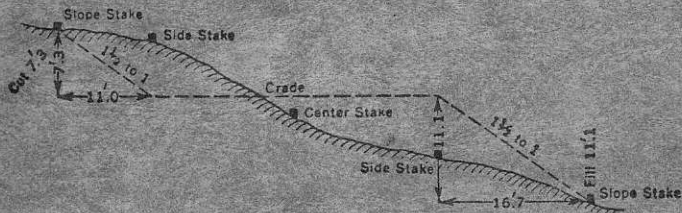


DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING Roadway of any Width. Side Slopes 1½ to 1.

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	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
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

Sept./76.

N.B.*

B.L. 28W-00 is 70' from u. (S side)
o/c in u. canyon from here on up.

N.S. at 24W-4N, took R.C. instead
only A. hor. & rocks

N.S. at 24W-1N, at the u.

N.S. at 28W-00, B.L. mud (org.) on rock

N.S. at 28W-1S, A hor. (org.) only on rock

N.S. at 28W-6S, " as above "

N.S. at 28W-9S, deep A hor. (org.)
then white clay
can't find B hor. after
24" down.

Special N.B.* changed compass course at
28W-15S to
-SE

N.S. at 28W-16S

N.S. at 8w-15, 2 ft. of dead
org. matter.

N.S. at 8w-115, thick layer of
dead trees all
around.

N.S. at 8w-125, thick layer
of dead trees

N.S. at 8w-135, as above!!!

N.S. at 8w-195, very thick org.
hor. of
dead trees

NB* at 8w-235 changed
line bearing to 170° to
avoid o/c straight up & down

also claim line? running SE-NW
at 8w-245

N.S. at 8w-255 / o/c here
& A hor only

NB* at 8w-265 changed
heading back to 208°

N.S. at 4W-12N, just rocks & org. matter

N.S. at 4W-16N, think layer of org. matter & dead trees.

N.S. at 4W-20N, 3 holes found org. matter only

N.S. at 4W-19N " " "

N.S. at 4W-21N - " " "

N.S. at 8W-20N - " " "

N.S. at 8W-12N - deep layer of dead trees & org. matter

N.S. at 8W-17N - as above

N.S. at 8E-195 - swamp area

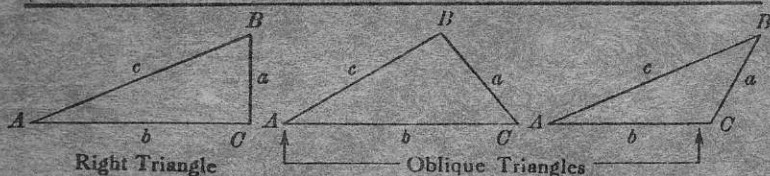
N.S. at 8E-205 - dead trees & org. matter after 2 holes

N.S. at 8E-235 - super thick layer of dead trees

N.S. at 8E-405, due to thick layer
of dense forest org.
masses

N.S. at 8E-535, due to very thick
org. hor.

TRIGONOMETRIC FORMULÆ



Right Triangle

Oblique Triangles

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

$$\tan A = \frac{a}{b} = \cot B, c = \sqrt{a^2 + b^2} = a \sqrt{1 + \frac{b^2}{a^2}}$$

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

$$B = 90^\circ - A, b = a \cot A, c = \frac{a}{\sin A}$$

A, b B, a, c

$$B = 90^\circ - A, a = b \tan A, c = \frac{b}{\cos A}$$

A, c B, a, b

$$B = 90^\circ - A, a = c \sin A, b = c \cos A$$

Solution of Oblique Triangles

Given Required
 A, B, a b, c, C

$$b = \frac{a \sin B}{\sin A}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

A, a, b B, c, C

$$\sin B = \frac{b \sin A}{a}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$$

a, b, C A, B, c

$$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$$

$$c = \frac{a \sin C}{\sin A}$$

a, b, c A, B, C

$$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$$

$$\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$$

a, b, c Area

$$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$$

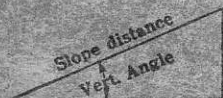
A, b, c Area

$$\text{area} = \frac{bc \sin A}{2}$$

A, B, C, a Area

$$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$$

REDUCTION TO HORIZONTAL



Horizontal distance

Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance = 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX, $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ 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. $\text{Cosine } 5^\circ 10' = .9959$, $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ 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.

