

PACIFIC
WATERPROOF

FIELD BOOK

BOOK # 1
No. 30

PY6H

1 → 993

JUNE 21 →

JULY 14

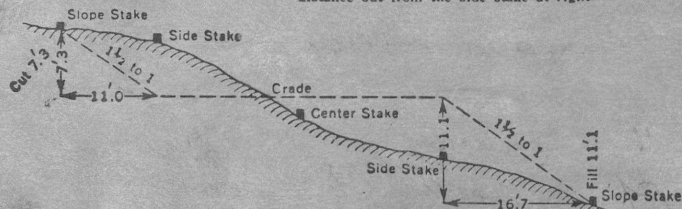
PELLY PROJECT

018625

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

ABBREVIATIONS

~ approximately
 ∴ therefore
 ∵ because
 cf - compare to; like
 & with
 → unto, towards
 1^o primary
 2^o secondary
 3^o tertiary
 crk - creek

PY6H-1 → 30

JUNE 20/76

SILT SAMPLES:

- MAJOR TRIBUTARIES
- MAIN CRK. SAMPLED ~ 1/2 MI. INTERVALS
- OUTCROPS - ABV. LK - WHITE weathering surface - don't "zap" for hydrogenate

PY6H-20 sp - orange - Coloured water + silt - rust?

105-F-9

JUNE 21/76

PY6H-31 → 58

38-S - rusty crik

- gossan in main str. & trib
- quartz & rusty calc too

54-S } flagged

55-S }

59

same

- others flagged but not recorded.

105 F-9

PY6H-59 → 85

JUNE 22/76

- all site flagged

Δ-62 - rusty rock & quartz + fine pyrite crystals - couldn't break

- lots + lots of bean droppings
- turnip filled ripack
- 68-S - pH 6.5 - rusty

105 F-9+10

PY6H-86 → 106

JUNE 23/76

- 86-S - small sample

SAMPLES FLAGGED:

86, 88-90, 91, 94, 97, 102, 105, 106

- Δ90R - FeS (2)
- 97-S - pH 8.5
- Δ98-R - rusty shale
- 99-S - pH 6.5
- 104-S - not in sequence - after 106 sp

105 - F 10 PY6H 107 - 160 JUNE 24/76

- SOIL SAMPLE LINES AROUND GOSSAN

200' spacing

109-S - ~ 20' from 108L

118-L - E of outcrop below "2nd peak"
(see map)

- marked \bar{c} ↓ - should be easy to locate

- All sample nos that are small (5) have
PY5H - most others have no. only

16L - taken in v. red soil to see if
result is higher

JUNE 24

#1 PY6D 53 → 59

- #53 @ S end of gossan - S of
lily protruding orange lichen - covered
rock

- spacing ~ 50' - ending at
grassy knoll where I got pushed up

- not flagged

#2 PY6H - 162 → 180 no 166

- start SE side of gossan → S

- ~ 400' spacing

- end on NE side

- #180 taken on NNE side of
saddle just above snow

105 - F 10 PY6H - 181 → 208 JUNE 27/76

SILT SAMPLING

FLAGGED SAMPLES: 181 - 188 - 4 others

181 -

- 181-S in m. ck

- 182-3 - sp on N side

- 184 - in m. ck ~ 1/2 mi from 181

- 185-S - N side

- 186-S - in other part 187 @ S side

- 188-S - in m. ck just below

"canyon" - gossan R side

- G gapped blue

105 G-5 PY6H-209 → 242 JUNE 28/76

SILT SAMPLING

- all sp. flagged
- also 209-212, 222, 231
- no sample # 224 - bog ripped
- "Bell" gap above SE side of creek

105-G-5 PY6H-243 → 271 JUNE 29/76

- silt sampling
- sps flagged.
- v. little distinct drainage into main valley.

105-G-5 PY6H-272 → 306 JUNE 30/76

- SILT SAMPLING
- 279-5 - indistinct channel - silt has reddish color pH 7.5
- outcrop nr 289 - blk shale (?)

10
320

JUNE 27/76



292 ~~S~~ - steam comes through black
paly silt clay
- some go man
- pH 7.5

105-G-5 PY6H-307 → 331 JULY 1/76

- silt sampling

105-F-10 JULY 1/76
PY6H 332 → 374

- silt + sp.

