



#### CONTACT INFORMATION

Mining Records Curator  
Arizona Geological Survey  
416 W. Congress St., Suite 100  
Tucson, Arizona 85701  
602-771-1601  
<http://www.azgs.az.gov>  
[inquiries@azgs.az.gov](mailto:inquiries@azgs.az.gov)

The following file is part of the A. F. Budge Mining Ltd. Mining Collection

#### ACCESS STATEMENT

These digitized collections are accessible for purposes of education and research. We have indicated what we know about copyright and rights of privacy, publicity, or trademark. Due to the nature of archival collections, we are not always able to identify this information. We are eager to hear from any rights owners, so that we may obtain accurate information. Upon request, we will remove material from public view while we address a rights issue.

#### CONSTRAINTS STATEMENT

The Arizona Geological Survey does not claim to control all rights for all materials in its collection. These rights include, but are not limited to: copyright, privacy rights, and cultural protection rights. The User hereby assumes all responsibility for obtaining any rights to use the material in excess of "fair use."

The Survey makes no intellectual property claims to the products created by individual authors in the manuscript collections, except when the author deeded those rights to the Survey or when those authors were employed by the State of Arizona and created intellectual products as a function of their official duties. The Survey does maintain property rights to the physical and digital representations of the works.

#### QUALITY STATEMENT

The Arizona Geological Survey is not responsible for the accuracy of the records, information, or opinions that may be contained in the files. The Survey collects, catalogs, and archives data on mineral properties regardless of its views of the veracity or accuracy of those data.

Brooks Minerals Charges  
June 1, 1985 to June 1, 1986

---

Payroll	\$88,930.13
Payroll Burden	\$18,619.38
Supervision (Brooks & Brady)	\$41,100.00
Equipment & Building Rentals	\$32,726.29
Supplies	\$43,361.38
Contracted Services	\$15,703.81
Travel & Expense	\$8,716.15
Administration	\$13,102.45
Other & Miscellaneous	\$671.01
Total Direct Cost	\$262,930.60
Management Fee	\$39,359.34
Total	\$302,289.94

---

A.F. Budge (Mining) Limited Expenses  
April 1, 1985 to December 31, 1986

Option Payment to Verde	\$50,000.00
Rent to PD on Hoist	\$18,000.00
Hoist Purchase	\$118,000.00
Brooks' Equipment Purchase	\$80,000.00
Other Equipment Purchase	\$32,948.80
Payroll	\$129,599.29
APS (includes deposit)	\$58,802.01
Other Utilities	\$3,444.80
Supplies	\$51,284.25
Contracted Services & Freight	\$8,844.07
Equipment Rental	\$7,200.88
Maps, Blueprints & Miscellaneous	\$5,952.87
1985 Longyear Drilling	\$148,753.51
Assays & Analyses	\$7,897.42
Insurance (includes State Fund)	\$18,751.15
Medical & Physicals	\$2,158.30
John Lacy: Legal Services	\$11,442.37
Don White Fees & Expenses	\$56,124.35
Other Consultants Fees & Expenses	\$12,742.11
Sub-total	\$821,946.18

---

Total Expenditures  
on U.V.X. Project  
to December 31, 1986  
(unaudited)

\$1,124,236.12

*2 copies  
original  
report.*

Report

on

Exploration

at the

United Verde Extension Mine

Jerome, Yavapai County, Arizona

February, 1986

## Contents

Introduction and Summary.....	1
Development and Access.....	2
Underground Drilling.....	3
Geologic Setting.....	3
Precious Metal Mineralization.....	4
Conclusions.....	8

## Figures

1. Sketch map showing chert bodies and target areas.
2. Plans: 800, 950 and 1100 levels
3. Cross-section A-A'
4. Cross-section C-C'
5. Cross-section E-E'
6. "Gold Stope" longitudinal and cross-section

Appendix A: Assay results from diamond drilling



United Verde Extension Mine  
Jerome, Yavapai County, Arizona

Introduction & Summary

The historic high grade copper property of the United Verde Extension Mine in Jerome, Arizona, is held under lease by A.F. Budge Limited, of Great Britain, from Verde Exploration, Ltd., of New York City.

The U.V.X. Mine produced 3.8 million tons of ore averaging 10.2 percent copper, 0.04 ounce/ton gold and 1.7 ounce/ton silver. This was direct smelting ore. Between 1915 and 1938, the mine also produced about 153,000 ounces of gold.

In 1982, the property was leased from Verde by the Phelps Dodge Corporation, who renovated the Edith Shaft and erected a new headframe. During 1982-83, Phelps Dodge drilled two diamond drill holes (UVX-1 and 2) from a station on the 1100 level.

Access to the mine is via the Edith Shaft, 1900 feet deep. The shaft is serviced by a headframe and hoist under lease-purchase option by Budge's agent, Ben F. Dickerson III d/b/a DMEA Ltd., from the Phelps Dodge Corporation.

Chert-hosted gold and silver mineralization has been found to occur both stratigraphically above and as lateral extensions of the main massive sulfide bodies. Chert zones have been identified by drilling on the 800, 950 and 1100 levels. Areas over 1,000 feet in strike length have been found to contain significant precious metal concentrations analagous to the "Gold

Stope" area. The latter zone was mined in the mid 1930's. It contained about 35,000 tons of silicious smelter flux ores averaging 0.4 oz/ton gold and 2.0 oz/ton silver. Other similar bodies would appear to exist from drilling to date. For example, DDH 806-1, intersected 64 feet of 0.11 oz/ton gold and 1.4 oz/ton silver. Some higher grade sections are included.

More diamond drilling from available sites could be done, however, each of the several identified mineralized zones occur within a few hundred feet of existing workings. A program combining clean-up of caved workings, possibly some new drifting, and additional drilling would allow a more thorough and cost-effective testing of the targets.

#### Development and Present Access

The Edith Shaft provides current access. It and an adjacent shaft, the Audrey, located 200 feet to the east, are both concrete-lined, three compartment shafts. The Edith bottoms at the 1900 level; the Audrey, at the 1700 level. Water level fluctuates around the sill of the 1300 level. The mine has not been dewatered since its closure in 1938. The Josephine Tunnel, driven over two miles from the Verde Valley, provided haulage, and now, drainage, from the 1300 level of the shafts.

Levels accessible via the Edith Shaft are the 550, 800, 950, 1100 and 1200. Levels below that are at 100-foot intervals. Most of the sulfide ores were mined from an area between the 1300 and 1500 levels. The siliceous, precious metal bearing, flux ores came mainly from the 950 and 1100 levels.

Caving of workings precludes easy access to any of the old productive base-metal sulfide zones. Only a few siliceous bodies with insignificant production and minor gold values are physically accessible on the 800 and 1200 levels. The expense and uncertainty involved in re-opening old workings has confined current exploration to diamond drilling.

### Underground Drilling

In June of 1985, Brooks Minerals Inc., of Lakewood, Colorado was retained as mining contractor in order to prepare certain areas of the mine for underground drilling.

Longyear Drilling Company mobilized an air-powered drill rig and drilling began August 12 on hole 1104-1. In September, a second drill rig was added. This rig began drilling on hole 901-1.

A total of 3,517 ft of underground drilling (HW, NW, BW) was carried out: three holes were drilled from the 1100 level; three, including one abandoned before reaching its target, were drilled from the 950 level; and one hole was drilled from the 800 level.

In general, core recovery was quite satisfactory. Overall assay results are presented in Appendix A.

Appendix A also includes more detailed analyses of a few samples, selected in order to determine the cherts' potential as a smelter flux.

### Geologic Setting

The copper-bearing bodies at the U.V.X. are of a

Proterozoic, volcanogenic massive sulfide nature. They lie within a sequence of structurally deformed intermediate to felsic volcanic submarine flows, containing pyroclastics and chemical precipitates. In the mine area, this sequence stands nearly vertical. Their stratigraphic tops lie to the northeast.

The copper orebodies were blind since they were completely covered by a sequence of Paleozoic and Tertiary rocks about five hundred feet thick.

All of the U.V.X. copper orebodies, plus the mineralized chert, are found in a structural block lying northeast of the major Verde Fault, which truncated the main U.V.X. orebody. This normal fault forms the west side of the Verde graben, and has dropped the U.V.X. deposit to a lower elevation than the United Verde orebody which lies in the footwall block of the Verde Fault.

#### Precious Metal Mineralization

The massive sulfide ores averaged 0.04 oz/ton gold and locally contained as much as 0.1 oz/ton gold. However, the best precious metal mineralization is clearly segregated from the massive sulfides. Gold and silver, with virtually no base metals, occur within meta-chert bodies which appear to surround and extend laterally from, the massive sulfide bodies.

These meta-cherts are, in part, true cherts in that they contain finely banded, siliceous chemical precipitates. They are also silicified hydrothermal breccias containing lithic fragments from below, such as the Cleopatra quartz porphyry, the footwall of the massive sulfide and ore. Nearly all the primary



chert has been fractured by hydrothermal activity and then healed by material containing additional silica and iron.

So far, the evidence indicates the probability of at least two major mineralizing events. One was the syngenetic, auriferous chert formation. Syngenesi is suggested by a classic precious metal and trace element association which includes minor quantities of arsenic, antimony, bismuth, tin, molybdenum and vanadium. Secondly, the ubiquitousness of the hydrothermal brecciation, coupled with the nature of some wall rock alteration suggests some mineralizing epigenetic event. It seems probable that the chemical evolution of the hydrothermal fluids yielded a solution rich in precious metals, silica and gas, in particular, CO<sub>2</sub>. Under confining pressure, this solution hydro-fractured its way through the pre-existing chert, silicifying and mineralizing it enroute. Certain components of the mineralizing fluids passed completely through, causing silicification, sericitization and kaolinization of the chert zone's immediate hanging wall. The gas-rich fractions of these fluids were more mobile. They appear to have produced more distant hanging wall carbonate alteration which is found as much as two hundred feet stratigraphically above the known gold zones.

This combined sequence of syngenetic and epigenetic activity may explain why the gold mineralization seems to be stratabound, but not necessarily stratiform. An example is shown in cross-section A-A'.

One small precious-metal-rich chert body was mined in the 1930's and was mixed as "flux rock" with the massive sulfide ore. This body was known as the "Gold Stope", and produced about



35,000 tons averaging 0.4 oz/ton gold (range from 0.1 oz/ton to 2.5 oz/ton). Silver averaged nearly 2.0 oz/ton. This production came from an irregularly mined zone approximately 20 feet thick, 300 feet long and 150 feet high. Its center was on the 950 level. The "Gold Stope" is shown in both longitudinal and cross section, in figure 6.

From this stope's geometry and grade distribution, it appears that the "Gold Stope" may represent a coalescing series of small mineralizing vents lying peripheral to the main massive sulfide vent(s). These smaller vents produced a gold grade zonation as shown in figure 6. Gold content is higher near the footwall of the vents and appears to spread radially from each point source.

Diamond drill hole 901-3 was drilled just up-dip from the center of the "Gold Stope" in order to confirm the lithology of the host rocks and to gain some feel for the grade of the material not mined. This mineralized intercept is similar in grade and lithology to that of other gold occurrences in other sections of the mine, as found from recent drilling. This indicates that other relatively high grade gold concentrations probably occur within the fairly extensive chert zones. The extent of the known chert occurrences are shown on the level plans, figure 2, and as projected vertically from each of three levels to a common plane, in figure 1. The plunge of the chert bodies is such that drilling was performed from the 1100 level, near the southeast end of the identified cherts; at the 950 level in proximity to the "Gold Stope" (mid-point); and from the

800 level in the northwest. Three sections are presented, A-A', C-C' and E-E' (figures 3, 4 and 5) to show some of the drilling from these three levels. The nomenclature for the various target areas is shown in figure 1. Essentially, the 1100-level drilling tested the "Florenzia area", just north of the southerly dipping Florenzia Fault; the 950-level drilling, the "1205-vein area" encompassing the "Gold Stope"; and the 800-level drilling, the "Verde area" to the west, in proximity to the Verde Fault.

The Florenzia area has been drilled the most because it is only 200 feet from the initial drill station used by both Phelps Dodge in 1982 (DDH UVX-1 and UVX-2) and by DMEA (DDH 1104-1, 2 and 3). Despite the more concentrated drilling, it is possibly an area of only modest tonnage potential.

The 1205 vein area encompasses the "Gold Stope" and extends northwesterly from the Florenzia area for at least 1,000 feet. The gold content of the margins of the "Gold Stope" are reasonably well documented from historical production data. They range from 0.1 to 0.5 oz/ton gold. The northern extremity of the zone seems to be only slightly mineralized, judging from sampling on the 1200 and 800 levels.

The Verde chert zone is by far the most extensive of the targets and has the largest tonnage potential. One drill hole has penetrated this zone. Hole 806-1 intercepted 64 feet averaging 0.11 oz/ton gold and 1.4 oz/t silver. This section includes three higher grade intervals, the best of which is 13 feet of 0.24 oz/ton gold and 2.2 oz/ton silver.

### Conclusions

Additional exploration is required in order to acquire a better grasp of the economic potential of the United Verde Extension mine property.

This report was prepared under the direction and supervision of Ben F. Dickerson III, a Registered and Certified Professional Geologist.



Appendix A  
Assay Results  
from  
Diamond Drilling

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	To	Interval	Gold oz/t	Silver oz/t
UVX-2	1983	657	667	10	< 0.003	0.24	\$1.44					
		667	679	12	< 0.003	0.01	\$0.06					
		679	686	7	< 0.003	< 0.01	\$0.00					
1104-1	8-85	193	200	7	0.065	0.44	\$23.44					
		200	205	5	0.040	0.42	\$15.32					
		205	210	5	0.070	0.35	\$24.50					
		210	215	5	0.110	0.36	\$37.36	193	215	22.0	0.071	0.40
		215	220	5	0.045	0.43	\$16.98	193	225	32.0	0.063	0.40
		220	225	5	0.050	0.41	\$18.46					
		225	230	5	0.010	0.74	\$7.64					
		230	235	5	0.005	0.63	\$5.38					
		235	240	5	0.025	0.57	\$11.42					
		240	245	5	0.105	0.57	\$37.02					
		245	250	5	0.115	0.42	\$39.32					
		250	255	5	0.115	0.59	\$40.34	240	255	15.0	0.112	0.53
		255	260	5	0.055	0.33	\$19.58	240	260	20.0	0.098	0.48
		260	265	5	0.010	0.54	\$6.44					
		265	270	5	< 0.005	0.31	\$1.86					
		270	275	5	0.015	0.31	\$6.66					
		275	280	5	0.105	0.23	\$34.98					
		280	285	5	0.050	0.12	\$16.72					
		285	290	5	0.015	0.19	\$5.94					
		290	295	5	< 0.005	0.30	\$1.80					
		295	300	5	< 0.005	0.29	\$1.74					
		300	305	5	0.010	0.43	\$5.78					
		305	310	5	< 0.005	0.50	\$3.00					
		310	314	4	< 0.005	0.35	\$2.10					
		314	319	5	< 0.005	0.34	\$2.04					
		319	327	8	< 0.005	0.33	\$1.98					
		327	331	4	< 0.005	0.40	\$2.40					
		331	335	4	< 0.005	0.07	\$0.42					
		355	362	7	< 0.005	0.10	\$0.60					
		362	365	3	0.020	0.58	\$9.88					
		365	370	5	0.010	0.50	\$6.20					
		370	375	5	0.030	0.54	\$12.84					
		375	380	5	0.035	0.62	\$14.92					
		380	385	5	0.050	0.46	\$18.76					
		385	390	5	< 0.005	0.25	\$1.50					
		390	395	5	0.015	0.32	\$6.72					
		395	400	5	0.015	0.25	\$6.30					
		400	405	5	< 0.005	0.50	\$3.00					
		405	410	5	0.035	0.60	\$14.80					
		410	413	3	< 0.005	0.53	\$3.18					
		413	420	7	< 0.005	0.29	\$1.74					



Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
1104-1	8-85	193	200	7	0.065	0.44	\$23.44					
		200	205	5	0.040	0.42	\$15.32					
		205	210	5	0.070	0.35	\$24.50					
		210	215	5	0.110	0.36	\$37.36	193	215	22.0	0.071	0.40
		215	220	5	0.045	0.43	\$16.98	193	225	32.0	0.063	0.40
		220	225	5	0.050	0.41	\$18.46					
		225	230	5	0.010	0.74	\$7.64					
		230	235	5	0.005	0.63	\$5.38					
		235	240	5	0.025	0.57	\$11.42					
		240	245	5	0.105	0.57	\$37.02					
		245	250	5	0.115	0.42	\$39.32					
		250	255	5	0.115	0.59	\$40.34	240	255	15.0	0.112	0.53
		255	260	5	0.055	0.33	\$19.58	240	260	20.0	0.098	0.48
		260	265	5	0.010	0.54	\$6.44					
		265	270	5	< 0.005	0.31	\$1.86					
		270	275	5	0.015	0.31	\$6.66					
		275	280	5	0.105	0.23	\$34.98					
		280	285	5	0.050	0.12	\$16.72					
		285	290	5	0.015	0.19	\$5.94					
		290	295	5	< 0.005	0.30	\$1.80					
		295	300	5	< 0.005	0.29	\$1.74					
		300	305	5	0.010	0.43	\$5.78					
		305	310	5	< 0.005	0.50	\$3.00					
		310	314	4	< 0.005	0.35	\$2.10					
		314	319	5	< 0.005	0.34	\$2.04					
		319	327	8	< 0.005	0.33	\$1.98					
		327	331	4	< 0.005	0.40	\$2.40					
		331	335	4	< 0.005	0.07	\$0.42					
		355	362	7	< 0.005	0.10	\$0.60					
		362	365	3	0.020	0.58	\$9.88					
		365	370	5	0.010	0.50	\$6.20					
		370	375	5	0.030	0.54	\$12.84					
		375	380	5	0.035	0.62	\$14.92					
		380	385	5	0.050	0.46	\$18.76					
		385	390	5	< 0.005	0.25	\$1.50					
		390	395	5	0.015	0.32	\$6.72					
		395	400	5	0.015	0.25	\$6.30					
		400	405	5	< 0.005	0.50	\$3.00					
		405	410	5	0.035	0.60	\$14.80					
		410	413	3	< 0.005	0.53	\$3.18					
		413	420	7	< 0.005	0.29	\$1.74					

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
1104-1	8-85	512	516	4	< 0.005	0.05	\$0.30					
		531	534	3	< 0.005	0.18	\$1.08					
		555	559	4	< 0.005	0.32	\$1.92					
1104-2	9-85	205	209	4	0.010	0.15	\$4.10					
		209	214	5	0.050	0.58	\$19.48					
		214	220	6	0.050	0.71	\$20.26					
		220	222	2	0.105	0.64	\$37.44					
		222	224	2	0.030	0.83	\$14.58					
		224	226	2	0.070	0.58	\$25.88					
		226	228	2	0.065	0.47	\$23.62					
		228	230	2	0.015	0.45	\$7.50					
		230	232	2	0.070	0.33	\$24.38					
		232	234	2	0.040	0.33	\$14.78					
		234	236	2	0.050	0.40	\$18.40					
		236	238	2	0.045	0.29	\$16.14					
		238	240	2	0.210	0.53	\$70.38					
		240	242	2	0.230	0.44	\$76.24					
		242	244	2	0.135	0.20	\$44.40					
		244	246	2	0.115	0.42	\$39.32					
		246	248	2	0.085	0.45	\$29.90	238	246	8.0	0.173	0.40
		248	250	2	0.120	0.28	\$40.08	238	252	14.0	0.144	0.38
		250	252	2	0.110	0.37	\$37.42	209	252	43.0	0.082	0.49
		252	254	2	< 0.005	0.16	\$0.96					
		254	258	4	0.065	0.55	\$24.10					
		258	262	4	< 0.005	0.16	\$0.96					
		262	266	4	< 0.005	0.15	\$0.90					
		266	270	4	< 0.005	0.14	\$0.84					
		270	274	4	< 0.005	0.15	\$0.90					
		274	275	1	< 0.005	0.46	\$2.76					
		275	277	2	0.005	0.43	\$4.18					
		277	279	2	0.025	0.38	\$10.28					
		279	281	2	0.015	0.48	\$7.68					
		281	283	2	< 0.005	0.48	\$2.88					
		283	286	3	< 0.005	0.35	\$2.10					
		287	290	3	0.005	0.34	\$3.64					
		290	294	4	< 0.005	0.47	\$2.82					
		294	296	2	< 0.005	0.45	\$2.70					
		296	298	2	< 0.005	0.60	\$3.60					
		298	300	2	< 0.005	0.69	\$4.14					
		300	302	2	0.005	0.71	\$5.86					
		302	304	2	0.005	0.83	\$6.58					
		304	306	2	< 0.005	0.32	\$1.92					
		306	308	2	< 0.005	0.31	\$1.86					

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	Mineralized From To Interval	Gold oz/t	Silver oz/t
1104-2	9-85	308	310	2	0.005	0.95	\$7.30			
		310	312	2	< 0.005	0.61	\$3.66			
		312	314	2	< 0.005	0.62	\$3.72			
		314	316	2	0.010	0.71	\$7.46			
		316	318	2	0.010	0.70	\$7.40			
		318	320	2	< 0.005	0.40	\$2.40			
		320	322	2	< 0.005	0.53	\$3.18			
		322	324	2	0.010	0.84	\$8.24			
		324	326	2	0.010	0.62	\$6.92			
		326	328	2	0.040	1.87	\$24.02			
		328	330	2	0.090	0.59	\$32.34			
		330	332	2	0.080	0.42	\$28.12			
		332	334	2	0.050	0.43	\$18.58	326 334 8	0.065	0.83
		334	336	2	0.010	0.60	\$6.80			
		336	338	2	< 0.005	0.39	\$2.34			
		338	340	2	< 0.005	0.55	\$3.30			
		340	342	2	< 0.005	0.74	\$4.44			
		342	344	2	< 0.005	0.58	\$3.48			
		344	346	2	< 0.005	0.48	\$2.88			
		346	349	3	< 0.005	0.44	\$2.64			
		349	350	1	< 0.005	0.42	\$2.52			
		350	354	4	< 0.005	0.18	\$1.08			
		517	521	4	< 0.005	0.29	\$1.74			
		521	526	5	0.060	1.52	\$28.32			
		526	529	3	0.040	1.94	\$24.44			
		529	534	5	0.010	0.82	\$8.12			
		534	538	4	0.030	1.45	\$18.30			
		538	542	4	0.010	0.70	\$7.40			
		542	545	3	0.005	0.66	\$5.56			
		545	548	3	0.010	0.83	\$8.18			
		548	551	3	0.010	1.03	\$9.38			
		551	557	6	< 0.005	0.41	\$2.46			
		557	563	6	0.005	0.38	\$3.88			
		563	567	4	0.010	0.74	\$7.64			
		567	569	2	< 0.005	0.38	\$2.28			
		569	572	3	< 0.005	0.58	\$3.48			
		572	575	3	0.030	1.19	\$16.74			
		575	578	3	0.035	1.35	\$19.30			
		578	581	3	0.045	1.45	\$23.10			
		581	584	3	0.070	1.63	\$32.18			
		584	587	3	0.030	0.66	\$13.56			
		587	590	3	< 0.005	0.46	\$2.76			
		590	593	3	< 0.005	0.36	\$2.16			
		593	598	5	0.010	0.46	\$5.96			
		598	601	3	0.080	0.70	\$29.80			

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	To	Interval	Gold oz/t	Silver oz/t
		601	604	3	0.040	0.74	\$17.24					
		604	608	4	0.160	0.90	\$56.60					
		608	610	2	0.045	0.65	\$18.30	598	610	12	0.091	0.77
		610	613	3	0.015	0.32	\$6.72					
		613	615	2	0.010	0.33	\$5.18					
		615	618	3	0.110	0.77	\$39.82	598	618	20	0.060	0.66
		618	620	2	0.010	1.79	\$13.94					
		620	622	2	< 0.005	0.46	\$2.76					
		622	624	2	< 0.005	0.32	\$1.92					
		624	626	2	0.020	0.58	\$9.88					
		626	628	2	< 0.005	0.53	\$3.18					
		628	630	2	0.005	0.39	\$3.94					
		630	633	3	0.030	0.64	\$13.44					
		633	635	2	< 0.005	0.62	\$3.72					
		635	638	3	0.015	0.53	\$7.98					
		638	640	2	< 0.005	0.45	\$2.70					
		640	642	2	0.035	0.47	\$14.02					
		642	646	4	< 0.005	0.25	\$1.50					
		646	651	5	< 0.005	0.21	\$1.26					
		657	661	4	< 0.005	0.22	\$1.32					
		666	670	4	< 0.005	0.27	\$1.62					
		678	682	4	< 0.005	0.11	\$0.66					
		690	693	3	< 0.005	0.18	\$1.08					
		700	702	2	< 0.005	0.17	\$1.02					
		705	710	5	< 0.005	0.56	\$3.36					
		710	712	2	< 0.005	0.66	\$3.96					
		712	716	4	0.005	0.52	\$4.72					
		716	719	3	0.030	0.62	\$13.32					
		722	725	3	< 0.005	0.69	\$4.14					
		725	730	5	0.005	0.55	\$4.90					

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
1104-3	11-85	212	217	5	< 0.001	0.09	\$0.54					
		217	222	5	0.002	0.12	\$1.36					
		222	227	5	0.013	0.24	\$5.60					
		227	229	2	0.156	0.39	\$52.26					
		229	233	4	0.159	0.31	\$52.74					
		233	236	3	0.114	0.30	\$38.28	227	236	9	0.143	0.32
		236	238	2	0.001	0.35	\$2.42					
		238	241	3	0.058	0.27	\$20.18					
		241	244	3	0.132	0.41	\$44.70					
		244	246	2	0.204	0.37	\$67.50	227	246	19	0.119	0.34
		246	248	2	0.070	0.39	\$24.74					
		248	250	2	0.053	0.30	\$18.76					
		250	253	3	0.082	0.17	\$27.26					
		253	255	2	0.042	0.60	\$17.04					
		255	258	3	0.064	0.30	\$22.28					
		258	260	2	0.064	0.29	\$22.22					
		260	263	3	0.077	0.20	\$25.84					
		263	266	3	0.065	0.25	\$22.30					
		266	269	3	0.096	0.16	\$31.68					
		269	271	2	0.034	0.30	\$12.68					
		271	274	3	0.083	0.31	\$28.42					
		274	276	2	0.045	0.20	\$15.60	227	276	49	0.087	0.30
		276	278	2	0.023	0.41	\$9.82					
		278	281	3	0.003	0.60	\$4.56					
		281	283	2	0.018	0.53	\$8.94					
		283	285	2	0.003	0.54	\$4.20					
		285	287	2	0.009	0.55	\$6.18					
		287	289	2	0.008	0.53	\$5.74					
		289	292	3	0.018	0.52	\$8.88					
		292	298	6	0.081	0.43	\$28.50					
		298	300	2	0.008	0.58	\$6.04					
		300	302	2	0.003	0.49	\$3.90					
		302	304	2	0.012	0.43	\$6.42					
		304	307	3	0.007	0.49	\$5.18					
		307	310	3	0.036	0.46	\$14.28					
		310	312	2	0.013	0.41	\$6.62					
		312	314	2	0.003	0.12	\$1.68					
		314	316	2	0.014	0.37	\$6.70					
		316	321	5	0.023	0.41	\$9.82					
		321	325	4	0.019	0.29	\$7.82					
		325	328	3	0.015	0.56	\$8.16					
		328	330	2	0.034	0.39	\$13.22					
		330	333	3	0.054	0.56	\$20.64					
		333	335	2	0.005	0.58	\$5.08					
		335	339	4	0.009	0.24	\$4.32					
		366	370	4	0.003	0.09	\$1.50					



Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	Mineralized From	To	Interval	Gold oz/t	Silver oz/t	Copper %
1104-3	11-85	415	420	5	Nil	0.01	\$0.06						
		420	422	2	0.006	0.03	\$2.10						
		422	425	3	0.003	0.18	\$2.04						
901-1	9-85	325	329	4	< 0.001	0.19	\$1.14						
		329	332	3	< 0.001	0.51	\$3.06						
		332	335	3	0.015	0.40	\$7.20						
		335	338	3	0.180	0.50	\$60.60						
		338	341	3	0.110	0.80	\$40.00	335	341	6	0.145	0.65	
		341	344	3	0.045	3.62	\$36.12						
		344	347	3	0.025	3.08	\$26.48						
		347	350	3	0.025	1.22	\$15.32						
		350	353	3	0.010	1.10	\$9.80						
		353	355	2	0.020	1.02	\$12.52						
		355	358	3	0.075	0.64	\$27.84	332	358	26	0.058	1.39	
901-2	11-85	239	242	3	< 0.001	0.34	\$2.04						
		242	244	2	0.006	0.29	\$3.66						
		244	247	3	0.017	0.81	\$10.30						
		247	248	1	0.016	0.33	\$7.10						
		248	250	2	0.004	0.29	\$3.02						
		250	254	4	0.001	0.15	\$1.22						0.174
		254	256	2	< 0.001	0.20	\$1.20						0.360
		256	258	2	< 0.001	0.21	\$1.26						1.160
		258	260	2	< 0.001	0.12	\$0.72						1.400
		260	265	5	< 0.001	< 0.01	\$0.00						
		276	279	3	< 0.001	0.13	\$0.78						
		287	290	3	< 0.001	0.09	\$0.54						
		313	316	3	0.003	0.14	\$1.80						
		326	329	3	< 0.001	0.14	\$0.84						
		341	343	2	0.001	0.05	\$0.62						1.400
		355	357	2	0.002	0.20	\$1.84						2.250
		357	359	2	< 0.001	0.19	\$1.14						3.620
		367	369	2	0.006	0.06	\$2.28						1.300
		376	378	2	0.002	0.12	\$1.36						0.232
		386	388	2	0.003	0.19	\$2.10						1.980
		398	402	4	0.002	0.19	\$1.78						0.498

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	To	Interval	Gold oz/t	Silver oz/t	Copper %
901-2	11-85	417	421	4	< 0.001	0.19	\$1.14						0.458
901-3	11-85	268	272	4	< 0.001	0.47	\$2.82						
		272	274	2	< 0.001	0.72	\$4.32						
		274	276	2	< 0.001	0.76	\$4.56						
		276	278	2	< 0.001	0.95	\$5.70						
		278	280	2	< 0.001	0.62	\$3.72						
		280	282	2	< 0.001	0.44	\$2.64						
		282	284	2	< 0.001	0.70	\$4.20						
		284	288	4	< 0.001	0.62	\$3.72						
		288	291	3	< 0.001	0.35	\$2.10						
		291	293	2	0.010	0.79	\$7.94						
		293	295	2	0.016	1.18	\$12.20						
		295	300	5	0.008	1.14	\$9.40						
		300	302	2	0.037	2.06	\$24.20						
		302	306	4	0.070	1.55	\$31.70						
		306	309	3	0.032	2.82	\$27.16						
		309	312	3	0.029	1.17	\$16.30						
		312	314	2	0.064	1.39	\$28.82						
		314	316	2	0.241	3.74	\$99.56	314	321	7	0.183	3.126	
		316	321	5	0.160	2.88	\$68.48						
		321	326	5	0.031	1.42	\$18.44	300	326	26	0.081	2.079	
		326	331	5	0.008	0.24	\$4.00						
		339	343	4	< 0.001	0.24	\$1.44						

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
806-1	12-85 and 1-86	82	84	2	< 0.001	0.18	\$1.08					
		84	87	3	< 0.001	0.18	\$1.08					
		87	90	3	< 0.001	0.85	\$5.10					
		90	92	2	< 0.001	0.81	\$4.86					
		92	94	2	< 0.001	0.70	\$4.20					
		94	96	2	< 0.001	0.70	\$4.20					
		96	98	2	< 0.001	0.67	\$4.02					
		98	101	3	< 0.001	0.65	\$3.90					
		101	103	2	< 0.001	0.48	\$2.88					
		103	106	3	< 0.001	0.69	\$4.14					
		106	108	2	< 0.001	0.86	\$5.16					
		108	112	4	< 0.001	0.32	\$1.92					
	samples	806	353		< 0.001	0.29	\$1.74					
		806	363		< 0.001	0.65	\$3.90					
		806	373		< 0.001	0.40	\$2.40					
		806	383		< 0.001	0.61	\$3.66					
		806	393		< 0.001	0.61	\$3.66					
		806	403		< 0.001	0.51	\$3.06					
		806	413		< 0.001	0.62	\$3.72					
		806	423		< 0.001	0.35	\$2.10					
		458	461	3	0.006	0.18	\$3.00					
		474	477	3	0.001	0.36	\$2.48					
		477	481	4	< 0.001	0.31	\$1.86					
		481	482	1	0.009	0.31	\$4.74					
		482	487	5	0.002	0.92	\$6.16					
		487	492	5	0.008	1.18	\$9.64					
		492	497	5	0.005	0.95	\$7.30					
		497	499	2	0.002	0.73	\$5.02					
		499	501	2	0.003	0.60	\$4.56					
		501	504	3	0.004	0.60	\$4.88					
	sludge	501	504	3	0.004	0.53	\$4.46					
		504	509	5	0.070	1.34	\$30.44					
		509	514	5	0.035	0.79	\$15.94					
		514	516	2	0.325	2.54	\$119.24					
		516	518	2	0.140	0.76	\$49.36					
		518	522	4	0.275	2.67	\$104.02					
		522	525	3	0.210	2.27	\$80.82					
		525	527	2	0.205	2.54	\$80.84	514	527	13	0.236	2.24
		527	531	4	0.009	0.74	\$7.32					
		531	533	2	0.085	1.33	\$35.18					

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t	Copper %
806-1	1-86	533	536	3	0.060	1.48	\$28.08						
		536	539	3	0.060	1.49	\$28.14						
		539	541	2	0.030	1.53	\$18.78						
		541	543	2	0.070	1.28	\$30.08						
		543	544	1	0.065	0.96	\$26.56						
		544	546	2	0.160	1.18	\$58.28						
		546	548	2	0.105	1.11	\$40.26						
		548	550	2	0.129	1.15	\$48.18						
		550	552	2	0.054	0.91	\$22.74						
		552	554	2	0.011	0.66	\$7.48	504	554	50	0.104	1.37	
		sludge	504	509	5	0.014	0.40						
		sludge	512	518	6	0.097	1.33						
		sludge	518	523	5	0.122	1.72						
		sludge	523	528	5	0.069	1.05						
		sludge	528	533	5	0.071	0.62						
		554	555	1	0.017	0.62	\$9.16						
		555	558	3	0.070	1.24	\$29.84						
		558	560	2	0.059	1.39	\$27.22						
		560	562	2	0.043	1.72	\$24.08						
		562	565	3	0.024	1.31	\$15.54						
		565	568	3	0.058	1.04	\$24.80						
		568	570	2	0.221	1.05	\$77.02						
		570	572	2	0.202	0.90	\$70.04						
		572	574	2	0.099	1.40	\$40.08						
		574	576	2	0.095	0.56	\$33.76	568	578	10	0.177	0.88	
		576	578	2	0.270	0.48	\$89.28	554	578	24	0.102	1.10	
								504	578	74	0.103	1.28	
		sludge	533	538	5	0.047	1.11						
		sludge	538	543	5	0.061	1.30						
		sludge	543	548	5	0.051	1.04						
		sludge	548	553	5	0.061	1.01						
		sludge	553	558	5	0.060	0.74						
		sludge	558	563	5	0.050	0.98						
		sludge	563	568	5	0.051	1.00						
		sludge	568	573	5	0.136	0.71						
		sludge	573	578	5	0.127	0.87						

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	Mineralized			Gold oz/t	Silver oz/t	Copper %
								From	To	Interval			
806-1	1-86	578	580	2	0.061	0.74	\$23.96						
		580	584	4	0.068	2.29	\$35.50						
		584	587	3	0.031	0.96	\$15.68						
		587	590	3	0.048	1.25	\$22.86						
		590	592	2	0.038	1.45	\$20.86						
		592	594	2	0.060	1.49	\$28.14						
								578	594	16	0.052	1.45	
	sludge	578	583	5	0.060	1.06							
		583	588	5	0.079	0.44		504	594	90	0.094	1.31	
		588	593	5	0.046	1.32							
		601	606	5	< 0.001	1.44	\$8.64						
		606	608	2	0.016	0.60	\$8.72						
		608	610	2	0.010	0.75	\$7.70						
		610	613	3	< 0.001	0.76	\$4.56						
		613	615	2	0.014	0.81	\$9.34						
		615	617	2	0.009	0.66	\$6.84						
		617	620	3	< 0.001	0.61	\$3.66						
		620	626	6	< 0.001	0.51	\$3.06						
		626	628	2	< 0.001	0.17	\$1.02						
		630	632	2	0.014	0.30	\$6.28						
	sludge	608	613	5	0.033	0.56							
		613	623	10	< 0.001	0.39							



Hole No.	From	To	Width (ft)	Gold oz/t	Silver oz/t	Value @ \$350 gold \$6 silver	With	(ft)	From	To	Gold oz/t	Silver oz/t	Value @ \$350 gold \$6 silver
UVX-1 (P-D)	165	260	95	0.072	0.59	\$28.74		20	240	260	0.196	1.54	\$77.84
UVX-2 (P-D)	170	303	133	0.073	0.25	\$27.05		35	268	303	0.177	0.39	\$64.29
1983	482	516	34	0.063	2.14	\$34.89							
	615	647	32	0.093	0.52	\$35.67							
1104-1 (Budge)	193	285	92	0.055	0.43	\$21.83		15	240	255	0.112	0.53	\$42.38
1104-2 (Budge)	209	252	43	0.082	0.49	\$31.64		14	238	252	0.144	0.38	\$52.68
1985	326	334	8	0.065	0.83	\$27.73							
	572	587	15	0.042	1.26	\$22.26							
	598	610	12	0.091	0.77	\$36.47							
1104-3 (Budge)	227	276	49	0.087	0.30	\$32.25		9	227	236	0.143	0.32	\$51.97
901-1	332	358	26	0.058	1.39	\$28.64		6	335	341	0.145	0.65	\$54.65
901-3	300	326	26	0.081	2.08	\$40.82		7	314	321	0.183	3.13	\$82.81
806-1 (Budge)	504	578	74	0.102	1.28	\$43.38		13	514	527	0.236	2.24	\$96.04
1986								10	568	578	0.177	0.88	\$67.23
Weighted average of 10 zones; widths over 20 ft.			51.2	0.078	0.77	\$32.07	Weighted average of 9 zones			14.3	0.171	0.96	\$65.71

UVX: Select core sample Analyses

Sample number	Au (oz/t)	Ag (oz/t)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	FeO (%)	CaO (%)	Na2O (%)	K2O (%)	MgO (%)	As (ppm)
1104-1-280-285	0.050	0.12	98.9	0.04	0.36		0.02	< 0.01	0.02		30.0
1104-1-285-290	0.015	0.19	93.6	0.35	1.60		0.04	0.01	0.03		260.0
1104-1-245-250	0.115	0.42	92.5	0.26	0.90		0.02	0.01	0.02		220.0
901-3-268-272	< 0.001	0.47	71.9	16.60	2.80	0.10	0.10	0.06	2.30	0.44	< 500.0
901-3-272-274	< 0.001	0.72	89.0	1.50	8.70	0.07	0.05	0.03	0.26	0.05	1000.0
901-3-300-302	0.030	1.46	95.3	0.13	0.76	0.10	0.02	< 0.01	0.08	0.01	< 500.0
901-3-314-316	0.250	3.24	94.8	0.07	0.70	0.07	< 0.01	< 0.01	0.09	< 0.01	
901-3-339-343	< 0.001	0.24	59.2	26.30	2.70	0.15	0.12	0.12	1.50	0.26	
806-1-224			52.8	17.40	6.80	5.50	5.10	2.50	0.90	4.50	

U.V.X. DRILLHOLE SUMMARY

D.D.H.	Collar location (UVX grid)			Orientation at collar		E.O.H. Inclination	Length of hole	Chert Intercepts	Avg. core recovery in chert(%)	Remarks
	N	E	Elev.	Bearing	Inclination					
1104-1	11,310	8,140	~4,024	S63°W	+5°	+4°	567	{ 192-331 362-413	{ 90 100	"Florenzia area"
1104-2					+15°	+21°	730	{ 209-350 521-642 712-E.O.H.	{ 90 80 30	
1104-3					-11°	-15°	440	{ 207-335 420-422	{ 80 40	
901-1	11,690	7,750	~4,180	S42°W	+11°	+8°	358	329-E.O.H.	80	Aborted with drilling problems in HW up-dip from Gold Stope
901-2				S40°W	-20°	Not surveyed	421	244-249	30	Intercepted up-dip pinch-out of "1205-vein" cherts
901-3				S65°W	+18°	+7°	367	272-326	70	Up-dip from Gold Stope; clipped fractured back of 903 level drift
806-1	11,890	7,335	~4,335	S33.5°W	-4°	-12°	633	{ 84-108 481-615	{ 100 60	Verde area; clipped 903-N drift

NOTES: Five holes drilled with pneumatic Longyear 34; two holes, 901-1 & 2, drilled with electric-hydraulic LM-37. All drilling done between August 12, 1985 (collaring of 1104-1) and January 29, 1986 (completion of 806-1). Each hole commenced HQ or NQ and reduced core size as needed to case off bad ground or allow power for drilling chert in long holes. Core recovery averaged 90%; usually over 90% in HW stratigraphy; about 80% in FW rocks; chert recovery as noted in chart.

Compiled by Don White  
March, 1986

Assay Results

from

Phelps Dodge

Drilling

1982-83

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	Mineralized From	To	Interval	Gold oz/t	Silver oz/t
UVX-1	1983	150	155	5	0.006	0.26	\$3.48					
		155	160	5	0.006	0.22	\$3.24					
		160	165	5	0.012	0.16	\$4.80					
		165	170	5	0.055	0.16	\$18.56					
		170	175	5	0.038	0.25	\$13.66					
		175	180	5	0.050	0.21	\$17.26					
		180	185	5	0.038	0.20	\$13.36					
		185	190	5	0.053	0.08	\$17.44					
		190	195	5	0.093	0.88	\$35.04					
		195	200	5	0.058	0.17	\$19.58	185	200	15	0.068	0.38
		200	205	5	0.026	0.17	\$9.34					
		205	210	5	0.032	0.14	\$11.08					
		210	215	5	0.018	0.23	\$7.14					
		215	220	5	0.006	0.20	\$3.12					
		220	225	5	0.070	0.72	\$26.72					
		225	230	5	0.020	0.65	\$10.30					
		230	235	5	0.012	0.52	\$6.96					
		235	240	5	0.009	0.40	\$5.28					
		240	245	5	0.160	0.14	\$52.04					
		245	250	5	0.540	1.89	\$184.14					
		250	255	5	0.029	2.32	\$23.20					
		255	260	5	0.055	1.79	\$28.34	240	260	20	0.196	1.54
		260	265	5	0.012	1.38	\$12.12					
		265	270	5	0.009	0.59	\$6.42					
		270	275	5	0.006	0.31	\$3.78					
		275	280	5	< 0.003	0.38	\$2.28					
		280	285	5	< 0.003	0.39	\$2.34					
		285	290	5	< 0.003	0.20	\$1.20					
		290	295	5	< 0.003	0.30	\$1.80					
		295	300	5	< 0.003	0.40	\$2.40					
		300	305	5	< 0.003	0.26	\$1.56					
		305	310	5	< 0.003	0.41	\$2.46					
		310	315	5	< 0.003	0.26	\$1.56					
		315	320	5	< 0.003	0.28	\$1.68					
		320	325	5	< 0.003	0.26	\$1.56					
		325	330	5	< 0.003	0.22	\$1.32					
		330	335	5	< 0.003	0.26	\$1.56					
		335	340	5	< 0.003	0.29	\$1.74					
		340	345	5	< 0.003	0.34	\$2.04					
		345	350	5	< 0.003	0.26	\$1.56					
		350	355	5	< 0.003	0.23	\$1.38					
		355	360	5	< 0.003	0.40	\$2.40					
		360	365	5	< 0.003	0.19	\$1.14					
		365	370	5	< 0.003	0.17	\$1.02					
		370	375	5	< 0.003	0.17	\$1.02					
		375	380	5	0.009	0.07	\$3.30					

## NOTES ON THE UNITED VERDE EXTENSION MINE

The United Verde Extension Ore Zone occupies an area in the hanging wall of the Verde fault about 1500 ft. along the strike of the fault by 600 ft. across. The ore is located in an area of Precambrian schists.

Ore has been mined from the 1900 level to above the 800 level in the schist areas, the bulk coming from between the 1600 and 1100 levels. Some ore has also been mined from the 700 to 300 level in a conglomerate formation in the north end of the ore zone.

The mine has produced 4,110,000 tons of ore. The main orebody produced 2,100,000 tons, in round numbers; the 819 orebody, in the quartz area above the main orebody, produced 200,000 tons. North of the main orebody, the 1507 veins produced 350,000 tons, the 1207 country 475,000 tons. The remainder, some 475,000 ore tons come from smaller orebodies scattered thruout the mine.

Mining in the main orebody began in 1916. Stopes were started in the central portion of the orebody and also near the west edge. Later stopes were started in the east end of the orebody. From then on mining consisted in whitling slices off the ore mass until it was mined out. The mining was carried in steps, so the operations of the different levels did not interfere. The result was that the 1300 level was mined slightly ahead of the 1400, the 1400 ahead of the 1500, and so on.

The ore was mined by the ordinary square set method, with a Mitchell slice used in mining some of the pillars.

Over a period of years it was established that 90% of the square sets mined were filled; and that better than 90% of each set was filled [12 to 13 - 17 cuft. cars per set]. The fill may be assumed to compact 20%. The amount of compacted fill then is  $.9 \times .9 \times .8 = .648$  or 65% of original volume. The timber left in the stopes will run from 8 to 9% by volume. Assuming 50% of the timber rots out, there remains 4% as fill. This leaves voids of 31% of the excavation.

The fill was obtained from the usual development work consisting of drifts raises and shafts, and a surface glory hole. Considerable waste was also sorted out in the stopes, in the outside orebodies.

The excavation made thru mining is very nearly 36,000,000 cuft. or 1,333,000 cu. yds. A figure of 9 cuft. was used in estimating ore reserves. In estimating ore production a figure of 30 tons per square set of 247 cu.ft. was used. This method was used over a period of many years, and production figures checked very closely with shipments to smelter. This gives 8.25 cu. ft. per ton. Allowances for a certain amount of overbreak in mining raises this figure to 8.7 or 8.8.

After mining operations had been carried on for a few years a cave developed in the quartz area above the main orebody. This cave extended up thru the quartz and finally checked itself in the schist areas which it encountered from the 1100 level up. The mining of the smaller orebodies did not develop caves, except of very local character.



The effect of mining operations has been to cause a sag in the overlying rock formations with the greatest sag directly over the main orebody, diminishing from this point in all directions.

In the fall of 1921 the U.V.X. began the development of two new levels, the 950 and 550. These levels were driven for prospecting purposes. Both of these levels passed over the Main Orebody area. A level record dated March, 1918 of a frog at 816/817 in this area gives the elevation as 4340.33. The next record, dated September, 1921, gives 4340.19, a difference of .14 ft. in a  $3\frac{1}{2}$  year period. This marks the beginning of sagging of the formations. The next record, dated January, 1924, gives the elevation as 4339.29, a difference of .90 ft. over the 2 year, 4 month period. Sometime during 1923, a dislocation of the hanging wall of the fault was noticed at the old U.V. hospital, at a point 800 ft. above the described area on the 800 level. This is the first recorded instance of movement of the hanging wall block, to our knowledge.

The hanging wall block involved in the sag has settled slowly and very evenly. On the Bitter Creek Tunnel elevation the drop on the fault is about 2.5 ft. on the footwall proper and about 1 ft. on the hanging wall slip. On the east side there has developed a more or less vertical fracture, extending from below the 1300 to above the 550 level. To the south there is no discernible break on any level. The formations here simply sagged. This is also the case on the north end, with the exception of the 950 level, where some cracks have appeared in a quartz area in that end. The area involved is roughly 800 ft. x 1100 ft. on the 950 level. On the surface it comprises the area between School Gulch to the south, Bitter Creek to the east and north and the Verde fault to the west. The greatest amount of sag on the 950 level of which we have record is 14 ft. This amount is carried up past the 800 level. On the 550 and Bitter Creek elevations the sag amounts to about 12 ft.

During the years that the movement of the hanging wall block has been in progress extensive development work and mining has been carried on in the block.

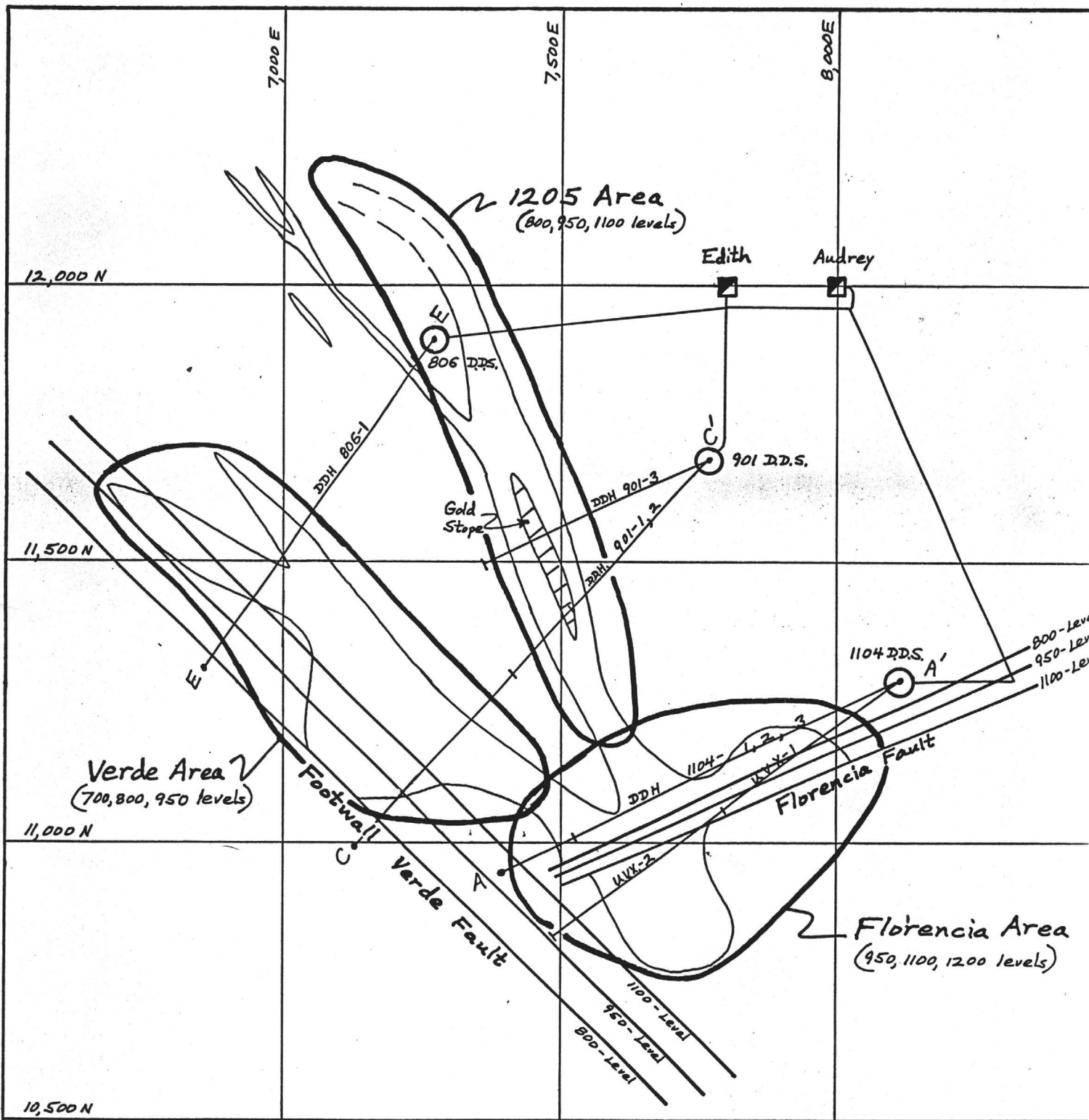
It necessitated raising track and backs of drifts from time to time. But the movement has been so even and gradual that the rock structure within the block is still virtually undisturbed in the Precambrian from the 950 level up, and but very little disturbance is shown in the conglomerate and lava above. This condition also persists on the surface along the Daisy road and in the hillside above.

U.V.X. DRILLHOLE SUMMARY

D.D.H.	Collar location (UVX grid)			Orientation at collar		E.O.H. Inclination	Length of hole	Chert Intercepts	Avg. core recovery in chert(%)	Remarks
	N	E	Elev.	Bearing	Inclination					
1104-1	11,310	8,140	~4,024	S63°W	+5°	+4°	567	{ 192-331 362-413	90 100	"Florencia area"
1104-2					+15°	+21°	730	{ 209-350 521-642 712-E.O.H.	90 80 30	
1104-3					-11°	-15°	440	{ 207-335 420-422	80 40	
901-1	11,690	7,750	~4,180	S42°W	+11°	+8°	358	329-E.O.H.	80	Aborted with drilling problems in HW up-dip from Gold Stope
901-2				S40°W	-20°	Not surveyed	421	244-249	30	Intercepted up-dip pinch-out of "1205-vein" cherts
901-3				S65°W	+18°	+7°	367	272-326	70	Up-dip from Gold Stope; clipped fractured back of 903 level drift
806-1	11,890	7,335	~4,335	S33.5°W	-4°	-12°	633	{ 84-108 481-615	100 60	Verde area; clipped 903-N drift

NOTES: Five holes drilled with pneumatic Longyear 34; two holes, 901-1 & 2, drilled with electric-hydraulic LM-37. All drilling done between August 12, 1985 (collaring of 1104-1) and January 29, 1986 (completion of 806-1). Each hole commenced HQ or NQ and reduced core size as needed to case off bad ground or allow power for drilling chert in long holes. Core recovery averaged 90%; usually over 90% in HW stratigraphy; about 80% in FW rocks; chert recovery as noted in chart.