PACIFIC
WATERPROOF

FIELD BOOK

No. 301

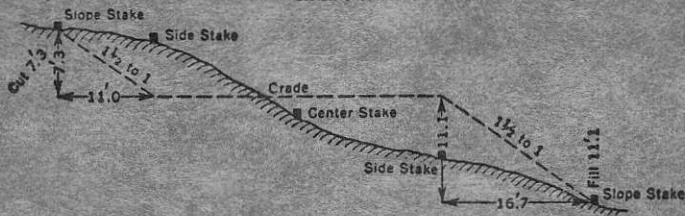
Ku Ep.

sept 14 / 76

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes $1\frac{1}{2}$ to 1.

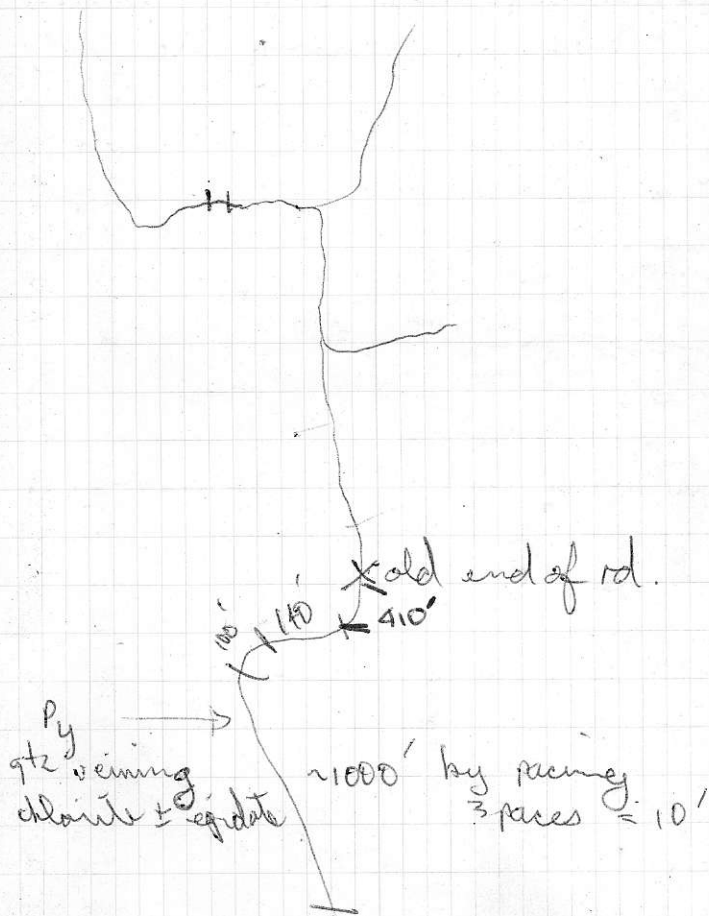
In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under 1 read 16.7, the distance out from the side stake at right.



Cut or Fill	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
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

Sept 14 Heavy rain in morning

Road sketches as per sketch



x-bedded tuff and intercalated beds
grading \uparrow into beds.

This could also be a
greywacke sequence due to presence
of x-bedding, grading etc

Sept 15 Sunny, clear
left camp @ 8:00 AM
John's Hugh to red base line
and run some lines north of
there. I will examine the
fan with in grade samples.

KU-76-01 → striking 38°
Dipping steeply N.

Discrete bedded sulphide pools
bounded on both sides by acid
suff with dissem. py. Bedrock
outcrop at junction of 2 creeks
in slide area.

KU-76-02 - @ 2980' on N side
creek in slide. (Flagged)
Appears to be stronger? Zn, Cpy, Py
May also be fragmented.

Sept 16. Excellent weather

looked @ Ku dains in AM.
afternoon

- ①. Under bridge
dacite xal tuff overlain
by conglomerate
orient'n
stri 70
dip. 30 SE
sub-angular, pebble-boulder
polystratic
-

- ② Interbedded siliceous argillites
apparently overlain by
alternating dacitic xal tuffs
and quartzites (may have been
vitic tuffs). Beds ~ 1-4 cm
Ripping ~ 40° Northerly.

③ Andesite flow overlain by
andesite/dacite xal tuff
Heavily fractured.

④ Dacite tuffs underlain by
finely banded argillite & chert.
Laminated in places.
Dip flattening, near axis of
fold?

⑤ Rhyo-dacite xal tuff. Some py.
Massive, orient'n indeterminate

⑥ Contact (conformable) with argillite
well bedded, gossaned, dipping ~
40° northerly. Strike - 80°
Some load features at contact.

