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Arizona Department of Mines and Mineral Resources Mining Collection

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PRINTED: 09/05/2002

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES AZMILS DATA

PRIMARY NAME: TWIN BUTTES MINE

ALTERNATE NAMES:

TWIN BUTTES OPEN PIT

PIMA COUNTY MILS NUMBER: 246

LOCATION: TOWNSHIP 18 S RANGE 13 E SECTION 5 QUARTER C

LATITUDE: N 31DEG 54MIN 29SEC LONGITUDE: W 111DEG 03MIN 00SEC

TOPO MAP NAME: TWIN BUTTES - 7.5 MIN

CURRENT STATUS: PRODUCER

COMMODITY:

COPPER SULFIDE

COPPER OXIDE

MOLYBDENUM SULFIDE

SILVER

GOLD

ZINC

URANIUM

LEAD

BIBLIOGRAPHY:

ADMMR TWIN BUTTES MINE FILE

WORLD MINING 5/77, P. 96-99

PAY DIRT 4/25/77, P. 57 1/27/76 P. 46

E/MJ 2/77, P. 56

SEC 10-K REPORT 1976-AMAX

US DEPT OF COMMERCE P.B. 245-759

BANNER MINING CO. PROXY STATEMENT 4/13/73

SKILLING MINING REVIEW, 6/4/77, P. 12-16

MINING CONGRESS JOURNAL, 7/77,

USBM RI 4732

WORLD MINING 11/76, P. 77

S.E.C. 10-K FREEPORT 1977-AMAX

AMAX ANNUAL REPORT 1977

ADMMR "U" FILE CU 32

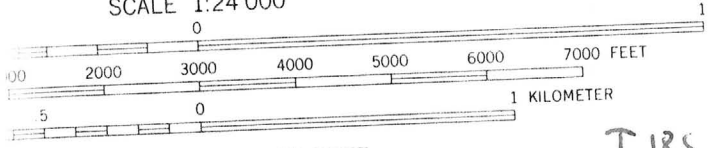
ADMMR 4 PLAN MAPS (FLAT FILE DRAWER 18)

