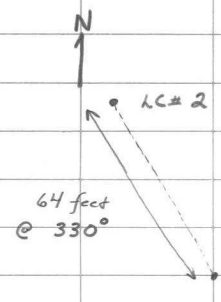
019595 August 30/1989

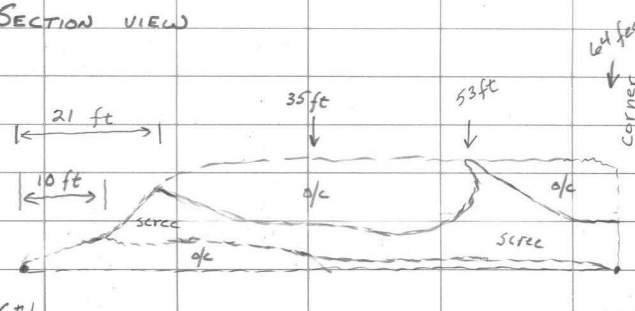
Mapping walls of Grum Pit Starting w/ smaller NW pit immediately NW of central haul road

L.C. #1 traversing to L.C. # 2
Stake at corner of outcrop to SW

PLAN VIEW



SECTION VIEW



STATION A – At L.C. #1

5820

Dominantly PS2-foliated, steely grey to silvery grey, calcareous phyllite. S2 surfaces are smooth, silvery grey with rusty orange spots from weathering pyrite.

Contains discontinuous medium to pale grey siltstone bands. Siltstones provide good spot to look for S1 microlithons within S2 fabric.

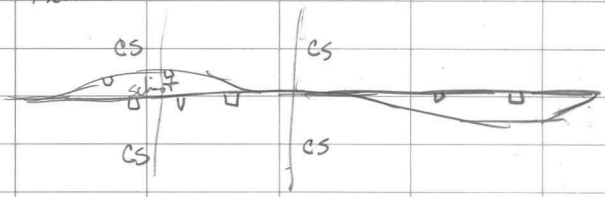
PS2 160/21 W

L2 = S1 microlithon fold axis 320/10

Numerous late xcutting fractures typically are infilled w/ calcite-qtz. Fractures up to 1 cm wide. Infilling often en echelon in plan view.

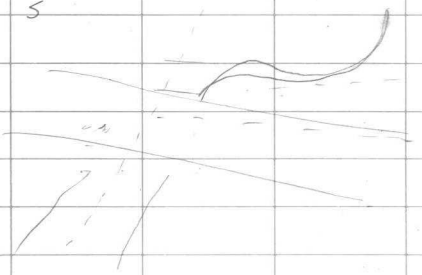
Fractures 055/79S

PLAN

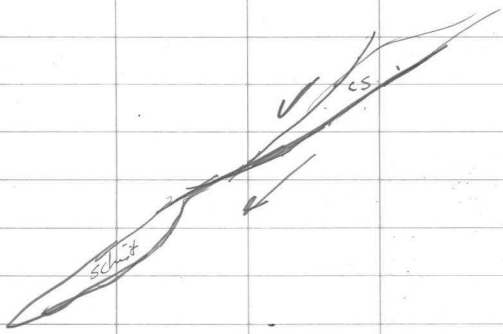


anastamosing

S



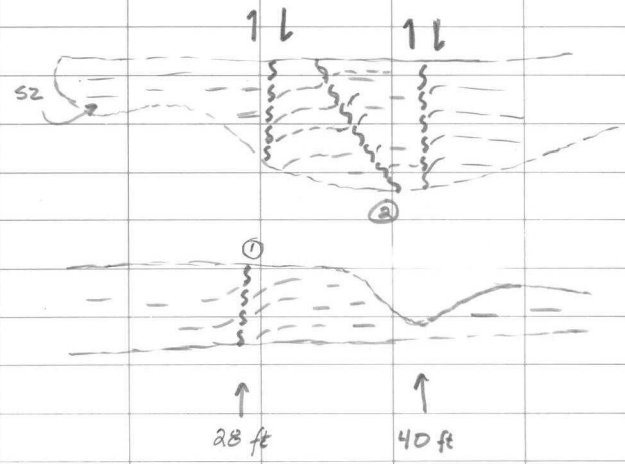
SECTION



STATION B

28 feet from LC#1 → LC#2

Section view of wall looking WSW



① 10cm wide gouge zone weathers bright orange. Fault orientation 080/80N S2 disturbance indicates N side down

② Fault orientation 065/35NW Again a 10cm thick mud gouge zone North side down

③ A 10 cm wide mud gouge zone
Fault orientation 060/85N
North side down.