Sept 17 - Fogged in, low overcast
somewhat spotty, mountain
tops not visible. Lots of low
hanging clouds.
John; Hugh soil sampling

- ① - Tm - marine tuffs mostly
xal but minor lapilli, interbedded
with fine sst, some chert bands at
top of outcrop. Well bedded (5-20cm)
chert bands in particular structurally
disrupted, no x-bdg visible
orientation: Str. - 112°
Dip. - $60^\circ N$
-

- ② Coarse dacite xal tuff, chert all
bands of finer Tm, poorly bedded.
* Sample #2

Some lapilli size. Some fragments
appear welded.

Some very argillaceous looking
bands. Very fine grained, could be
glassy.

③ Indistinctly banded fine xaline
to minor lapilli rhyolitic-dacitic
tuff, minor chert, some py
dissem near contact (contact not
visible) of Td, T_{rd}, B_{mg} same
as at ① but dip $\sim 50^\circ$

weathers white as compared to
darker/greenish @ ②.

lapilli occur near Py, mostly
but Py accumulations/blocks occur
along and through distinct horizons
generally thin bands ~ 5 cm thick.
Color banding marks b_{mg} but no
apparent change in comp.

Some very rhyolitic bands increase
down dip. One thin band of
chert, argillite and overlying
acid fragmental contains frags
of same. Under chert, very acid
xal tuff becomes very well
bedded (~ 5 cm thick) to end
of outcrop. where it is fairly
massive (some thin inter beds)
lapilli (some) rhyolite

④. Polymictic conglomerate, various
suffaceous frags (pebble size)
sst minor argillite.

from coarse sand to large pebble
bedding uncertain,
well rounded to sub-angular.

@ 1430' in 4th gully to West,
some frags highly epidotized -
minor Py.

due North of where road xes river

⑤ series of structurally buffered
near vertical ~~to~~ / foliation $\frac{2}{3}$
tuffs. Dacitic / andesitic \rightarrow rhyolitic
mostly crystal but some
lapilli. Some isolated gossans
but seem to occur on FRCK
surfaces. High fracture density
 ~ 1 / inch
Some spotty zoned of high
epidote content

Zone between this outcrop and

others to the east filled with
tuff boulders and east becoming
almost entirely Qtz diorite
up to the outcrop.

hematite (bright red) staining
in isolated patches over entire
outcrop. Epidote alteration sometimes
covers 15-20% of rock surface.

Rock generally very fine
grained (re-crystallized?) but in
places xls & lapilli evident.

*Starting at West of outcrop

re-crystallized Qtzite, chlorite, epidote
alterations (amorphous or v. fine grained)
some Qtz eyes. ~~epidote veins~~

Overlying the Qtzite (acid tuff?)
is a more coarsely crystalline Td with
epidote "veins". N-S dipping steeply E
~~Qtzite overlying this again.~~

Td weathers brown, Qtzite white

Uphill from gossan (small) is a zone of angular lapilli tuff (acid) overlain by thinly banded fine grained tuffs or sediments, lots of epidote

Further occurrence to east of Td and then lapilli tuff.

Looking again, the Td seems more likely to be a dyke of andesite/dacite.

The succession at this time seems to be

congl. / aggl. } polymictic angular to rounded pebbles max.
bedded tuff / sst. ← probably marine
acid tuff

bed strikes are not consistent in detail, overall: easterly strike and N. dip @ $\sim 35^\circ$

There is lots of Fe staining (Py)
and a purple stain not
identifiable but occurring
in proximity to Fe stain.

Visibility down to ~200' in
cloud, no rain yet.

Fairly well bedded acid fragmental
Bdng marked by color (thin) bands of
Fe staining & epidote.

firmly xalline
Bdng str - 300
Dip - 70N

Some stretched out "bombs"? in stuff
matrix

Bands of Td & TA intermixed.

@ S.E. corner appears to have
been tectonically brecciated
or "mylonitized" some
extension surely.

Sept 18 Sunny & clear, Hugh & John
extending lines on both sides
of the base line

outcrop @ upper end of upper
road. ~70' long by 20' high

Dacitic/andesitic finely to
coarsely xal tuffs. Some times
bedding can be seen (E-W dip N)
but poorly bedded.

@ South end of outcrop is
a steeply East dipping (~80°)
N-S shear zone. Lots of white
secondary crust, chlorite and
epidote. (alteration & veins)

The Td contains darkly
dissem. Py, has been locally
epidotized, chloritized, Pd going
to clays (Kaol?)

Substantial amounts of Fe staining
present.

Outcrop on road leading to prospectors
trail into snow chute.

from corner to end of road.

①. series of Td almost vitric to
agglomerate.

xal.

agglom

xal-lapilli

fine xal/vitric

xal Td

Well bedded, from
fine to massive.

