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Carole

# M E M O

TO: Ron Short; cc Carole O'Brien, Anthony Budge

FROM: Don White

DATE: March 20, 1989

SUBJECT: Ash Peak Diamond Drilling Plans

Accompanying is a topographic-based map of the Ash Peak Mine area showing the trace of the attached cross section. The section is in the plane of the Hardy shaft and proposed drilling as Ron and I most recently discussed. That drilling will serve two purposes equally well. It will test the down-plunge end of the Commerce/Shamrock/Hardy trend of en-echelon bodies and it will provide successively deeper data with which to evaluate the merits of a manto target.

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DW:sk

# Ash Peak

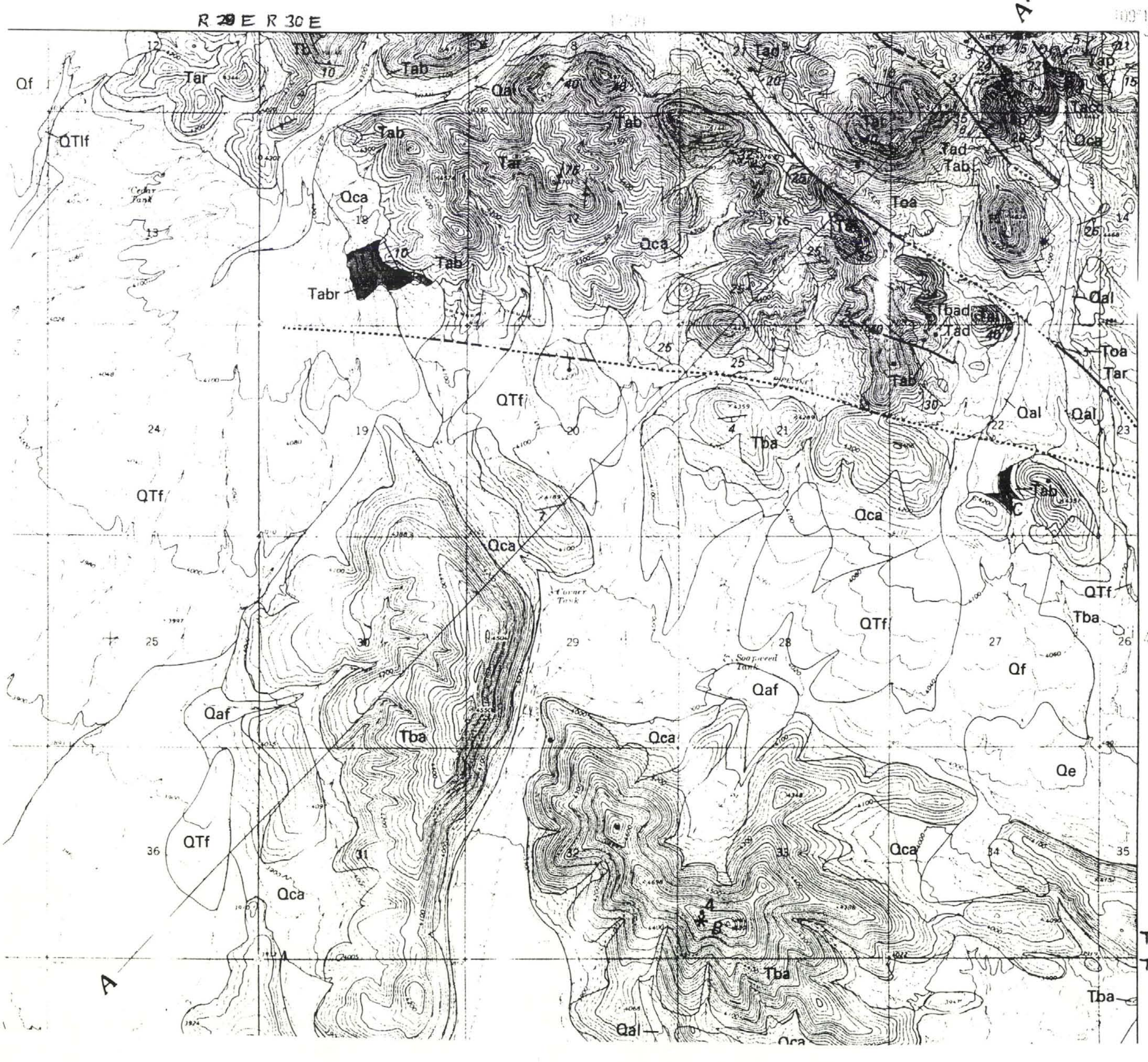
## Nearby geology + cross section

from Richter, et. al. 1981

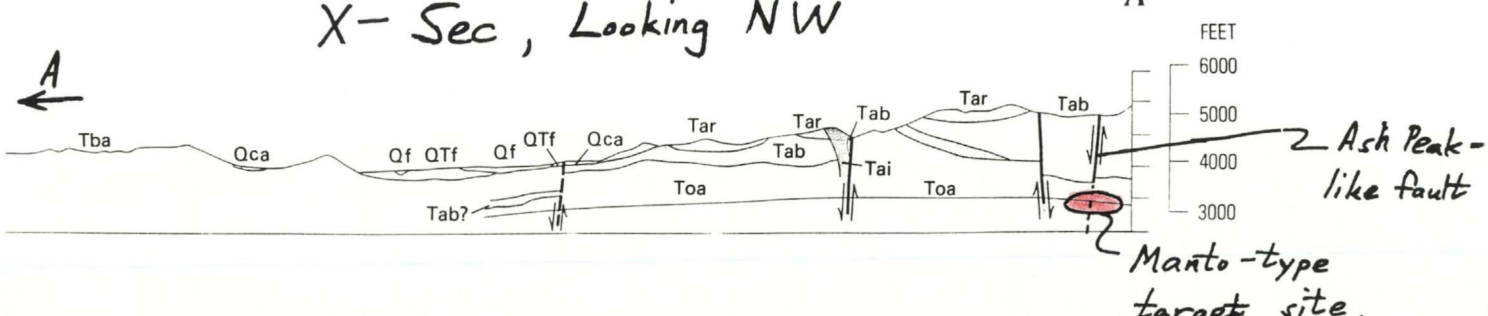
Mag. declin = 11½°E

Scale:
1:48,000
1" = 4,000'