Lithology for this interval is SBDQ
Weathered to a bright orange w/ silvery grey
on S2 surfaces. Generally PS2-foliated.

Locally phyllite is altered pale green
muscovite-chlorite. Still finely laminated locally
on S2 surfaces.

STATION C — AT L.C. #2

Vertical xsection looking WSW at wall

SB02 phyllite. PS2 foliated S2 surfaces are steely grey to silvery grey

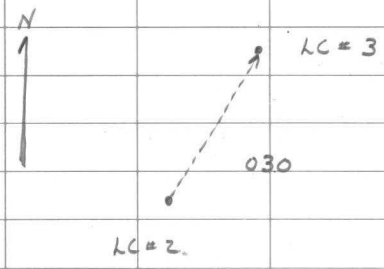
① PS2 on south side 155/15W

② PS2 on north side 025/15W

Mud gouge zone 25-30 cm thick
general orientation 080/68N

On south side of gouge phyllite is very rusty weathered. On north side phyllite is much less weathered - has fresher silvery grey colour.
Zone of disturbed S2 on north side at least 5 feet wide.

LC # 2 to LC # 3



Only scattered, minor, poor o/c beneath large till banks. Till cascading over o/c.

LC. # 3 to LC # 4

85' feet

Continuous exposure.

STATION D At LC # 3

5B20 Steely grey, calcareous phyllite. Generally CS2 - foliated. S1 microlithons best preserved in small siltstones.

Lower ½ of o/c fresh dark steely grey. Upper ½ of o/c weathered to rusty orange - contains thin coating of white drusy calcite locally

Both S and Z. symmetries noted in S1 microlithons looking NW.

CS2 025/12 W

L2 = S1 microlithon fold axis 313/07

Water is seeping out from lower ⅓ of o/c

CS2 lower in o/c 100/08N

Thin spaced fractures in phyllite

050/75 SE

STATION E 55 feet from LC #3 → LC #4

SB02 [SB0] Steely grey to silvery grey CS2 - foliated, calcareous phyllite. Upper ½ of o/c has brownish weathering tinge

Abundant pegmatitic white qtz lenses. Can be up to 40 cm thick. Typically elongate in S1 and/or S2. Folded by S2.

CS2 122/21 SW

L2 = S1 microlithon Fold Axis 332/02

Fine crinkle lin on S2 - post D2 148/09

Late steep calcite-infilled fractures up to 1 cm wide 040/85 S

Very thin gouge - has rusty orange-weathering associated with it orientation 045/27 NW

No sense of movement because of orientation of exposure.