Epidote veins (N.S.
steeply E)

Many of the lapilli have been
strongly epidotized, lots of chlorite
present. Some of the rhyolite
lapilli and bombs have been pyritized
and epidotized.

Small scale faulting < 1m offset.
low FROR density.

Some definite x-bedding on a small scale in isolated zones (\Rightarrow grains?)
~~Also~~ Also, appears to be $\sim 10^\circ$ irregularity between Td and agglomerate.

Td* - highly veined, massive, some bedding and xal size variation. X-cutting dyke ~ 1 m wide, vertical, N-S.

Mostly coarse xal Td, some lapilli and acid "bomb" size pieces.
local epidotization.

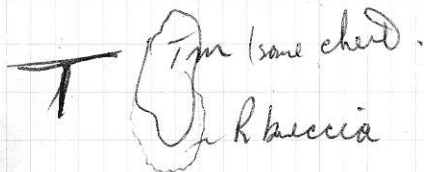
Round The Corner
Td some py

18/9 on first map from 17/9

Flood along road with Py (blocky) in
sericitized rhyolite or Rhyolitic Tuff.

Dacitic to Rhyolitic Tuffs, some
Py, (dissem in dacite) probably Tm

Next two outcrops are T_{d,r} into
a Rhyolite breccia ~~underlying~~
overlying and itself
overlain by Tm



Sept 19 - Sunny, clear weather.

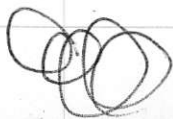
Starting @ 2300' ... east end of
Traverse.

- Dacitic & minor Rhyolitic
tuffs, poorly bedded, dissem
py, ... mostly gossaned and
accumulated along FRCR zones
& planes. Orientation: Str - 40°
Dip - 70° NE.

Just below strat -- could be
dacite flow or fine grained tuff
with "oolitic" rhyolitic frags.
~ 5 cm diameter.

Fair amount of epidote
replacement.

Tr - more acid fragmental
Weathered Fe stain along FRCR
surfaces



Distinctly bedded, rusty horizon
 $\frac{1}{2}$ way up outcrop. with ~ 1 m offset.
Highly fractured. Rusty horizon
oval in shape ~ 2 m thick at
center

appears to have same composition
throughout outcrop (Ta?) but one
zone rusted.

Str - 100°

Dip - 35° N

Definitely Fragmental, some minor
epidote veining

On N side of creek could be
Fa or Ta, on S. side, it's an
acid fragmental, some oriented in
Rust on FRCK surfaces, some thin
very ashy bands. Dissem Py in
acid horizons

Succession of almost massive
Andesite which is at least in part
fragmental, some acidic bands, some
chert.

Highly FRCR'd and Fe staining along
FRCR planes

@ 2560 outcrop of Andesitic T₁F₁?
contains "bombs" of rhyolite that
has been pyritized, epidotized.
Massive rx. Epidote veins $\leq 1\text{cm}$
Str. 60
Dip - steep SE.

@ 2600 sheared highly altered
rx. Acidic ^{and/or} _{tuff} qtzite \Rightarrow probably

were ashes or tuffs and have been
chloritized, silicified, very altered.
some "bombs" of pyritized rx
apparent. Lots of epidote veining
Bdng indiscernable

lots of the rock look brecciated
but this is probably hoaxed to \Rightarrow
Some qtz veining and almost
lapilli size frags appearing.

② 2650' - Thin (2cm) highly sericitized and epidotized Py carrying conf. band.

② 2660 - agglom^{band} i.e. rhyolite balls been pyritized & epidotized.

② 2680 - outcrop + strike showing several bands of pyroclastics ranging from Ta to Tr ± chert. Frags. up to lapilli size. Bands ≤ 2m thick, some epidotized.

② 2710 - Very rusty, conformable horizon.

② 2760 - Tr + Py + chert alteration -

② 2820 - Frags occasionally reaching lapilli and even "bomb" size. Banding alternates between a series of thin and a series of thick. Conspicuous pyritized pyroclite bombs and lapilli frags. Ta still. Py + chlor. alteration

@ 2880 - fine fragmental py, some
py remaining chlorite alteration
spots. FRK density increases
2 major orient'ns.

① str 43
Dip. 40 SE

② str 40
Dip. 45 NW

@ 2930' - continuous outcrop
for some time up creek bed.

@ 2930 - py (dissen) rich silicious
Td (?).

Bdng $\frac{1}{4}$ indeterminate

appears to be alternating acid -
base series, all py rich.