333 - Sp } pH. 7.5
335 - S } - good stream
336 - L - fluffed
331 - Sp - " - indistinct
340 - S - fairly lye str. - def. animal
pH - 6.5
345 - Sp - off "road" - not fluffed

351 - Sp - pH 6.5

352 - S - beside old camp

- pH - 7.5

- after 352s - follow
trail from camp site along
lake

356 - Sp - pon

~~357~~ - S - v. minor str.

- after lake follow trail
on n. side of stream (at
track)

361 - L - red dirt (small patch)

362 - L - in cat tracks. No other soil
avail.

373 - Sp - pon sample of mud

most samples fluffed

105-6-5 375 → 415 July 4

- silts, sps, soils - ~100' spacing

- 375 S - poor sample - new stream channel

- 377 S - pH 7.5

- 381 Sp - pool of mud

- 393 Sp - good - 7.5

- 395 Sp - organic

- 397 S - 18' str. pH 7.5

- 401 Sp - pH 7.5

- 408 Sp - good

- 413 S - from soil dry channel

415 S - pH 7.5

- no flagging

105 G-34, 56

PKA 416 → 460

JULY 5

- 417 Sp - organic (poor sample)
418 Sp - good - in twin bank
419 S - pH 7.5
421 S - lee stream pH 7.5
427 S - in main str.
428 Sp - begin flagging
433 S - in M str 7.5
444 S - 7.5
448 S - major str. pH 7.5
456 S - pH 7.5
457 S - major tub.
5

105-6-3

PV6H-461-494

JULY 6/76

468-S- maj. tub pH 7.5

477-S- maj tub 7.5

493-Sp- rusty - 7.5

105-6-3

PV6H-495-7531

JULY 7/76

495-412 flagged

501-Sp - good - pH. 7.5

502-S. main stream 7.5

505-S - main str W fork. 7.5

508-S - sml str 7.5

513-Sp - last sample flagged: last
flagging

521-Sp - pH 7.5

522-Sp - beside main crk.

523-S - maj tub from \cap -shaped
arc pH 7.5

529-S - pH 7.5

531-S - maj tub pH 7.5

532-S - pH 7.5

105-F-10 PY6H 532 → 638 JULY 9/76

silts - sps ~ 200' spacing

537 - Sp ~ 100' from 536 road cut

539 - S - ~ 100' from 538
- dry channel, small

541 - Sp str \bar{c} running H₂O
pH 7.5

- 100' from 540

549 - Sp

555 - S - \bar{c} pyrobitite in place. B.5

559 - Sp

578 - L - m. road

~~pyrobitite~~ pyrobitite

591 - S - ~ 100' from 590

- in dry channel

594 - S - may tub runs into
cut @ lake
pH 7.5

598 - S - may tub

610 - Sp - opp 578

621 - Sp - v. organic

105-F-9

PI6H/639 → 184-65 JULY 10/76

soil sampling 500 spacing

650-L - organic

652-L - "

653 Sp - good site ~ 100' from 652

658-L - in "fan"

659-S - dry channel ~ 30' from 658

673-R - fl. in talus

674-S - rusty str. pH 6.0

680-S - pH 7.5

105-F-10 - P16H 685 → 796 JULY 12/76

- silts - sps ~ 200' spacing

703-S - pH. 7.5.

722 - in main silts. ~ 150' from 721 L

~ 50' from 723

733-S ~ 50' from 732

736-S - in N fork pH 7.5

742-L - ~ 400' from 741 no

good site

780 - Sp - ~ 75' from 787-L

711-R - Blk shale - zoned & hydrolyzed

105-F-9 P16H 797 → 867 JULY 13

Soils 500' spacing

812-S - small - ~ 250' from 811-813

813-L → 820-L - 200' spacing around

gorjan
825-S - pH. 6.5

826-L → 836 L ~ 200-250' spacing

833-R - in place - from old crop

838-S - ~~at~~ ~ 25' from 837 L

105-F-10- PY64 868 → 993 JULY 14/76

868-S- pH 7.5

871-Sp- ~ 125' from 870

878-Sp- ~ 20' from 877

881--L- organic

887-S- pH 7.5

933-Sp- good site of 5'

935-Sp- ~ 20' from 934

957-S- ~ 50' from 956

976-S- in S. fork at top of str. 9.5

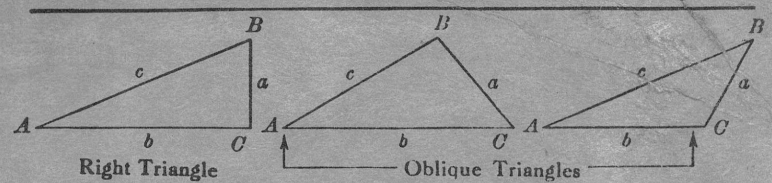
982-S- ~ 25' from 981 L

984-S- ~ " " 983 L

988-Sp- 2 other flags on same
site

~~pyrrhotite~~ - Fe S
 - of the pyrite but not
 magnetic.