STATION F — AT LC #4

580 2 MINOR

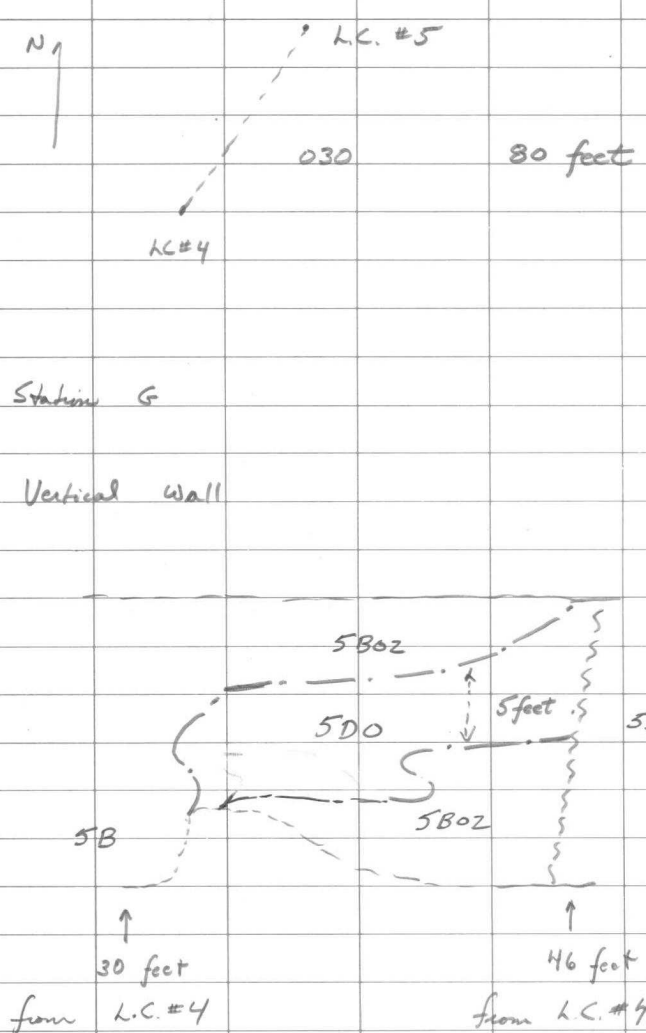
CS2 foliated, calcareous, steely grey phyllite. Both Z and S symmetries visible in microlithons looking NW. S2 pressure soln surfaces spaced about 3 cm apart.

CS2 140/25 SW

L2 = S1 microlithon Fold Axis 330/00

Late calcite infilled, spaced fractures 052/77 NW

L.C. # 4 ⟶ L.C. # 5


N
L.C. #5
030
80 feet
LC#4
Station G
Vertical Wall
5B02
5D0
5 feet
5B
5B
5B02
30 feet
from L.C. #4
46 feet
from L.C. #4

Have a compositional band of pale olive 5D within steely grey 5B02 phyllites.

5D appears to "dive" toward floor of wall and thin substantially in process.

Within imagine exposure it appears to be reasonably flat lying. Marginal contacts difficult to ascertain because of substantial infolding of 5D and 5B. One seems to see a stacked series of folds.

NE contact of 5D appears to be truncated along very thin gouge zone.

CS2 095/125
L2 = S1 microlithon fold axis 120/12

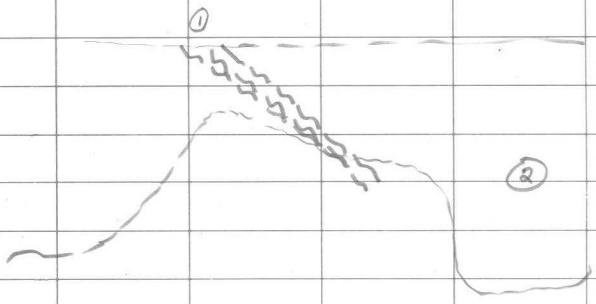
5D unit appears to reach thickness of 5'

Probable fold and fault problems.

STATION G At L.C. #5

25 cm mud gouge in wall separates 5B from 5B

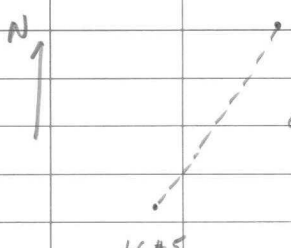
looking WNW



① orientation 088/34N
possible shear fabric within gouge 100/72N

② CS2 010/15W
L2 = intection lin S1 on S2 315/05

L.C. #5 → L.C. #6

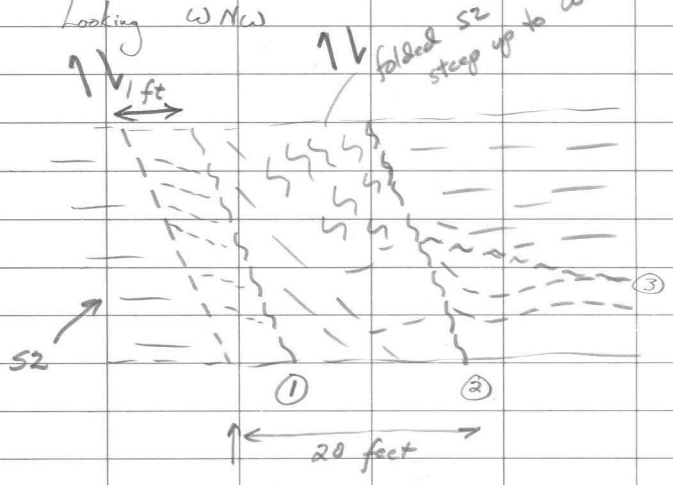


STATION H 43 feet from LC 5 → LC #6

580 Silvery grey, CS2 - foliated phyllite.
52 surfaces definitely silvery grey
CS2 017/24W

STATION I — At L.C. #6

Large gouge zone in phyllite.