@ 3030' - highly altered, highly
fractured, dissim. py rich ash?
soft gossaned.

~~bedding indeterminate~~

DD - 150

D - 40

} on gradation in
frag size

@ 3080'

getting to be coarse xal Td.

@ 3120 - coarse xal Td,
stream forks, South fork
mapped.

@ 3220 - too "precipitous" to
continue.

Note* may be a syncline trending
~N.S.

Rx at end of line highly fractured
highly altered, fairly siliceous
lots of fluid movement through them
lots of Py. Some small zones
mylonitized

@ 3180 in North Fork.

Td with epidotized, pyritized
bombs. bedding not seen
epidote veins @ 350 steep East.

DP - 150
D - 40 @ 2850' ? FRCR?

@ 2800 DP \Rightarrow ~3100

@ 2600 DP - 004
D - 34

@ 2500 - highly sensitized
acid layer, Spassan, Ky.
(sample)

@ 2500 DP 000
D 020

Sept. 20 Sunny & clear

Hugh & John finishing
some soil lines. I will be
working on the creek west
of the upper road.

@ Hi 105, 106 acid fragmental
py: some remaining chlorite alteration
spots. appear to be some lapilli
eye frags.

@ 2750 bearing 350 from H105
Andesite xal tuff, some py.
Creek beds are sheer outcrop, no
way of getting to bottom
from here -
highly fractured.

@ 100' North, coarse xal acid tuffite
tuff, etc eyes, apparently
up succession.

200' @ 25° Highly altered atz dacite >
sample # 802

@ 2860 - altered Dacite ~~py~~ Tuff
some py. (xal. Tuff)
appears glassy
minor epidote alteration

@ 3040 - Td variable xal size, some
more acidic bands, some Fe
stain, some Py dissem.
Bdmg >?

@ 3000' - passed through a
succession of ~Td (some
variation) Fair amount of
Fe gossaned that dissem Py
in all rx checked.
Rx on other side of creek
dipping ~30° N.

Sept 21 Sunny, clear

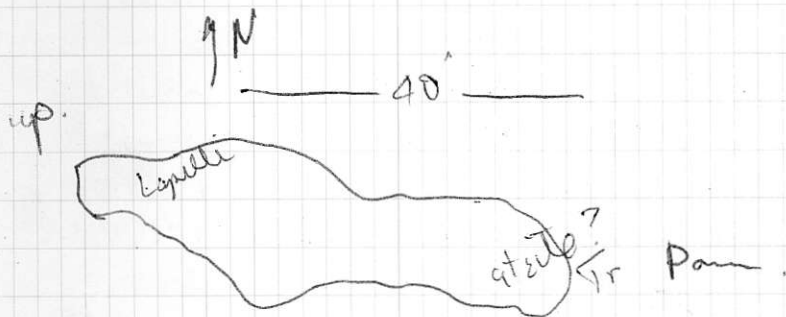
@ 2200' in Pan - quartz?
rounded, fine grained silica
fragments, mostly SiO_2 cement,
dissol. Py. (some lo?)

Fractured, Bclug?

Sample:

handed, rimmed frag. over outcrop.
some completely by others partial
so tuff? red

other definite lapilli



@2350' - Dacite xal tuff
Epidote & CaCO₃ veins, FKCR
Filling.
Dark grey to blk.
Highly Fractured, Bedding?
Some dissem Py & chlor also.

@2400' - highly fractured
massive Td xal, dissem Py
klobs.
FKCR. - 210 DD
65 D

@2500' - S side up valley wall by
~20' elev.
Dacite xal to glassy tuff / flow?
dissem Py & Py along FKCR.
Bedding? Minor qtz? veins.
at Junction in Fan,
Sample

S. Side chute

~2550' and up is almost continuous outcrop.

The first 250' up the chute is dacite to andesite fine xal to vitric tuffs. Possibly some minor flow.

Dusser. Pg. Massive, fairly well fractured, some minor shear zones apparently str. N-S. $\frac{1}{2}$ steeply E dipping.

