



PRATI &
AIDLIN

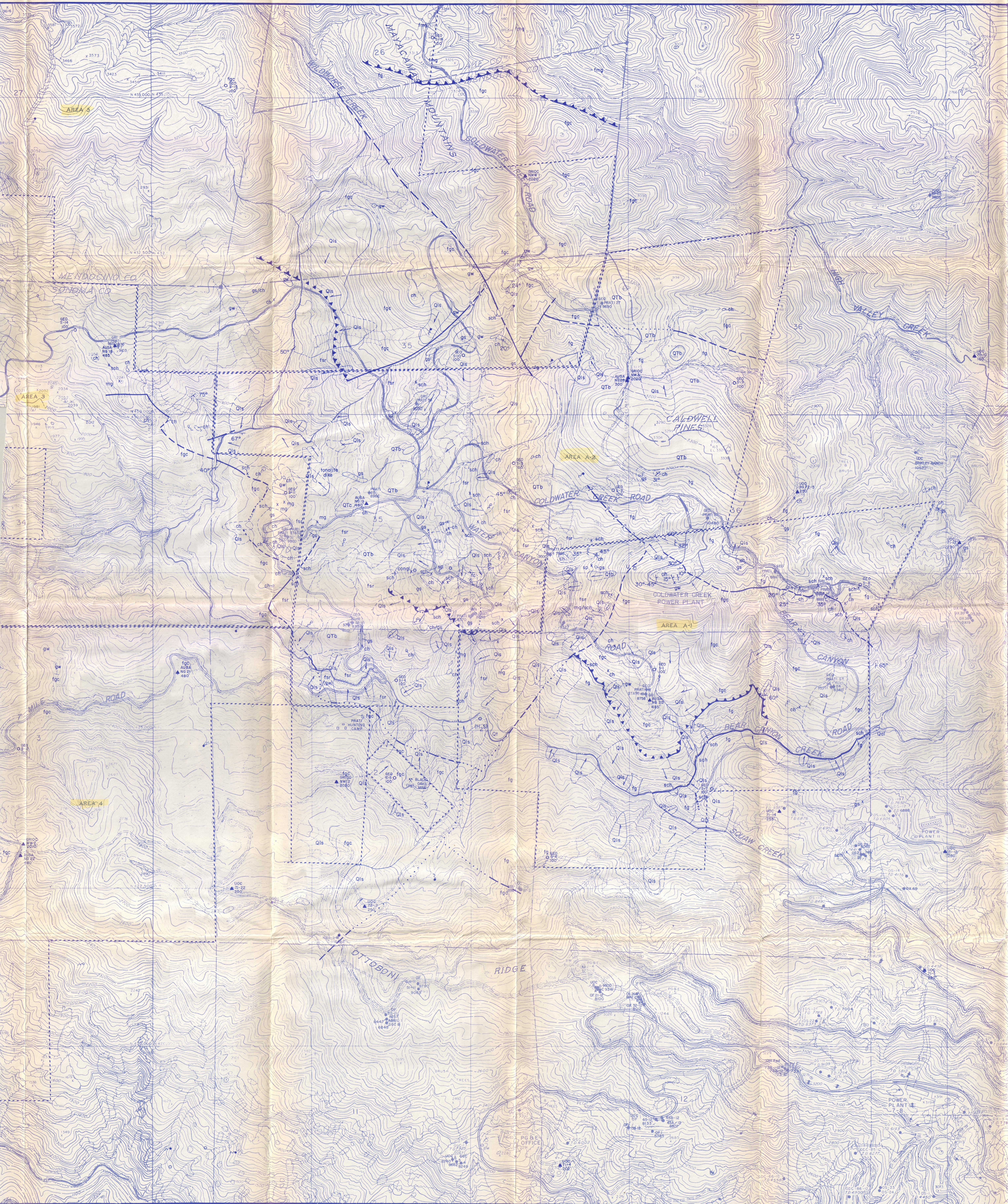
GEOLOGIC
MAP



M.A. Walters



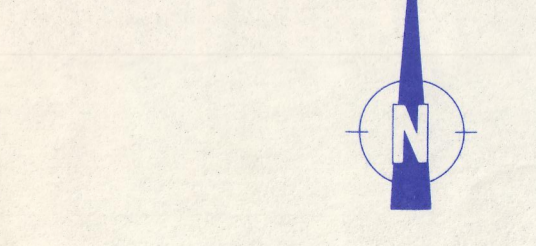
GL04321
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EXPLANATION

