

Monday, 2/24/06

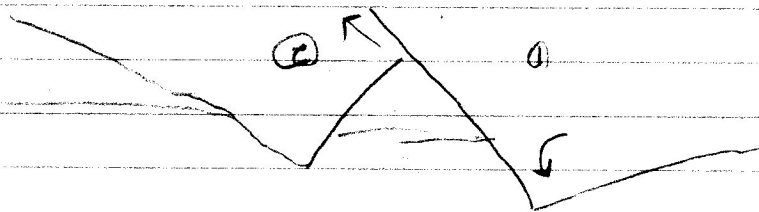
Las Cruces Area - La Salita fault

Granite intrudes tonalite regionally. Tonalite contains very little

K → phyllosilicate Feldspar, tonalite has more mafic (orthoclase, plagioclase?)

2 initial models to describe deflected drainage:

1) Fault related fill + drainage decrease



drainage area decrease b/c ② is the paleogeography providing the drainage dropped

2) simple t.H caused the channel to change path & jump into a steeper, younger drain to N. wide paleo channel may be evidence.

Field Notes

St + Burton decl = 12° E

GPS - W6584 (utm)

Wpt 1 = Campsite

Step 1 map 5 photo ① ≈ cas (1-1 on map)

② possible scarp ~ 1.2 m high (1-2 on map)

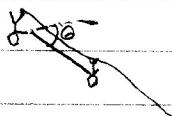
12R 0584954
2680406

Z = 111 m

head toward arrow on sheet 4 - due west
Wpt 2

2680469

128



* Stop every couple 100 m to describe sweep profile
 will tape + measure angle to a pt. where tape is
 fixed, do 5-10 m segments up sweep to record
 changes in shape (right w/ direction)

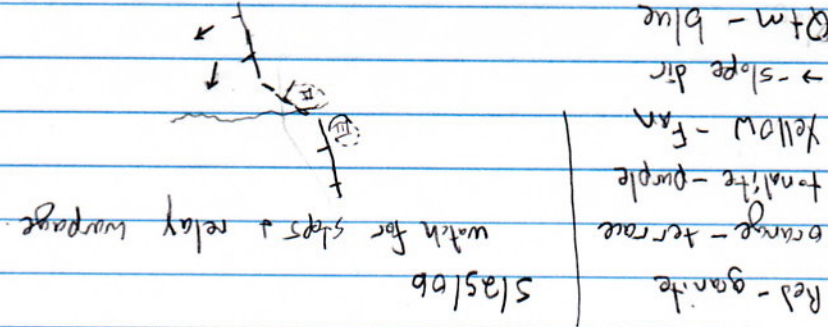
mapping scarp edge - not at contact of slope w/ alluvium ~ 12 m higher
 look as stepping into drainage

pediment fault scarp - we want to understand the geomorph +
 extent of the granite. Coarsening basin history: extension
 related to older regional fabric (not pristine granite, regardless)
 in bedrock is no longer visible. fracture sets are more
 ~ decimeter scale ~ 30 m away - effects of faulting
 ~ every 2 cm instead of mm w/in 5 m
 walking upstream fracture density decreases away from fault
 (2 planes measured, very subtle variations)

possible study - fracture density in fault zone along fault all
 192° = strike 255° = strike
 72° = dip 74° = dip
 100° = rake 15° = rake

fault scarp X-sec in channel cut
 oblique-slip strike - actually 2 sets on different planes
 fault-zone fracture and brecciation
 ~5-10 m vertical separation
 sort of superimposed as
 temporal variation.

even density of observations - note points studied

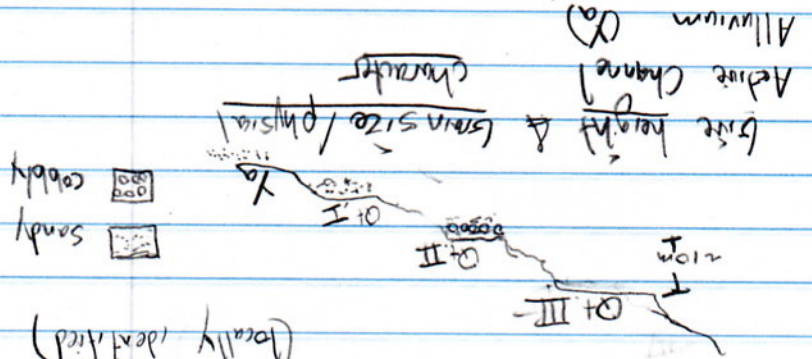


- Red - granite
- orange - terrace
- tan/lt - purple
- Yellow - fan
- - slope dir
- Q4m - blue

We will make a top map here w/ total stria to delineate terraces, then compare to other terraces in the region to see if they correlate or change along strike. Soils - composition, carbonate % used to further constrain (later)

- Terrace 4 (Q4IV) -
- Terrace 3 (Q4III) -

Terrace 1 (Q4I) - Can Have 2, 2b, ...