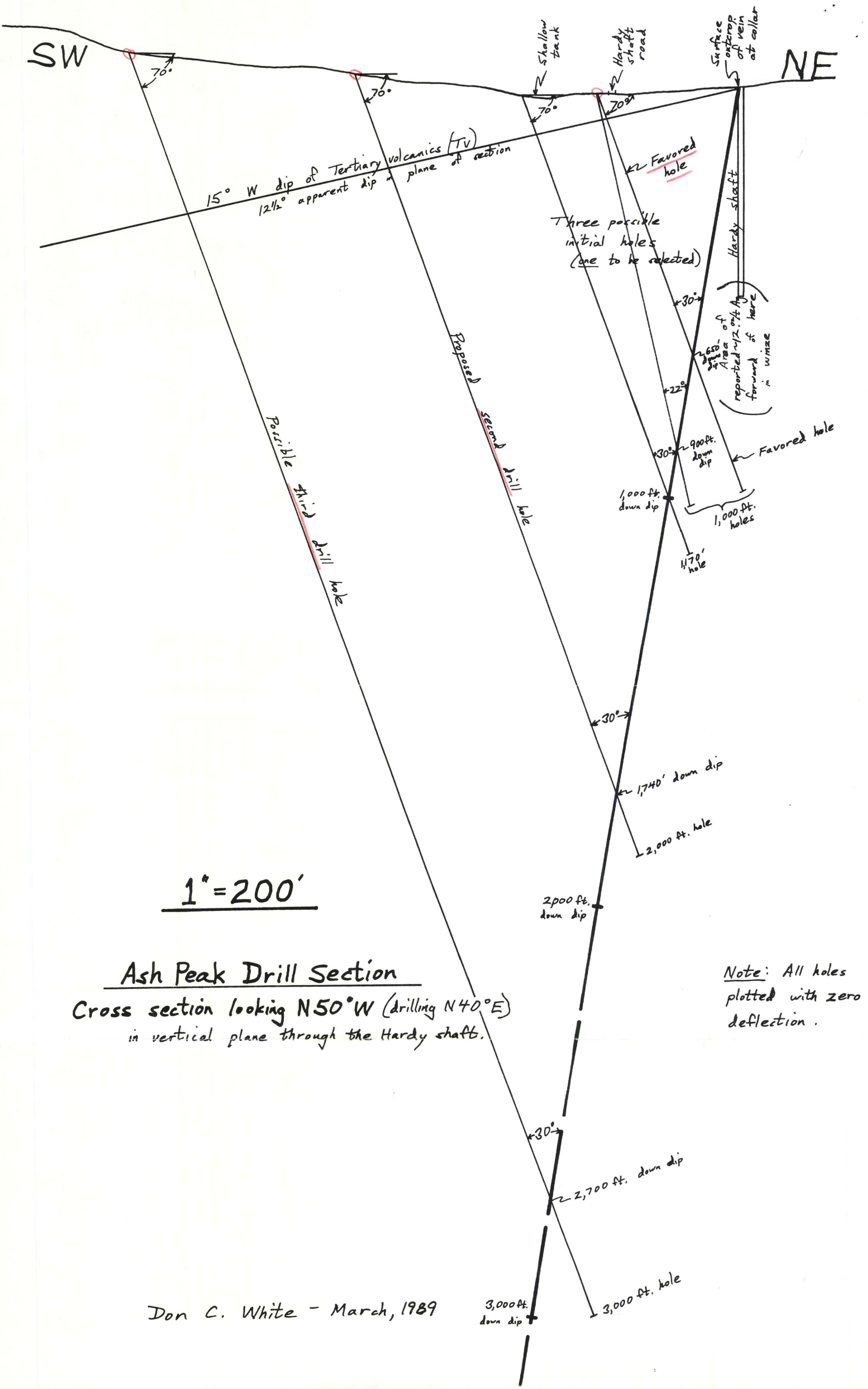
Approx. position of Ash Peak Mine

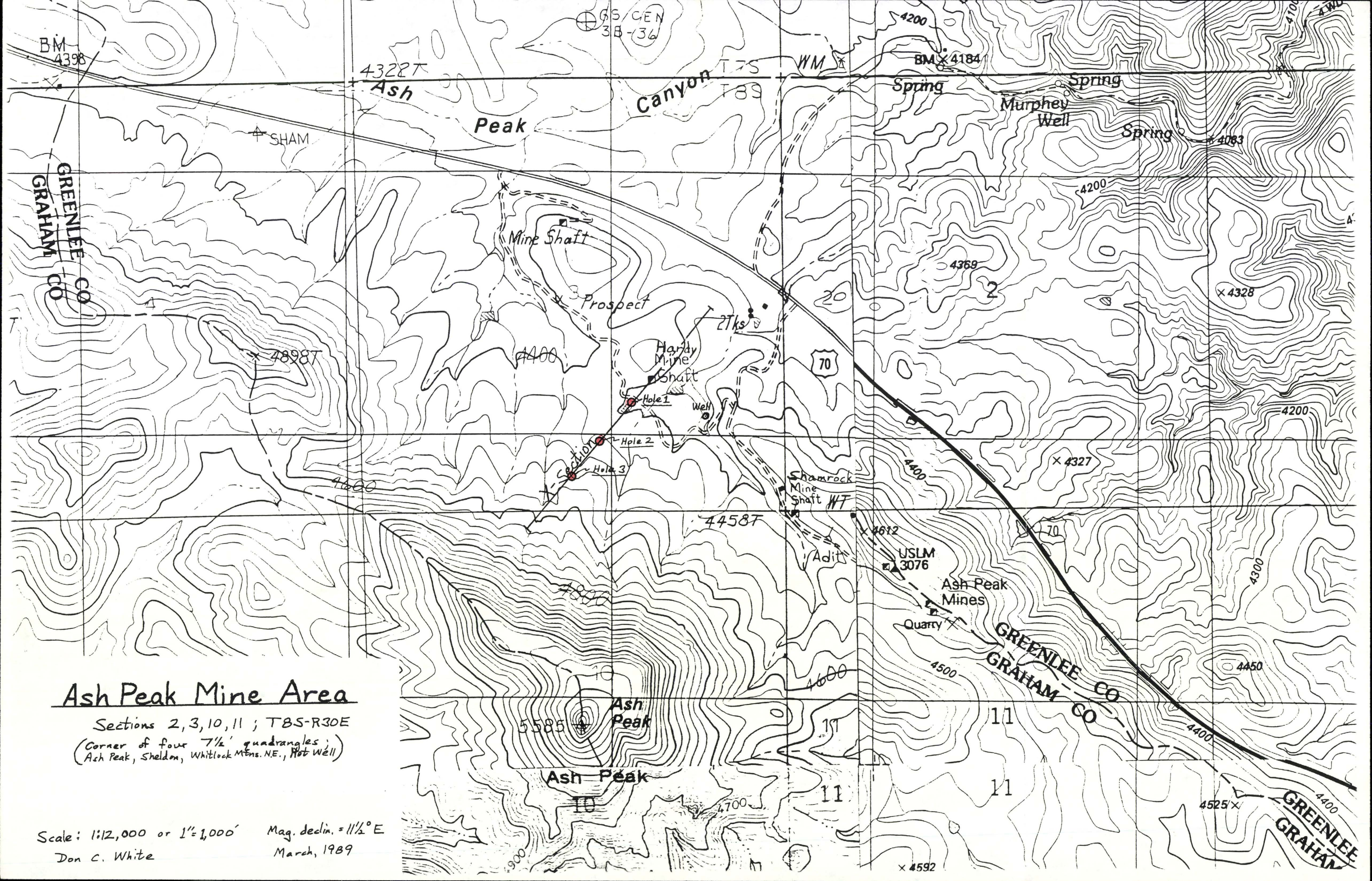



## X-Sec, Looking NW




Don White - March, 1989


SW
NE
70°
70°
70°
70°
Shallow tank
Hardy shaft road
Surface outcrop of vein at collar
15° W dip of Tertiary volcanics (Tv)
12½° apparent dip in plane of section
Favored hole
Three possible initial holes (one to be selected)
Hardy shaft
30°
650' down dip
Area of reported ~12.0% here forward of winze
22°
30°
900 ft. down dip
Favored hole
1,000 ft. down dip
1,000 ft. holes
1,170' hole
Proposed second drill hole
Possible third drill hole
30°
1,740' down dip
2,000 ft. hole
2000 ft. down dip
30°
2,700 ft. down dip
3,000 ft. down dip
3,000 ft. hole
1" = 200'
Ash Peak Drill Section
Cross section looking N50°W (drilling N40°E)
in vertical plane through the Hardy shaft.
Note: All holes plotted with zero deflection.
Don C. White - March, 1989




# Ash Peak Mine Area

Sections 2, 3, 10, 11 ; T8S-R30E

(Corner of four 7½' quadrangles ; Ash Peak, Sheldon, Whitlock Mtns. N.E., Hot Well)

Scale: 1:12,000 or 1" = 1,000'