Disrupted zone 20 feet wide.
Steep S2 orientation indicates N side down

① orientation of fracture / fault 095/65N
② orientation of fracture / fault
approx 070/57N
③ Small gouge zone w/ rusty weathering.
This is disrupted and interbed next to the large gouge zone.

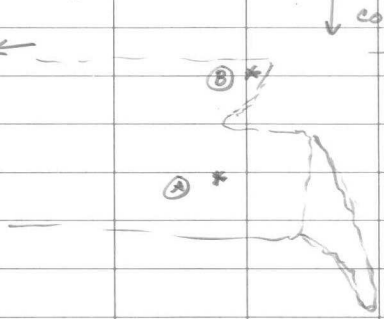
Station ✓ 66 feet NE (030) of L.C. # 6 is corner of pit.

Exposed pit entirely SBOZ. Calcareous silvery grey phyllite.
All CS2-foliated.
Corner has large qtz vein lenses & pods folded during D2. Qtz veins show S-verging symmetry looking NW

(A) CS2 170/26 W
L2 = SI microlithon fold axis 325/05

(B) CS2 in upper rt right in corner
118/32 S

Looking at corner



From corner limited o/c extends for 25 feet along compass direction 140

O/c consists of 5BO. Silvery grey, calcareous, CS2-foliated phyllite Some large godiforme qtz veins.

Contains some thin (5 cm thick) pale olive homogeneous PS2-foliated chloritic phyllite. Should correspond to margins of 5D metabasite — possibly exposed as a D2 fold hinge zone.

CS2 165/08W

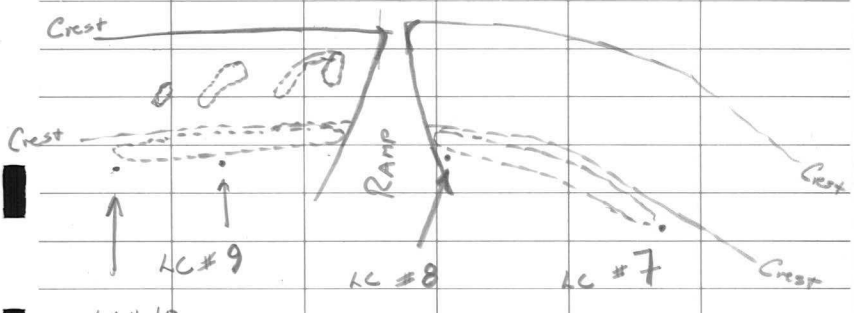
Fine, spaced, late xcutting fracture 057/78NW

HCP SEPT 18/1989

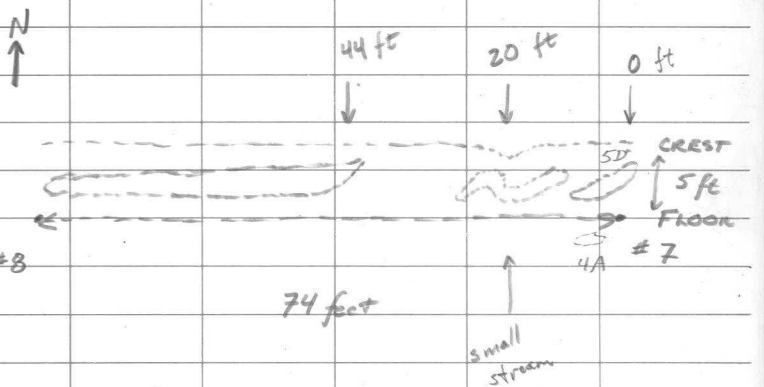
Clear and crisp with only minor clouds. Minimum in early AM was -4°C.