- RECENT**
- QUATERNARY**
- QUATERNARY-TERTIARY**
- JURASSIC-CRETACEOUS**
- Qal** Alluvium (Qal)
Unconsolidated stream deposits of boulders, gravel, sand and clay.
- Qco** Colluvium (Qco)
Unconsolidated slope deposits of detritus deposited by rainwash or slow continuous downslope creep from nearby uplope sources. Colluvium is ubiquitous and not mapped.
- Qls** Landslide Debris (Qls)
Unconsolidated rock and soil debris that has moved downslope by surface creep, rotational slumping, flowage or by combinations of gravity-related processes. Headwall zones often have partially closed depressions. Ages of landslides shown range from presently active to megasecular and stable. Many small (<1 to 2 acres) landslides are not shown. Scarps and contacts are often approximate because debris merges with colluvium.
- Qt** Terrace Deposits (Qt)
Unconsolidated, dissected and uplifted older alluvium along Big Sulphur Creek and Squaw Creek.
- CLEARLAKE VOLCANIC SERIES**
- Qtb** Basalt of Caldwell Pines (Qtb)
Remnants of olivine basalt flows capping lapilli tuff rest directly on Franciscan Assemblage rocks. The largest remnant occurs on Caldwell Pines and other small remnants form knobby hillsides in the vicinity of High Valley. Age dated at 1.64 m.y.b.p. by Donnelly (1977).
- FRANCISCAN ASSEMBLAGE**
- fmg** Metagraywacke (fmg)
Massive and thin-bedded graywacke turbidites with distinct foliation in outcrop; a schist at base of High Valley metamorphic thrust series.
- sch** Blueschist Facies Rocks (sch)
The blueschist facies rocks in the map area occur along fault contacts and in melanges as small pods and slivers which sometimes form prominent outcrops known as "knockers".
- fgc** Greenstone - Chert Complex (fgc)
Compact, dark green, altered basaltic rock (greenstone) complexly intercalated with thin-bedded chert. The greenstone (gp) consists of pillowed basalt flows, andesite and diabasic flows and is often sheared and stained by iron and manganese oxides. The cherts (ch) are red, green, orange, yellow and white, thinly bedded and are often interbedded with siliceous shale. Quartz veining is ubiquitous as fracture filling in chert. Discontinuous lenticular units of graywacke (gw) occur in outcrop throughout this complex. Chert and graywacke units represent periods of sedimentary deposition between volcanic events. Greenstone is the predominant rock type in this unit and weathers deeply to form thick, reddish-brown colluvial soils. Chert, which is subordinate in amount to greenstone, forms bold outcrops that tend to exaggerate its extent relative to greenstone.
- sch argill** Tectonic Mlange (sch argill)
Blocks of various rocks serpentinite (sp), metagraywacke (mg), graywacke, greenstone (gs), chert (ch), including and characterized by blueschist facies rocks (sch), in a matrix of sheared, scaly argillite.
- fg** Graywacke-argillite (fg)
Light to medium gray, medium to fine-grained graywacke and siltstone interbedded with dark gray, silty argillite. This unit is usually seen as medium-grained, massive graywacke in outcrop. The relative abundance of graywacke and siltstone (50% to 80%) compared to argillite (20% to 50%), is best observed in heat holes and in road cuts. This unit is extensively sheared and subject to mass wasting in proximity to the thrust fault contacts of the overlying greenstone-chert complexes.
- Project Area Boundary**
- Thrust Fault:** Dashed where approximate, bars only where concealed, queried where uncertain, bars on upper plate.
- Fault:** Dashed where approximate, dotted where concealed, queried where uncertain. Relative movement shown by U (up) and D (down). Arrows show relative lateral displacement or direction of dip.
- Contact:** Dashed where approximate, dotted where concealed, queried where uncertain.
- Strike and Dip of bedding:** Dip often changes rapidly within a few 10's of feet, especially within chert outcrops.
- Landslide:** Arrow shows direction of movement. Scarps shown at head of larger landslides.
- Microseismic station hole location** showing hole name and depth.
- Temperature gradient hole location** showing company, hole name and depth.
- Hydrothermal or solfataric alteration,** probably a result of gases (H₂S and CO₂) mixing with ground water to form acids that bleach rock and remobilize iron compounds. Commonly seen in road cuts.
- Large Spring**
- Smaller Spring**
- Seep**
- Cabin**
- Adit**
- Surface mine working**
- Mine tailings**
- Shear Zone**
- Geothermal well capable of production**
- Suspended geothermal well**
- Outcrop too small to show contacts.**
- Dry Gas Vent**
- Vertical Bedding**