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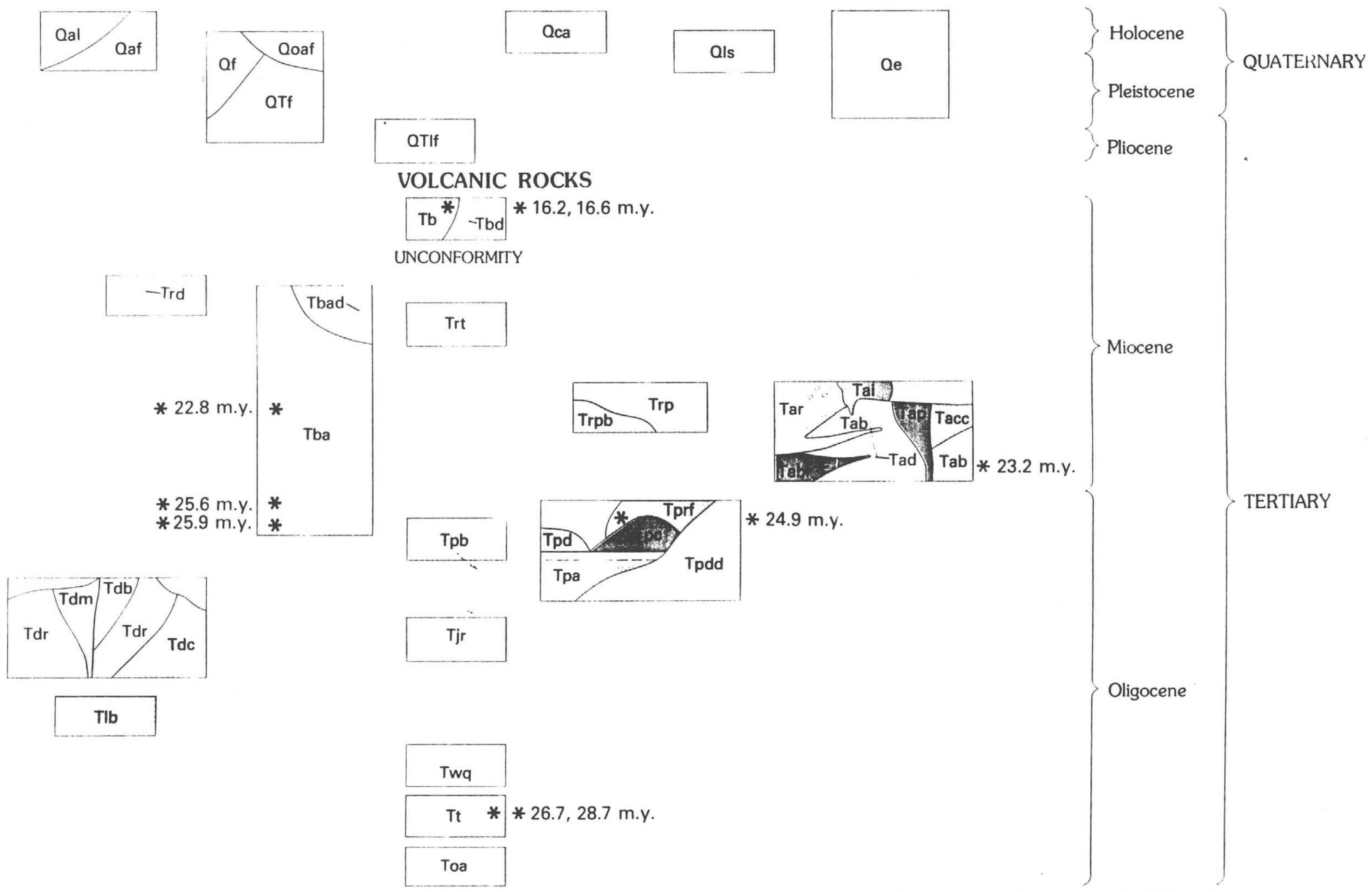
March, 1989

# Ash Peak area stratigraphy / Tv lithologies

from: Richter, et. al. 1981

## CORRELATION OF MAP UNITS

### SURFICIAL AND BASIN FILL DEPOSITS




### RHYOLITE DOME-FLOW-CONE COMPLEX OF ASH PEAK (MIOCENE)

**Tar** Massive, crystal-poor rhyolite flows. Pinkish-gray, light-gray, and light-brownish-gray, flow-laminated rhyolite generally with coarse brecciated bases consisting of rhyolite blocks cemented by similar rhyolite, and locally including lenses and masses of dark-gray to gray vitrophyre (stippled) and conspicuously spherulitic phases (small circles) with spherulites as much as 10 cm in diameter. Rhyolite typically contains a few (<1 percent total) small (<1 mm) crystals of quartz, sanidine, clinopyroxene, and opaque minerals in a matrix composed of laminae, as thin as 0.5 mm, of spherulites and microspherulites alternating with laminae of cryptocrystalline aggregates of quartz and feldspar and irregular lenses of tridymite and tridymite-quartz all dusted with fine opaque minerals and locally with fine red hematite. Upper parts of some flows have a gray marbled appearance due to high concentrations of opaque minerals and fayalite. In general, rhyolite flows are younger than pyroclastic cone breccias (Tab), however, included in unit are crystal-poor rhyolites that preceded, or were concurrent with explosive eruptive activity. Maximum thickness about 180 m