Mapping NE corner of pit (Grum) which cuts off part of DOAK LAKE Ground freezing @ night and soupy during day

General view of NE corner of pit



Between LC # 7 and LC # 8



in direction 090

LC # 7.

o/c in wall consists of variably calcareous SDO. Pale silvery green chlorite-muscovite phyllite. S2 surfaces are pale silvery green.

looking @ o/c can see overall Z-symmetry.

Looking North

S2 027/17W

S1? 107/26N

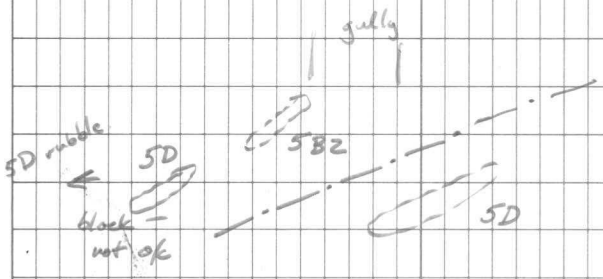
On floor of pit immediately in front of s/c at L.C # 7 lava abundant rubble of 4A. General D2 N symmetry c/f 52 at high angle to S1.

Black pyritic gritite locally contains visible sphalerite streaks.

Possible first exposures of ore on Grum?

O/C exposures in small gully - water channel at 20 feet from L.C # 7 → L.C # 8

X section view



Medium dark gray phyllite structurally overlies pale green 5D

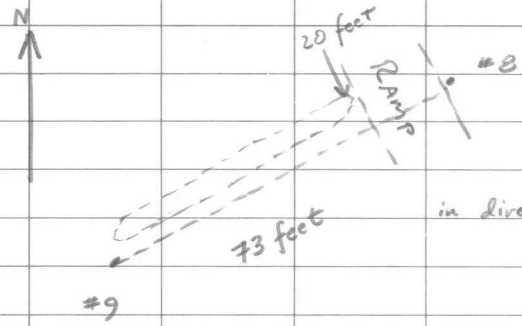
At LC # 8

O/c from 44 feet → LC#7 → LC#8 has consisted entirely of SDO Pale silvery green to pale olive, PS2-foliated, calcareous, chloritic phyllite. S2 surfaces are pale silvery green to frosty, silky olive.

PS2 088/13N

late xcutting fractures 055/70NW
035/70NW
005/45W

Between LC # 8 and LC # 9



O/c consists entirely of SDO. Generally PS2 - foliated, pale olive to pale silvery green, chlorite - muscovite phyllite. Contains thin qtz - pyrite stringers.

Locally shows CS2 - crenulation cleavage fabric. Where visible it indicates a general Z - symmetry looking NW.

At 44 feet LC # 8 → LC # 9

CS2 020/30W

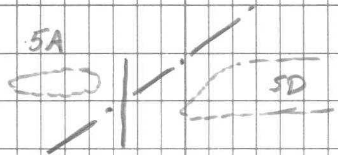
L2 = Fold axis of minor fold 330/16

PS1 055/15NW

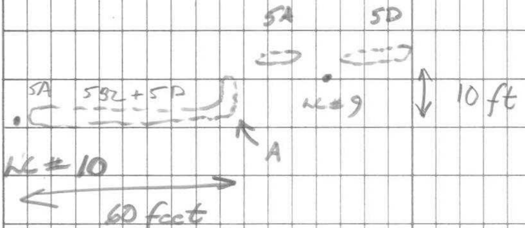
Late xcutting fractures 020/74W

At LC # 9 Looking NW

XSECTION



Plan view



5A o/c is slightly slumped but in proper location. 5A structurally overlies 5D.

Between LC# 9 → LC#10

Mixture of 5D and 5B2 → 5A
Again general Z symmetry looking NW w/ S1 compositional banding of 2 lithologies flatter than S2 crenulation clvge
Interbanding is on a scale of cm to m.