Compiled by Don White  
March, 1986



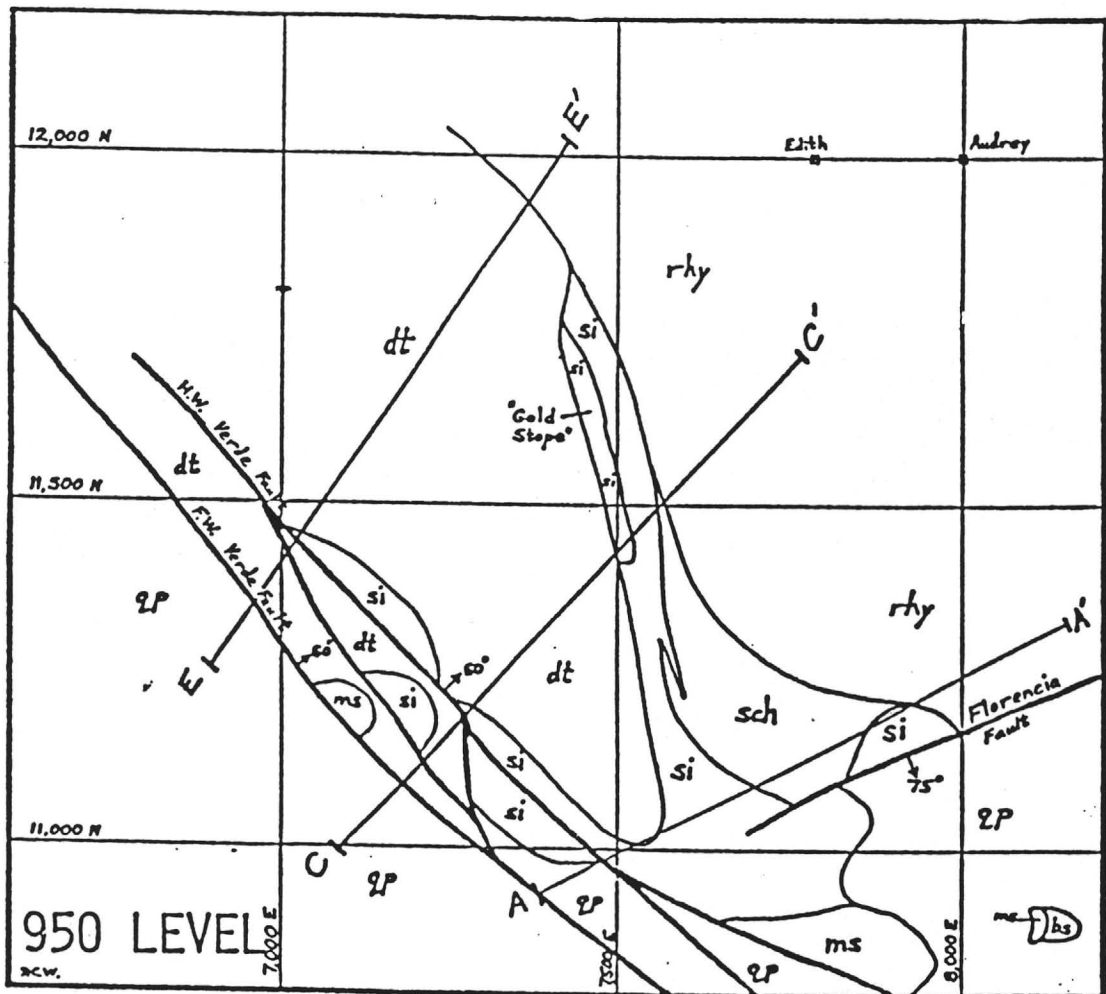
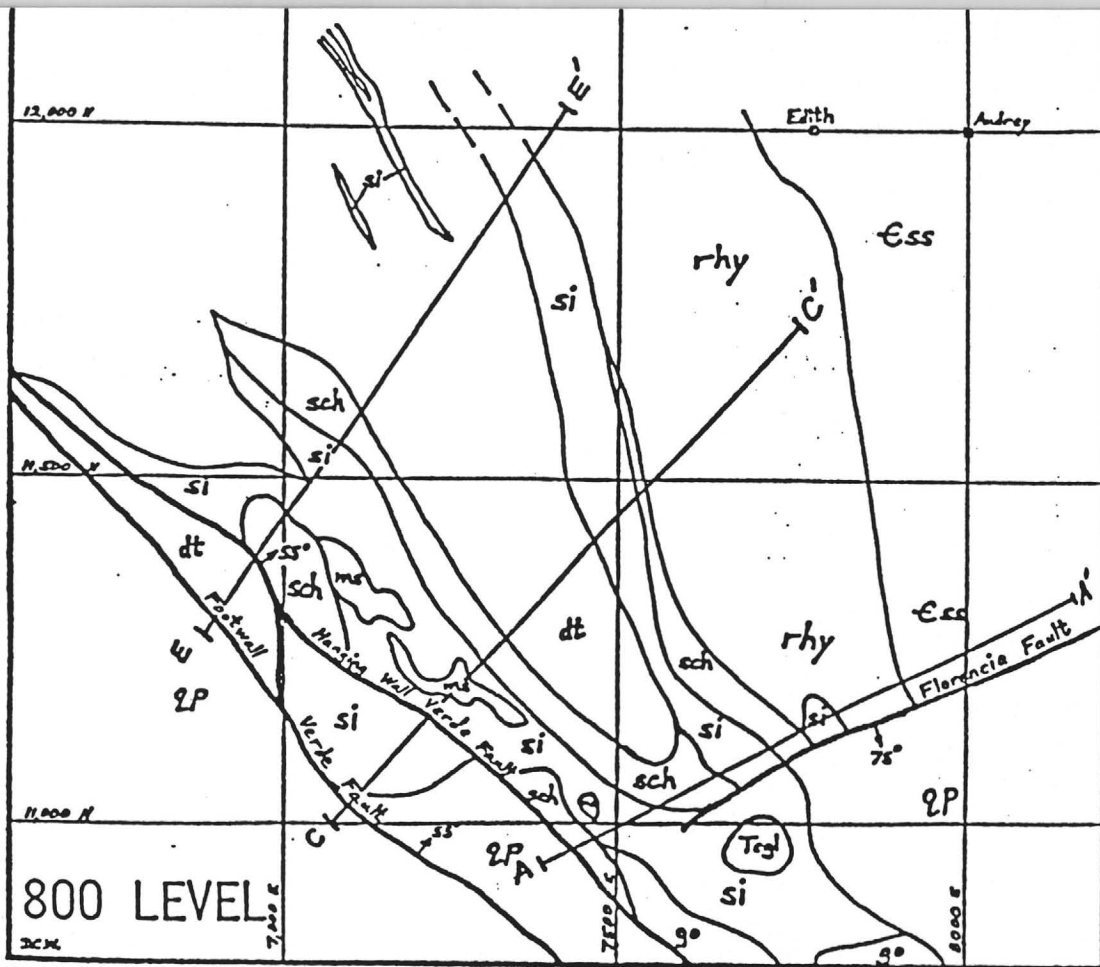
## U.V.X. GOLD PROJECT

Sketch map showing:  
chert bodies/target areas, key cross sections, diamond drill stations

4  
N  
1" = 250'

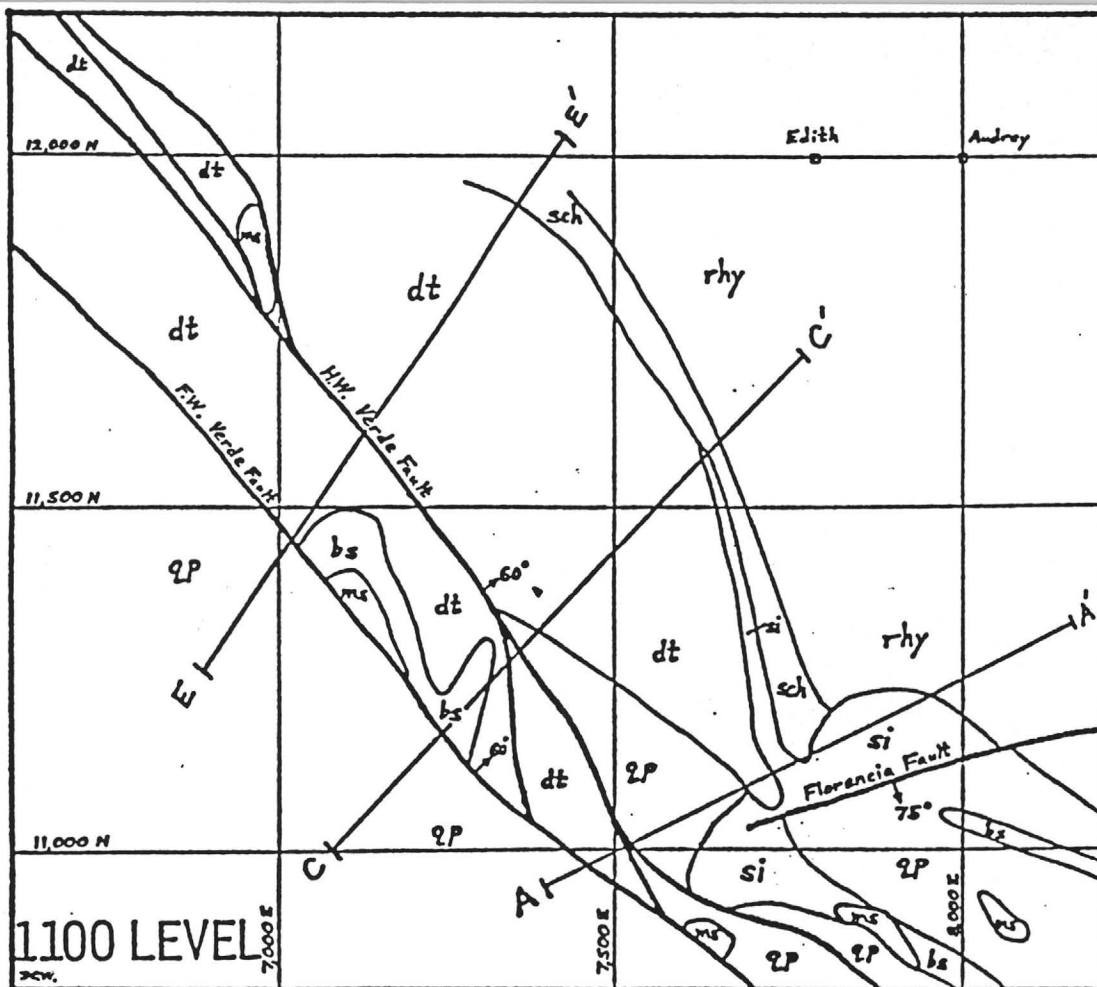
Figure 1

D.C. White & R.W. Hodder - Feb. 1



4  
N  
FEET

0 100 200 300 400 500

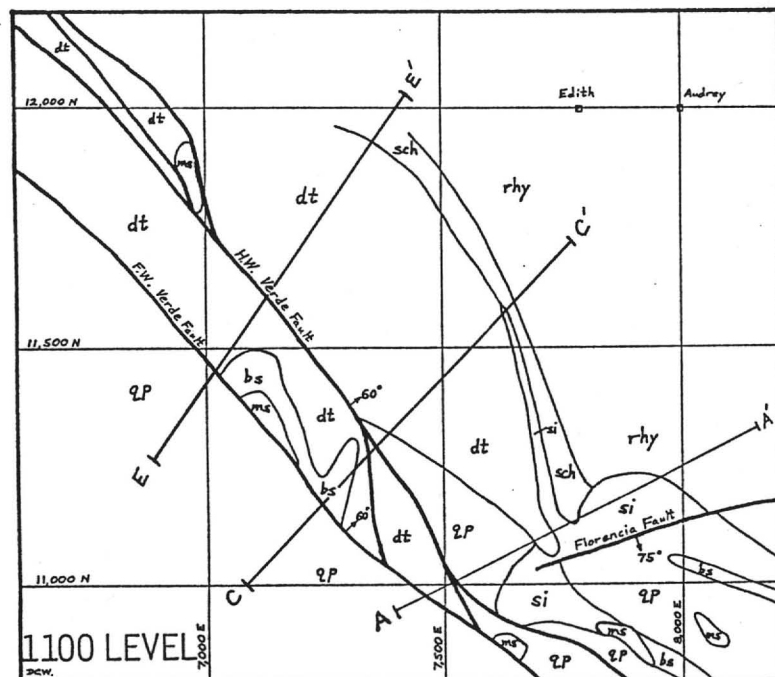
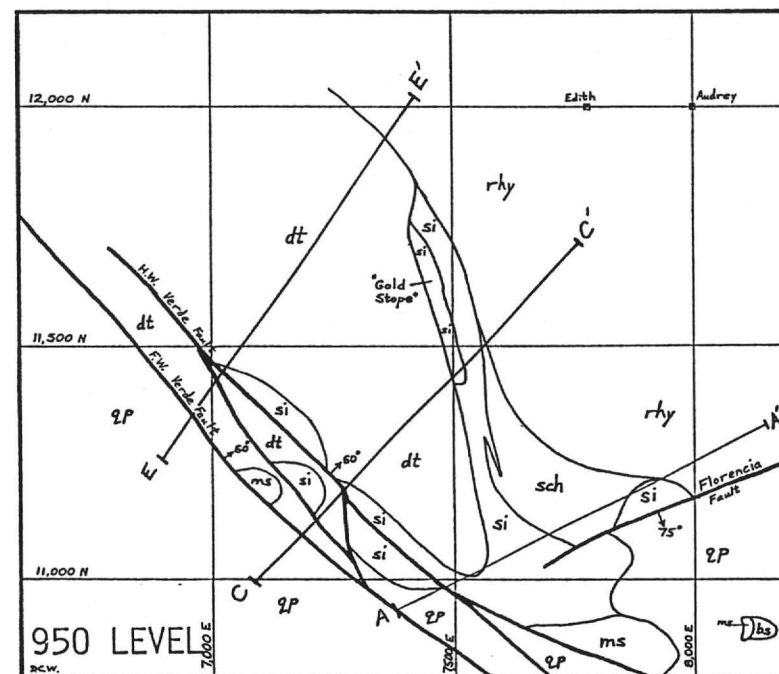
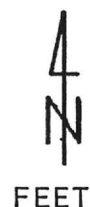
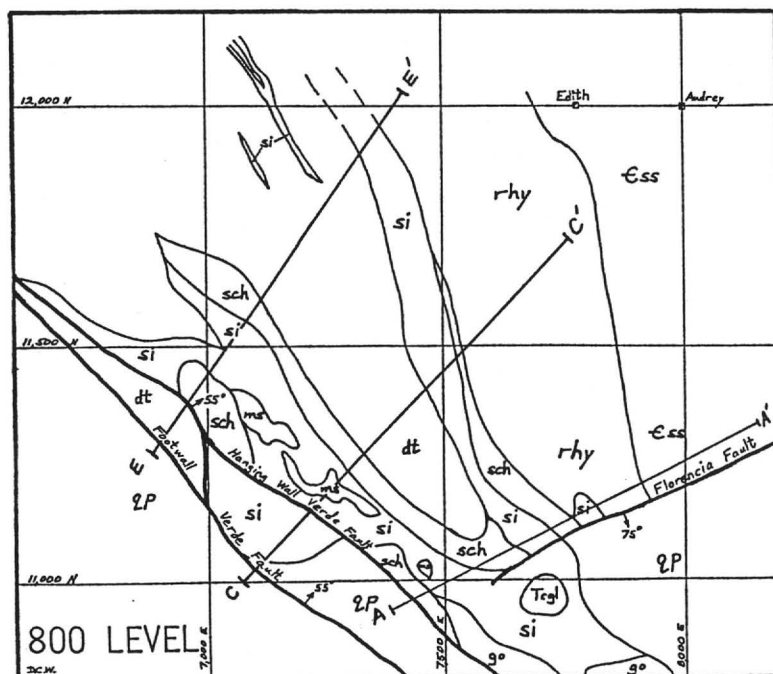


## UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

FIGURE 2

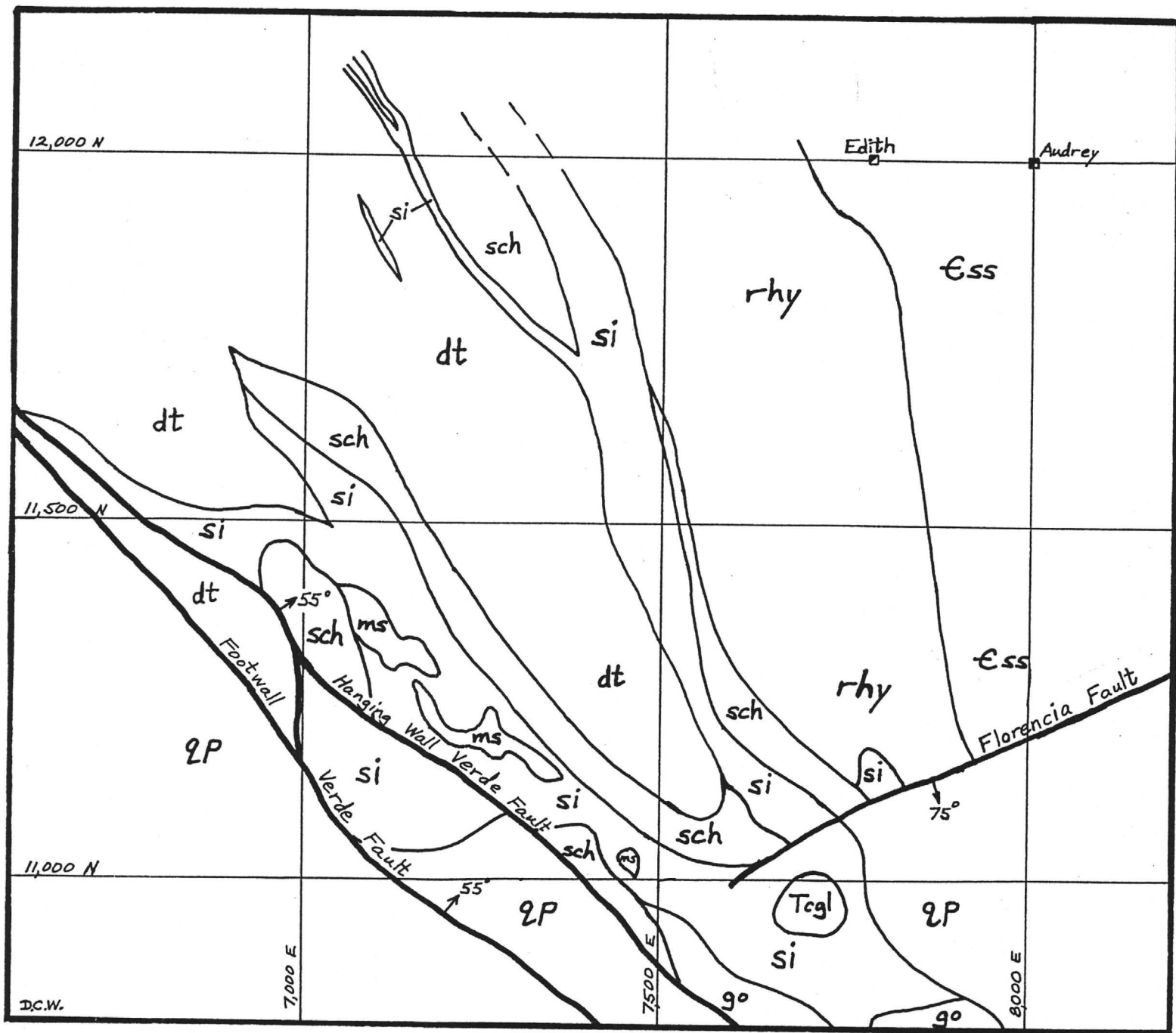




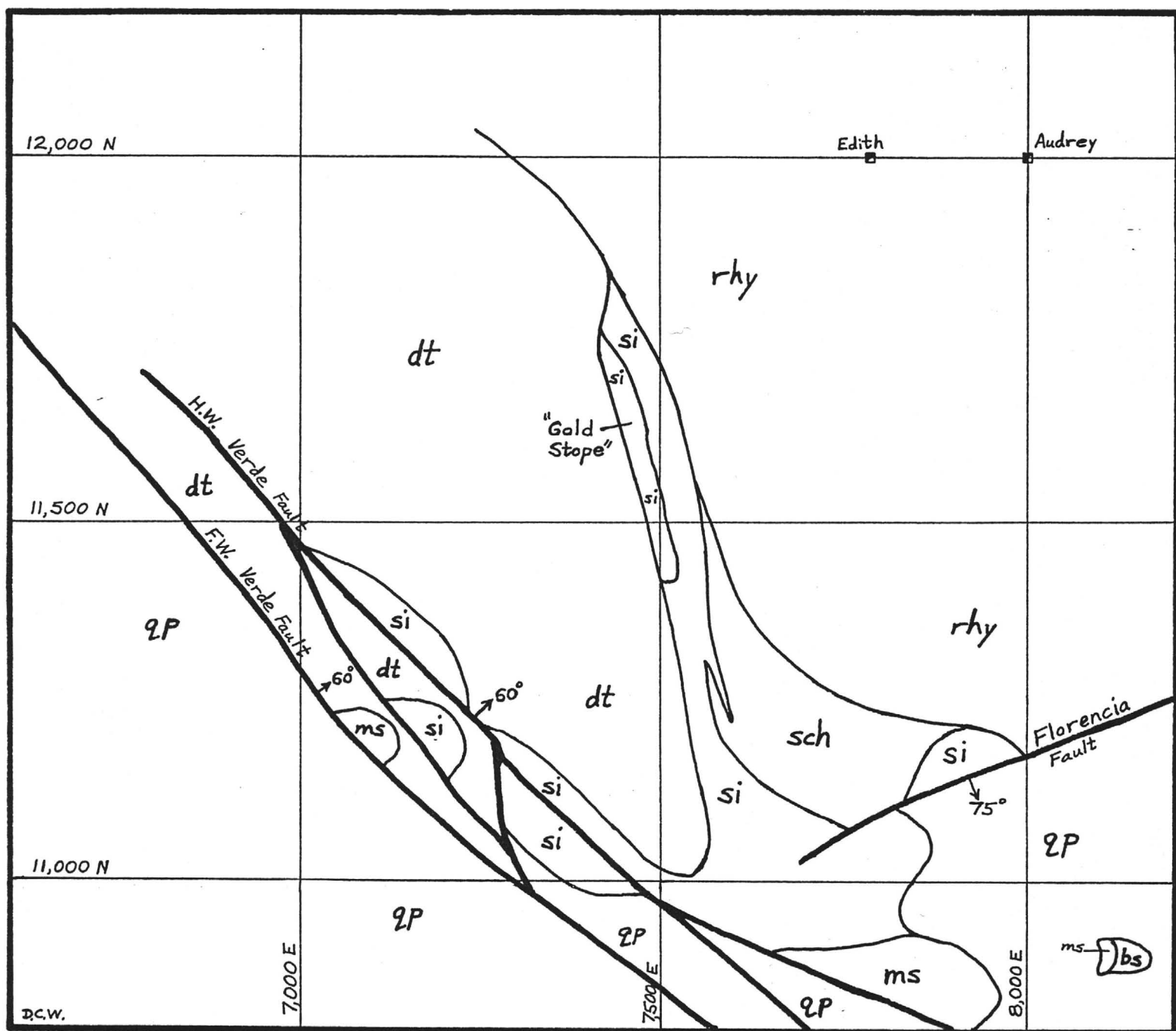
## UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