**Tabr** Biotite rhyolite flow. Pale-red, moderately crystal rich rhyolite with dark-gray vitrophyric base. Rock contains crystals (0.5–3 mm) of sodic plagioclase $(An_{15-25})$ (6–9 percent), sanidine (3 percent), biotite (2 percent), and trace of quartz, clinopyroxene, and opaque minerals in a cryptofelsitic-spherulitic groundmass with tridymite locally filling interstices between spherulites. Exposed in two known localities (sec. 18, 22, T. 8 S., R. 30 E.) underlying pyroclastic breccia (Tab). K-Ar date on biotite from locality *C* in sec. 22 yields age of 23.2 m.y. Maximum exposed thickness about 30 m

**Tai** Rhyolite. Light-brownish-gray to pinkish-gray, moderately crystal rich rhyolite that apparently both intrudes and overlies pyroclastic cone breccias (Tac) and massive rhyolite flows (Tar). Rock contains small (<2 mm) crystals of sanidine (5 percent), sodic plagioclase (1 percent), embayed quartz (1 percent), and a trace of biotite and opaque minerals in a cryptofelsitic-spherulitic groundmass of feldspar and quartz

**Tap** Rhyolite vent plug. Pale-red to pinkish-gray, flow-laminated and brecciated, moderately crystal rich intrusive rhyolite. Rock contains about 10–15 percent crystals (as large as 3 mm in diameter) including 6–11 percent sanidine as euhedral crystals and crystal clots, 3–6 percent sodic plagioclase $(An_{20-25})$, and between a trace and 1 percent each of quartz, biotite, basaltic hornblende generally replaced by black iron oxides, fayalite, and opaque minerals in a cryptofelsitic-spherulitic groundmass locally containing tiny needles of hematite and dustings of opaque minerals. Plug intrudes pyroclastic cone breccia (Tab) and cone crater breccia (Tacc)

**Tacc** Pyroclastic cone crater breccia. Very pale orange, massive and structureless, pumice lapilli breccia. Rock consists chiefly of nondeformed pumice lapilli and ash, devitrified to microspherulites and locally altered to clinoptilolite, containing small crystalls (<1–3 mm) of sanidine (8 percent), sodic plagioclase (2 percent), basaltic hornblende (1 percent), and traces of quartz, biotite, fayalite, and opaque minerals. Cryptocrystalline material and tridymite occurs locally between lapilli. Breccia apparently fills crater of complex pyroclastic breccia cone

**Tab** Pyroclastic breccia cone and related deposits. Chiefly very pale orange to pale-yellowish-orange pumice-lithic-crystal coarse breccias in layers <0.5 to 3 m thick with local interlayers of fine-grained ash, accretionary lapilli, and epiclastic beds. Breccias contain nondeformed, block to lapilli pumice (0.5–10 cm) altered to clinoptilolite, fragments of spherulitic and flow-laminated crystal-poor rhyolite, rare andesite fragments, and angular crystal fragments (<5 mm) of quartz, sanidine, and rare biotite dispersed in a cryptocrystalline matrix consisting chiefly of clinoptilolite. Blocks commonly exhibit impact structures. Unit is best developed, and at least 200 m thick, on Ash Peak where it comprises most of a dissected complex pyroclastic cone. A marked angular unconformity in the wall of the cone suggests at least one major change in the site of the principal vent during the course of cone construction. South and west from the Ash Peak cone the unit thins and the breccia fragments are progressively finer grained. The breccias appear to be the product of explosive activity that gave rise to voluminous air-fall deposits and locally thin pyroclastic flow sheets from the complex Ash Peak cone prior to emplacement of the massive rhyolite flows (Tar). Interlayered epiclastic beds are due to reworking by wind and water