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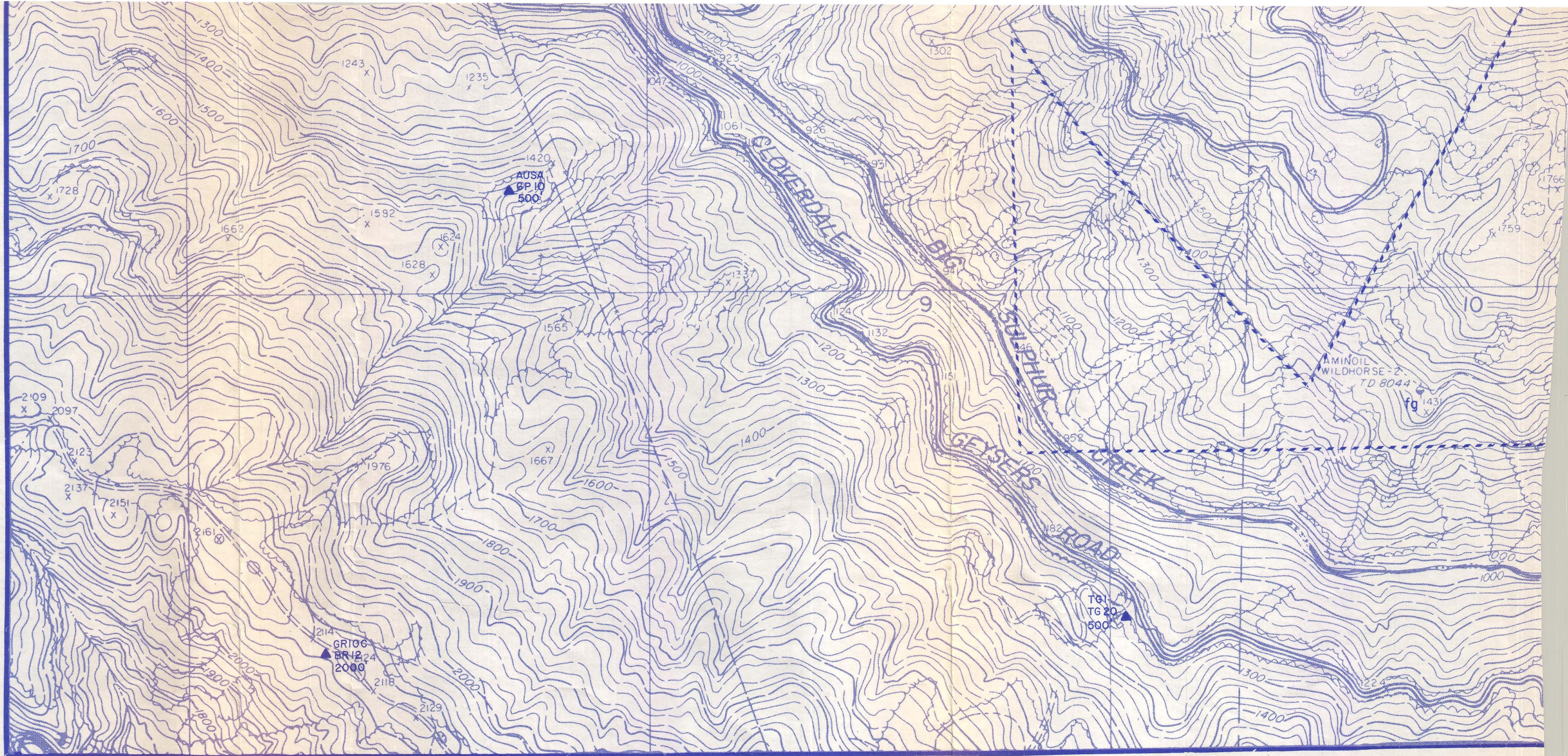