@ 2800' - up to this point the rock type has not changed (minor color & grain size variation)
dessem Pg, Pg along FRCB
Bdng - not distinguished

@ 2800 - slightly more siliceous
coarser xals also, mineralized
(Pg) epidotized, chloritized \pm silicified
fractures @ 60 } vertical.
340 }

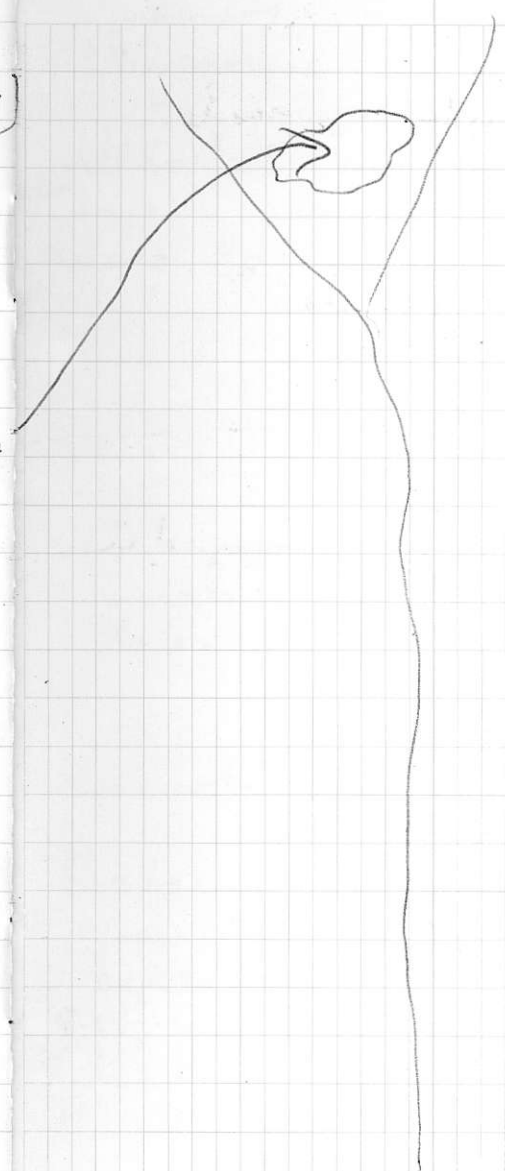
@2950 - mid chute - andesite
x al tuff (or possibly Plow?)
minor py.
sample.

@3160 - dacite agglomerated tuff.
10' x 20'

@3260 - Midway between L & R Forks
dacite lapilli tuff
some dissem py, some py on FRCL
planes. Massive
Bedding?

v

p



Sept 22 - Clouded in, raining

checked road cuts on east side of Eagle Creek. Definitely upper Pine Lake Series

10 Greenstones, congl, shales etc. + fossils.

Dipping $\sim 50^\circ N$.

Sept 23 - Raining, Fogged in John & Hugh staking claims. (16) I am looking at the N side of chute.

@ 2580 - $\sim 30'$ above chute floor on N side.

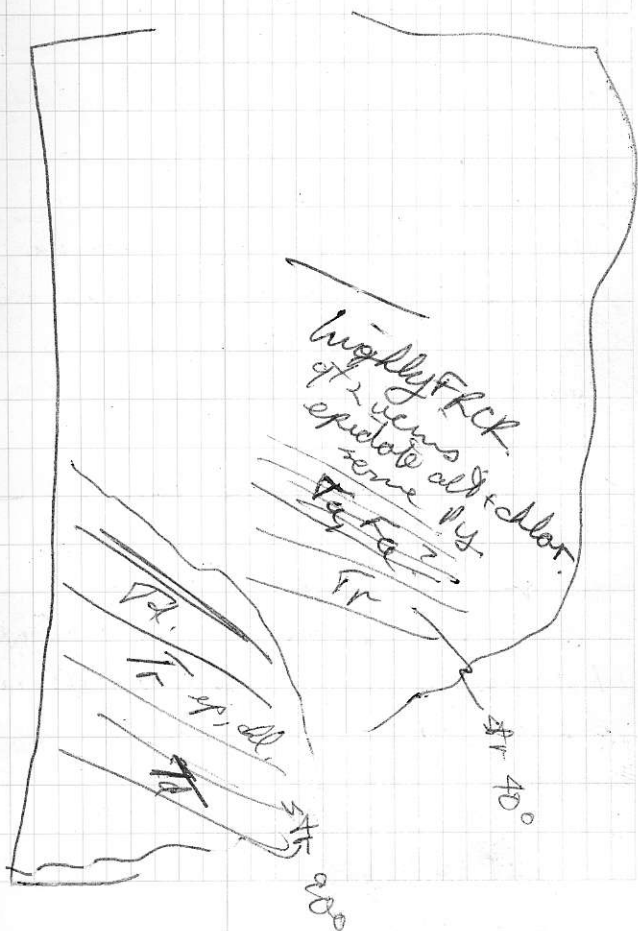
xal Td, coarse xals, uncoar'd of tel, etc in dark grey tuffaceous altered matrix. Unmineralized massive, joints @ $90, 90$ DD, D

@ $0, 90$ DD, D
@ $150, 40$ DD, D

1-2 / foot density

90, 90 ~~may~~ is BDCG.