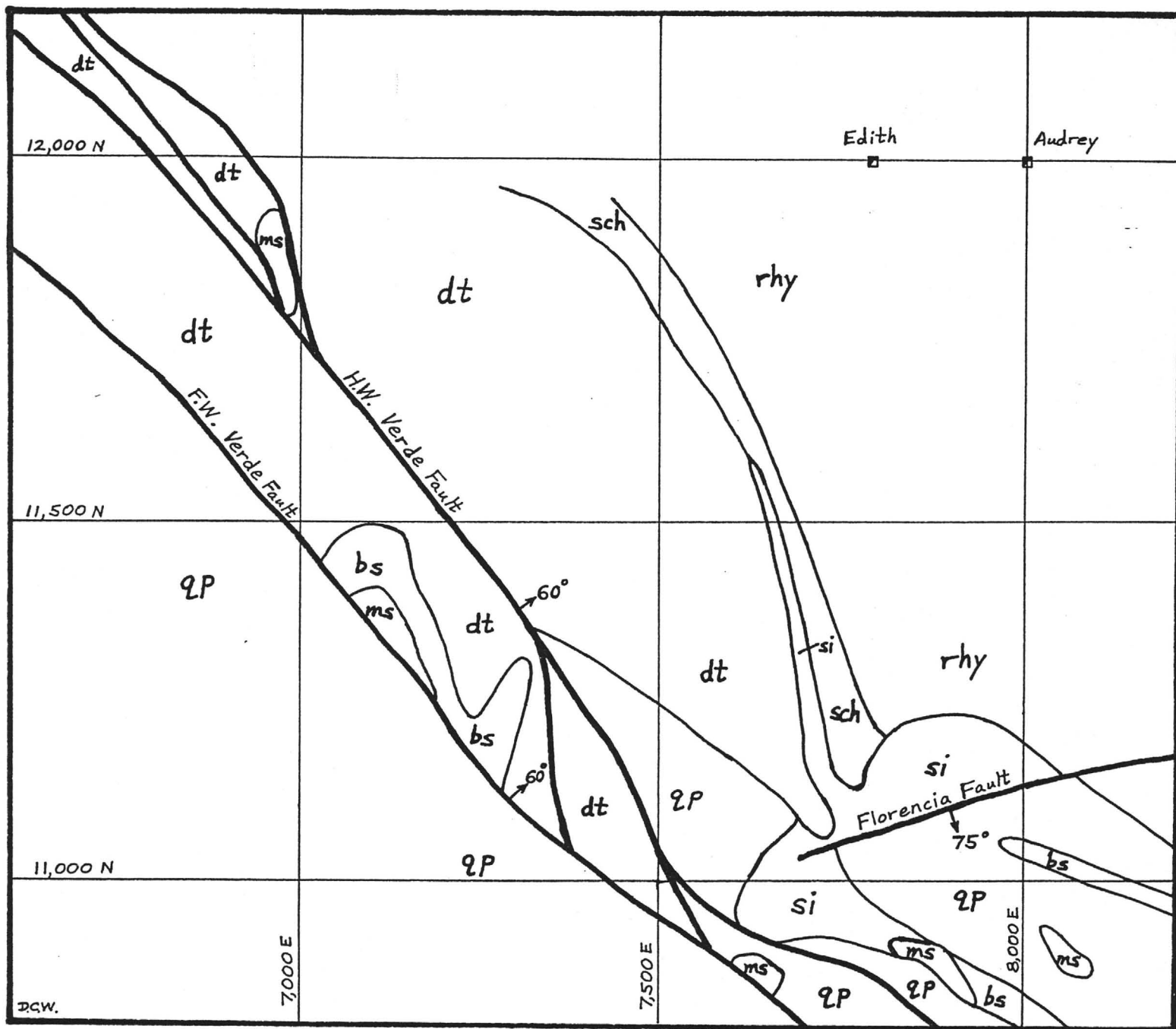
FIGURE 2



UVX 800



**UVX 950**



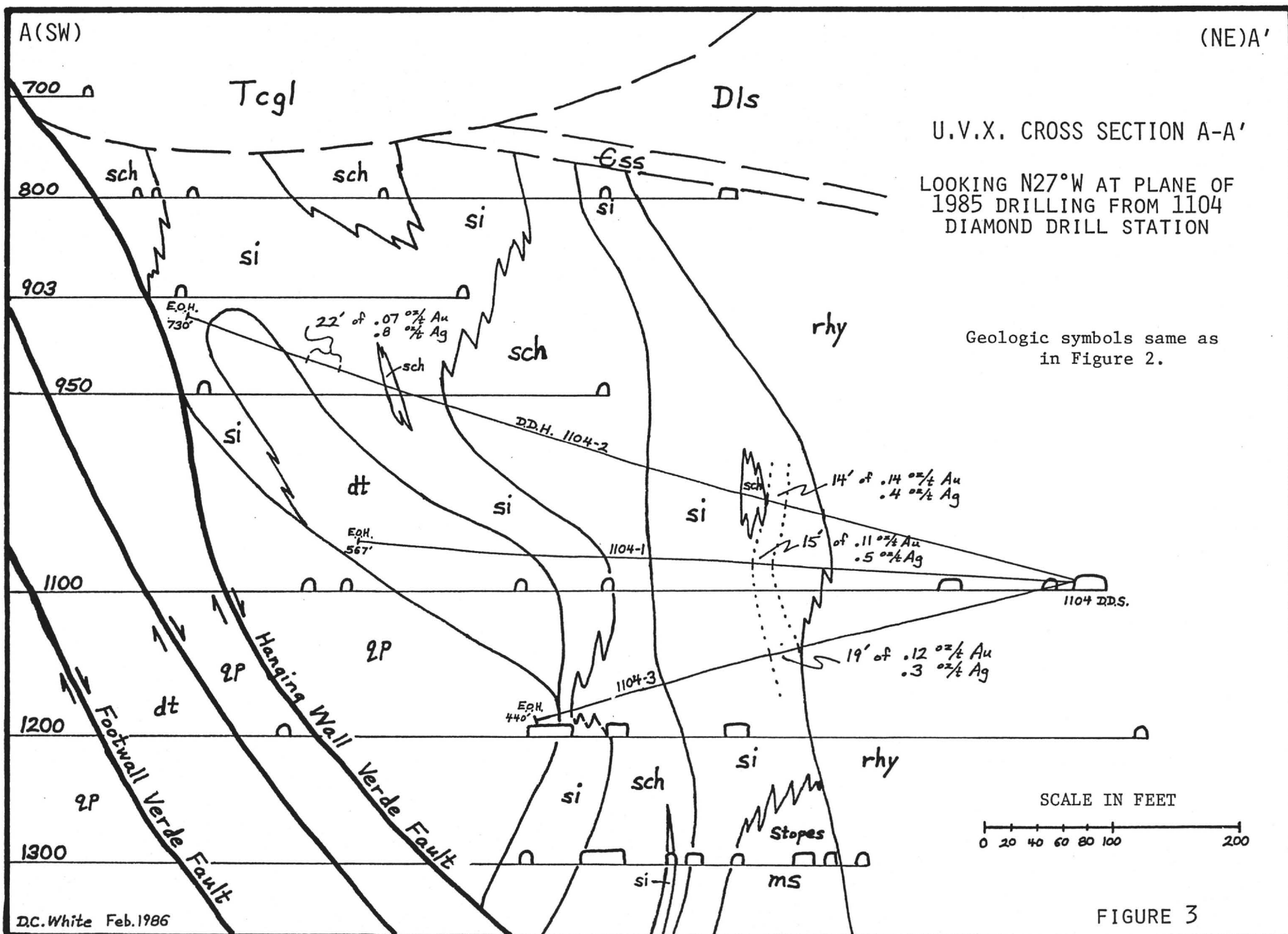
UVX 1100

# UNITED VERDE EXTENSION MINE

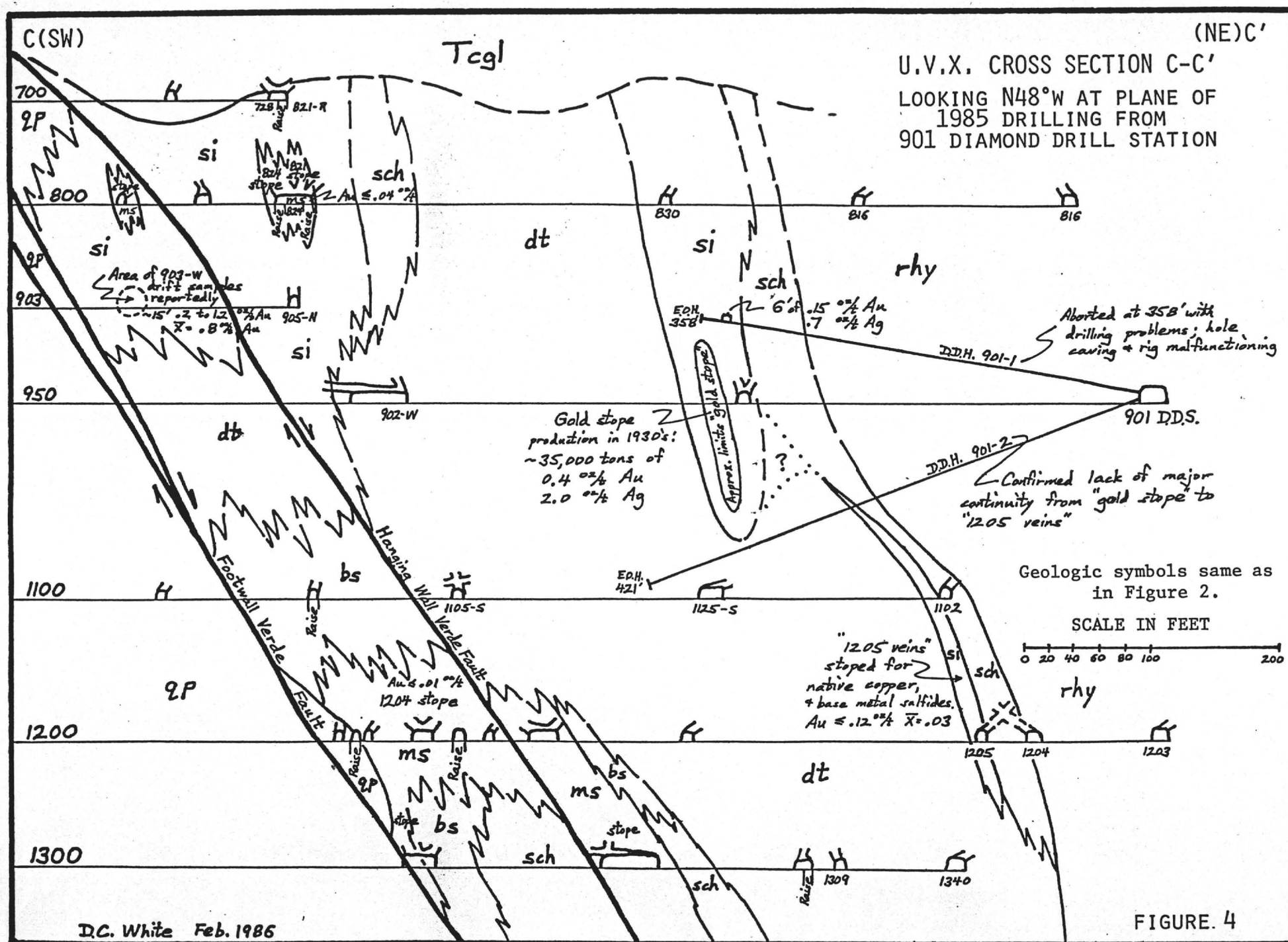
## LEVEL PLAN GEOLOGY

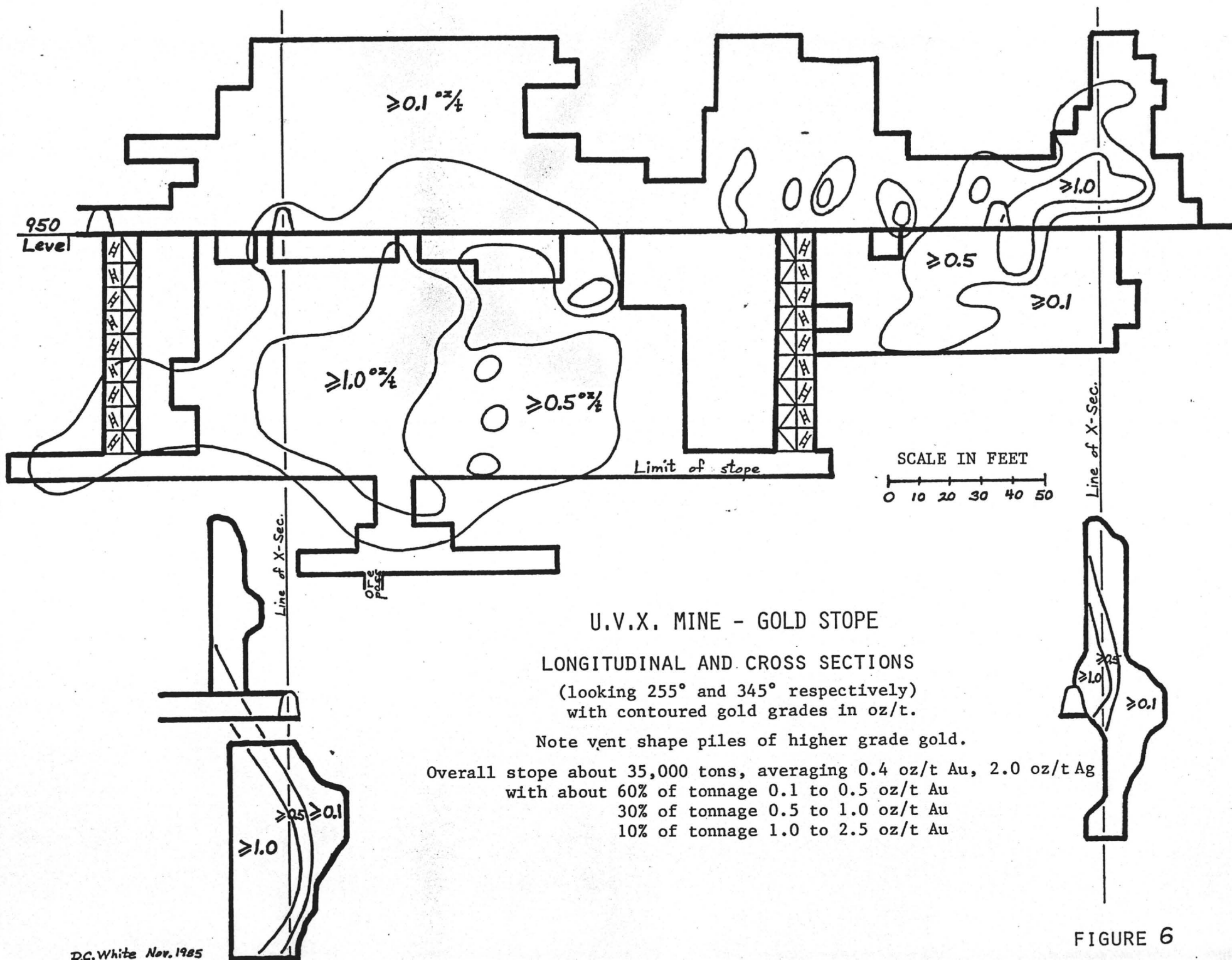
Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

FIGURE 2









# U.V.X. MINE - GOLD STOPE

## LONGITUDINAL AND CROSS SECTIONS

(looking 255° and 345° respectively)  
with contoured gold grades in oz/t.

Note vent shape piles of higher grade gold.

Overall stope about 35,000 tons, averaging 0.4 oz/t Au, 2.0 oz/t Ag  
with about 60% of tonnage 0.1 to 0.5 oz/t Au  
30% of tonnage 0.5 to 1.0 oz/t Au  
10% of tonnage 1.0 to 2.5 oz/t Au

FIGURE 6

MEMORANDUM

August 2, 1985

TO: BFD III & C.A. O'B.  
FROM: D.C.W. & R.W.H.  
SUBJECT: Summary of map compilation and renewed access to underground  
plus a proposed next step in target definition at the United  
Verde Extension gold project - Jerome, Arizona

PREFACE

This memorandum accompanies plan maps at 1"=40' of the 1400, 1300, 1200, 1100, 950, 905, 903, 800, 600 and 550 levels of the UVX mine upon which Don White and Karl Budge have compiled geology and assays from the historical mine records, plus two cross sections by DCW. This material has been reviewed with RWH during the week of July 29 in light of renewed access to underground, compared to Paul Handverger's target of 1 million tons of 0.25 oz Au/t estimated from a much less rigorous compilation, and concludes with a proposed next stage of target definition of 5500' of drilling.

OBSERVATIONS FROM THE COMPILATION

- I. Gold is most abundant in brecciated chert, probably in the matrix and fine fractures in clasts and probably as native metal and electrum with lesser sulpharsenide minerals.
- II. The greatest gold abundance is not coincident with the greatest base metal abundance but rather the gold concentration is peripheral to the base metal concentration. Gold concentrations do not appear

to be accompanied by the alteration mineral assemblages generally recognized in the pyritic gold occurrences of the Archean in Canada and the UVX project is on new ground in defining gold distribution relative to base metals in the massive sulphide base metal environment. The only other project we know with this goal at present is Noranda's re-evaluation of gold in and about the mined-out copper ore bodies of the Horne Mine at Noranda, Quebec. At the Horne it also appears as if gold and copper concentrations are not coincident and that some of the greater gold concentrations may not have been mined at time of copper extraction. In brief, the guides to gold at the UVX recognized to date are chert, the more silicious the better, brecciation with a hematite matrix, appreciable silver, arsenic, bismuth, and molybdenum.

- III. The greatest abundance of chert, which is known from previous production or sampling to be auriferous, appears to be on the flank of the area dominated by quartz porphyry and the massive sulphide body and in the area dominated by the large diorite mass which is central to the upper levels of the mine. The dividing line between the area of the quartz porphyry - massive sulphide and the diorite - chert - gold is essentially the Florencia Fault. This can be seen clearly on the 1100 level plan. It can also be seen from the plans that the chert peripheral to massive sulphide is mostly above the 1200 level. Hence the prime area of gold potential is north of the Florencia Fault and between the 1200 level and the 700 level where flat lying

Tertiary conglomerate lies unconformably over most of the steep dipping Precambrian sections of exploration interest. In this block of ground the chert has the central diorite as its footwall on the east side of the diorite chert ~~has diorite~~ and schist of the Grapevine Gulch formation as <sup>its</sup> hanging wall. West of the central diorite, chert has diorite and schist of the Grapevine Guld formation as hanging wall and its footwall is the Verde Fault. Fortunately, this layered rock sequence is comparable to that peripheral to the United Verde massive sulphide deposit and is exposed at surface in the walls of the UV pit and adjacent hillsides where it can <sup>be</sup> traversed, and probably should be sampled, to help in interpretation of drill core at the UVX.

The important points here are that the gold occurrence of exploration interest at the UVX is peripheral to and not coincident with the base metal deposit which averaged only 0.03 oz Au/t, and it is in a recognizable part of the rock section which in the UVX can be divided into four areas of exploration interest.

1. The Florencia area which is immediately north of the Florencia Fault, predominately chert from the 1200 level upward, cut by the two Phelps Dodge drill holes in 1982, and sampled by the Fearing rock collection which Paul Handverger assayed to confirm the presence of gold in this area.
2. The 1205 "vein" system which is the chert layer contiguous with and north-striking from the Florencia area. It persists from the 1400 level to the 800 level and the presence of gold is

confirmed by assays from the 1205 veins which were base metal-bearing and exploited on and beneath the 1100 level. The 1205 vein system has the central diorite as footwall and from the 6th floor above the 1100 level to the 8th floor above the 950 level includes the Gold Stope.

3. The Gold Stope area is actually within the enveloping chert of the 1205 vein system area, but is treated separately because it produced 35,000 tons of 0.4 oz Au/t. This tonnage was mined as a silica flux to accompany massive chalcocite ore of the main ore body which was shipped directly to the smelter. The silica content may have been as important as the gold to the past producers. Production from the gold stope has to be extracted from the potential of the 1205 vein system area but high-grade remaining in pillars and around its margins has to be included in the current evaluation.
4. The Verde Fault area is the chert between the central diorite and the Verde Fault which persists from the 950 level to the 600 level. Gold content is indicated by assays from samples in old workings and drill holes.

IV. Table 1 compiles dimensions of these areas of potential and our estimates of contained ounces of gold made from the assembled data. We state



our preferred estimate and a best/worst case because we are not working with a systematic sampling at this time, but rather a compendium of sampling done to meet a variety of goals, many unknown.

Paul Handverger estimated 1 million tons of 0.25 oz Au/t. Our preferred estimate is 576,000 tons of 0.13 oz Au/t. The difference in contained ounces of gold is 250,000 in Paul's estimate to 75,000 in ours.

#### OBSERVATIONS ON THE PRESENT UNDERGROUND ACCESS

Reopening the Edith Shaft (7800E, 1200N) provides access to the 550, 800, 950, and 1100 levels. Water level is on the 1300 level. Three levels, the 800, 950, and 1100 give 3 equally spaced slices through the areas of exploration interest. However, there is caved ground on each of these levels which precludes direct access and sampling of any of the 4 areas of interest on any of the 3 levels and even restricts the choice of drill sites for remote sampling. The Phelps Dodge drill station at 8100E, 11300N on the 1100 level is accesible and clear for use now.

#### A PROPOSAL FOR DRILLING TO INCREASE TARGET DEFINITION

The following is a first stage in further target definition which includes 5000 feet of drilling, 2400 ~~ft~~ of which would be from surface and the rest from underground.

- I. The Florencia area could be further defined by establishing continuity to the north and up dip. This could be tested by 3 drill holes

from the Phelps Dodge drill site on the 1100 level (Section A-A').

These new holes strike  $11^{\circ}\text{N}$  of the PD holes or  $\text{S}63^{\circ}\text{W}$ . One is inclined at  $+5^{\circ}$  for 620' to cut both the Florencia area and the 1205 vein system area, hitting the latter's footwall 55' above the 1100 level. The second hole is at  $+15^{\circ}$  for 760' to traverse both the Florencia and the 1205 vein system area reaching the latter's footwall and the Verde Fault 40' above the 950 level. The third hole would be at  $-13^{\circ}$  for 430' and would also traverse both the Florencia area and 1205 vein system area ending 75' above the 1200 level.

- II. The 1205 vein system area could be further defined by the aforementioned 3 holes from the 1100 level plus 3 holes on the 950 level from the presently inaccessible 901S drive at 7780E, 11,530N (Section B-B'). These holes strike ~~563~~W, are inclined at  $-10^{\circ}$  for 240',  $-20^{\circ}$  and  $+15^{\circ}$ , 270' and 350' respectively. These holes would sample the middle portion of the 1205 vein system area and down-plunge extensions of the Gold Stope area. The north end of the 1205 vein system area would ideally be chip sampled if the 816 drive west from the Edith Shaft were reopened and by 3 holes striking  $\text{S}79^{\circ}\text{W}$  and inclined at  $-25^{\circ}$ ,  $-5^{\circ}$  and  $+20^{\circ}$  for 140', 140', and 160' respectively, from a drill station at 11,460N, 7590E assuming the drive can be opened that far. These holes, and the chip sampling, would also check for up-plunge extensions at the Gold Stope area.
- III. If no additional access can be achieved practically from underground, the Verde Fault area can best be drilled from surface in furthering

target definition. Three holes are proposed from 11,430N, 7530E striking S79W and inclined at  $-60^{\circ}$ ,  $-45^{\circ}$  and  $-30^{\circ}$ , each for 800' (Section B-B').

- IV. No drilling is recommended for the Gold stope area per se as there is comprehensive sampling from past production within the stope and some of the aforementioned holes will check for extensions.

TABLE 1

August 2, 1985

To accompany memo by DCW & RWH  
 Estimated size and grade of 4 areas  
 United Verde Extension Gold Project

	L	W	H	Vol Ft <sup>3</sup> ,K	Tonnage Factor	Tons K	Grade Oz/t	Oz Au K	REMARKS
1. Florencia Area									on further target definition
Best Case	250	20	500	2,500	11	227	0.25	57.0	Can be drilled from PD
Worst Case	100	5	150	75	14	5.3	0.10	0.5	drill station on 1100 level,
DCW-RWH preferred	150	12	300	540	12	45	0.15	6.7	3 holes, 1,810'
						OK.			
2. 1205 "vein" system area									
Best Case	700	25	400	7,000	11	636	0.20	127.2	Above 3 holes will also
Worst Case	300	10	200	600	14	43	0.10	4.3	intersect 1205, add 3 holes
DCW-RWH preferred	500	15	350	2,600	12	219	0.12	26.2	on 950 level, 860'
						not confirmed maybe			3 holes on 800 level, 440'
3. Gold Stope									
Best Case						20	0.5	10.0	No drilling on Gold Stope
Worst Case						0	0	0	per se. Above holes into
DCW-RWH preferred						20	0.3	6.0	1250 will check for plunge
									and lateral extensions
4. Verde Fault area									
Best Case	800	30	500	12,000	11	1,090	0.20	218.0	Three holes from surface
Worst Case	400	10	300	1,200	14	86	0.10	9.0	for 2400' total
DCW-RWH preferred	500	20	350	3,500	12	292	0.12	35.0	
TOTALS									
Best Case						1,973	0.21	414.3	Total drill footage 5510'
Worst Case						134	0.10	13.4	
DCW-RWH						576	0.13	75.0	
Paul A. Handverger						1,000	0.25	250	

Use Au/Ag of 1/5

ie: 0.13 Au to 0.65 Ag

U.V.X. GOLD PROJECT - DRILLING/ASSAY SUMMARY

<u>Area/DDH</u>	<u>Thickness (ft)</u>	<u>Grade Au</u>	<u>(oz/t) Ag</u>	<u>Length/Height (ft)</u>	<u>Tons<sup>(1)</sup> (K)</u>	<u>Contained oz Au(K)</u>	<u>REMARKS</u>
<u>Florencia area</u>							
UVX-1	20	.20	1.5				Phelps Dodge Corp holes from 1104 D.D.S; intercepts closer to Florencia fault and main massive sulfide body than DMEA drilling
UVX-2	35	.18	.4				
1104-1	15	.11	.5				
1104-2	14	.14	.4				Other mineralization deep in hole relates to Verde area
1104-3	19	.12	.3				
TOTAL	21	.16	.6	150/200	52	8	Not counting areas south of Florencia fault which are mineralized but likely caved into main orebody's void. Could be reached by cleanup of 200' old drifts.
<u>1205/Gold stope area</u>							
901-1	6	.15	.6				Aborted in hanging wall, drilling difficulties
901-2	-	-	-				No significant gold; drilled beneath host lithology
901-3	7	.18	3.1				Possibly lower grade than reality because of poor core recovery (20%) in 10' over back of 903 sublevel drift.
Compilation from old data	20	.30	1.5	Irregular	20	6	Could be reached by cleanup of 200' old drifts.
<u>Verde area</u>							
806-1	13	.24	2.2	500/200	108	26	Only one D.D.H. supported by old assay data 300' along strike. May be reached with about 500' rehab. and new drifting.
	64	.11	1.4	500/200	530	58	Alternate lower grade consideration; encom- passes the 13' higher grade above.
<u>U.V.X. TOTAL<sup>(2)</sup></u>	18	.23	1.3	---	180	40	Using higher grade intercepts ( $\geq 0.1$ oz/t Au)

(1) Tonnage factor = 12 cu. ft. per ton

(2) Total based upon two P.D. drill holes, seven DMEA drill holes, old data in proximity to the gold stope, and estimates of deposit dimensions based upon compilation of old mine geology data. Dimensions and tonnage could be increased by a factor of five if thicker, lower grade intercepts (about 0.08 oz/t Au) are used.

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
UVX-1	1983	380	385	5	< 0.003	0.06	\$0.36					
		385	390	5	< 0.003	0.08	\$0.48					
		390	393	3	< 0.003	0.06	\$0.36					
UVX-2	1983	0	10	10	< 0.003	ND	\$0.00					
		10	20	10	< 0.003	0.19	\$1.14					
		20	30	10	< 0.003	0.13	\$0.78					
		30	40	10	< 0.003	0.06	\$0.36					
		40	50	10	< 0.003	0.07	\$0.42					
		50	60	10	< 0.003	0.07	\$0.42					
		60	70	10	< 0.003	0.17	\$1.02					
		70	80	10	< 0.003	0.05	\$0.30					
		80	90	10	< 0.003	0.05	\$0.30					
		90	100	10	< 0.003	ND	\$0.00					
		100	110	10	< 0.003	0.07	\$0.42					
		110	120	10	< 0.003	0.21	\$1.26					
		120	130	10	< 0.003	0.19	\$1.14					
		130	140	10	< 0.003	0.15	\$0.90					
		140	150	10	< 0.003	0.21	\$1.26					
		150	160	10	< 0.003	0.23	\$1.38					
		160	170	10	0.006	0.42	\$4.44					
		170	180	10	0.035	0.20	\$12.40					
		180	190	10	0.044	0.26	\$15.64					
		190	200	10	0.032	0.20	\$11.44					
		200	210	10	0.040	0.18	\$13.88					
		210	220	10	0.050	0.13	\$16.78					
		220	230	10	0.038	0.13	\$12.94					
		230	240	10	0.026	0.14	\$9.16					
		240	250	10	0.038	0.14	\$13.00					
		250	255	5	0.012	0.23	\$5.22					
		255	261	6	0.044	0.28	\$15.76					
		261	265	4	0.038	0.46	\$14.92					
		265	268	3	0.015	0.42	\$7.32					
		268	271	3	0.070	0.87	\$27.62					
		271	277	6	0.200	0.48	\$66.88					
		277	279	2	0.520	0.52	\$169.52					
		279	282	3	0.200	0.33	\$65.98					
		282	288	6	0.140	0.36	\$46.96					
		288	295.5	7.5	0.226	0.29	\$74.06					
		295.5	303	7.5	0.079	0.26	\$26.84	268	303	35.0	0.177	0.39
		303	320	17	0.015	0.25	\$6.30					
		320	325	5	0.003	0.26	\$2.52					
		325	335	10	ND	0.31	\$1.86					
		335	346	11	0.012	ND	\$3.84					
		346	356	10	ND	ND	\$0.00					
		356	365	9	ND	ND	\$0.00					

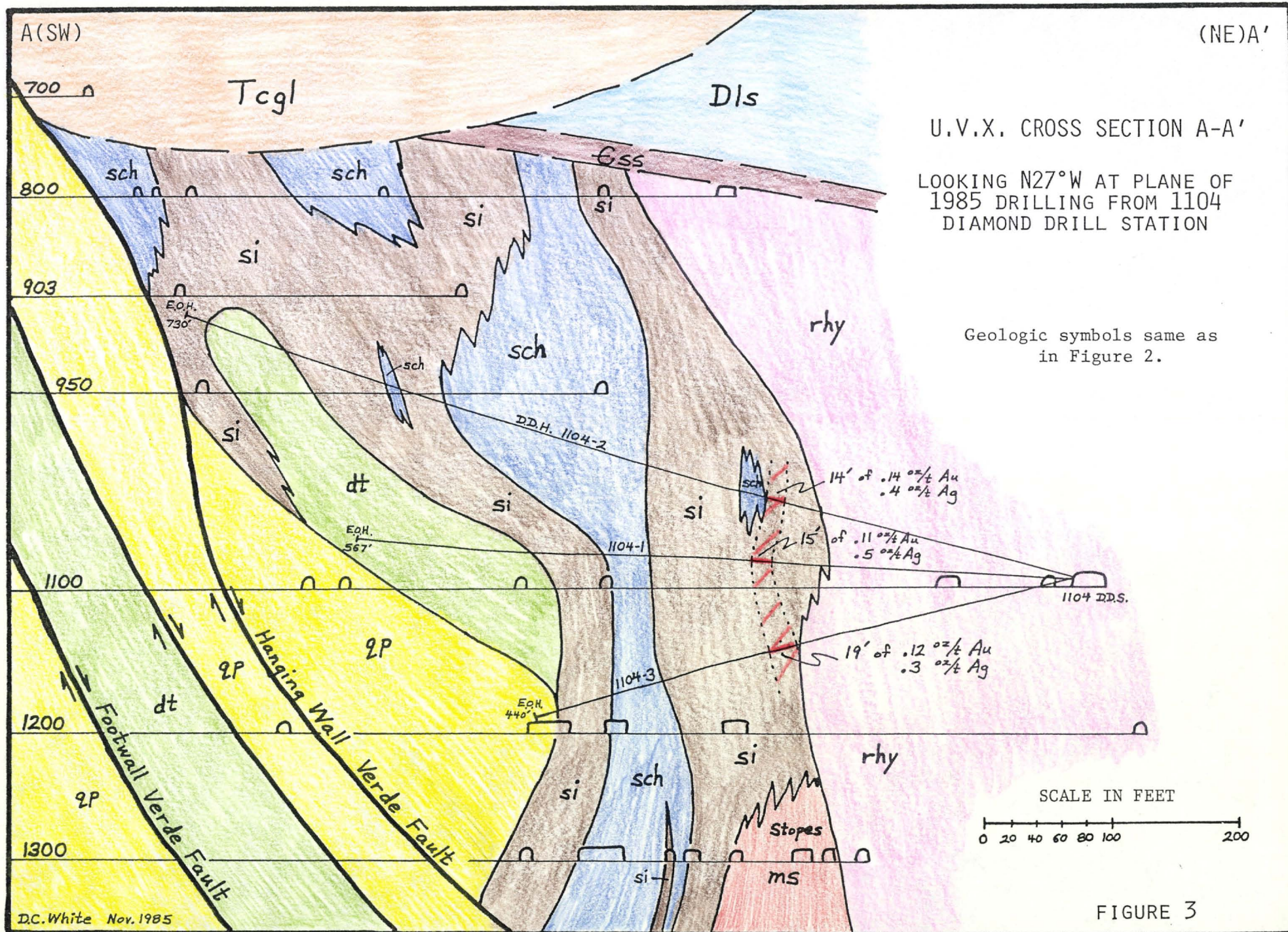
Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	Mineralized To	Interval	Gold oz/t	Silver oz/t
UVX-2	1983	365	372	7	ND	0.15	\$0.90					
		372	382	10	ND	0.16	\$0.96					
		382	392	10	ND	0.08	\$0.48					
		392	396	4	ND	ND	\$0.00					
		396	400	4	ND	ND	\$0.00					
		400	410	10	ND	0.28	\$1.68					
		410	424	14	0.003	ND	\$0.96					
		424	434	10	ND	0.07	\$0.42					
		434	445	11	ND	0.06	\$0.36					
		445	462	17			\$0.00					
		462	467	5	0.010	0.08	\$3.68					
		467	470	3	0.008	0.12	\$3.28					
		470	472	2	0.008	0.03	\$2.74					
		472	482	10	0.016	0.16	\$6.08					
		482	497	15	0.060	3.50	\$40.20					
		497	498	1	0.146	0.68	\$50.80					
		498	502	4	0.098	1.12	\$38.08					
		502	507	5	0.044	1.05	\$20.38					
		507	512	5	0.032	0.98	\$16.12					
		512	516	4	0.082	1.27	\$33.86	482	516	34.0	0.063	2.14
		516	520	4	0.018	0.92	\$11.28					
		520	525	5	0.046	1.42	\$23.24					
		525	530	5	0.018	1.43	\$14.34					
		530	536	6	0.071	1.96	\$34.48					
		536	538	2	0.024	1.01	\$13.74					
		538	542	4	0.012	0.97	\$9.66					
		542	545	3	0.014	0.92	\$10.00					
		545	550	5	0.060	2.12	\$31.92					
		550	555	5	0.030	1.47	\$18.42					
		555	560	5	0.025	0.69	\$12.14					
		560	565	5	0.205	2.82	\$82.52	560	565	5	0.205	2.82
		565	567	2	0.015	1.67	\$14.82					
		567	572	5	0.005	2.08	\$14.08					
		572	581	9	< 0.003	1.62	\$9.72					
		581	583	2	0.020	1.28	\$14.08					
		583	588	5	0.010	1.13	\$9.98					
		588	595	7	< 0.003	0.56	\$3.36					
		595	602	7	< 0.003	0.70	\$4.20					
		602	607	5	0.010	0.71	\$7.46					
		607	615	8	0.040	0.64	\$16.64					
		615	617	2	0.065	0.62	\$24.52					
		617	626	9	0.080	0.52	\$28.72					
		626	628	2	0.090	0.55	\$32.10					
		628	632	4	0.030	0.63	\$13.38					
		632	639	7	0.160	0.52	\$54.32					
		639	642	3	0.085	0.90	\$32.60					
		642	647	5	0.090	0.17	\$29.82	615	647	32.0	0.093	0.52
		647	657	10	< 0.003	0.68	\$4.08					



