Silic wk x
~ 1% diss py md w-m to md alt, mdsilic 340-400

400-560 similar but color more lt-md green & flesh-grey
md Silic fg, w-m x, 1-2% diss fg py, wk DrQ
w-m alt to ~505, Md 505-560

560-577 - fault? 560-565 abt grey green clay/gouge
565-577 Mixed lt green & dk brown md alt chips

577-765 pale to lt green vfg very tiny phenos
visible only under high magnification, none visible by eye. Minor trace vfg py v wk alt'n
Minor bleach & FeOx 640-690 wk DoZ?

RL 78

0-45 OB

45-90 Badger? Red-brown matrix fragmental gpl grey clasts, dk red-brown clay/silts

90-194 pale green & tan fglls prob md alt, <1-2% fg diss py w-m clay, (↑ clay @ 115-125, 180-195 to m-s)

Struct; 194-200 Str silic lt gry qtz Δ w/ pink fg clasts

200-350 lt gry fg md arg/clay, 1-5% diss py (fine speckled look) lt yellow stain, Md to M-S alt (granular, crumbly outside - fuzzy under scope) Minor chips dk gry abt fg py

fault 350-380 350-365 incr selic & x,

365-380 larger chips, m-s to str selic + Dr Q + x & local lt gry qtz matrix Δ

380-510 Mottled pale green & flesh fg w/ 1-3% diss fg py, md flesh stain on thin fractures prob w-m selic & w-m si x

440-465 Md selic & md Dr Q, larger chips

FAULT 510-525; 510-520 Str Silic Δ, pink-gry fg clasts matrix supp - lt & med gry qtz

520-525 brown finely ground & clay gouge

525-555 (Δ in rocktype) lt orange flesh fg & llt (or Δ?) w/ white clasts wk x Q+py

555-570 mottled lt-med blue green & flesh, md arg/clayey/fglt

570-745 (Δ in rocktype) vfg pale green-white (Dozer?) md bleached Tr vfg dk specks (<.2%) gen wk alt locally brown FeOx stain. 570-600 md alt w-m silic w/ 2% dk chips - fg py

RL-144

0-25 OB → GT?
25-160 predom. FGT perv. bl w/local LLT
↳ 25-100 Buff, peach, tr grn
100-160 FGT + LLT
25-105 w/mod limon clays
105-160 predom unoxid. - tr locally FGT

160 - 215 LITHIC CAPILLI TUFF w/ burgundy brn or grn matrix - which is more $SiO_2$ rich
clasts are all bleached; locally grn

215-350
LLT-unbud
Tilt

215-350
Could still be upper LLT
buff, orange + green

all m-s bl + local X w/white trans. to org color

200-215 perv. entirely bl white/gray
205-215 silicified ? ? 2nd Δ

350-580 Predom FGT (locally lithic) tr.
ms - perv bl
w-m argillic alt
* maybe same above w/ Δ
215-350 w/ due to intense alt
295-335 lt pink + buff
335-565 w/ replaced biotite phenos (w/ sulfides)

or could these just be bladed sulfides ?

530-535 s $CaCO_3$ vns ; present w/ depth
530-565 $CaCO_3$ vns

FAULT 565-570 translucent bl white/clear hydroth Δ
570-580 same w/ gray green hue

580-625 SGT - densely welded FGT
DT

RL 150

0-15 OB

15-305 wk, bl fg lt med purple grey fg & w-m bl fg lt green grey CHOC? under scope rough surf text w/ tiny dk phenos

305-560 v wk to wk bl fg md purple grey CHOC.

560-645 w-m to md bl fg ; 595-605 Md alt ± sdle

645-652 Struct, pure white Calc

652-700 -fr fg md-dk grey (w/ tiny dk phenos under scope)

RL 152

0-15 O.B.? or Tb?

15 ~380 Tb; Mix fg grey & red brown clastic & red brown silt ~fresh

~380-620 grn wk to w-m bleached fg Chx lt-med purplish grey, some clay

620-700 TD Md bl fg Chx to grey White, some clay

RL-200C

542.3 - 543.1 lt grn clay gouge - brittle
590.8 - 591.5 " " " " - soft
596 - 597.5 brown rubble ; fault gouge

★ 586.7 - 617 FAULT
↳@ ±45° to CA

586.7 - 597.5 hanging wall alt ms bl + ≈
597.5 - 598.5 buff hydro △ lt grn, flesh, gray
↳a 50° to CA

598.5 - 599.5 dark gray sulfide rich hydrothermal △

599.5 - 600 blonde hydro △
600 - 604.5 lt sage grn △ w/ buff to flesh I celadonite alt clasts

604.5 - 617 lt sage grn FGT w/ S veining ; vn △.