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

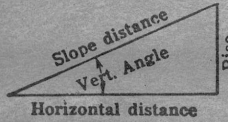
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	Formulas
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	Required 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° 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.

PACIFIC
WATERPROOF

FIELD BOOK
BOOK ~~2~~
No. 301

PY6H

991 → 1391

JULY 15 →

AUG 19

PELLE

PROJECT

85-G

RY6H 994-1012

JULY 15

① 200' spans 994-1012

994 L - in gran before first cut
998

Ridge

100' cut
outcrop

998

1003

gran
trees

Stream

G H2 1013 → 1022

Canyon - W. side

~ 100' spans

1022 - S in main dr. at bottom of
CanyonGossan # H3 - Canyon - both sides
1023-1035

1024 - S - at top of canyon

even nos on L side of stream looking
down

H4 1036 → 1059

1038 L - ~ 250' from 1037 L
"see entry"1040 L (OS) - dry v. intermittent
str. bed
~ 250' from 1039
- below rusty gorge

1043 Sp - ~ 150' from 1042 Sp

1054 Sp - close to 1053

1055 Sp - ~ 250' 1054

1057 L - in main valley

1059 - S - first stream valley
into main valley

Gossan # 45 1060 → 1083

1061-5 - from 1st gorge after saddle
drip-off - pH. 4.0

1062 - L - ~ 50' from 1061

1063 - Sp - ~ 400' → 1062 + lower
pH. 5.5

1064 - L - rusty patch ~ 250' → 1063

1065 - L - in 2nd gorge.

1071 - Sp - coming off saddle

pH 6.0

100' → 1070

1079 - L - ~ 250' → 1078 "rusty
soil - in knob in centre of
cave

1080 - S - 250' ~ 1079 pH 6.0

105-F

JULY 16/76

GRID on "BNOB" CLAIMS

BL100 - L 116 - 277' from creek

105-F-

JULY 18/76

"BNOB" GRID

PY6H-171 - on same spot as

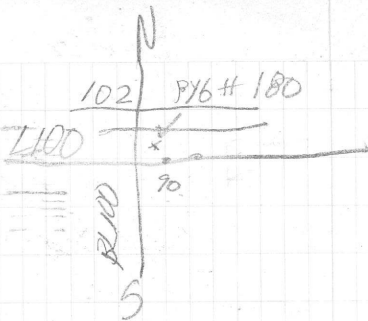
PB6H-L100 - #160

JULY 19

PY6H 176 :



PY6F 636 - at L112-144



105

July 20

Stud'n "CPA" class

- line 36 110 - BL 100

BL 100 L 36 ~ 100' BL 40

110

- line 36 ~ 400' from L 40 - 110 - no
slope correction

105 F

July 21

CPA GRID

- line 36 A 110 - slope corrected
~ 440' from L 40 110

- line 36 A hits BL @ L 38

- 36 A - 102 is 110' from BL 100 L 38

- L 28 - 102 - 134' from BL 100

L 28 is BL 100 20' BL 100 - L 28

BL numbered incorrectly: L 24
is 400' from L 28 + 200' from
L 24 B.