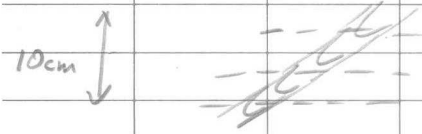
Measurement at = A

S2 170/37W

S1 015/19W

Measurements @ 16 feet #A → LC10

Sectional view looking NW



Steep S2 as evidenced by inland microlithons

Cut by later, locally developed, very shallow crenulation cluge.

CS2 008/40W

post S2 cren. cluge 075/29N

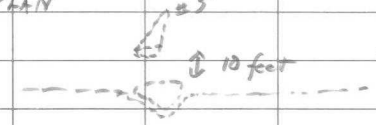
intsection lin of 2 cluges 332/25

At LC=10 back to rock types being 5A interbanded w/ 5D Possible fault zone along face of afc here looks slightly disrupted.

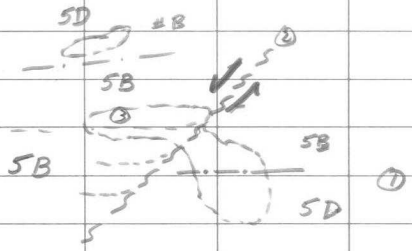
LC # 11

Small knob of o/c extending slightly into pit area.

PLAN



XSECTION LOOKING NW



① Marginal contact between 5B and 5D is parallel S2

② S2 film on west block goes up adjacent to small fault - indicates movement has west side down. Some mud gouge on fault surface.

S2 foliation @ ① 035/18 NW

At ① have S symmetry looking NW w/ S2 being more shallowly dipping than S1

At ③

C S2 030/32 NW

L2 = minor fold axis 332/16

At ②

Orientation of shear zone

~~115/86E~~ 085/40 S

Shear is only very minor. Associated w/ qtz vein. Minor disruption of S2 suggests south side down.

Not a major structure.

SEPT 24/89

Cloudy with a cool breeze - feels like snow

Traversing N wall of large Grum pit which cuts off Deal Lake

Start with Traverse from NE corner - immediately SW of ramp up to ground elevation.

First point along upper bench immediately behind stations LC # 7 - LC # 11

STN LC # 12

immediately SW of road/ramp in corner of pit

5807 → 5870

Silvery grey, CS2-foliated, calcareous phyllite. Too grey and micaceous for SD Thick bedded with banding on a scale of 10-15 cm.

S2 crenulation cleavage spaced on 1-3 cm scale. Overall Z symmetry to S2 and S1 looking NW

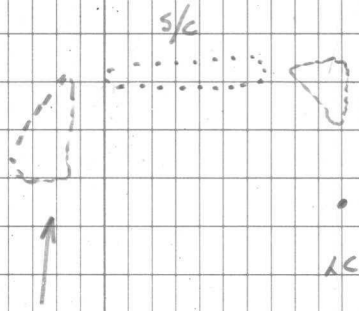
Outcrop weathered to orange-brown

CS2 020/30 W

PS1 060/26 NW

L2 = intsection S1 and S2 310/20

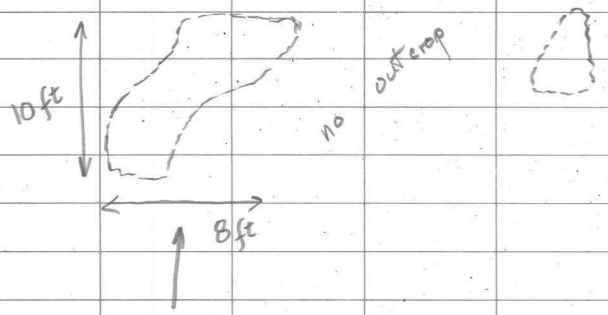
Looking NW at wall of pit



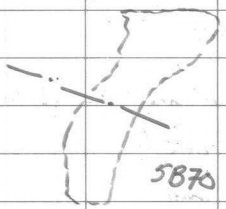
26 feet to SW from LC = 12

Unit is 5DO weathered
Olive green, chloritic phyllite, PS2 foliated.
Has weathered to a deep, bright orange.
S2 surfaces are silvery olive.
Rock crumbles in fingers.
No structure taken here.

Looking NW at wall of pit



56 feet SW of LC # 12



SDO - PS2 foliated; massive, homogeneous, pale olive, chloritic phyllite. Weathers to orange surface.