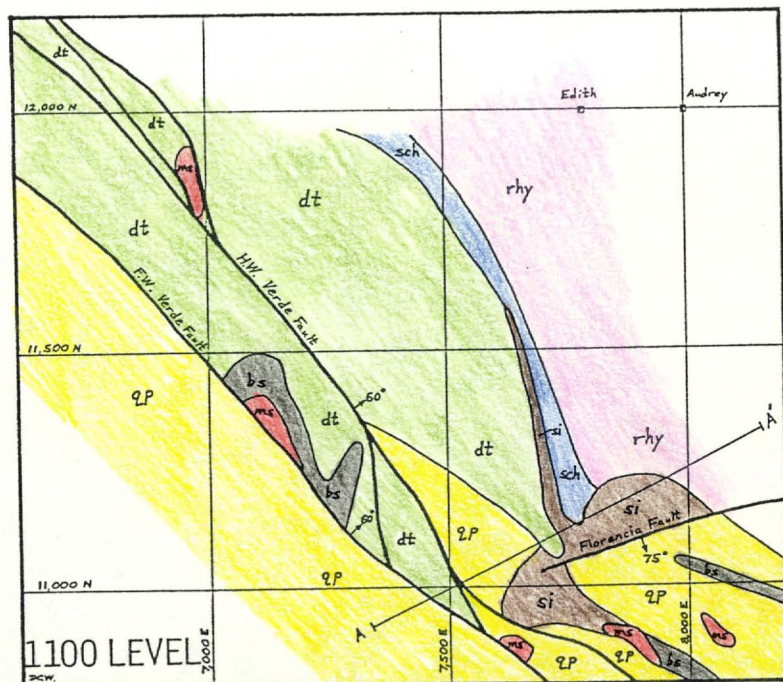
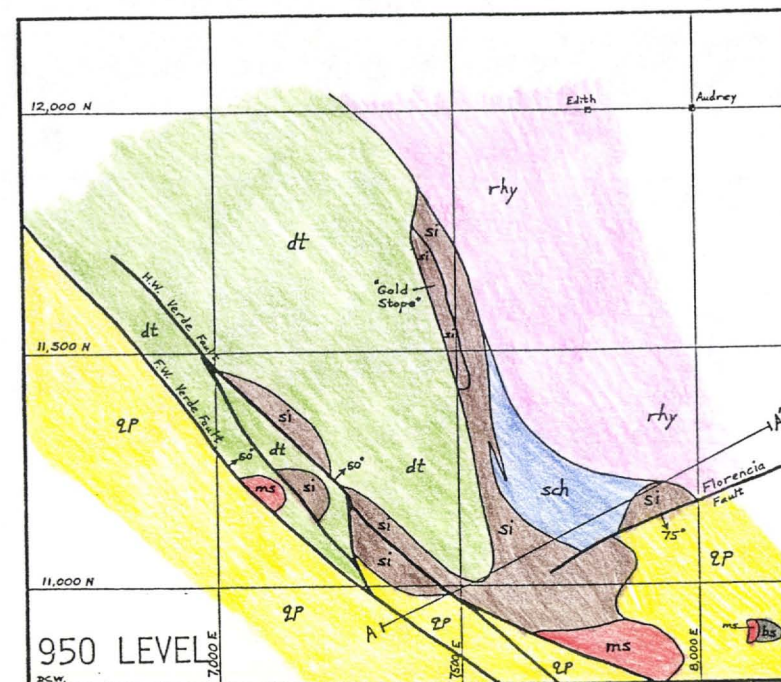
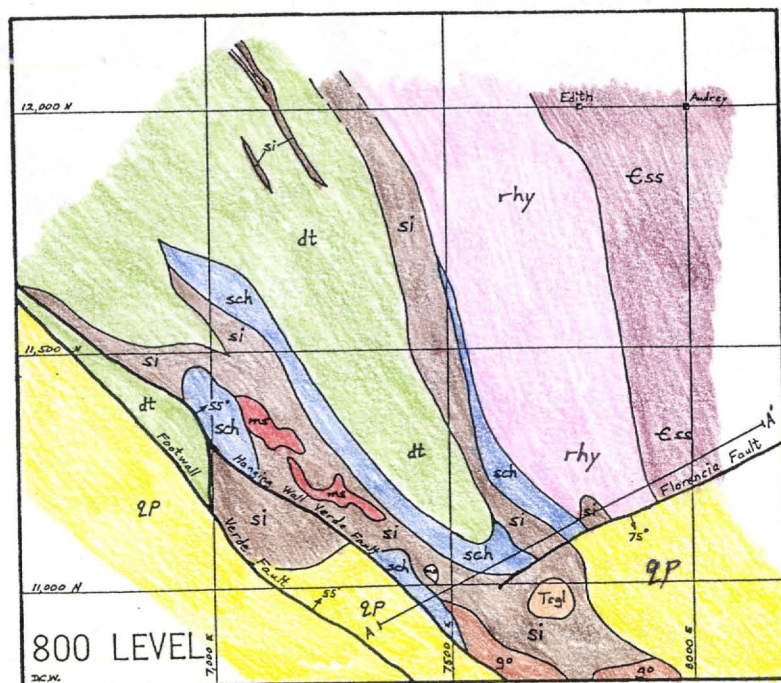
Hole No.	Date drilled				Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	Mineralized			Gold oz/t	Silver oz/t
		From	To	Interval				From	To	Interval		
UVX-2	1983	657	667	10	< 0.003	0.24	\$1.44					
		667	679	12	< 0.003	0.01	\$0.06					
		679	686	7	< 0.003	< 0.01	\$0.00					

Hole No.	Date drilled	From	To	Interval	Gold oz/t	Silver oz/t	Value/ton @ \$320 gold \$6 silver	From	To	Interval	Gold oz/t	Silver oz/t
UVX-2	1983	657	667	10	< 0.003	0.24	\$1.44					
		667	679	12	< 0.003	0.01	\$0.06					
		679	686	7	< 0.003	< 0.01	\$0.00					
1104-1	8-85	193	200	7	0.065	0.44	\$23.44					
		200	205	5	0.040	0.42	\$15.32					
		205	210	5	0.070	0.35	\$24.50					
		210	215	5	0.110	0.36	\$37.36	193	215	22.0	0.071	0.40
		215	220	5	0.045	0.43	\$16.98	193	225	32.0	0.063	0.40
		220	225	5	0.050	0.41	\$18.46					
		225	230	5	0.010	0.74	\$7.64					
		230	235	5	0.005	0.63	\$5.38					
		235	240	5	0.025	0.57	\$11.42					
		240	245	5	0.105	0.57	\$37.02					
		245	250	5	0.115	0.42	\$39.32					
		250	255	5	0.115	0.59	\$40.34	240	255	15.0	0.112	0.53
		255	260	5	0.055	0.33	\$19.58	240	260	20.0	0.098	0.48
		260	265	5	0.010	0.54	\$6.44					
		265	270	5	< 0.005	0.31	\$1.86					
		270	275	5	0.015	0.31	\$6.66					
		275	280	5	0.105	0.23	\$34.98					
		280	285	5	0.050	0.12	\$16.72					
		285	290	5	0.015	0.19	\$5.94					
		290	295	5	< 0.005	0.30	\$1.80					
		295	300	5	< 0.005	0.29	\$1.74					
		300	305	5	0.010	0.43	\$5.78					
		305	310	5	< 0.005	0.50	\$3.00					
		310	314	4	< 0.005	0.35	\$2.10					
		314	319	5	< 0.005	0.34	\$2.04					
		319	327	8	< 0.005	0.33	\$1.98					
		327	331	4	< 0.005	0.40	\$2.40					
		331	335	4	< 0.005	0.07	\$0.42					
		355	362	7	< 0.005	0.10	\$0.60					
		362	365	3	0.020	0.58	\$9.88					
		365	370	5	0.010	0.50	\$6.20					
		370	375	5	0.030	0.54	\$12.84					
		375	380	5	0.035	0.62	\$14.92					
		380	385	5	0.050	0.46	\$18.76					
		385	390	5	< 0.005	0.25	\$1.50					
		390	395	5	0.015	0.32	\$6.72					
		395	400	5	0.015	0.25	\$6.30					
		400	405	5	< 0.005	0.50	\$3.00					
		405	410	5	0.035	0.60	\$14.80					
		410	413	3	< 0.005	0.53	\$3.18					
		413	420	7	< 0.005	0.29	\$1.74					







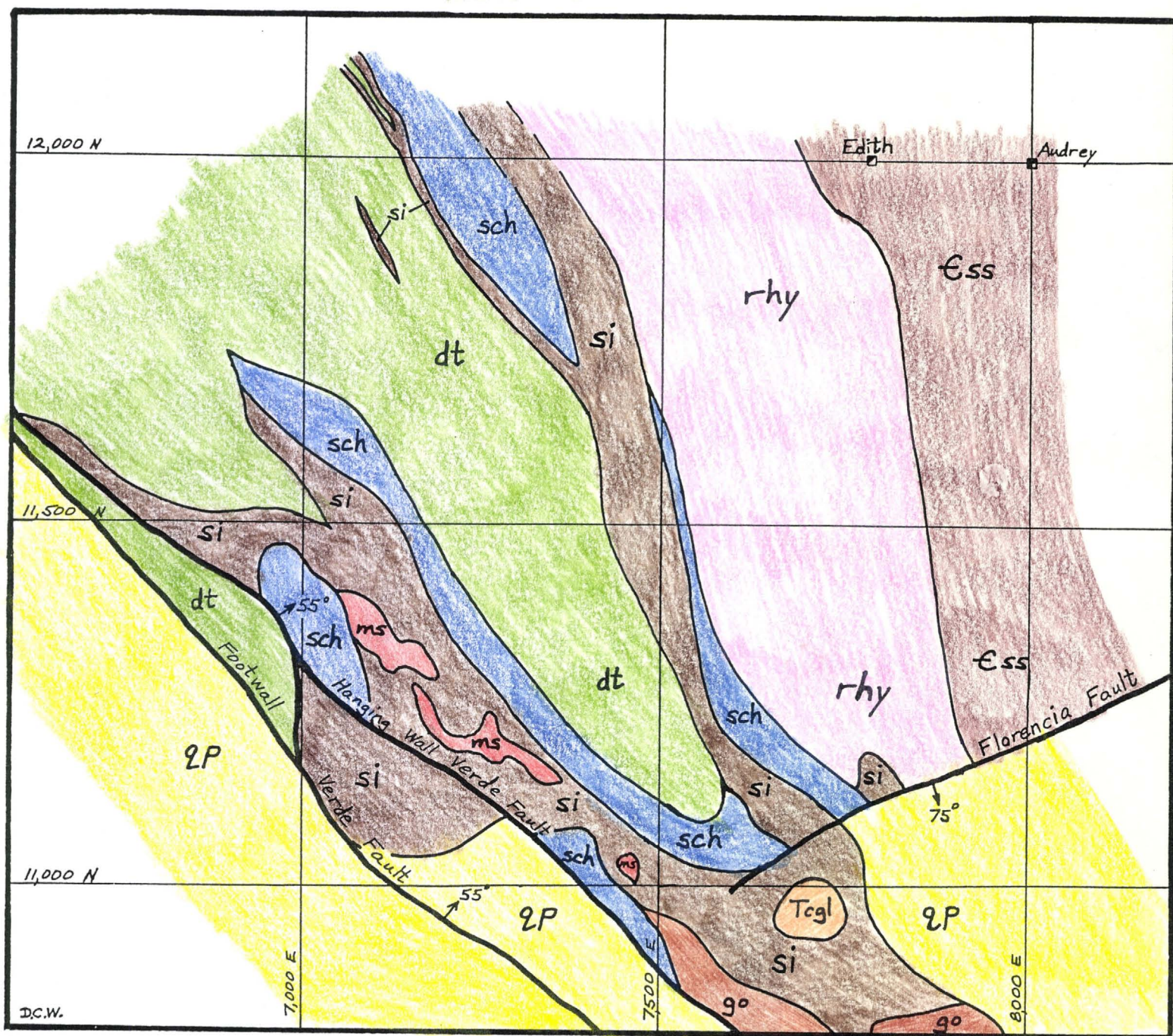


# UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qP	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

FIGURE 2





UVX 800

Colored copies  
of UVX level plan

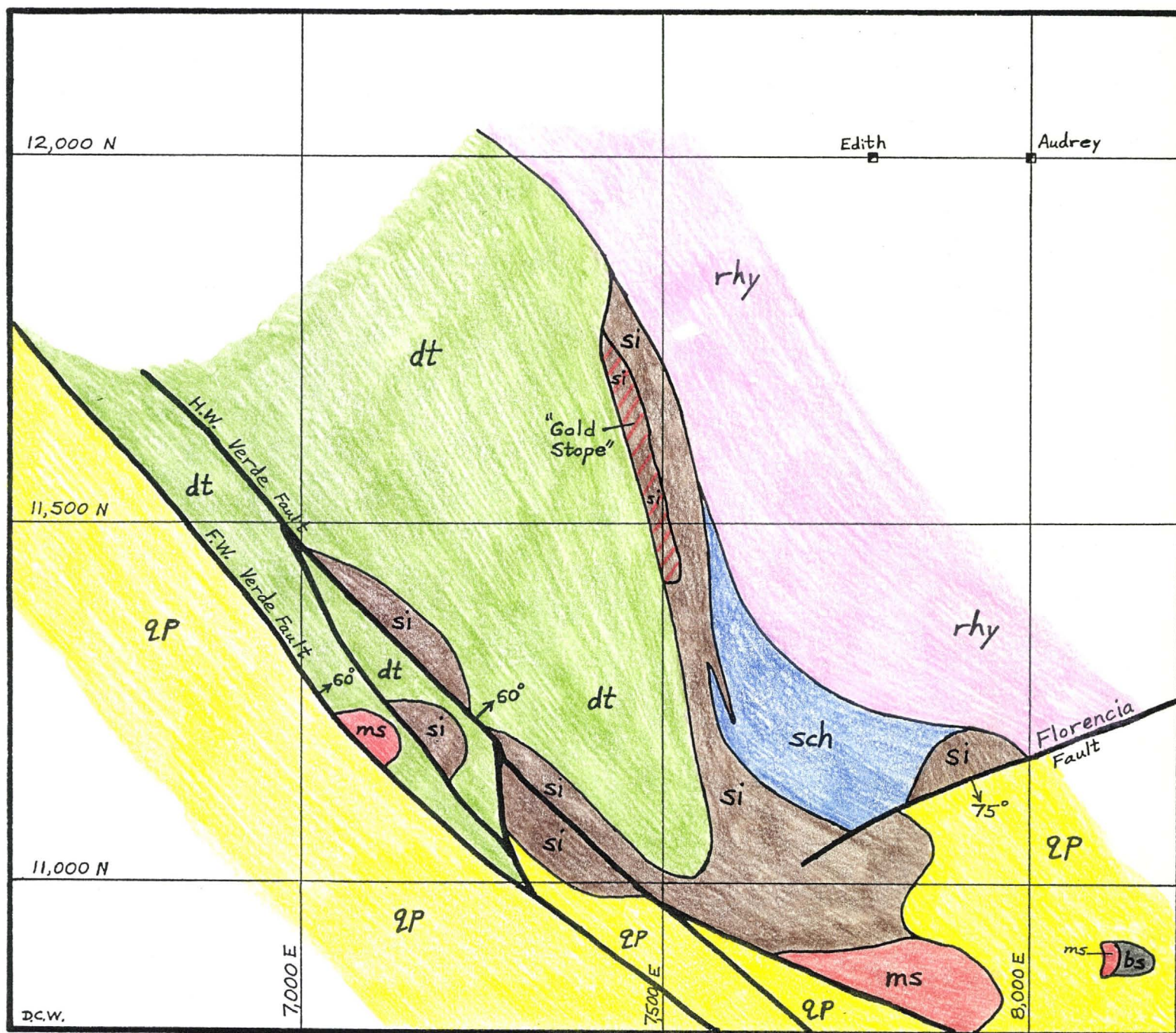
800

950

1100

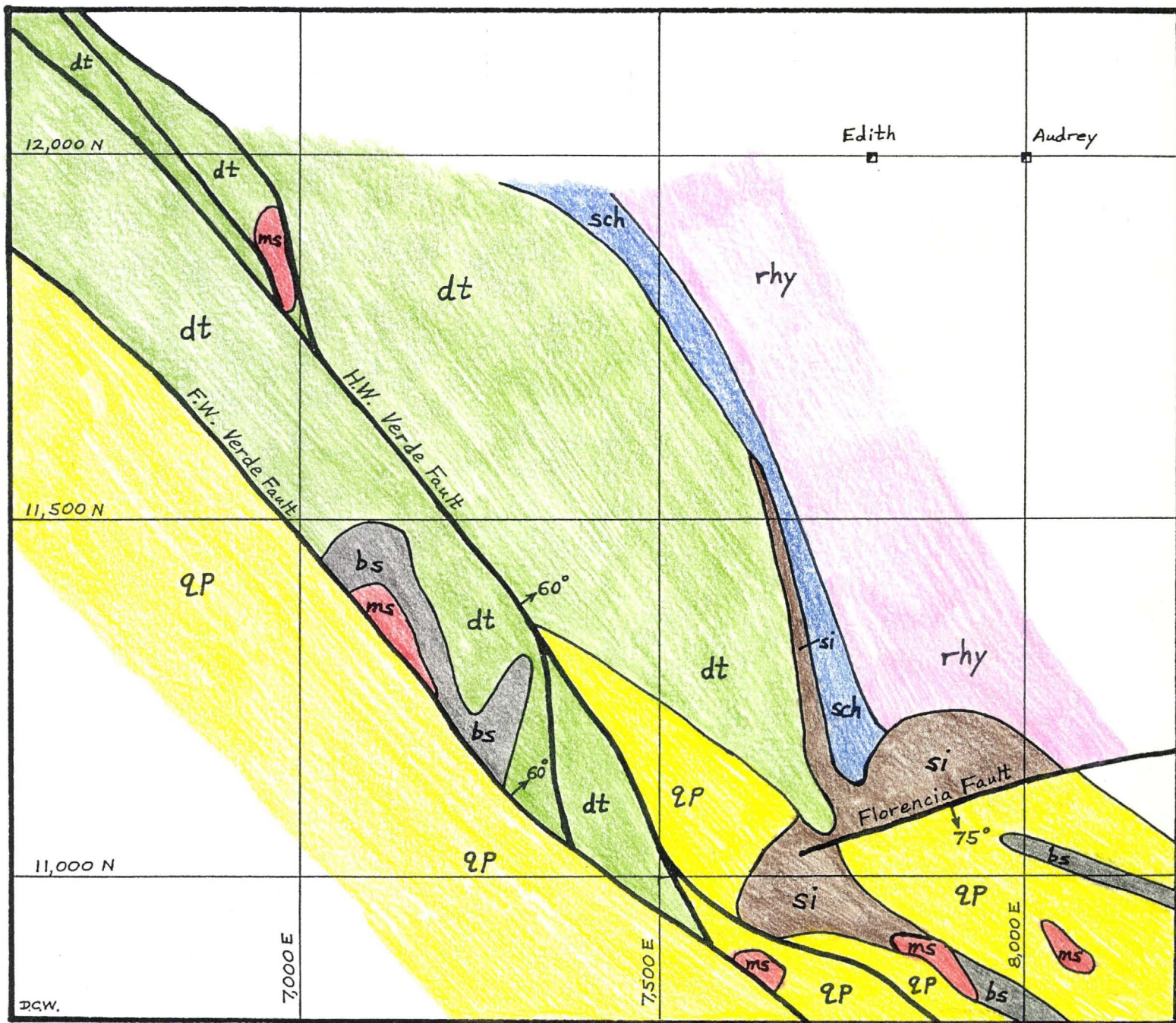
compiled for GSA  
program (photographed  
as slides). Could be  
altered to fit report.