Mining up chute 20'
strata are very siliceous, some
lapilli, py, epidote & chlor. alt.



Tr - bleached, fine grained ~15-20%
xals in Tuff.

More highly & irregularly
fractured.

qtz veining + Epidote
Strike 40° north?

Becomes more ~~Ta~~ dissen Py
+ Py on FRCK, Qtz? veins.

The sequence varies from Ta to Tr
highly FRCK, brecciated?

probably a shear zone.

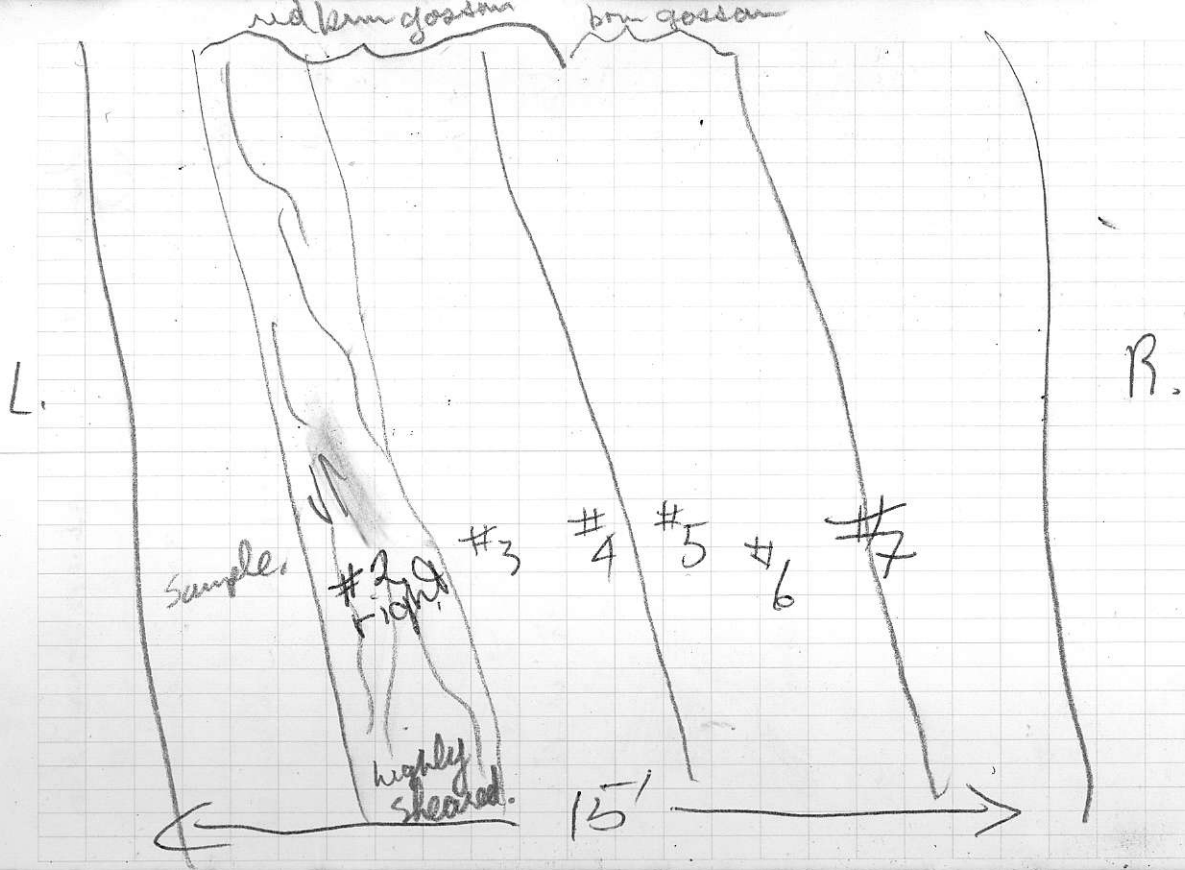
qtz & ep. appear as stockwork
veins or breccia filling.

shear zone @ 2600'

Good flood immediately below
The shear, sampled across
The shear' . . . perhaps across
strad.

Sta - ~~360~~ 340-360

Dip - 80 E



The whole zone is highly fissile
(foliated) but not to the eye.
so much

Foliation dips very steeply into
chute & strikes $\sim 10-15^\circ$ oblique
to D.

Difficult to get fresh samples
R_x unstable.