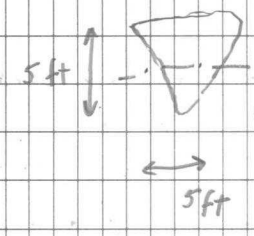
SB70 - thinly banded, very micaceous, pale silvery green, CS2- foliated phyllite. Difficult to distinguish from SD Weathers with orange surface colour also

General M symmetry to S1 and S2

CS2 025/20 W

L2: D2 microlithon fold axis 328/12

Looking NW at pit wall



88 feet SW of LC # 12

Pale silvery grey, thinly-banded, PS2-foliated phyllite structurally overlies

PS2- foliated, homogeneous, pale olive phyllite.

Immediately to SW chips and debris become dark grey to black phyllite - SA
Rock very soft and punky because of weathering. Not good o/c

LC # 13

Semi-continuous o/c in wall from here for 100 feet to SW. All same rock type.

5B20 – Dark grey to black S2 surfaces are dark steely grey. Calcareous. Weathers with patchy rust-brown colours.

Contains thin interbands of PS2-foliated, pale olive, chloritic phyllite = 5D0. Weathers to pale beige.

5D interbands especially noted on floor between this bench toe and crest of next bench to SE. Strike of beds looks to be approximately parallel to the pit wall.

CS2 @ LC # 13 032/33 W
fine crinkle lin on S2 = L3? 025/07
post D2 fracture 108/74 S

---

64 feet SW of LC # 13 – right behind LC # 11

CS2 on 5B20 012/32 W
fine crinkle lin on S2 = L3? 000/07

S1 microlithons show S-symmetry looking NW

L2 = microlithon fold axis 345/12

Late xcutting fracture 090/78 S

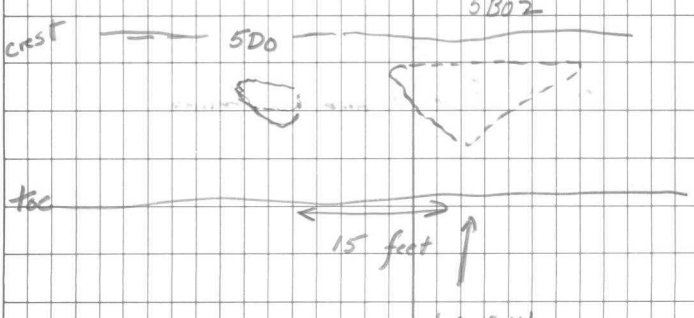
100 feet SW of LC # 13

CS2 010/27 W

SB20

LC # 14

Looking NW at pit wall

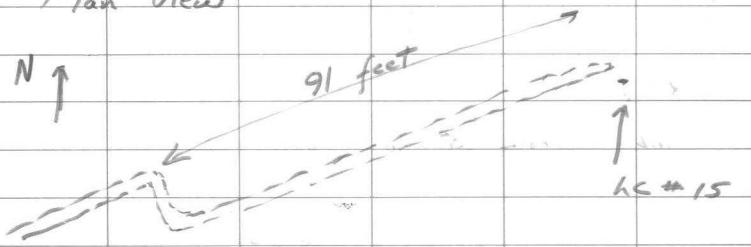


General S-symmetry with S1/S2 intersection in S B unit. Rock weathered with patchy orange brown surfaces.

O/c looks slumped so no structure taken

LC # 15

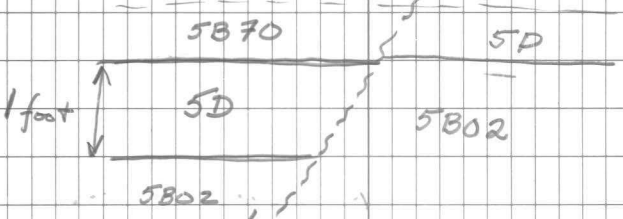
Plan View



o/c wall is 5 feet high. Continuous exposure. Wall strikes w/ azimuth 010

8 feet south from L.C. # 15

Looking west at Pit wall



1 foot thick massive, homogeneous, PS2- foliated olive chloritic phyllite.