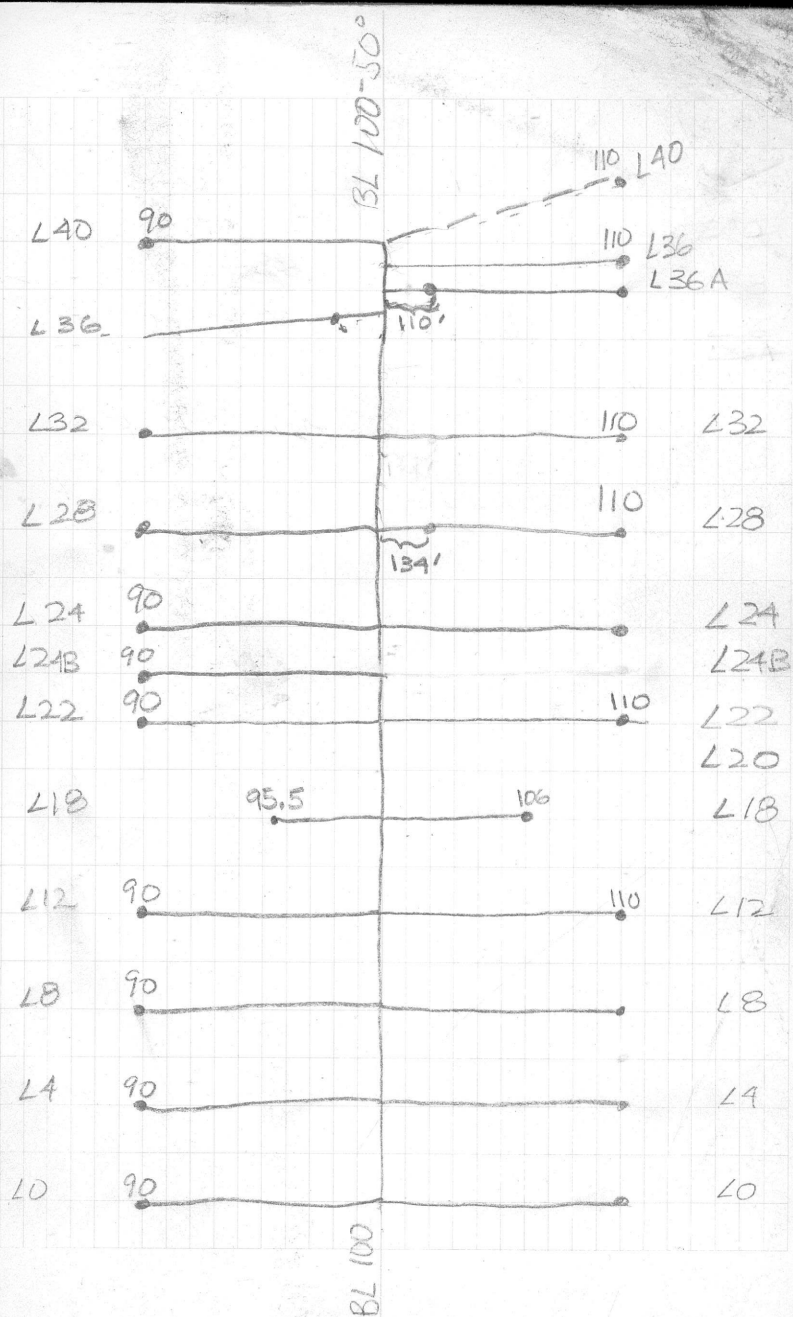
L 24 is 400' from L 28.

L 18 - sampled to 106

105-A-10 CPA 6R11) JULY 25

start @ L0 BL100-110
L4 - BL100 110
L8 - BL100 -110
L12 - BL100 -110 -

- no L14 ∴ L18 is 400' from L12



100
710 "BNOBGRIDS" JULY 26

extension of E LINES

- L100 → 490 at bk in slope
of creek bed ~ 200' from
H2O.

- L104 → 499 ~ 100' from H2O
W. island in ckt

- L108 - 460 ~ 30' from H2O

- L112 - 460 - 400
460 above drainage
on N of BNOB claims

AIR PHOTOS: A12249 - 78, 79

A12340 - 91

July 27

104 F B PY6H-1084-1139 JULY 27

105 F-7,8,9,10

soil samples - 500' spacing

1099sp - ~ 300' from 1098

1103 S - ~ 125' from 1102

1121 - Sp ~ 200' from 1120 - L

1123 - Sp

105 R 10

July 29

Cherogrouph grid: chms

- BL20N goes to 80W
- 70W-80W - pickets marked
in pencil
- 2 sitting pickets above 70W
- line ends after BL20N 70W
- sampled L48W 22 - 26

105 G-S PY6H-1140 → 1179 JULY 30

soil samples - 200' spacing
air photo: A 12326 - 336

1160 Sp - ~ 100' from 1159

Misty

ANISE GRID

AUG. 3

L 16 - 0-30

L 24 - 0-30

L 32 - 0-30

L 40 - 0-30

L 48 - 0-30

L 56 - 0-14 - ended at road

105-G-5 PY6H 1180 → 1229 AUG 3

photo: A 1217B-367

soil sampling on rusty drainages
~ 200' spacing on both sides

1198-R - upstr. from 1198L - Rusty

(G) m 1215 is in wet stream - not
sampled. In glochion should be reflected
in samples 1215-1222