No good visible mineralization
found in place but the
zone is heavily weathered.

Fine gr.
Highly yellowed

Tr. of
ep. chl, someky.

Some qtz veins
could be seen

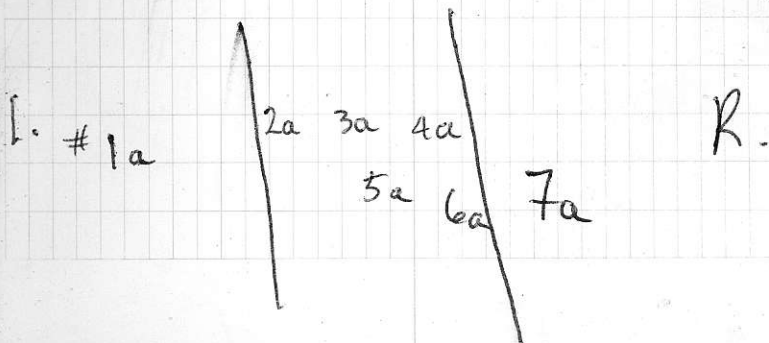
Thin T₁

along strike of shear / bedding
~ 50' excellent mineralization
found in place.

The zone is highly chloritized
and on either side is substantial
chlorite alt + epidote veining
and alt.

The sulphides themselves
alter to chlorite and goossened
soil - appears somewhat
fragmental. PO - Cpy - Sph \neq Py.
Heavily mineralized shear \approx
~ 6-10' width but this could
easily change along strike.

Appears that \approx has // bedding
but evidence not conclusive,
ie extrapolated from ~ 150' away.



Particularly rx on Rt side (FW?)
are extremely veined (qtz)
almost brecciated and char
altered.

On strike projection shows
a somewhat inaccessible cliff
with a left --- probably shear

The succession continues
to alternate between T_a, T_d
& some more acid strata,
with minor occurrences
of mineralization in the rx
on FKCK.

Probably has been
mobilized geochemically
along FKCK system.

Highly serpentinized chloritized
Py loaded rx appear
also Po? in most
chloritized rx

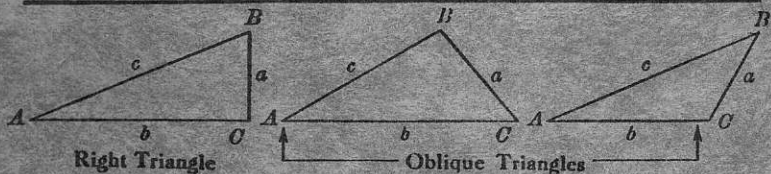
The or control as $\times Td, Ta$
some chert and recurring
fragmental? mineralization
@ 2900' (Ku-76-02)

Rain sed in in earned.
Heading down.

Carl

988-4470

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

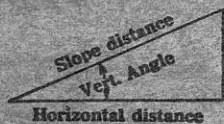
For Angle A . $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

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

Solution of Oblique Triangles

A, B, a	b, c, C	$b = \frac{a \sin B}{\sin A}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$
A, a, b	B, c, C	$\sin B = \frac{b \sin A}{a}, C = 180^\circ - (A + B), c = \frac{a \sin C}{\sin A}$
a, b, C	A, B, c	$A + B = 180^\circ - C, \tan \frac{1}{2}(A - B) = \frac{(a - b) \tan \frac{1}{2}(A + B)}{a + b}$ $c = \frac{a \sin C}{\sin A}$
a, b, c	A, B, C	$s = \frac{a + b + c}{2}, \sin \frac{1}{2}A = \sqrt{\frac{(s - b)(s - c)}{bc}}$ $\sin \frac{1}{2}B = \sqrt{\frac{(s - a)(s - c)}{ac}}, C = 180^\circ - (A + B)$
a, b, c	Area	$s = \frac{a + b + c}{2}, \text{area} = \sqrt{s(s - a)(s - b)(s - c)}$
A, b, c	Area	$\text{area} = \frac{bc \sin A}{2}$
A, B, C, a	Area	$\text{area} = \frac{a^2 \sin B \sin C}{2 \sin A}$

REDUCTION TO HORIZONTAL



Horizontal distance = Slope distance multiplied by the cosine of the vertical angle. Thus: slope distance - 319.4 ft. Vert. angle = $5^\circ 10'$. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance = $319.4 \times .9959 = 318.09$ 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. $\cos 5^\circ 10' = .9959$. $1 - .9959 = .0041$. $319.4 \times .0041 = 1.31$. $319.4 - 1.31 = 318.09$ 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.

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