Below 5D is medium dark gray, Calcareous, phyllite. Above 5D is CS2- foliated, pale silvery green phyllite. Unit above could possibly be a more micaceous 5D

CS2 @ 35/22 W

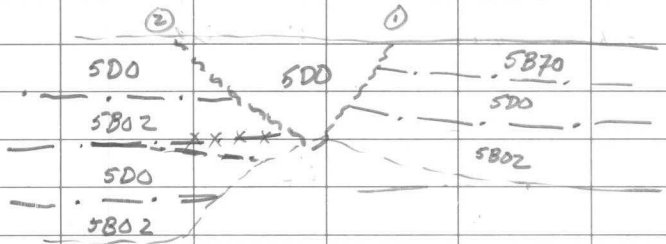
fault orientation 110/50 S

Only about 3 cm gouge in fault

No obvious movement indicators

Looking NW -- S-symmetry to S1 micro folions

27 feet South from LC # 15



Looks like small scale offsets on small fractures No honest good sense of displacement locally difficult to distinguish SD from SB7

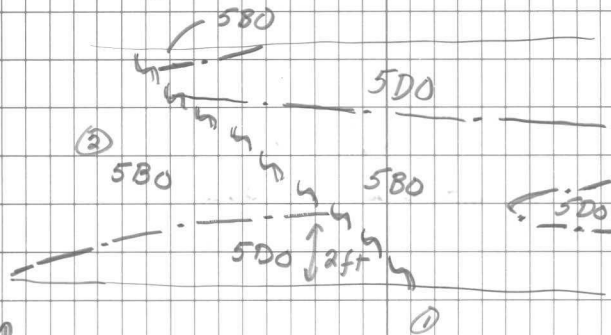
① fracture / fault 145 / 55 SW
② fracture / fault 080 / 45 N
Qtz vein goes across ② w/ only very slight disruption

At 30 feet
CS2 030 / 23 W
L2 = S1 microlithon fold axis 335 / 26

S1 microlithons indicate S-symmetry looking NW

40 feet S of LC #15

looking W at pit wall



↑
60 feet from LC #15

① Fault has about 15 cm mud gouge
orientation 065/50 NW
No good orientation indicators
No sense of ant of displacement

② CS2 010/23 W

At corner – 91 feet South of LC # 15

SBD Silvery grey, calcareous, CS2- foliated phyllite.

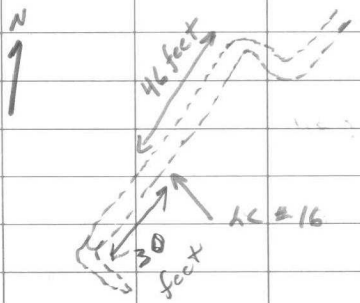
General S-symmetry to S1 microlithons looking NW.

CS2 023/25W

L2 = S1/S2 intersection 315/20

late xcutting fracture 055/70SE

LC # 16 plan views

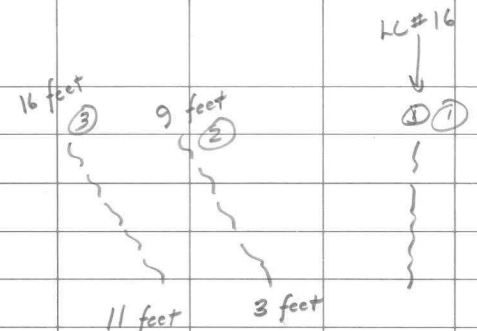


Units take gently down wall to the south. 10°
Wall includes 5B70 and 5D0
Difficult / i.e. impossible to readily tell the two lithologies apart in this area

5B is silvery pale green phyllite. Very micaceous silvery green S2 surface.
Think maybe 1 band of 5D goes along wall

LC # 16

Looking W at pit wall



① 092/82N

② 090/28N

③ 065/52N North side down — about 2 feet

② Sharp line with extensive gouging Similar orientation faults in same o/c area have N. side down. Water seeping out of gouge zone Overall zone w/ faulting about 5 feet wide.

Suggests that higher up have a major metabasite on south side.

Structures @ South end of o/c

CS2 175/23W