UVX 950





UVX 1100



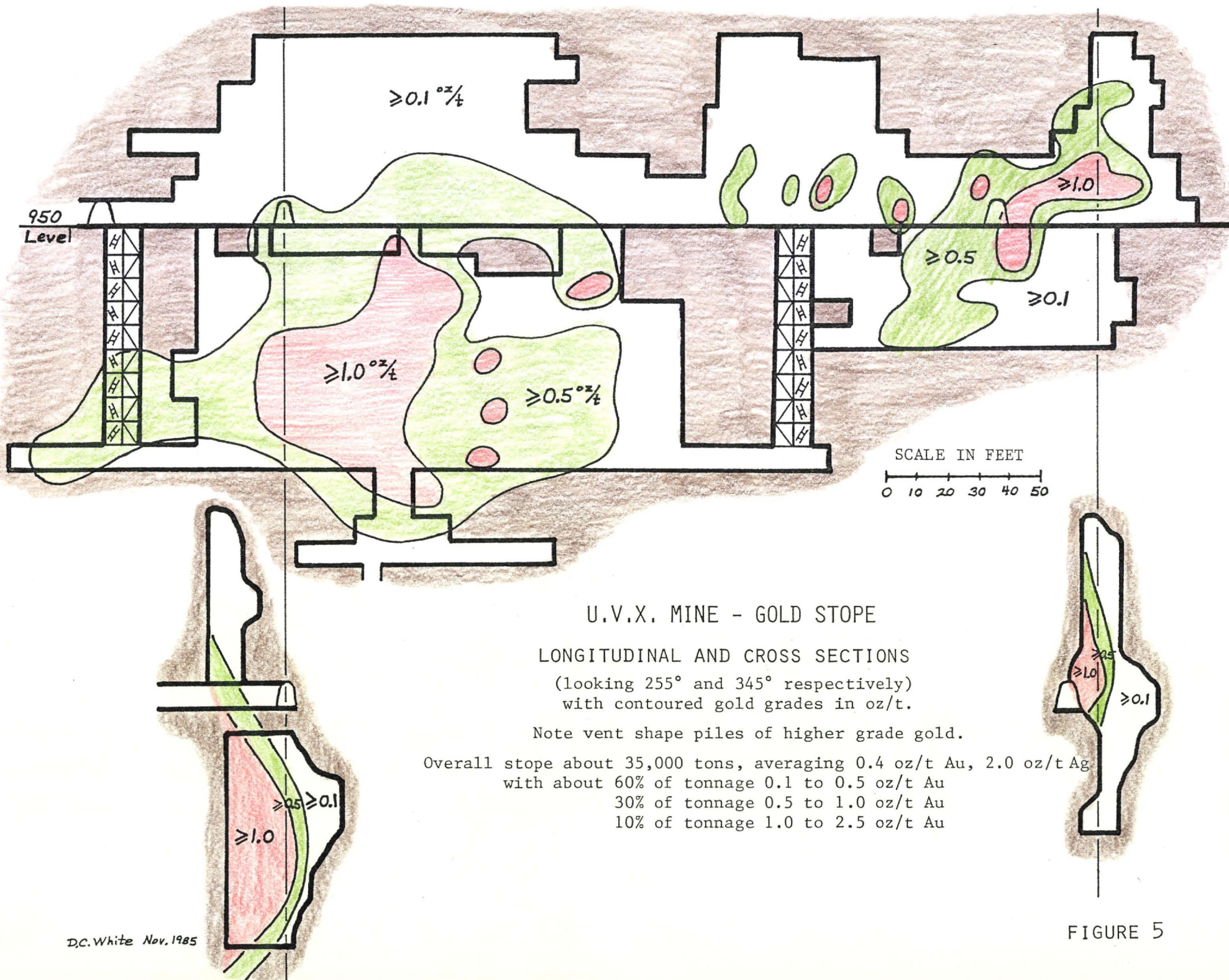
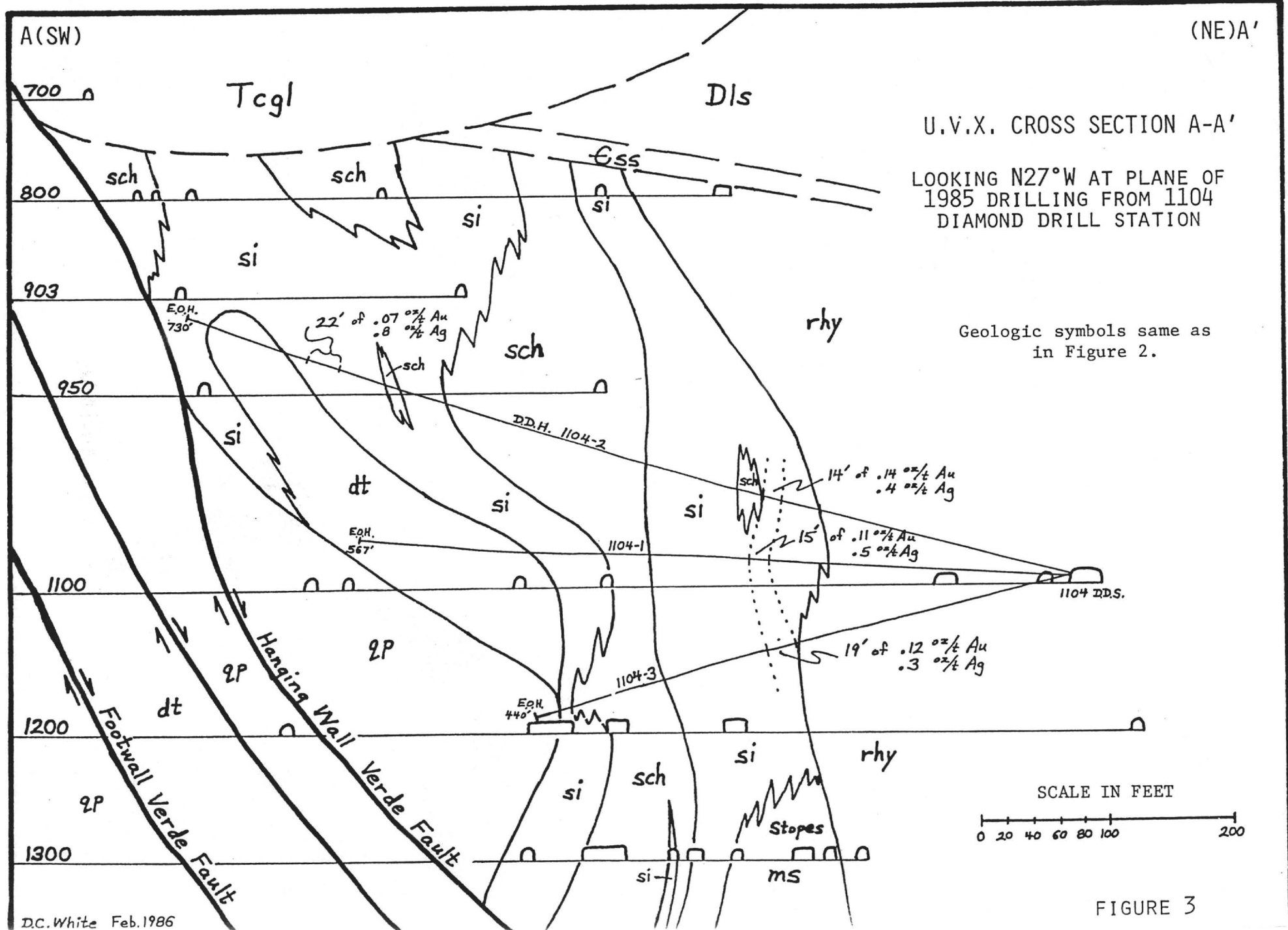
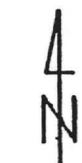
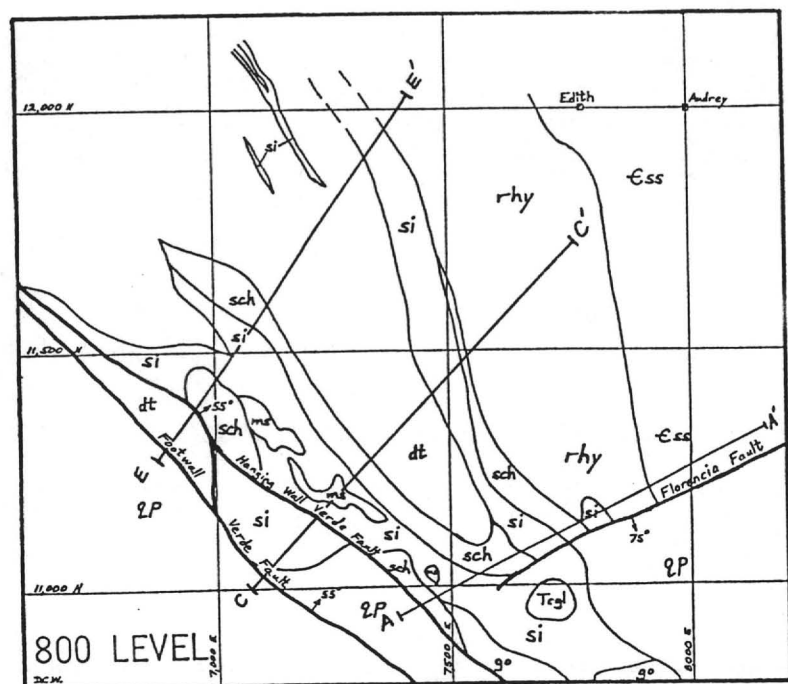
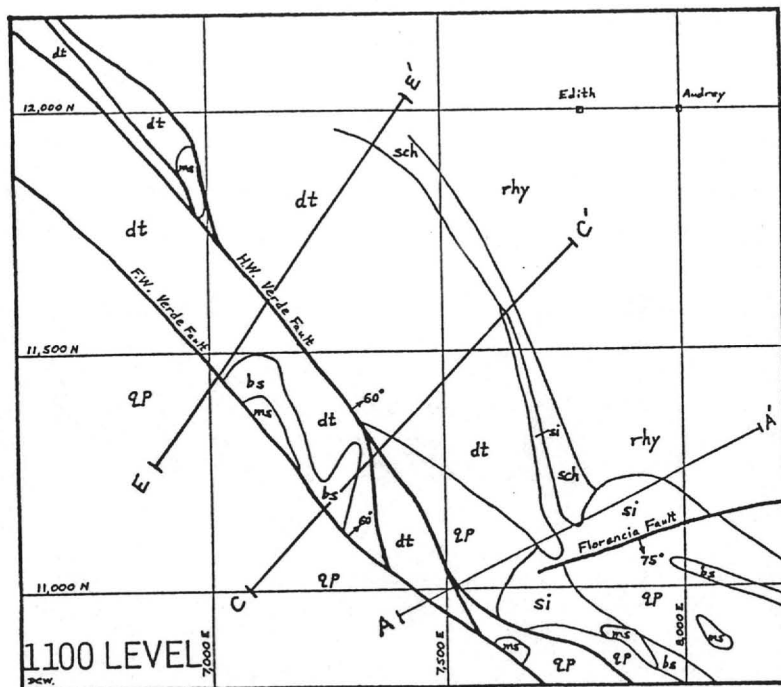
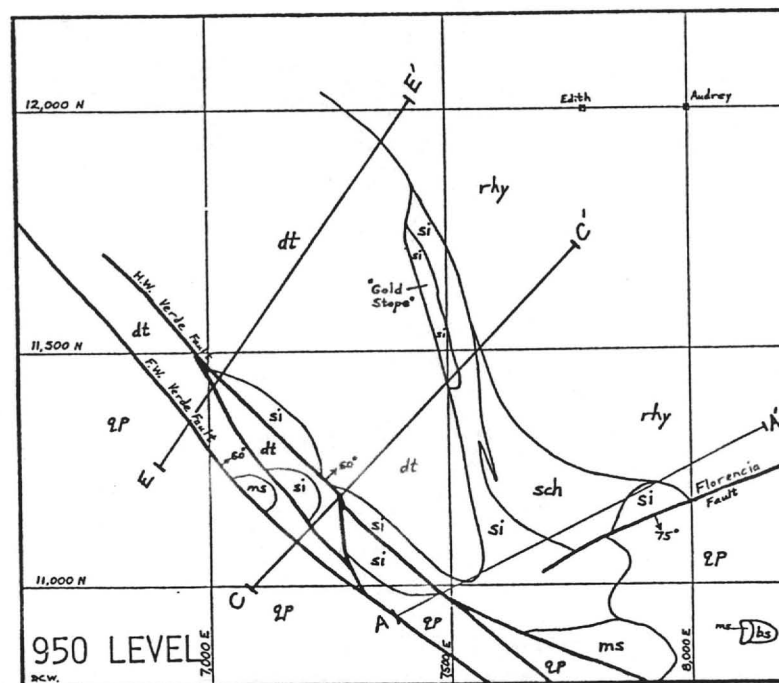
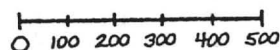


FIGURE 5





FEET

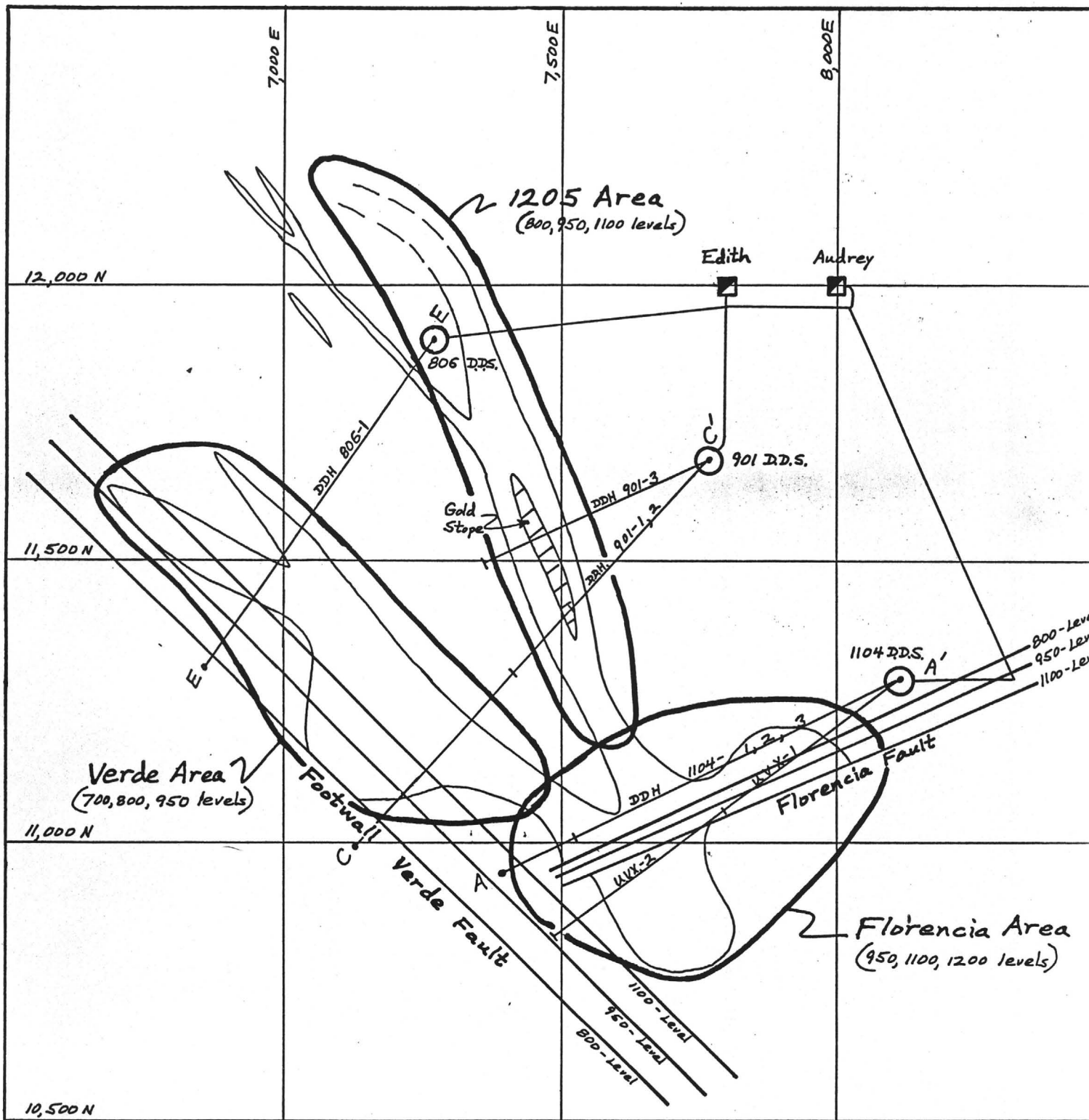


## UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

FIGURE 2





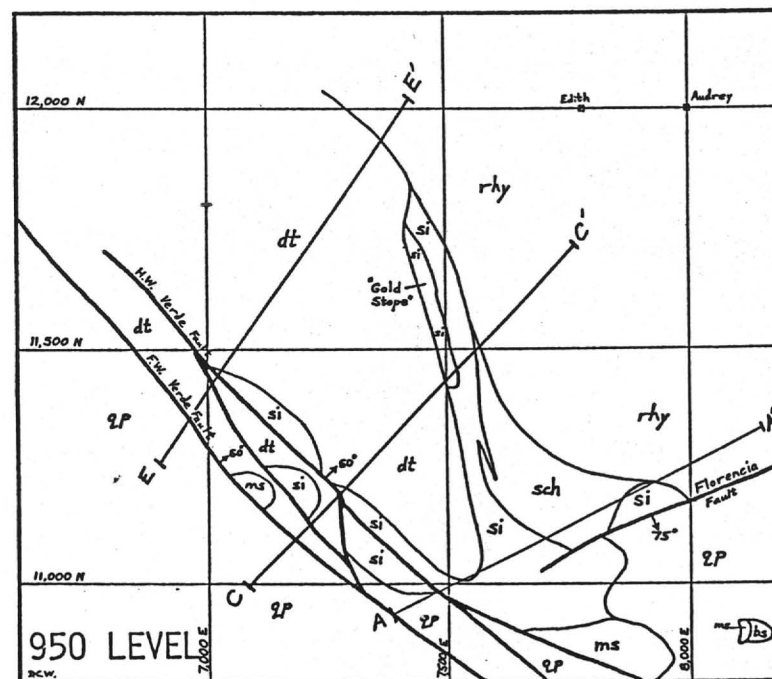
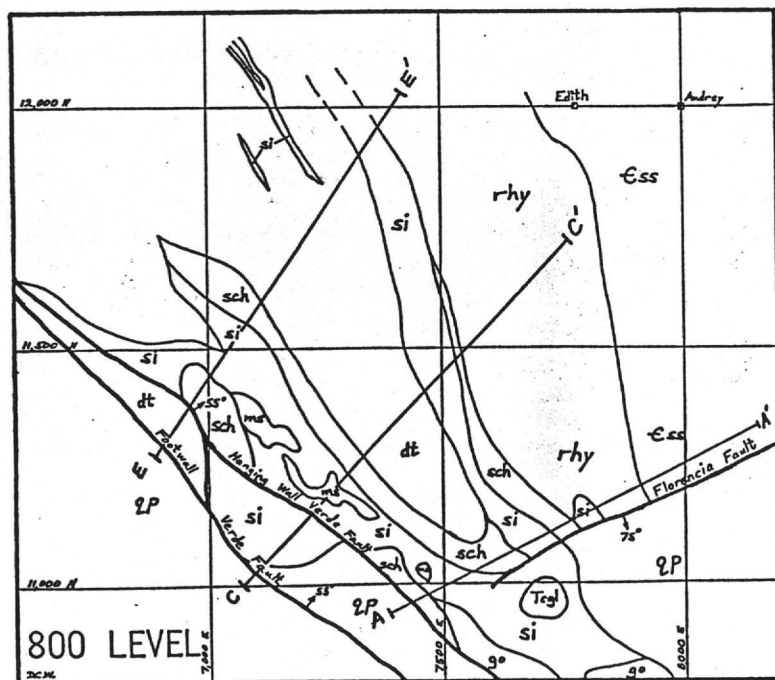
## U.V.X. GOLD PROJECT

Sketch map showing :  
chert bodies/target areas, key cross sections, diamond drill stations

4  
N  
1" = 250'

Figure 1

D.C. White & R.W. Hodder - Feb. 1



4  
N  
FEET

0 100 200 300 400 500

# UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow

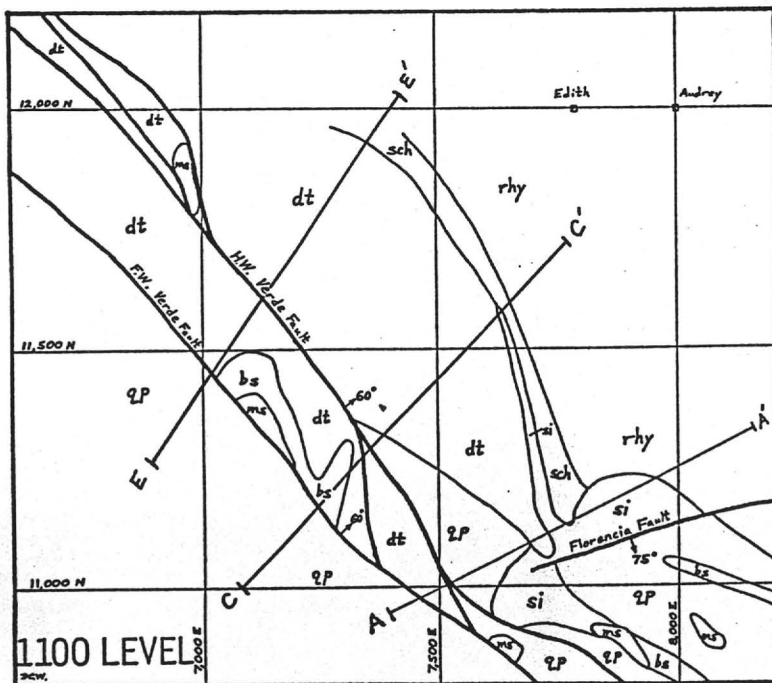
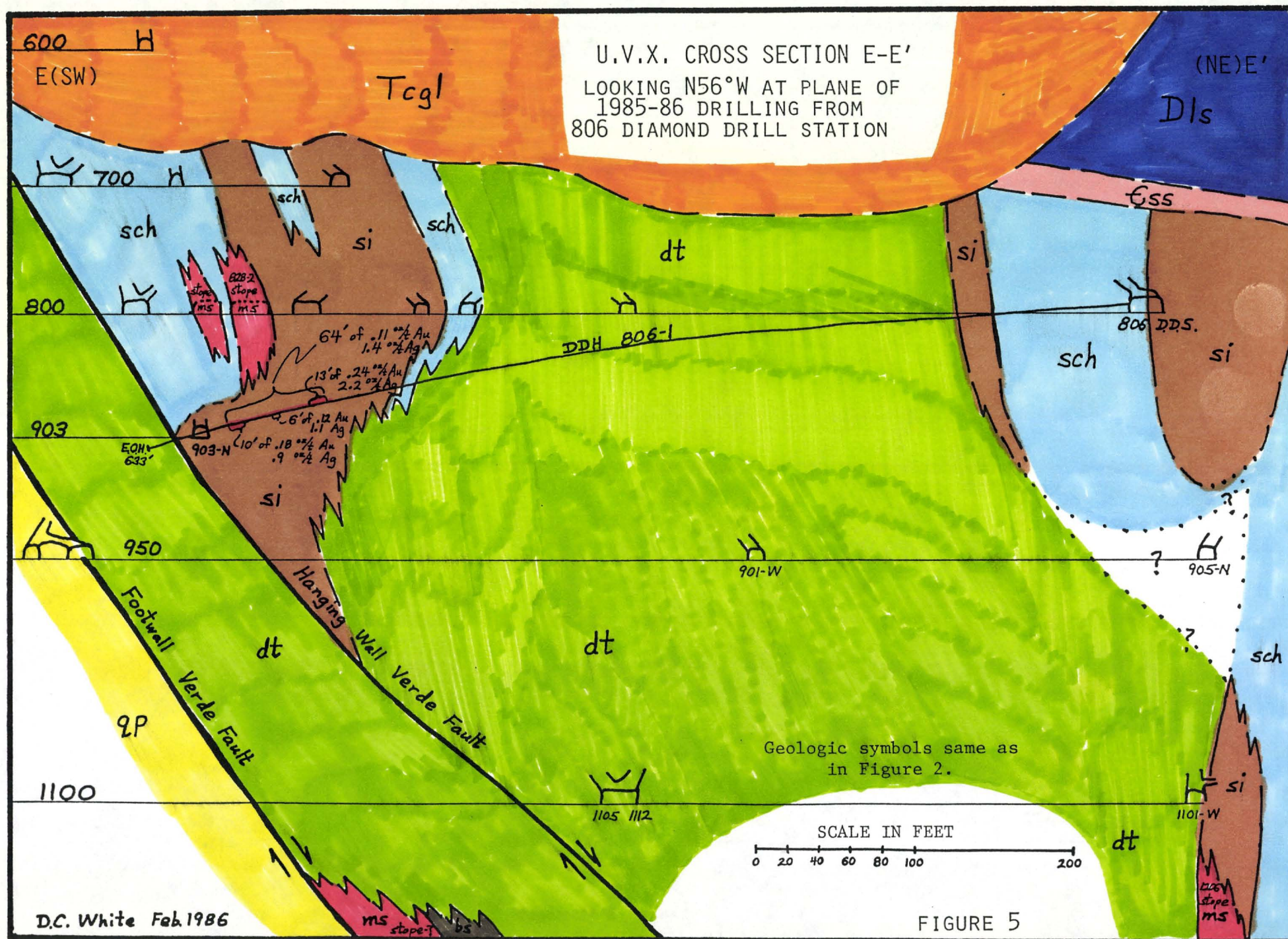
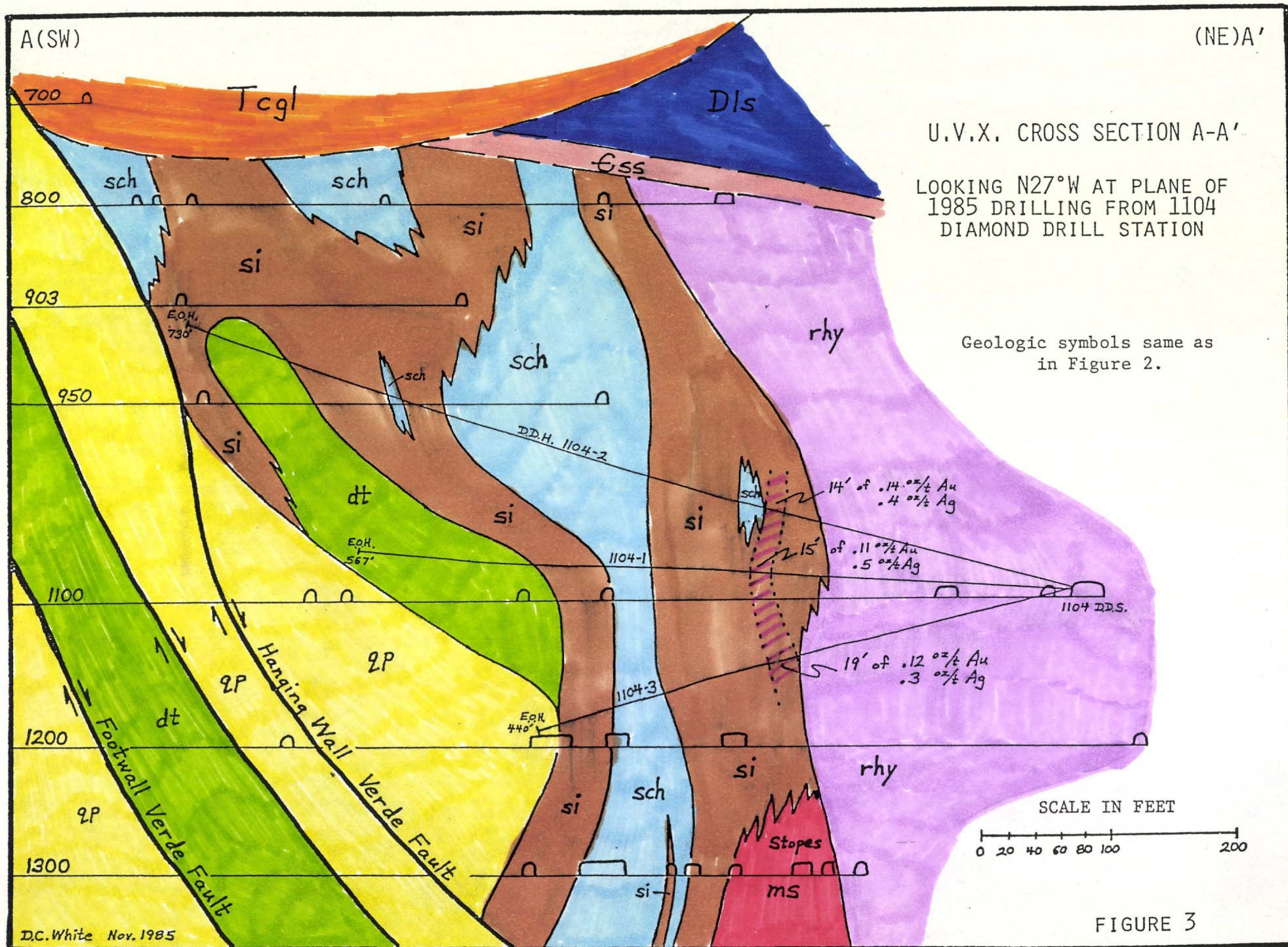