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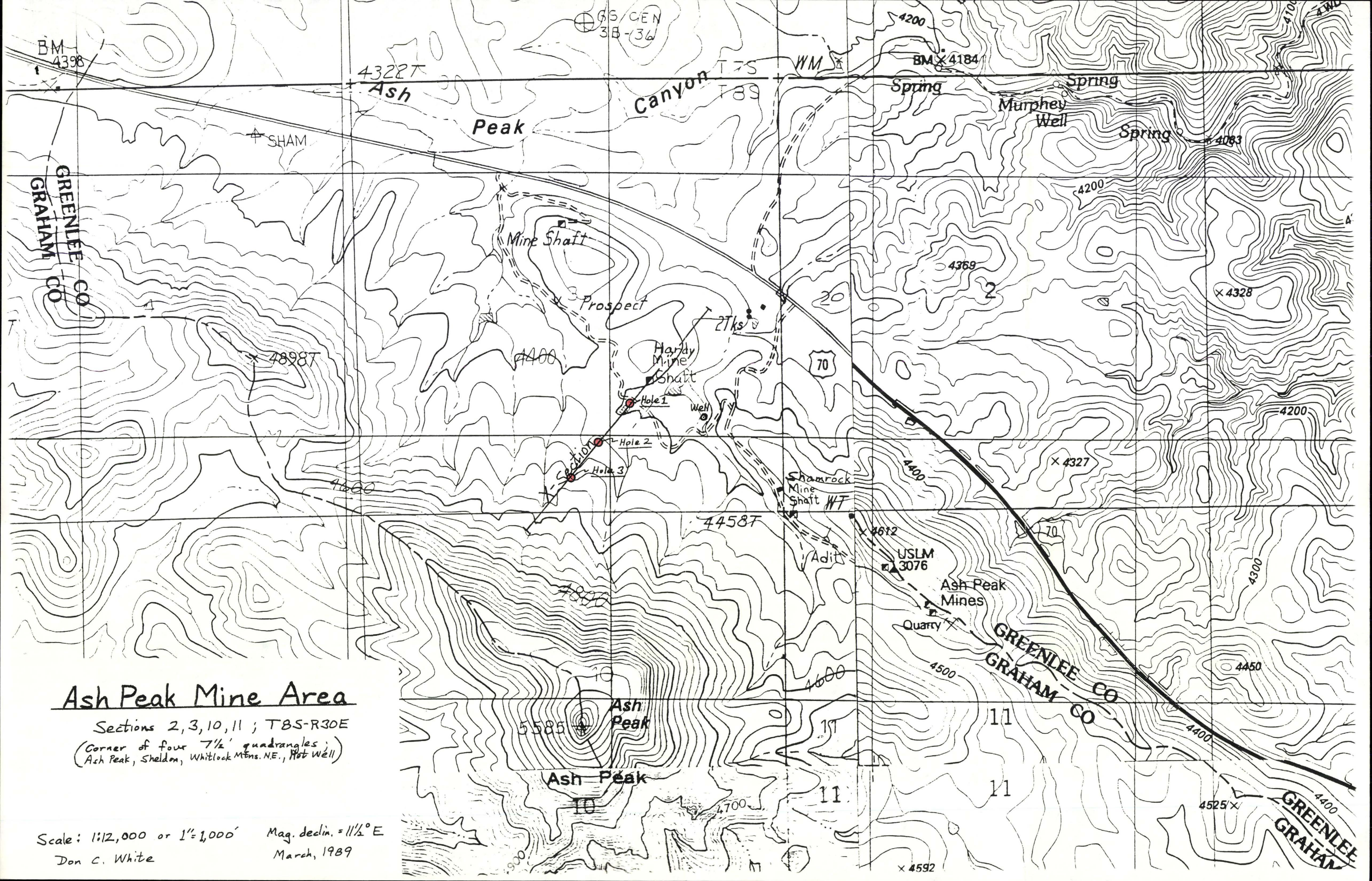


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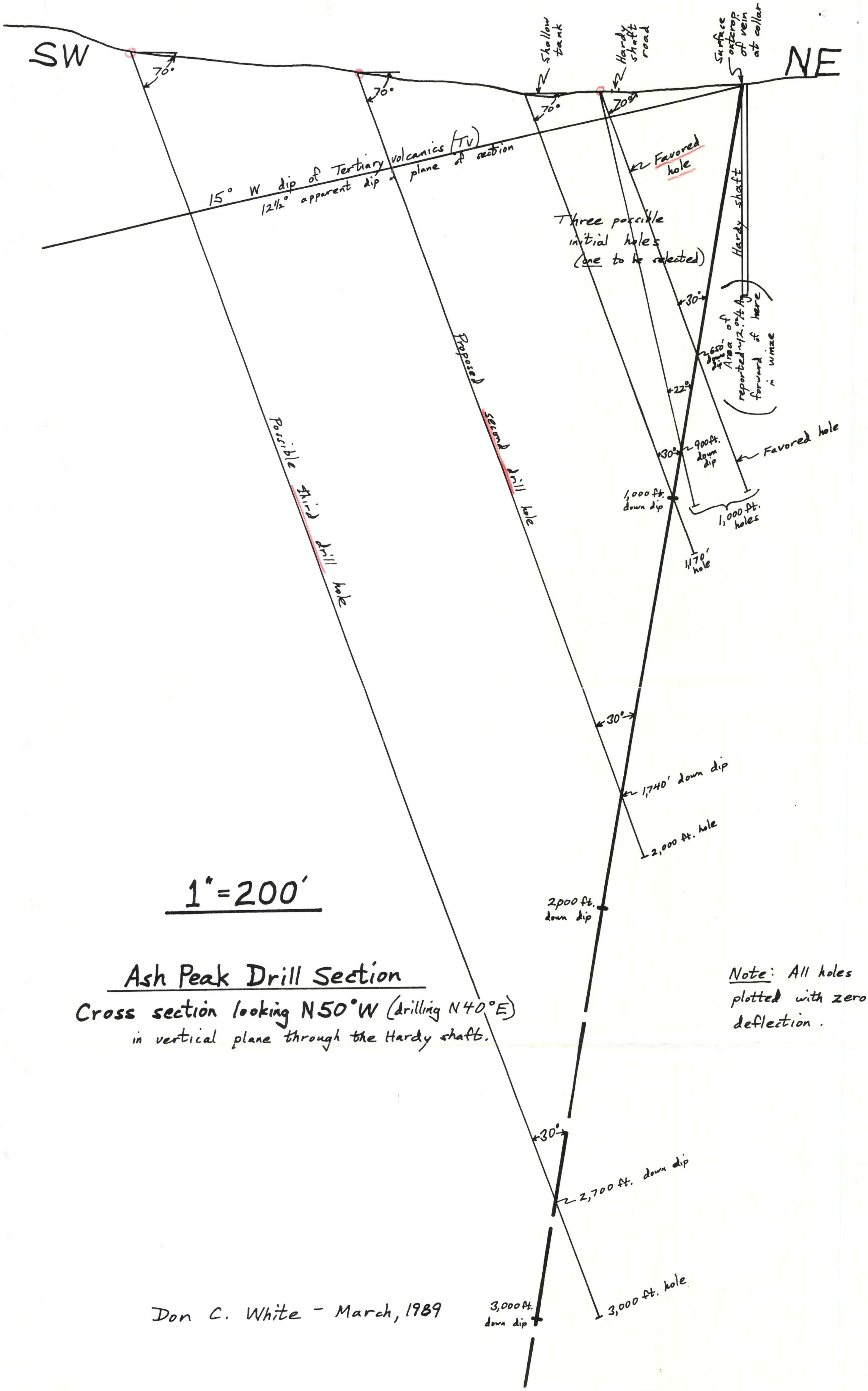