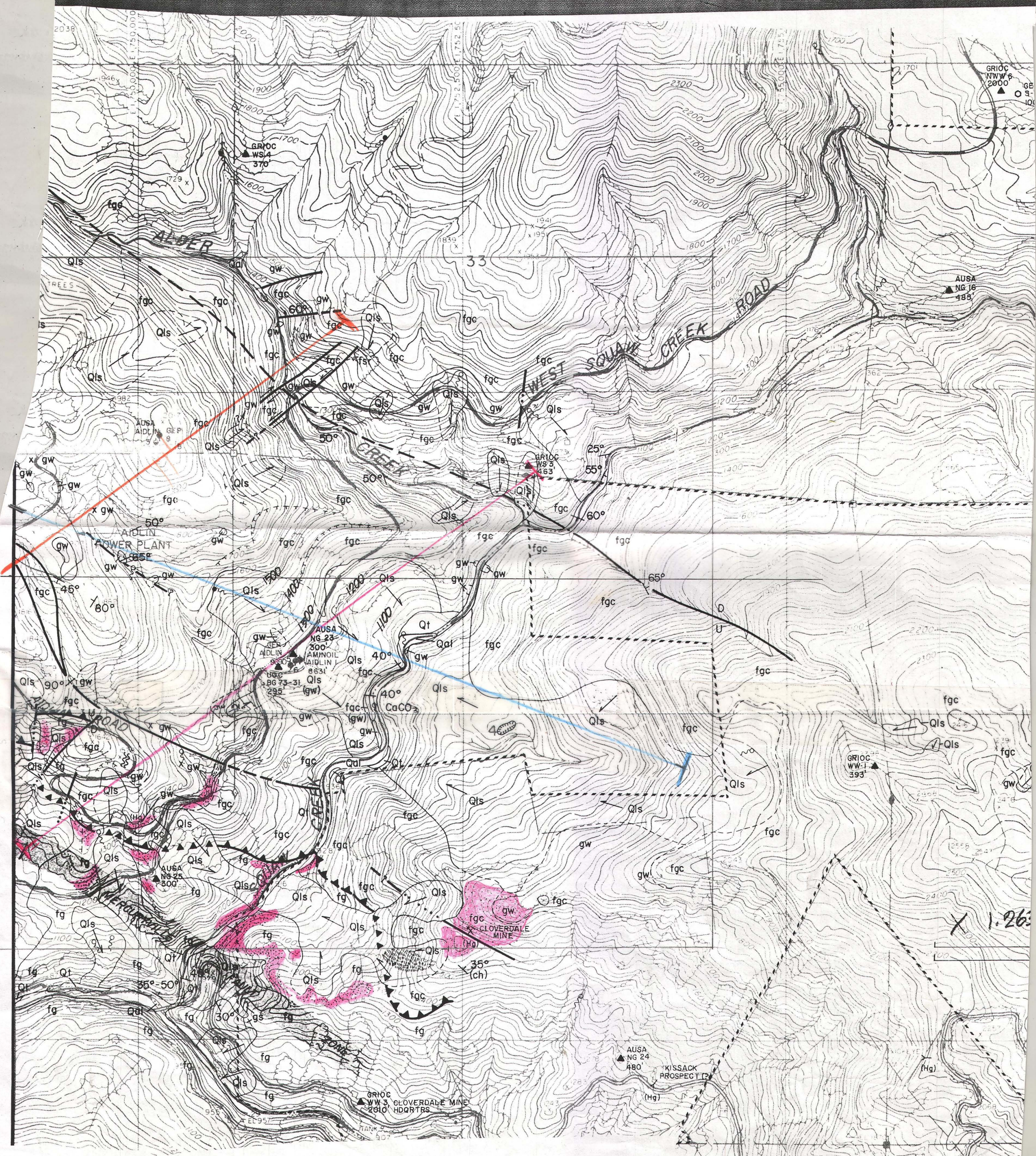
COLDWATER CREEK OPERATOR CORPORATION
1350 N. DUTTON AVE., SUITE A
SANTA ROSA, CA 95401

NORTHWEST GEYSERS AREA
SURFACE GEOLOGY

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DATE:	BY:	REVISION





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