FIGURE 2

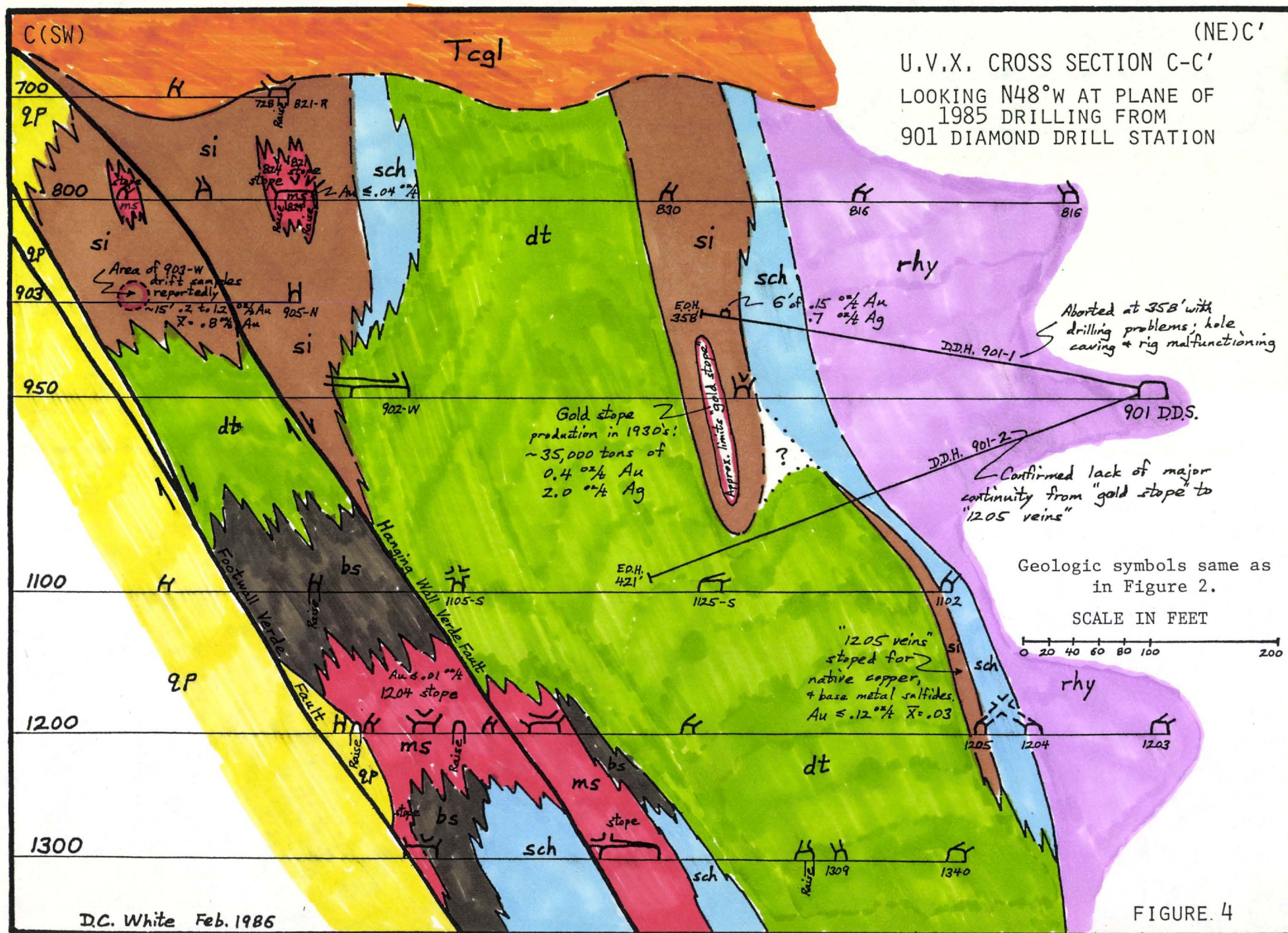


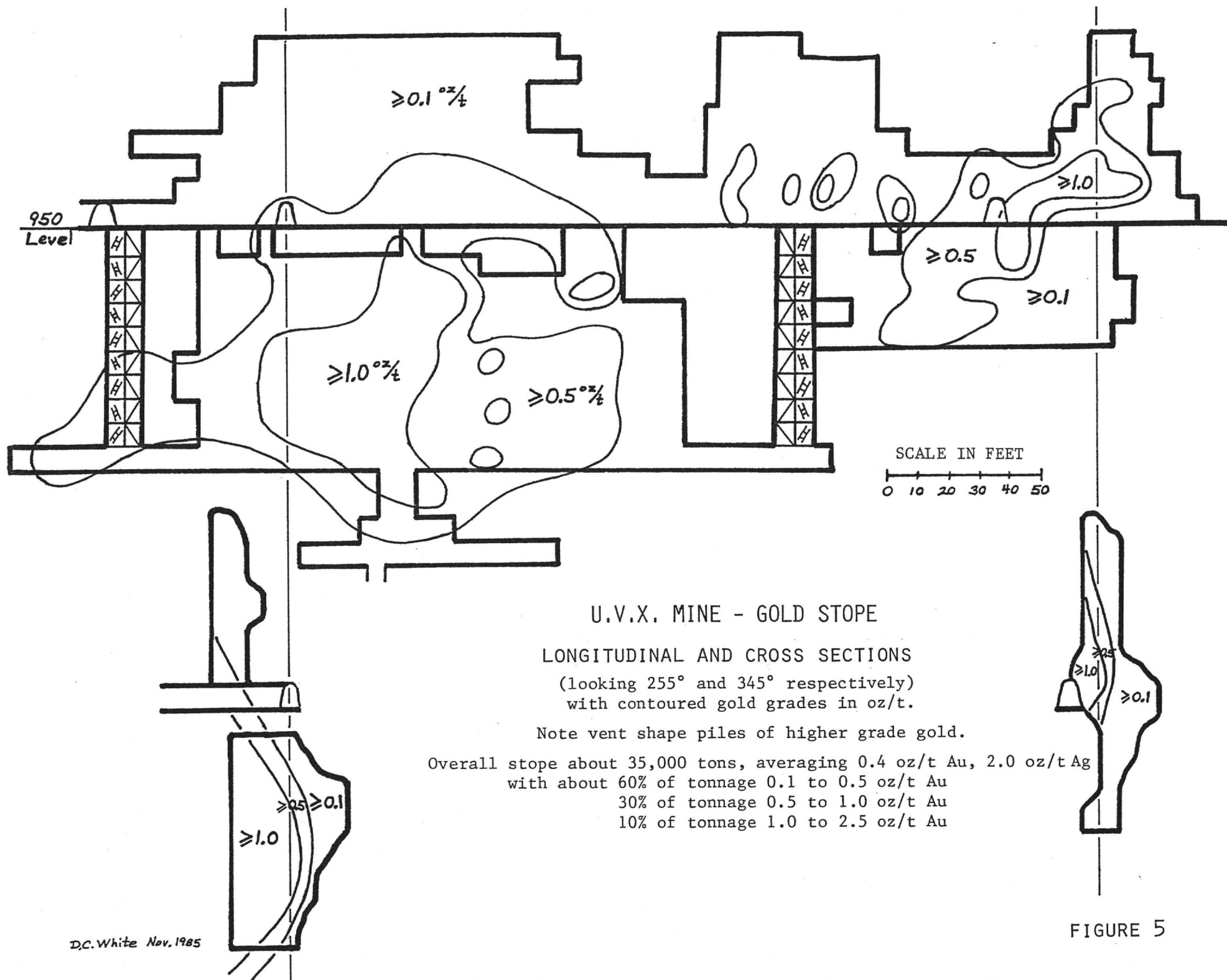














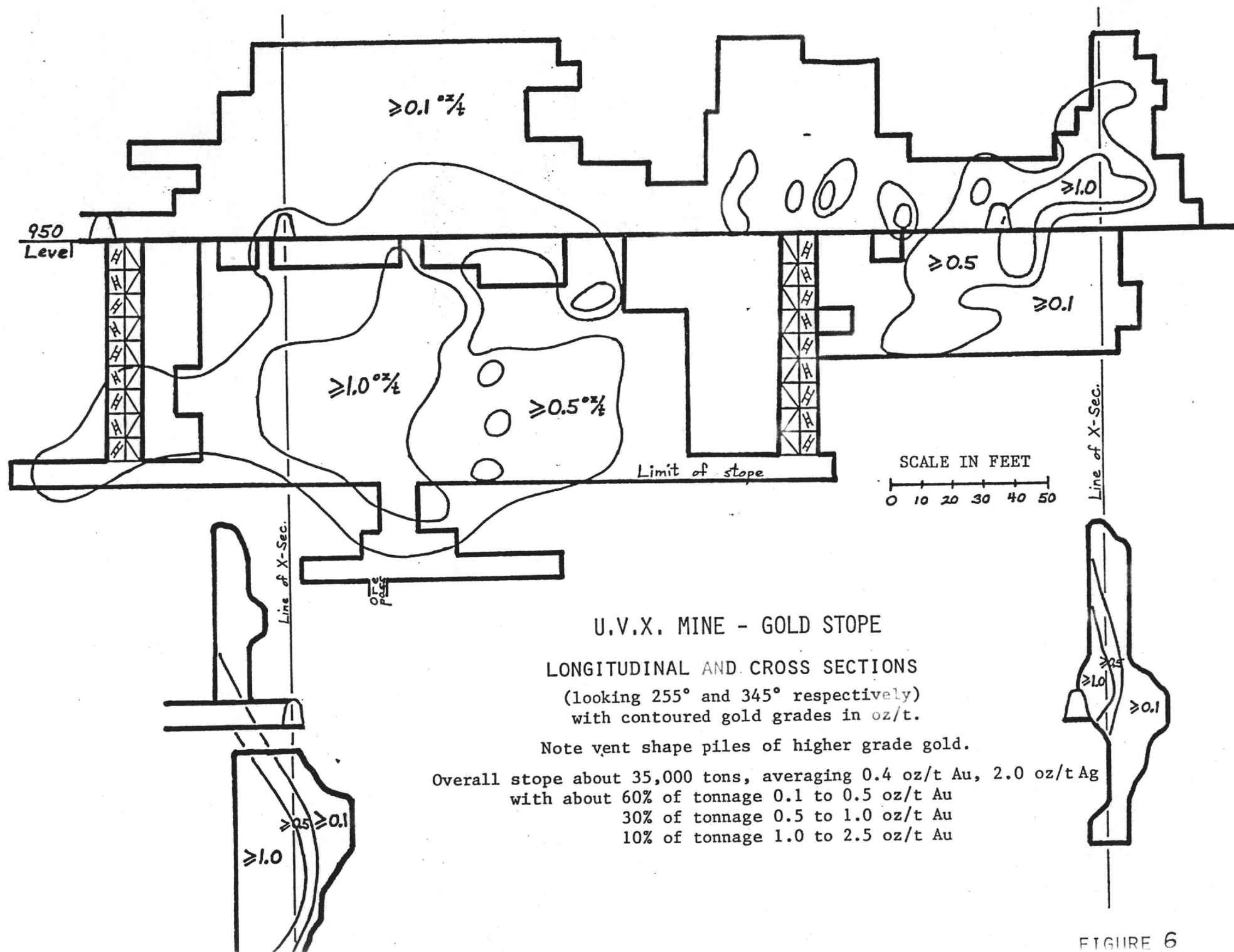
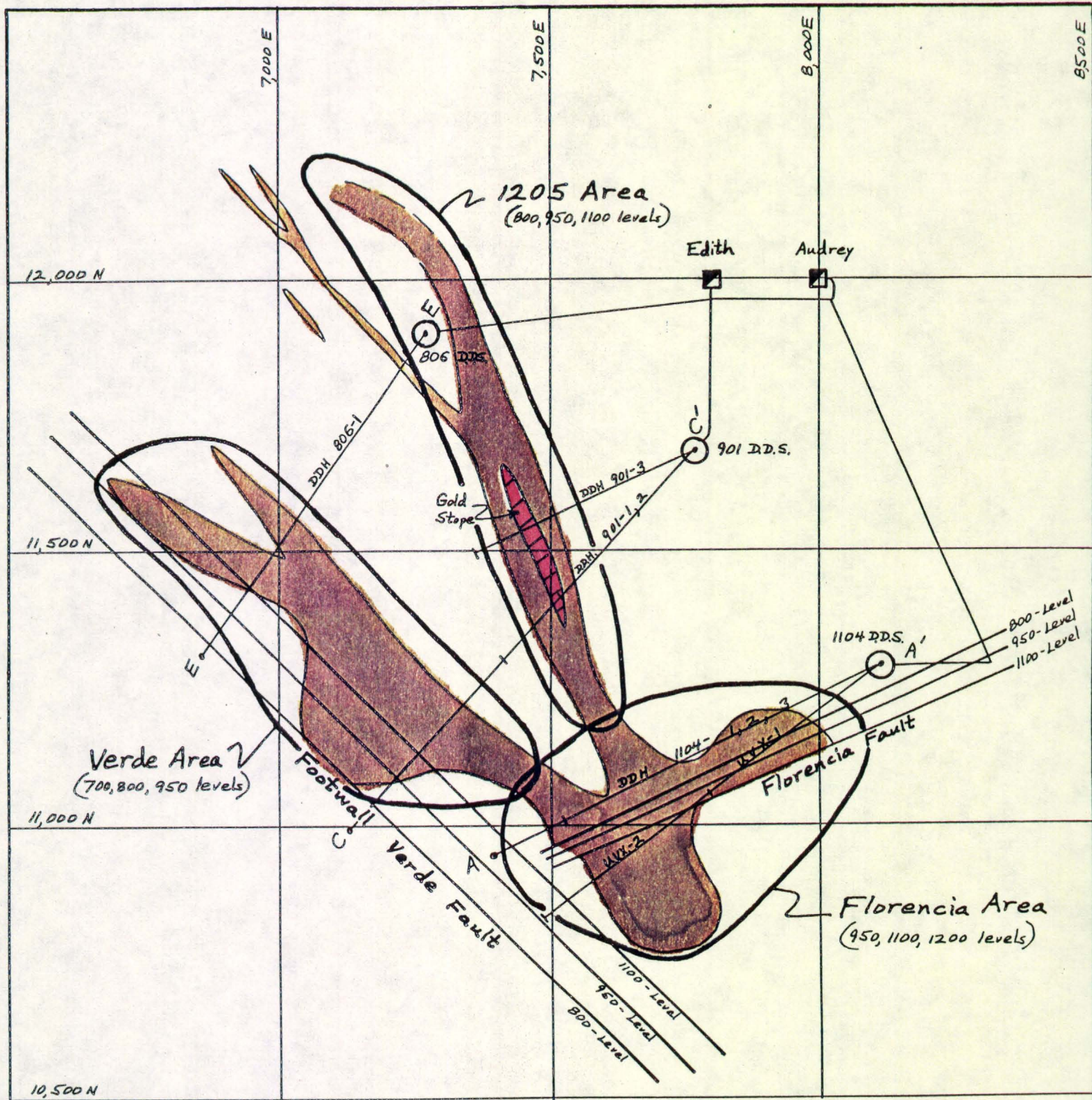


FIGURE 6





## U.V.X. GOLD PROJECT

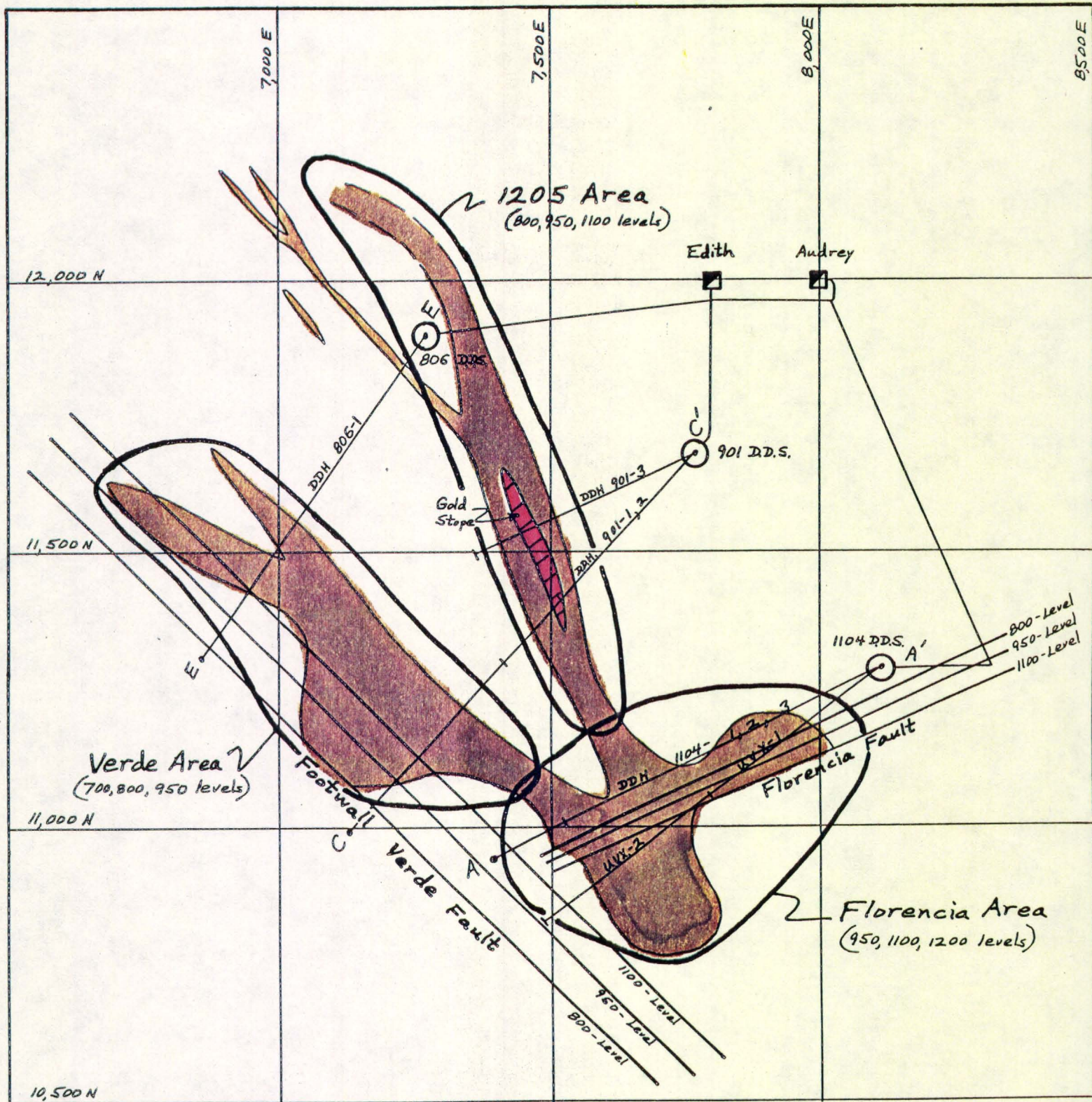
Sketch map showing:  
chert bodies/target areas, key cross sections, diamond drill stations.

4  
N  
1" = 250'

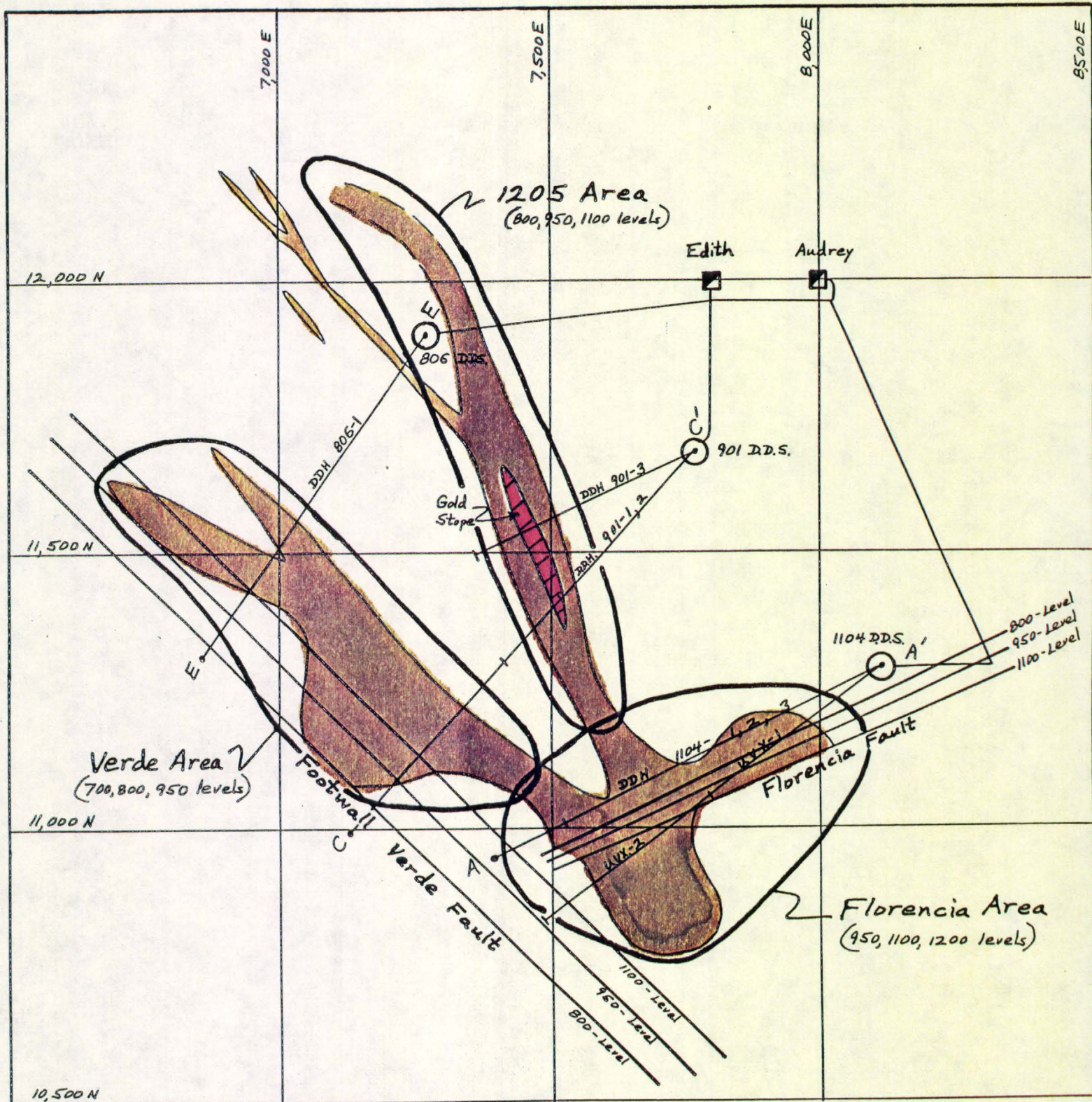
Figure 1

D.C. White & R.W. Hodder - Feb. 1986









## U.V.X. GOLD PROJECT

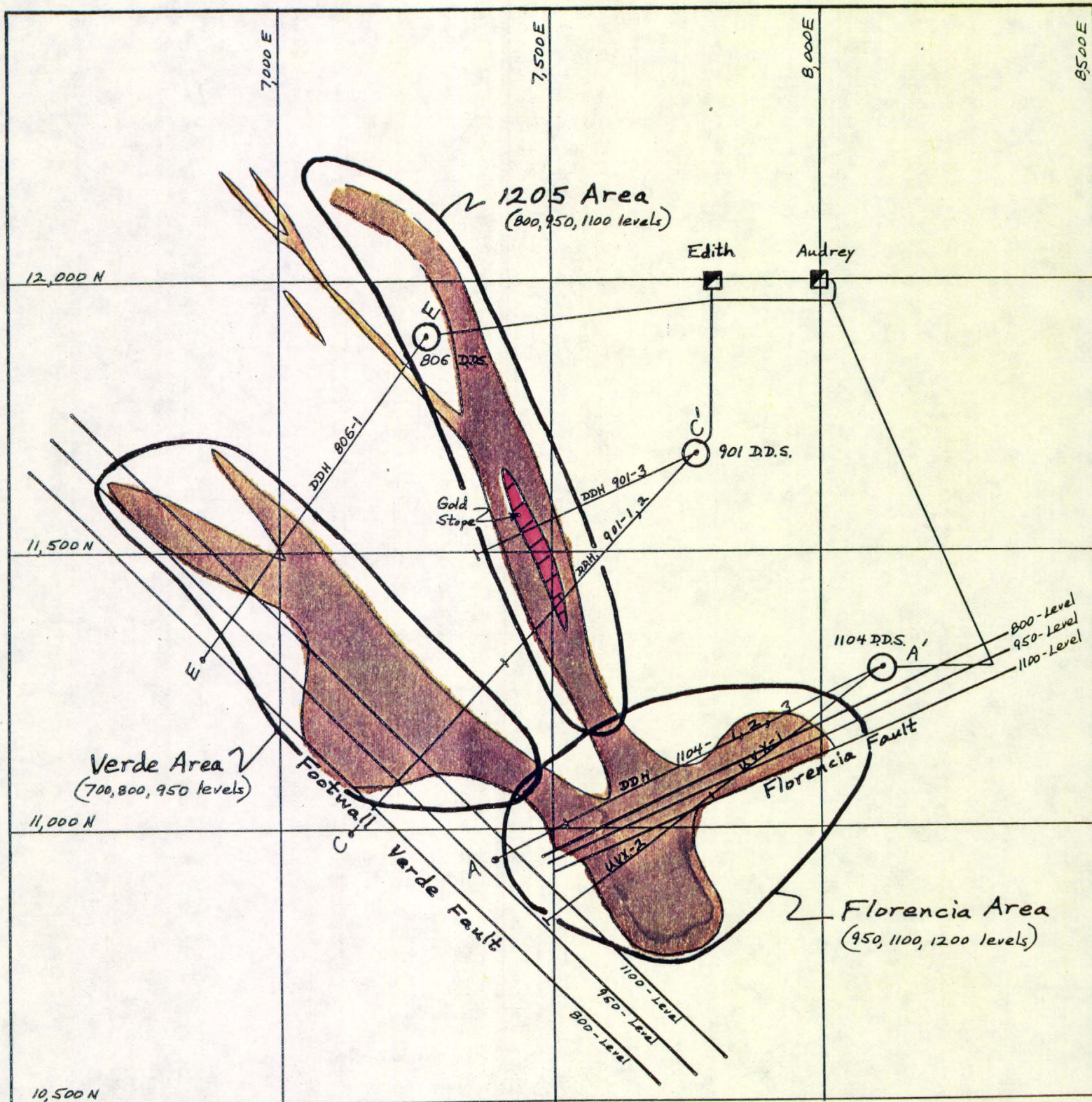
Sketch map showing:  
chert bodies/target areas, key cross sections, diamond drill stations.

4  
N  
1" = 250'

Figure 1

D.C. White & R.W. Hodder - Feb. 1986





4  
N  
1" = 250'

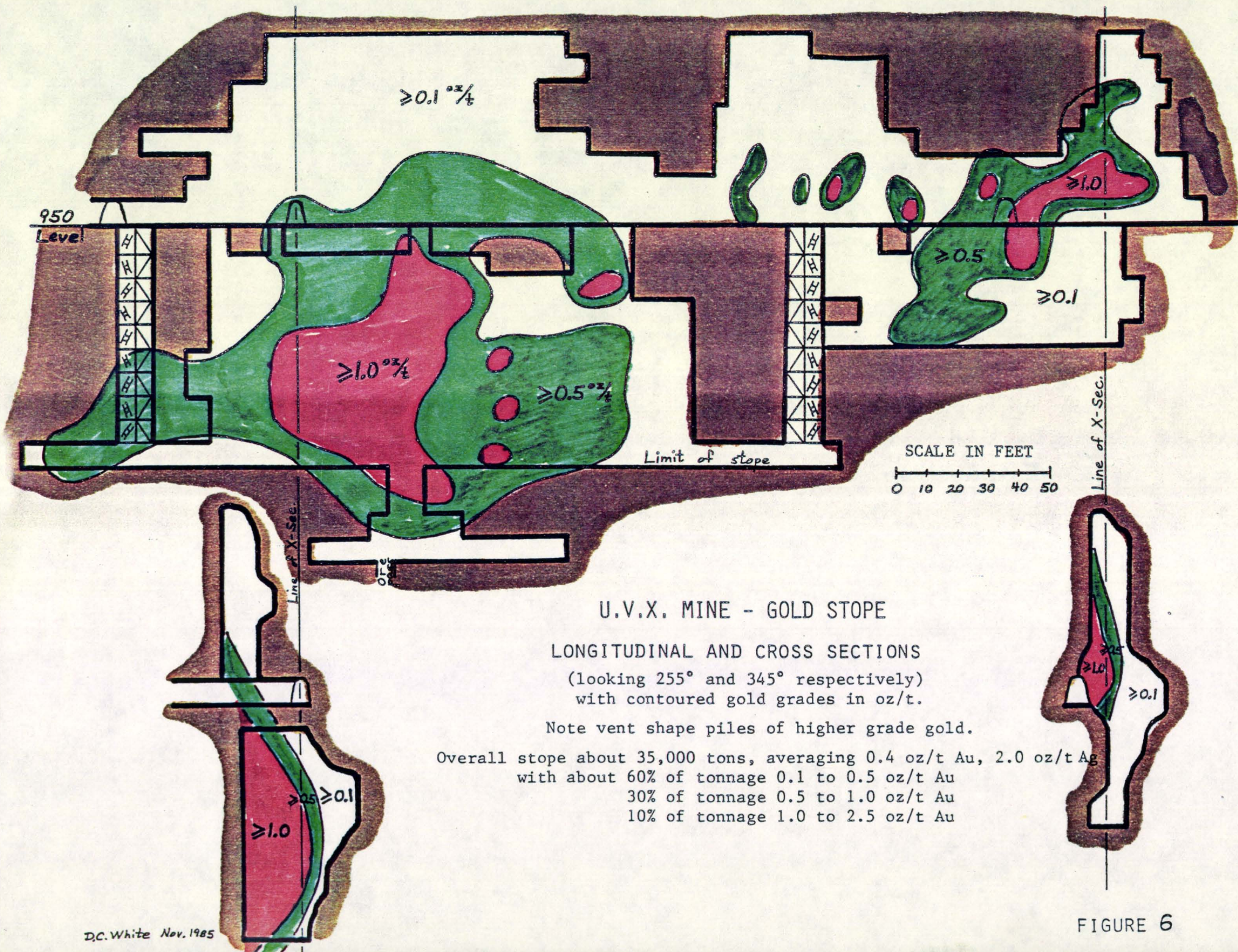
## U.V.X. GOLD PROJECT

Sketch map showing:  
chert bodies/target areas, key cross sections, diamond drill stations.

Figure 1

D.C. White & R.W. Hodder - Feb. 1986





## U.V.X. MINE - GOLD STOPE

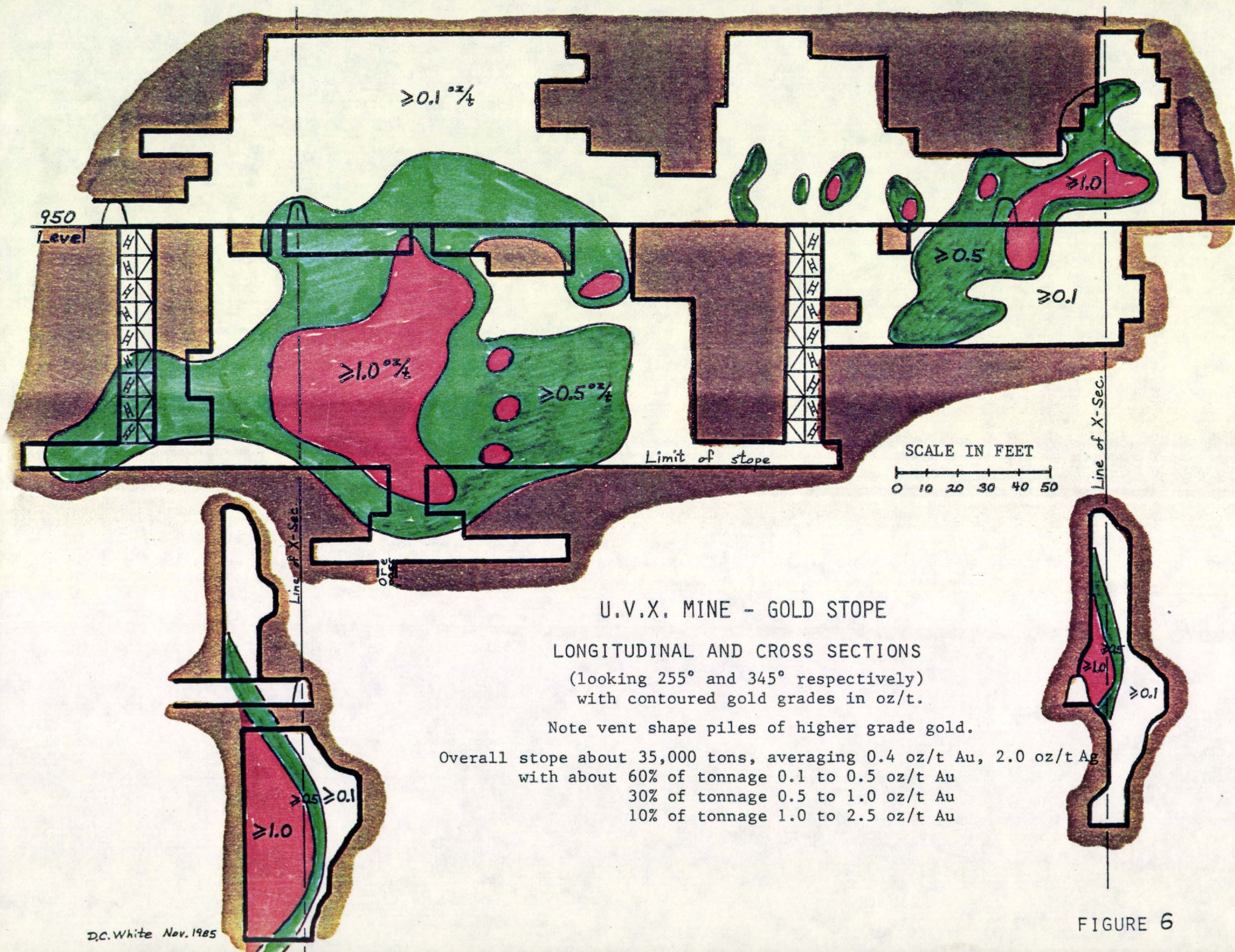
### LONGITUDINAL AND CROSS SECTIONS

(looking 255° and 345° respectively)  
with contoured gold grades in oz/t.