USGS BULL 725 P 419-428



(ESPERANZA MILL), GREEN VALLEY 4.4 MI. 495
3747 1 SE

SCALE 1:24 000



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

TIBS R 13E Sec 5

TWIN BUTTES 7.5

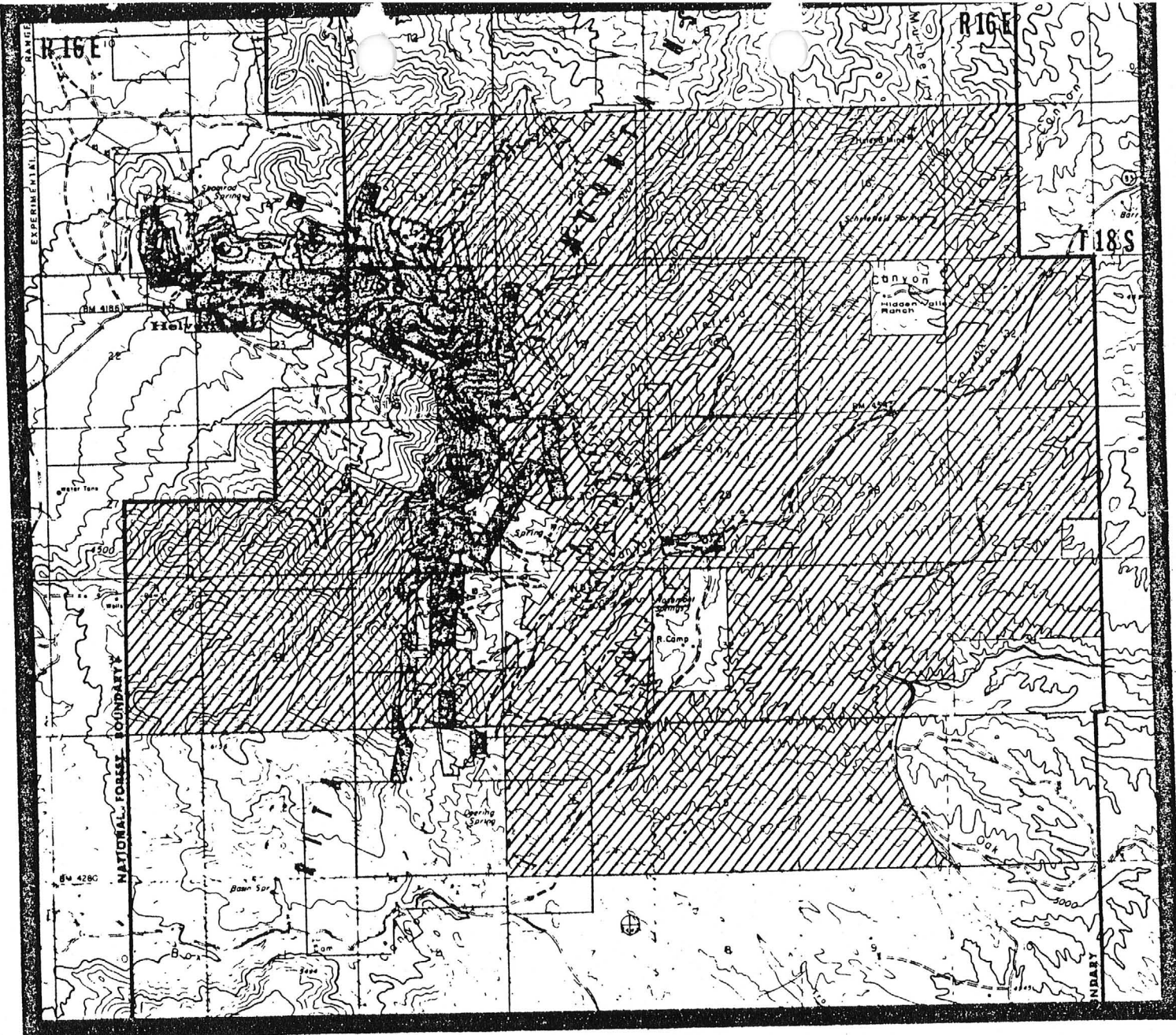


QUADRANGLE LOCATION

Primary highway
hard surface —
Secondary highway
hard surface —
Interstat

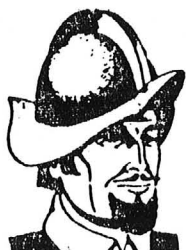
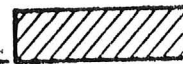
COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FEDERAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
ADDITIONAL INFORMATION AND SYMBOLS IS AVAILABLE ON REQUEST

From
WIDE WORLD OF MAP
ARIZ. MAP SHOP & GA
Phoenix, Arizona



Rosemont Land Exchange Proposal Map

LANDS SELECTED BY ANAMAX



CORONADO National Forest

RECEIVED
K. J. [unclear]
1977
to John Jett
DEPT. GENERAL RESOUR.
PHOENIX, ARIZONA



ROSEMONT LAND EXCHANGE PROPOSAL

PRE-DRAFT ENVIRONMENTAL STATEMENT
WORKSHOPS

THE PROPOSAL

Coronado National Forest announces workshops to present the Rosemont Land Exchange proposal and gather environmental, social, and economic information.

Workshop Schedule

- 10-11-77 Stage Stop Motel
Patagonia, Arizona
7-9 P.M.
- 10-12-77 Tucson Community Center
Gila & Coconino Rooms
Tucson, Arizona
7-9 P.M.
- 10-13-77 Green Valley CRAGV
Auditorium
7 South Abrego
Green Valley, Arizona
7-9 P.M.

Workshop Program

- 7:00 Introduction
7:15 Slide Program - Offered Lands
7:30 Complete Comment Worksheets
to 1. Alternatives
9:00 2. Environmental, Social,
and Economic Informa-
tion about the Project
Area.

Anamax Mining Company has proposed a land exchange with the Forest Service to acquire lands needed for development of a copper ore body in the Rosemont area.