# 1" = 200'

## Ash Peak Drill Section

Cross section looking N50°W (drilling N40°E) in vertical plane through the Hardy shaft.

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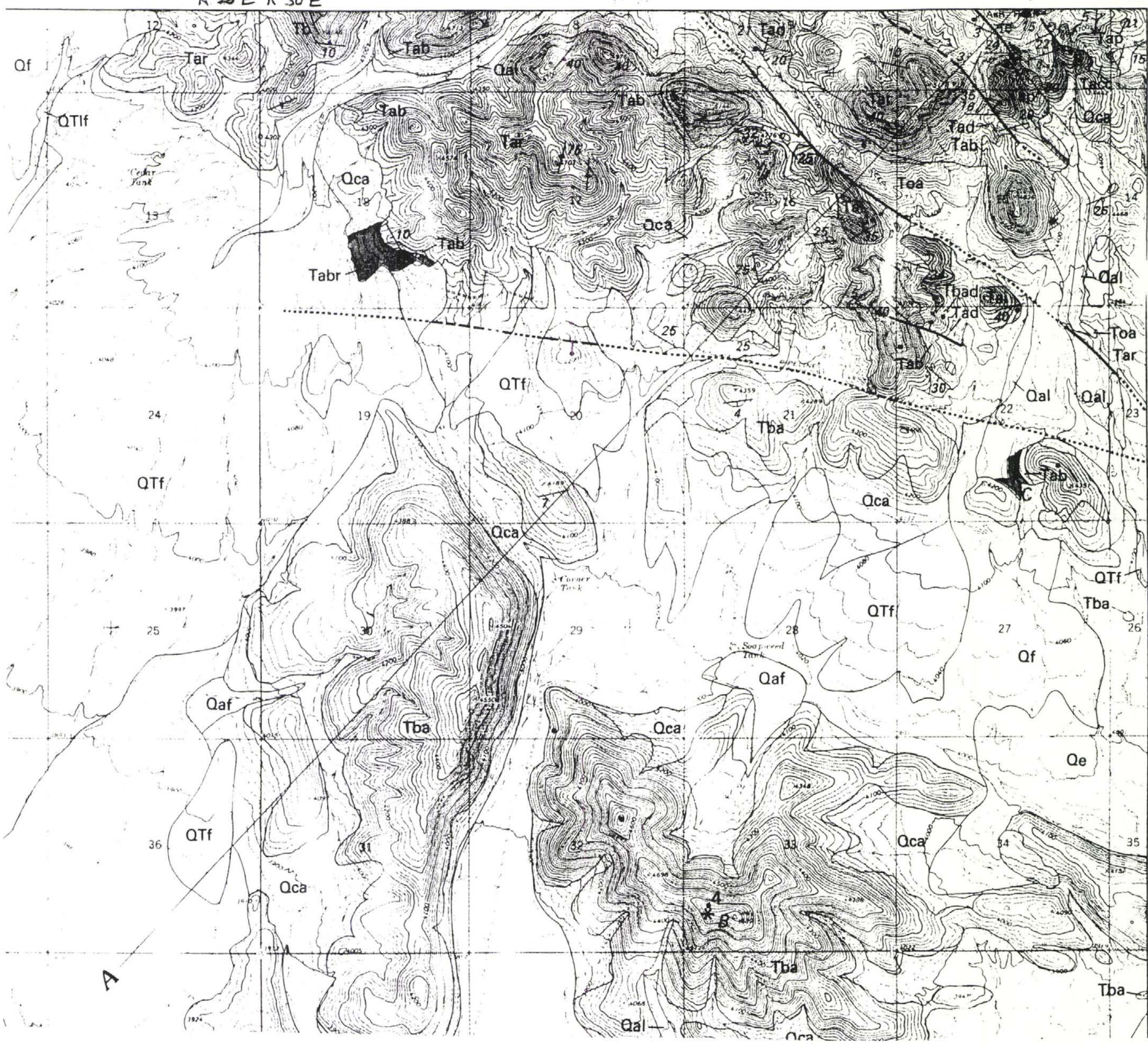
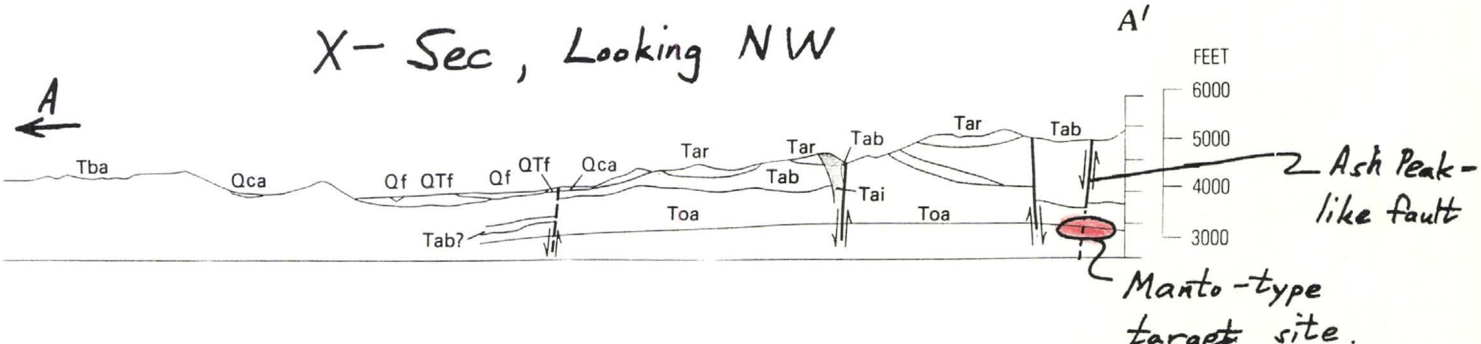