604.5 - 873 DT vs LBT vs CT
m-s bl w ~ / locally m-s
* 604.5 - 845 pervasive vn △ to pervasive △ w/ WKX
843 - 873 ↓ bl w ~ lt grn
to WK

RL-201C

449.8 - 450.8 vein brecciation matrix supp.
@ 35° to CA w/ SiO2 + Kaolin + sericite fill
471.85 - 472 vn Δ @ 41° to CA
482.7 - 482.85 vn Δ @ 53° to CA
496.7 - 497.7 vn Δ @ 63° to CA
503 - 503.5 broken rubble
★ 553 - 558 intense clay altered gouge
605 - 605.6 broken rubble
578 - 679.3 EPI
595.5 - 613 mx bud like vnlt w/ poss
2ndary Δ mod vn +++, SiO2, Kaol, py, barite
local Ag sulf.
↳ 60° to CA
★★ 659.2 - 679.3 FAULT - SRF?
↳ @ 70° to CA well silicified and Δ EPI
m-s.bl w/ wk chloritic
locally vuggy w/ Kaolin, barite
+ stibnite

679.3 - 881 DT vs LBT vs CT
contact @ 60° to CA
679.3 - 727 m-s bl local Δ + ⟨Δ⟩

★★ 758.6 - 765 FAULT
clay cemented Δ; gouge dk grn to white
w/ local white clay filling interstices
773.5 - 776 broken rubble
784 - 788 hydro Δ vns @ ± 10° to CA
792.2 - 793 broken rubble + gouge
794 - 798 Δ vns w/ clay matrix ~20° to CA
801 - 804 broken rubble sbl s

★★ 842.4 - 854 FAULT white to gray intense
fault gouge w/ mixed broken rubble
854 - 881 ⟨ footwall alt m bl mtx
wk local ⟨Δ⟩

# RL-203

300-355.2 Bud LLT contact @ 20°
355.2-787.6 LBT
652-667 riddled w/ perv. vein Δation
w/ ++, mc, kaolin, py, + grn clay
743-750 perv. intermitt vn Δ
787.6-808.7 EPI
→@40° to CA
★ 787.6-813 FAULT SRF?
787.6-788.8 appl to blue green EPI
finely Δ ; perv. xx
788.8-801.3 EPI m bl, s ≈ m calcd
@ 30° to CA → 801.3-804 m bl S ≈ FGT
@ 67° to CA → 804-808.7 EPI m bl S ≈ lt sea grn
local wk clay gouge
@ 50° to CA → 808.7-813 intensely xxx ΔΔ m-sbl
3-4 steps Δ
@ 810' bnd sticks @ 20° to CA
808.7-860 DT vs CT vs LBT
813-836.6 FGT perv. bl ; Δ
└ 824.3-826.2 broken rubble w/ m ≈ clays
832-833 clay cemented Δ rubble

836.6-837.6 shear - clay gouge w/
clay cemented rubble
838.1-838.3 clay cemented rubble
846.6-850 broken rubble w/ m-s ≈ alt

RL-204C

510-518 intermittent vein Δ matrix supported - SiO2 rich

530-535, 538-539 } w/ wn Δ vuggy filled w/ Hm, mc, Kaolin, barite

596-625 FGT intermittent broken rubble w/ m x alt

617-625 prw. broken rubble

→ @ 25° to CA

646.5 - 686.15 EPI

** 672.7 - 686.15 FAULT

hanging wall - 672.5 - 679.5 strong broken rubble

679.5 - 686.15 hydrothermal breccia intense xxx gray + green ms bl

686.15 - 873 DT vs LBT, vs GT

686.15 - 690 w/ HHH w/ Kaolin, sericite, barite vuby Ag, local Δ matrix w/ local clay, SiO2 + sericite mix

686.15 - 803 Intermittently brecciated w/ m-s bl w-m + m-s Gy poss w x peach / buff; local app green

803-873 ↓ overall alt, lt green, w bl w ~

846-873 prw crackle brx

RL-205

* 538.85-562.3 MAJOR FAULT

538.85-544 SXXX breccia med. green

542.2-543 gray white POSS EPI Δ $SiO_2$ + clay vn 3-4 stgs Δ

539.7-540.7 flesh fault Δ

544-551 clay cemented fault breccia

551-558.1 lt grn FGT blu local Δation

558.1-562.3 intensely Δ SXXX

↳ 58° to CA ↳ 65° to CA

562.3-595 prob. LBT? w-m bl w — lt grn to grn gray FGT, densely welded

595-695.9 Tmb

contact @ 47° to CA

695.9-722.5 FGT lt sage grn buff m bl w-m ≈ L bl is prv. local crackle to tect. brecciated

699-707 vn Δ prv w/ bl clasts w/ fine stwk vning grn duck butter clay vns w/ minor Δ w/ matrix of chalco, py, steel gray mtallic