Note vent shape piles of higher grade gold.

Overall stope about 35,000 tons, averaging 0.4 oz/t Au, 2.0 oz/t Ag  
with about 60% of tonnage 0.1 to 0.5 oz/t Au  
30% of tonnage 0.5 to 1.0 oz/t Au  
10% of tonnage 1.0 to 2.5 oz/t Au







U.V.X. GOLD PROJECT - DRILLING/ASSAY SUMMARY

<u>Area/DDH</u>	<u>Thickness (ft)</u>	<u>Grade Au</u>	<u>(oz/t) Ag</u>	<u>Length/Height (ft)</u>	<u>Tons<sup>(1)</sup> (K)</u>	<u>Contained oz Au(K)</u>	<u>REMARKS</u>
<u>Florencia area</u>							
UVX-1	20	.20	1.5				Phelps Dodge Corp holes from 1104 D.D.S; intercepts closer to Florencia fault and main massive sulfide body than DMEA drilling
UVX-2	35	.18	.4				
1104-1	15	.11	.5				
1104-2	14	.14	.4				Other mineralization deep in hole relates to Verde area
1104-3	19	.12	.3				
TOTAL	21	.16	.6	150/200	52	8	Not counting areas south of Florencia fault which are mineralized but likely caved into main orebody's void. Could be reached by cleanup of 200' old drifts.
<u>1205/Gold stope area</u>							
901-1	6	.15	.6				Aborted in hanging wall, drilling difficulties
901-2	-	-	-				No significant gold; drilled beneath host lithology
901-3	7	.18	3.1				Possibly lower grade than reality because of poor core recovery (20%) in 10' over back of 903 sublevel drift.
Compilation from old data	20	.30	1.5	Irregular	20	6	Could be reached by cleanup of 200' old drifts.
<u>Verde area</u>							
806-1	13	.24	2.2	500/200	108	26	Only one D.D.H. supported by old assay data 300' along strike. May be reached with about 500' rehab. and new drifting.
	64	.11	1.4	500/200	530	58	Alternate lower grade consideration; encom- passes the 13' higher grade above.
<u>U.V.X. TOTAL<sup>(2)</sup></u>	18	.23	1.3	---	180	40	Using higher grade intercepts ( $\geq 0.1$ oz/t Au)

(1) Tonnage factor = 12 cu. ft. per ton

(2) Total based upon two P.D. drill holes, seven DMEA drill holes, old data in proximity to the gold stope, and estimates of deposit dimensions based upon compilation of old mine geology data. Dimensions and tonnage could be increased by a factor of five if thicker, lower grade intercepts (about 0.08 oz/t Au) are used.

GOLD DISTRIBUTION AT THE UNITED VERDE EXTENSION,  
A MASSIVE BASE METAL SULFIDE DEPOSIT, JEROME, ARIZONA

Don White, Geologist, C.P.G.  
521 East Willis St.  
Prescott, Arizona 86301

ABSTRACT

The United Verde Extension mine operated from 1915 through 1938, principally as a high grade copper mine. By the 1930's, however, it was a significant gold producer. The gold accompanied high silica flux containing virtually no base metals and was mined within a few hundred feet of the main base metal orebody. Overall production was 3.9 million tons grading 10.2% Cu, 0.04 oz/t Au and 1.7 oz/t Ag. Silica flux was produced from one area more notable than others, the "gold stope," containing 35,000 tons of 0.4 oz/t Au and 2.0 oz/t Ag. There is a clear spatial separation between massive base metal sulfide ore and siliceous flux ore which contained the gold.

The siliceous flux ore is a meta-chert. Cherts form wedges, thinning laterally from the stratigraphic top of the massive base metal sulfide body. These wedges of chert are the demarcation between the footwall, flow-dominated volcanics and massive sulfide deposits, and the hanging wall of dominantly pyroclastic rocks. Cherts closer to the massive sulfide body are more brecciated and more steeply inclined. Matrix material in the breccia is iron stained, comminuted chert of nearly the same composition as the clasts. Gold probably occurs in very fine quartz-healed fractures within clasts and possibly in some of the siliceous matrix. It probably occurs as fine disseminated native metal with or without electrum though the definitive work on this has yet to be done.

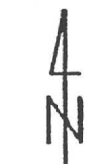
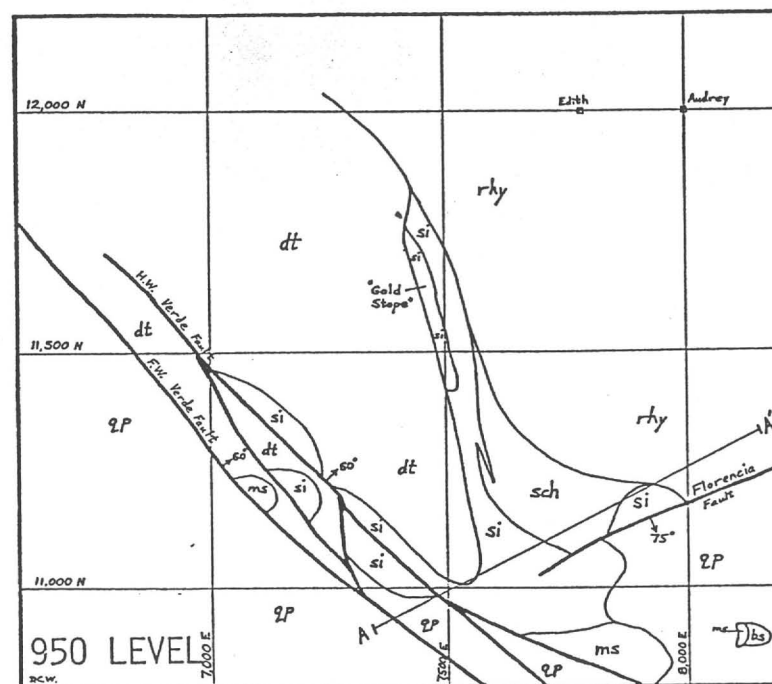
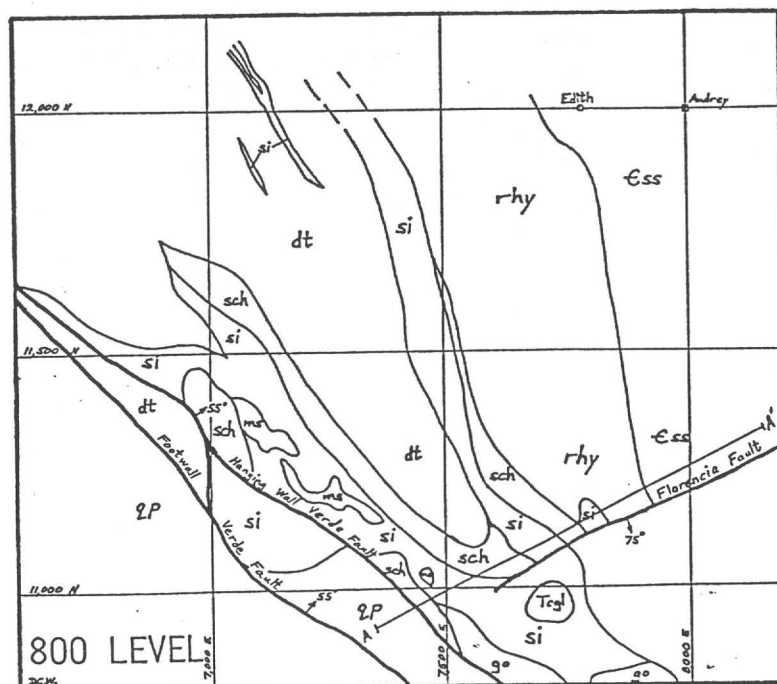
Hydrothermal alteration is dominantly feldspar destruction by argillization of the immediate hanging wall and footwall volcanic rocks and a more distant hanging wall carbonate impregnation and veining. Gold is associated with a trace element assemblage of Ag, As, Sb, Bi, Sn, Mo, V, and the base metals. Of these, only silver offers much help as an exploration aid as it occurs in a broader area than the gold. All the other trace elements trail off across stratigraphy at least as rapidly as the gold.

The present exploration, mainly by underground diamond core drilling, is an effort to find other "gold stopes." These are probably small deposits about smaller, less vigorous vents peripheral to those of the base metal orebodies. They formed slightly later than the base metal deposits and contain higher gold grades and higher gold to silver ratios. They are expected to be lens shaped, a few hundred feet in length and now standing near vertical. The separateness of the precious and base metal ores probably reflects the evolution of the ore-forming fluids.

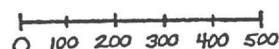
DMEA copies

Graphics for AGS  
paper — compiled  
prior to completion of  
DPH-1104-3 and hence  
already outdated in  
some details —

Don

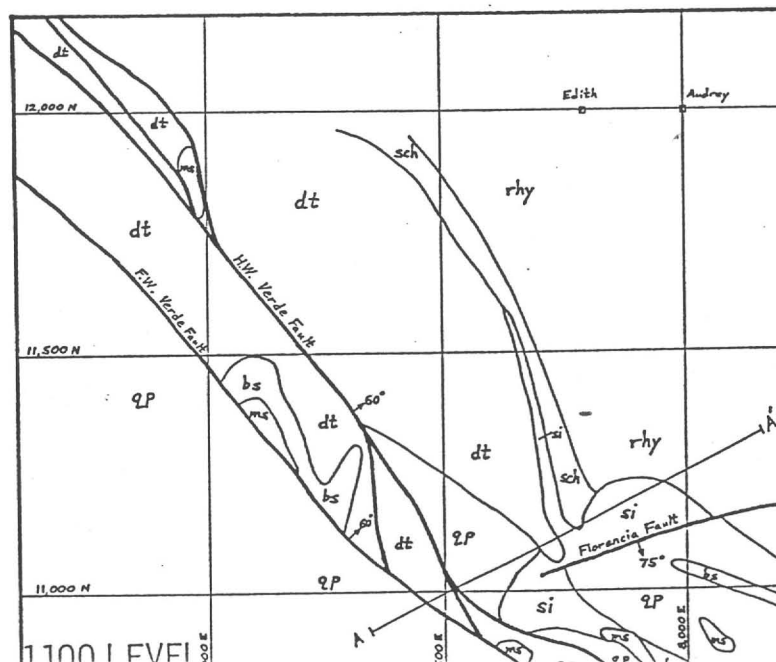


FEET

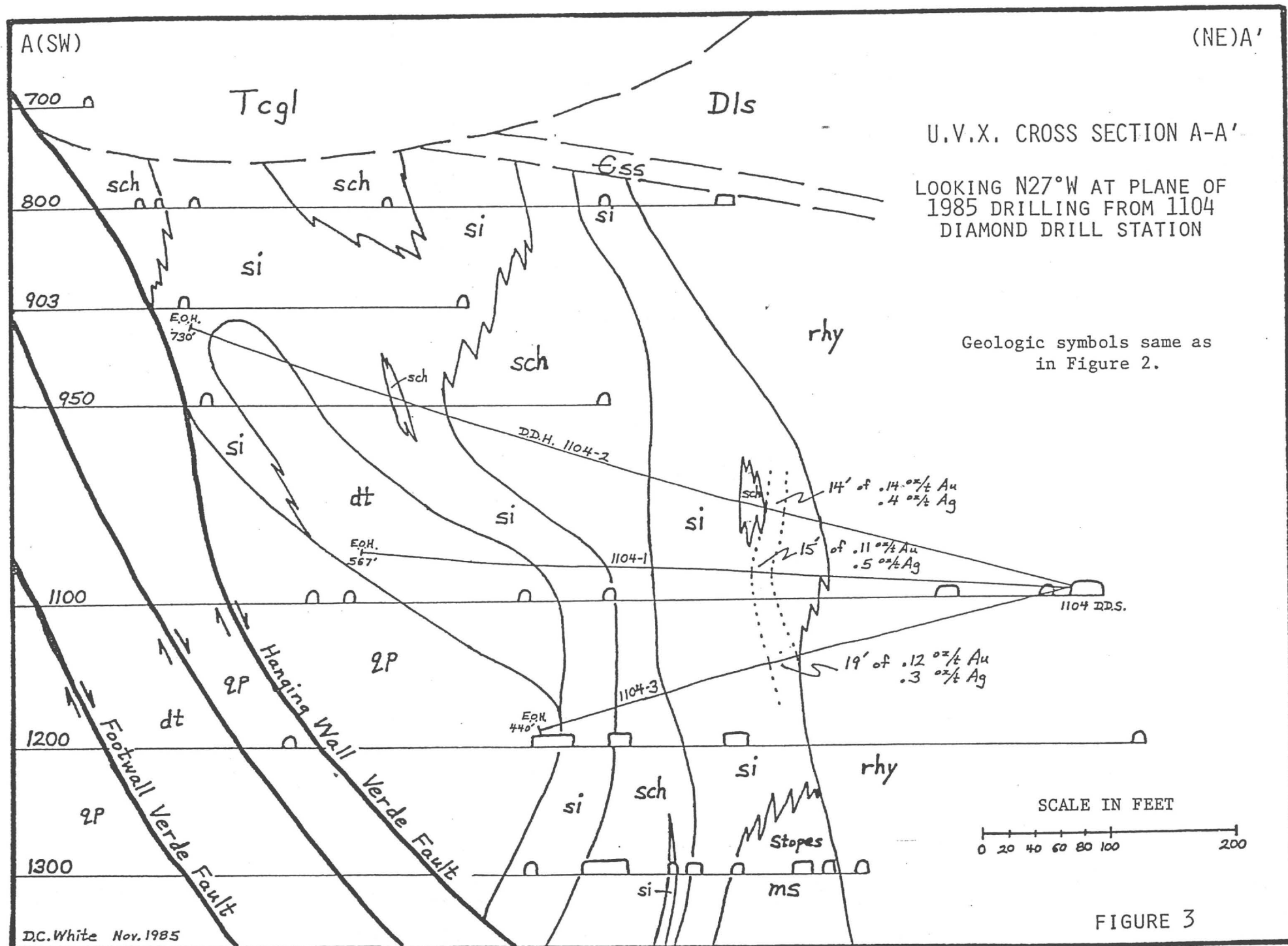


## UNITED VERDE EXTENSION MINE LEVEL PLAN GEOLOGY

Tertiary	cgl	Conglomerate (Hickey Fm.)
Devonian	ls	Limestone (Martin Fm.)
Cambrian	ss	Sandstone (Tapeats Fm.)
Proterozoic	rhy	Rhyolitic and intermediate flows and pyroclastics
	sch	Schistose volcanics (Grapevine Gulch Fm.)
	si	Silica; massive, banded, and brecciated chert and silicified volcanics
	go	Gossan after ms
	ms	Massive sulfide
	bs	Black (chloritized) schist
	qp	Quartz porphyry (incl. Cleopatra Fm.)
	dt	"Diorite"; may be subvolcanic dome or possibly an extrusive andesitic flow







A(SW)

(NE)A'

700

Tcgl

Dls

U.V.X. CROSS SECTION A-A'

800

sch

sch

si

E.S.S.

si

LOOKING N27°W AT PLANE OF  
1985 DRILLING FROM 1104  
DIAMOND DRILL STATION

903

E.O.H.  
730'

si

sch

sch

rhy

Geologic symbols same as  
in Figure 2.

950

si

dt

si

D.D.H. 1104-2

si

14' of .14 oz/ft Au  
.4 oz/ft Ag15' of .11 oz/ft Au  
.5 oz/ft Ag

1100

E.O.H.  
567'

1104-1

1104 D.D.S.

1100

qp

1104-3

19' of .12 oz/ft Au  
.3 oz/ft Ag

1200

dt

qp

E.O.H.  
440'

si

sch

si

rhy

SCALE IN FEET

0 20 40 60 80 100 200

1300

qp

Footwall Verde Fault

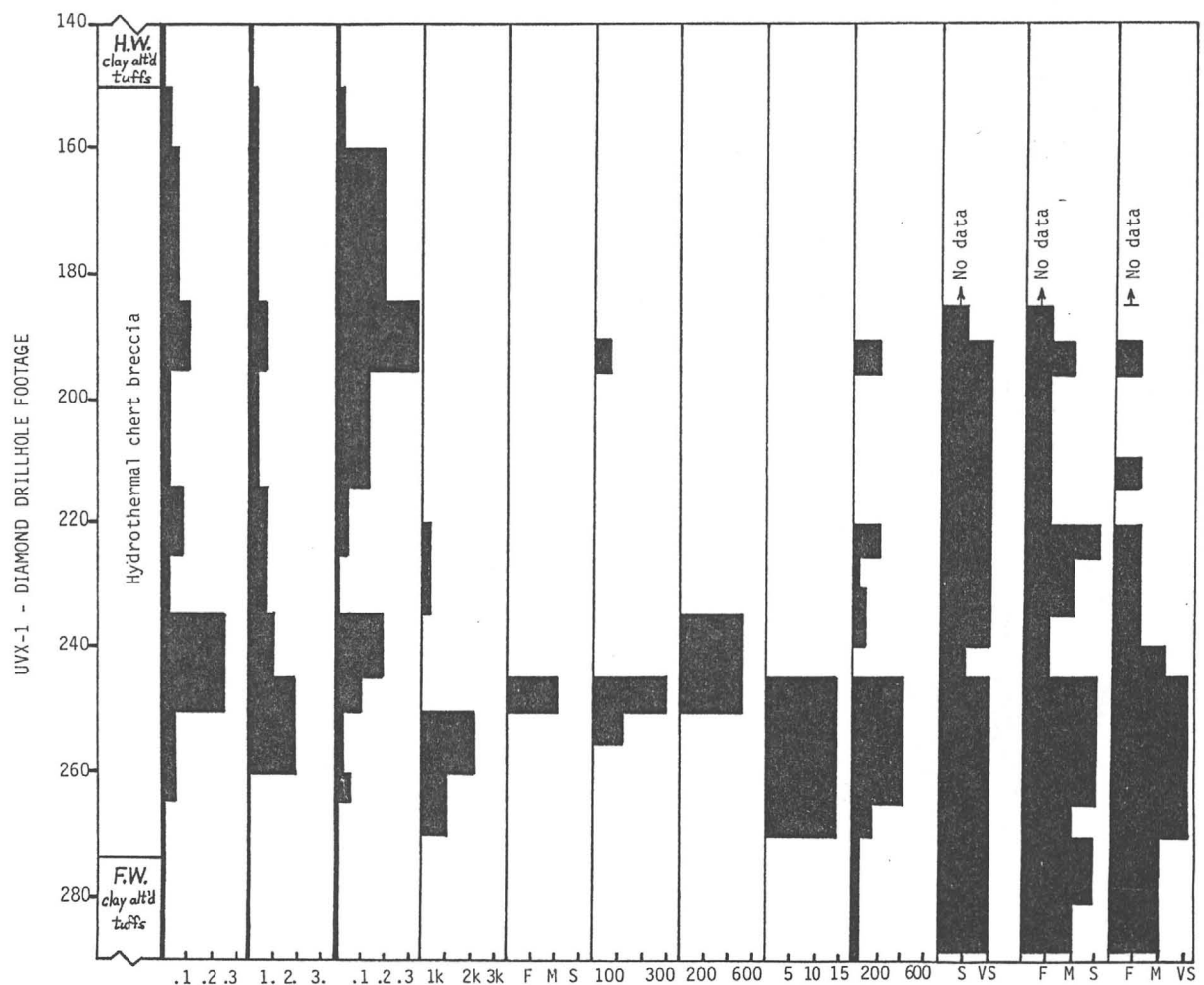
Hanging Wall Verde Fault

Stopes

ms

D.C. White Nov. 1985

FIGURE 3



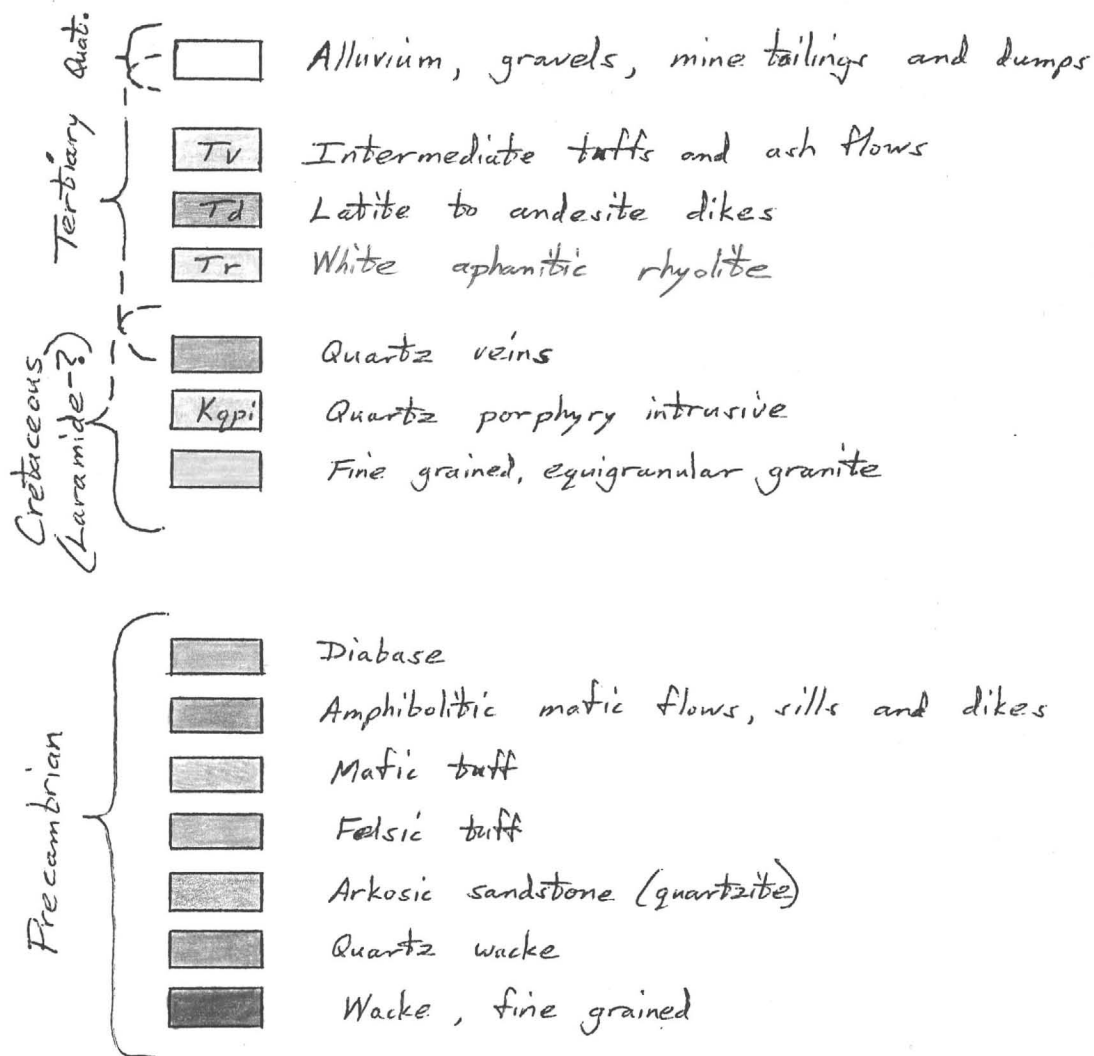
Hanging Wall	<.005	≤ 0.4	<.05	< 200	Not detected	< 20	< 10	< 5	< 20	Strong-Very strong	Not detected-Medium	Not detected-Strong
Less mineralized chert	<.005-.05	0.2-2.0	.1-.5	200-400	Not detected	< 20	10-50	< 5	20-200	Strong-Very strong	Faint-Strong	Not detected-Strong
More mineralized chert	.05-0.5	0.2-4.0	.1-.5	400-3,000	"Medium"	20-300	50-1500	5-25	200-500	Very strong	Strong	Very Strong
"Gold stope" high grade	0.5-5.0	0.5-8.0	.1-5.	-	-	-	-	-	-	-	-	-
Footwall	<.005	≤ 0.4	<.05	< 200	Not detected	< 20	< 10	< 5	< 20	Very strong	Faint-Strong	Medium-strong

TRACE ELEMENT ASSOCIATION WITH GOLD AT THE U,V,X, MINE

FIGURE 4

# LEGEND to Figure 1

Lithologies as classified by Noranda Explor., Inc.



UVX: Select core sample Analyses

Sample number	Au (oz/t)	Ag (oz/t)	SiO2 (%)	Al2O3 (%)	Fe2O3 (%)	FeO (%)	CaO (%)	Na2O (%)	K2O (%)	MgO (%)
1104-1-280-285	0.050	0.12	98.9	0.04	0.36		0.02	< 0.01	0.02	
1104-1-285-290	0.015	0.19	93.6	0.35	1.60		0.04	0.01	0.03	
1104-1-245-250	0.115	0.42	92.5	0.26	0.90		0.02	0.01	0.02	
901-3-268-272	< 0.001	0.47	71.9	16.60	2.80	0.10	0.10	0.06	2.30	0.44
901-3-272-274	< 0.001	0.72	89.0	1.50	8.70	0.07	0.05	0.03	0.26	0.05
901-3-293-295	0.015	0.88								
901-3-300-302	0.030	1.46	95.3	0.13	0.76	0.10	0.02	< 0.01	0.08	0.01
901-3-302-306	0.085	0.79								
901-3-306-309	0.035	1.20								
901-3-309-312	0.025	0.84								
901-3-312-314	0.065	1.32								
901-3-314-316	0.250	3.24	94.8	0.07	0.70	0.07	< 0.01	< 0.01	0.09	< 0.01
901-3-316-321	0.170	2.50								
901-3-321-326	0.030	0.61								
901-3-326-331	< 0.005	0.17								
901-3-339-343	< 0.001	0.24	59.2	26.30	2.70	0.15	0.12	0.12	1.50	0.26
806-1-224			52.8	17.40	6.80	5.50	5.10	2.50	0.90	4.50
806-1-509-514	0.050	0.71								
806-1-514-516	0.335	2.44								
806-1-518-522	0.260	2.62	90.5	0.13	7.9	0.15	0.08	0.02	< 0.01	0.03
806-1-544-546	0.100	1.04	98.2	0.08	1.3	0.05	0.02	< 0.01	< 0.01	0.01
806-1-552-554	0.010	0.61	40.0	0.65	49.4	0.15	0.11	0.02	< 0.01	0.07
806-1-560-562	0.040	1.38	86.2	1.60	7.4	0.15	0.05	0.03	< 0.01	0.02
806-1-576-578	0.250	0.61	99.4	0.05	0.4	0.05	0.01	< 0.01	< 0.01	< 0.01
806-1-578-580	0.055	0.53								