X-Sec, Looking NW

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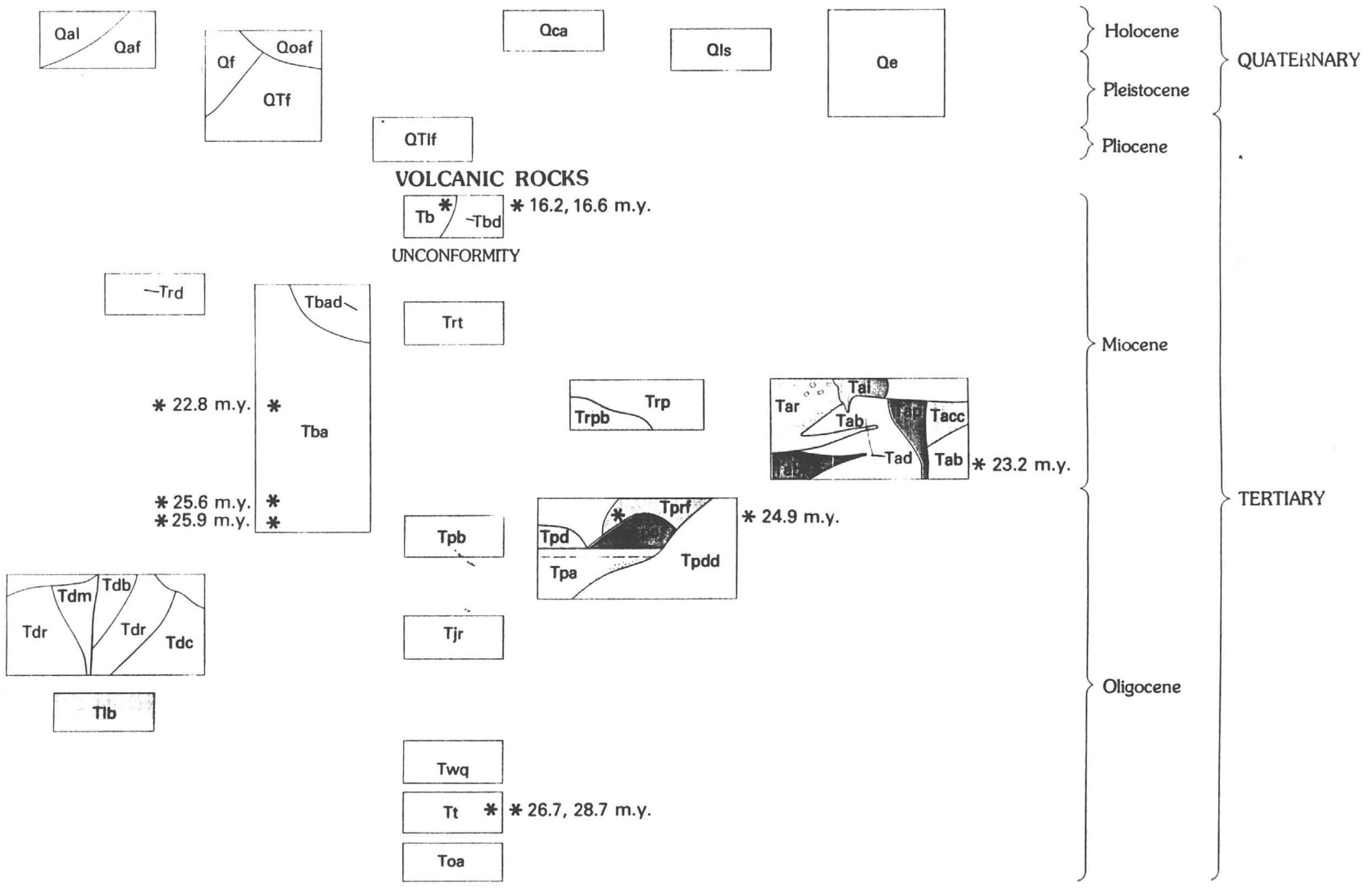


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