105-F-10 PY6H-1230 → 1293 AUG 5

photo A12693-367, 368, 12371-376, 377

- silts sp. 2's 200 spacing

- PY6H 1230-1262 ~ 500' spacing

sp. 1263 --- main valley
spacing ~ 250' plus sp. 5' /
closer

105-F-10 PY6H-1294 → 1329 AUG 6

photo 12249-79

soil samplings 500' spacing

~~no sample #1318~~

~~1384-5 no dam line upstr~~

~~1355 sp. → 1389 - same the farther
apart than 500' ... no d. of good sites~~

5N

72

35 N

68

35

64

35

60

47.50N

56

52

3008

48

44

40

36

32

28

50N

24

5N

20

16

12

105-F-10 - PY61 - 1330 → 1391 AUG 7

- photo A/12371 ' 374, 376

- Soil sampling ~ 500' spacing

- no sample 1348

- 1384-6 - no clam line - note

- 1355-1387, some are further apart
than 500' !! of per sample sites

105-F-10

AUG 9

Chryseobacterium grid

- L 52W - BL20 - 30N - 200' spacing

- sample @ 30.8 - top of cliff

- 32.3 at bottom of cliff

- chained back from clam

line - taken to be 35 N

- done! L 48W - 5N - 50N

L 52W - 20BL - 50N

105-F-10-

AUG 10

Chryseograph grid

L 52 5-20

L 56 5-50

L 56 crosses claim line @ 34N

105-F-10

AUG 12

Chryseograph grid

L 60 - 5N - 50N

- CW in claim line at 34.6

- @ 200' from L 56 at 36N

105 F-10

AUG 17

annex grid

- L 80 hits ckr @ 30
100' after 2 is BLO - 77+35 - 1W
- line continues, reverse 100 ft
but not chamed
- L 88 is at 87+33
- BLO = tie line is 172 ft
from 88 - 0-00 \therefore 3072' from
BL 30
- ckr @ 25
- L 96 - ckr at 22
- is at 95+35
- L 108 - BLO is close to 107 (~30')
- ckr @ 18
- L 112 - ckr @ 17
BLO is 3088' from BL 30
- 88' from 0-00

L 120 - ckr @ 15

L 128 - ckr @ 16
- 16 is in silt \therefore sample
taken @ 15 also

L 136 - ckr @ 12
- BLO is @ L 135
- runs under canyon ckr.

L 144 - ckr @ 16
- PY6H 795 - 25' S of line @ 15.30

L 152 - ckr @ 13
- PY6H 791 ~ 25' N of line @ 12.30

105-F-10

AUG 18.

Cherpenough Grid

- "What no is this?" is $\sim 36N$ on $L72W$
- L 68 - stops @ snow patch
@ $30 + \sim 100$
 - started churning back from 35
- L 64 - same as L 68 - chain back
from chain line (35)
- L 68W - 32N - is @ base of
snow = $32 + 20$
- L 64W - 35N - in line \bar{c} L 68W 35N

Chzerpnoogh

Chzerpuff

Cherepneich

Cher

Chzeren

Chzerpough

Chzerpnoogh

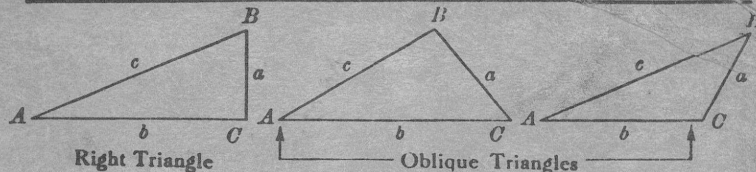
CHZERPNOUGH

Gl.	Rad.	Brach.	Holly.	rtib.	Petar
-	17	-	-	2	7
-	17	2	-	3	30
2	17	5	2	4	48
2	17	7	8	17	53 -
2	17	7	33	18	53 -
2	22	9	33	18	72 -
2	22	9	33	21	95
2	27	12	36	21	110

Ten

Jchzerpnoogh

TRIGONOMETRIC FORMULÆ



Solution of Right Triangles

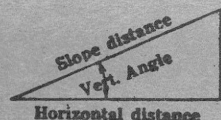
For Angle A. $\sin = \frac{a}{c}$, $\cos = \frac{b}{c}$, $\tan = \frac{a}{b}$, $\cot = \frac{b}{a}$, $\sec = \frac{c}{b}$, $\operatorname{cosec} = \frac{c}{a}$

Given	Required	Formula
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	Formula
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° 10'. From Table, Page IX. $\cos 5^\circ 10' = .9959$. Horizontal distance - 319.4 x .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.