Modern outwash → alluvium
 accretion and progression vertically upward.
 Q4I, II, III... w/ I being at mouth of

1-4 - channel. Possible terraces above scarp. Labeling terraces - necessary to map since air photos don't reveal.

(locally identified)

Walking along beach:
 change in slope of fan
 0584502
 2682218
 (numbering follows FCH's)

10 - Beginning of "scarp" in alluvium. The fan steepens here toward the west and has a slight tilt to east.

sediment - granite pebbles, shells, tonalite pebbles

some small cobbles

mix of angular (granite) well rounded (tonalite) * below reflecting different source & history (marine vs fluvial)

Also volcanic clasts (andesite), well rounded then broken. Fine grained sandstone, >90% quartz grains, angular

Fragment (not individual grains)

Lithic composition - ~ 1-2% volcanic

sandstone

>90% granite & tonalite

~3% shells

* Overall, rounded pebbles are tonalite & small angular

pebbles are granite.

Shoreline Morphology - walking w/ Fran (10)

Note - Beach sand is medium to coarse grained sand here

(Different from cobble/pebbly clasts near camp)

~ 70% quartz

~ 25% Feldspar

5% dark minerals (amphibole, pyroxene) and lithic frags

Sea cliffs - Alluvium conglomerate;

coarse sand matrix (~20%) - granite, angular

pebbles - (~65%) angular, granite, (15% tonalite?)

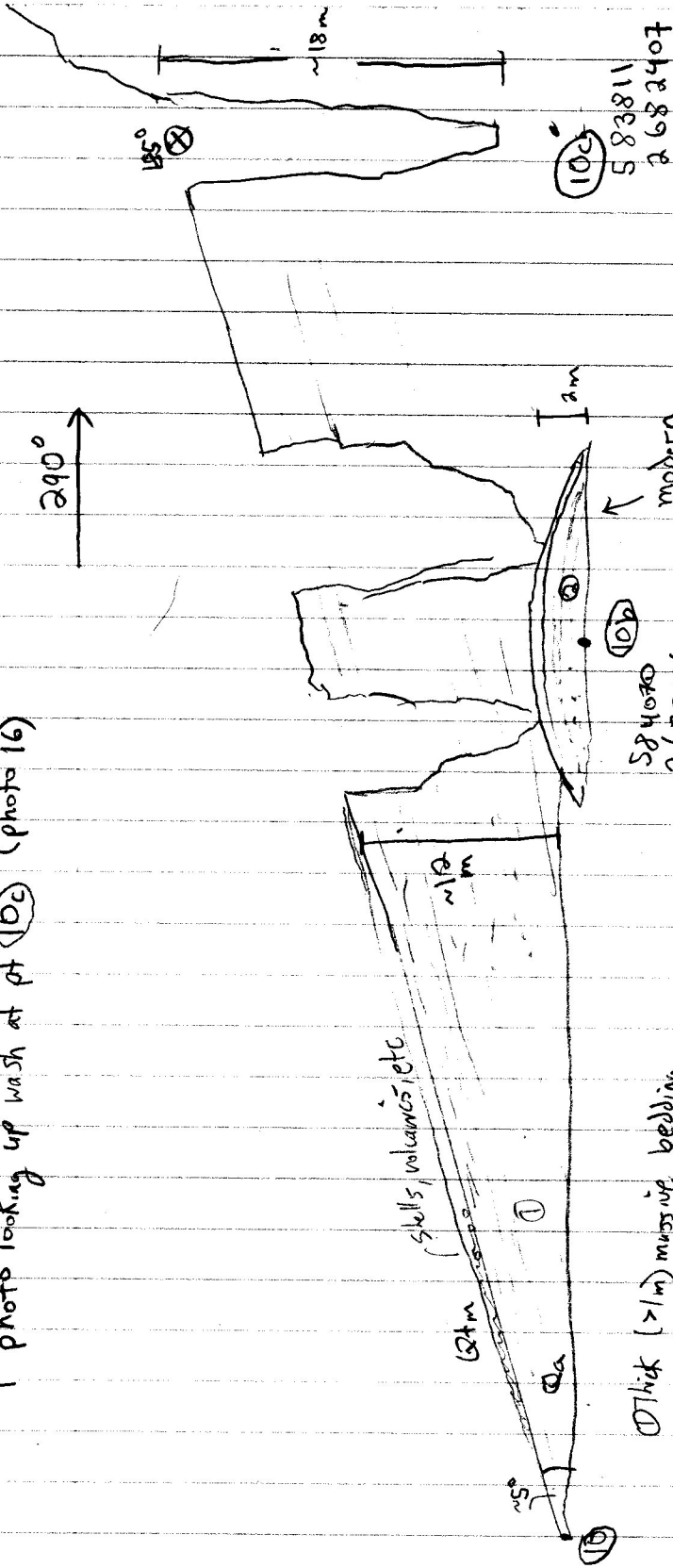
cobbles - (~15%) angular tonalite & granite