DT vs LBT

RL-206C

460.4-461.3 SXXX m Δ upper contact @ 25° to CA
lower contact @ 70° to CA

464.7 m-s ≈ broken rubble
468-477 intermittent broken rubble
495.5-495.9 gray clay gouge
@ 493' 2½' void

* 504.5-527.2 Fault dusky, flush to green intense
w/ intermittent XX breccia ms Shear zone w/ clay gouge

504.5-513 brown rubble ; clay zone
513-514 green clasted tuff w/ green clay matrix
518-519 vein Δ
525-527.2 lt gray clay gouge

* 643.6-683.4 FAULT

643.6-649.5 clay gouge ; rubble
649.5-661.5 Δ EPI
661.5-667 m-s bl w ~ wx EPI
667-681.8 SXXX ΔΔ lt green to gray
672 @ 75° to CA
677-682.3 xtaline stibnite in vugs
681.8-683.4 blonde SXXX ΔΔΔ

683.4 - TD FGT - CT vs LBT vs DT
orange, flush to butter yellow to buff
w/ hint bright green w/ depth
s bl throughout slight ↓ w/ depth

or 1400

RL-207c

400 - 651.3 CT

★ 537.3 - 560.5 Fault - broken rubble ; clay cemented rubble w local secondary hydrothermal Δ zones s ≈ w local gouge zones

651.3 - 710 Bud LLT

710 - 727.7 Tmb

727.7 - 742.2 Bud LLT

@ 80° to CA @ 25° to CA 742.2 - 749.4

★ Fault 742.2 - 753 lt gray intensely silicified fault Δ

749.4 - 753 prv. silic Δ ; vnlt w local broken rubble

777 - 818 Intense sericitized w clay intermittent tectonic Δ ; fractured

839 - 857 Intense clay + sericitic alt crackle Δ tectonic Δ

867.5 - 875.5 prv. Δ red orange flush clasts wmbl m XX

742.2 - 1003.5 CT vs LBT vs DT buff w pink green w local flush lt sage green sbl locally m intermittent s ≈ to m ≈

1001.5 - 1003.5 FAULT w basement @ 20° to CA

RL-242

FGT 504-515 tectonically brecciated
* 515-516 hydrothermal Δ w/ 2-3 stages Δ
w/ SiO2 rehealed matrix pervasive
moderately veined w/ Kaolin + dickite
local qtz, py, mc, chalco,
2-3 stages of veining

FGT * 522-539.8 FAULT @ 539.8 is @ 65° to CA
522-523.5 SX Δ riddled w/ stkwk vns
523.5-527.2 shear zone w/ broken
rubble @ 524-527.2
527.2-539.8 hydrothermal breccia
well X w/ SiO2 rehealed matrix
2-3 stages of Δ
wk veining <1/ft w/ Kaolin, barite
mc, py, qtz

TMB 564-579 strong vein Δ w/ +++ w/ mc, Kaolin,
>50 vns/ft chalco,
~ 4 stages of veining

* 610.3-615.5 FAULT @ 70° to CA
ms hydrothermal vein Δ w/ +++ w/ barite +
Kaolin + py + mc + chalco

FGT below Tmb may be LBT
otherwise DT begins @ 600.8
or else never reached DT

→ cursorily visited
pervasive dk sage green
tectonically intermittently
to TD

RL-243

544-545 25° to CA vein breccia
1/2' matrix supported - clay alt pink/flush
w/ 30% < 1/4" red brn clasts

573.5-575 fracture/shear zone
lt grn clay - rubbly ms ≈

580-581 shear/fault (minor) 20° to CA
3" red brn clay gouge
7" grn w/ white breccia
↳ 1/2" - 3/4" vein/w/ $CaCO_3$ matrix

583.5-584.5 red brn clay gouge
599-602 red brn clay gouge

70° to CA
★ 657.2-676.7 Major fault (SRF?)
657.2-659 blue grn clay gouge ± clay cemented rubble
659-663.3 gry grn SXXX matrix supp Δ Stv. fracturing
minor Kaolin vugs w/ stibnite + mc + steel gray sulfide (ruby Ag?)
663.3-665 gray black SXX Δ
665-666.3 gray grn SXX Δ
666.3-674.8 grn gray matrix supp Δ SXXX
674.8-676.7 mid gray SXXX " " "

676.7 to TD FGT
pale grn to gray grn to flush to white
could more likely be LBT than DT - much more receptive to alteration than DT is. 676.7-720 w/ vein Δ's @ predom 30° to CA

★ 720-723 pale grn clast supp Δ w/ Stv. ≈ alt. (rubble-shear zone

★ 744.5-751 m. grey + flush Δ clast supp w-m XX matrix is gray $SiO_2$ + mc + py + minor Kaolin