* No shells found in X-section

Photos

- 7 panoramic photos from ~270° wrapping to ~0° (photos 8-14)
- 1 photo looking ~180° toward ⑩ (photo 15)
- 1 photo looking up wash at pt ⑩ (photo 16)

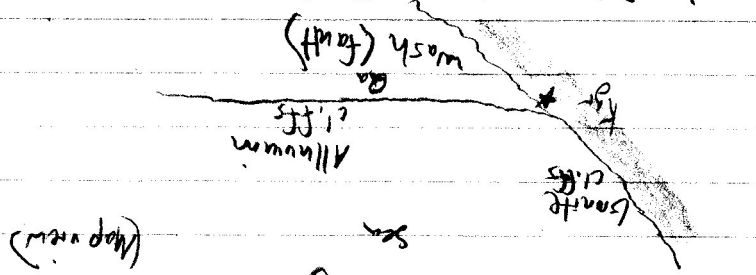
290° →



Thick (>1m) massive bedding
 Some beds ~10cm
 Could probably find paleocurrent info

modern Fan truncated by waves.
 * Very Important for offshore Sedimentation

→ stop 12 for fan + Note
 @ 10c the strike changes to ~330 as
 the fan abuts the granite bedrock



Wash follows the fault face.
 * slides on granite footwall in wash.

- ① strike: 332°
- ② 348°
- Dip: 76°
- rate: 13° E.

very nice gauge zone ~20m thick (pic 17)

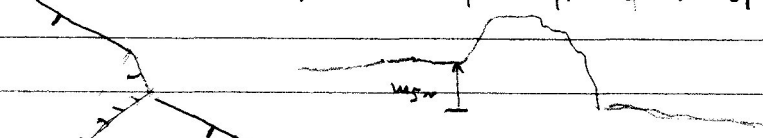
⑬ head of fault wash (photo 18)

top of fan
 shells found and
 colluvium from fault scarp

head of wash from pl. 10b (photo 19)
 note ① - frictional melt rock, purpleish cataclastic w/ quartz
 and granite fragments in fine non-crystalline matrix

⑭ Right step in fault (interesting spot)

0583824
 2681912



adjacent to scarp, the terraces are
 at different elev. across channel. This diminishes
 right lateral component causes
 pop-up
 channel

near beach

15 O_{x3} - rounded cobbles, mostly gas
 1% rounded muds & volcanics

58388a
 2681799
 7±94 m
 583987
 2681746

apparent step-over on satellite image

profile (a)

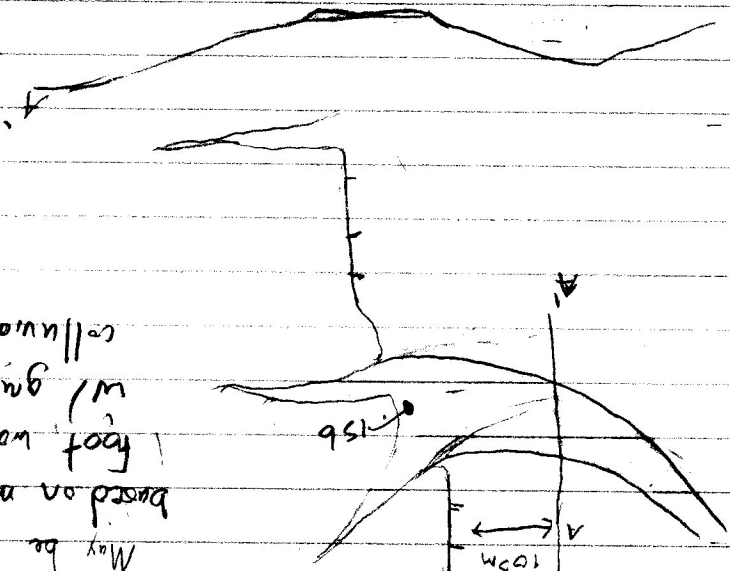
May be filled due to step

based on morphology

foot wall is granite covered

w/ gas, boulders, large

colluvial wedges



18d19 - profile a

Note - scarp height ↓ dramatically toward SE

19a - white shale on map = large granite boulders
 Stepover zone

change in slope

19b - High trace investigation (M.F. m)
 very steep
 Sebastopol

Topo survey of steep + terraces.
Total station

4/25/06

Define terraces at city level, city. Need to look in more detail.

2681002

19c - 0584309

Seems to be a
flat surface
higher up that
I didn't climb to

no initial evidence of
terrace deposits besides
subtle morphology