Anamax has selected 13,050 acres of National Forest lands in the Rosemont area. Approximately 4,464 acres of highly desirable lands have been offered in exchange within the Coronado, Tonto, Apache-Sitgreaves and Coconino National Forests. Final offered acreage will depend on the appraised values of the lands in the exchange.

Acquisition of these lands through exchange by Anamax, rather than through the mining laws, affords the Forest Service a unique opportunity to acquire highly desirable private lands throughout the National Forests in Arizona.

The draft statement is scheduled to be available in December for a 90-day review period.



POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE
AGR 101

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Federal Building, 301 W. Congress
Tucson, Arizona 85701

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1992

Pima

CYPRUS COPPER COMPANY

(A subsidiary of Cyprus Minerals Company)

P. O. Box 1126, Green Valley, AZ 85622 - Phone 628-4000.

Cyprus Sierrita Corp.

Sierrita T18S R12E Secs. 7, 8, 9, 10, 16, 17

Twin Buttes T18S R13E Sec. 5

P.O. Box 527, Green Valley, AZ 85622 - Phone 791-2950 and 625-4800 -
Employees: 1130 plus 50 Triple Nichol Inc. contract employees - Sierrita,
Esperanza and Twin Buttes open pit copper-molybdenum mines - 95,000 TPD
concentrator - The inactive Esperanza open pit - 17,500 TPD concentrator -
Ferromolybdenum plant - Rhenium plant - Oxide leach, solvent extraction -
electrowinning plant - Dump leach, solvent extraction - electrowinning plant -
Located 30 miles south of Tucson.

Vice President & General Manager Gene Consalus

Manager, Administration Mark Wilson

Manager, Mining D. L. Prah

Manager, Metallurgical Processing M. H. Khan

Manager, Human Resources Craig Patrick

Plant Manager Bob Comstock

Mine Superintendent Leon Hardy

Oxide Superintendent Ramon Hernandez

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1991

CYPRUS COPPER COMPANY

(A subsidiary of Cyprus Minerals Company)

P. O. Box 1126, Green Valley, AZ 85622 - Phone 628-4000.

Executive Vice President James C. Compton

Vice President Technical Services Ron Kellner

Twin Buttes T18S R13E Sec. 5

Employees: 269, plus 50 Triple Nichol, Inc. contract employees - Open
pit copper mine, oxide leach and solvent extraction-electrowinning
- Sulfide ore conveyed to Sierrita mill.

Mine Manager

D. L. Prah

Mine Superintendent Leon

Hardy

Oxide Superintendent Ramon Hernandez

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1990

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pit copper mine, oxide leach and solvent extraction-electrowinning
- Sulfide ore conveyed to Sierrita mill.

Mine Manager D. L. Prah1

Mine Superintendent Leon Hardy

Oxide Superintendent Ramon Hernandez

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1989

CYPRUS METALS COMPANY
(A subsidiary of Cyprus Minerals Company)

1855 La Canada, Green Valley 85622 - Phone 628-4000.

Senior Vice President C. J. Janes

Cyprus Copper Company

Senior Vice President - Operations Jake Timmers

Cyprus Twin Buttes Corp.

Twin Buttes

T18S R13E Sec. 5

Employees 200, plus 45 Triple Nichol, Inc. contract employees - Open pit copper mine, oxide leach and solvent extraction-electrowinning - Sulfide ore conveyed to Sierrita mill.

Project Manager S.R. Stine
Mine Manager John Fenn
Oxide Plant Manager Bill Sweetser

ABSTRACTED FROM ADMMR ACTIVE MINES DIRECTORY, 1988

CYPRUS METALS DEVELOPMENT

1855 La Canada, Green Valley 85622 - Phone 628-4000.

Executive Vice President C.W. Reno
Manager, Human Resources Jim Sanderson

Twin Buttes Project

T18S R13E Sec. 5

Employees 200 - Open pit copper mine, oxide leach and solvent extraction-
electrowinning - Sulfide ore trucked to Sierrita mill.

Project Manager Steven Stine
Mine Manager John Senn
Oxide Plant Manager Bill Sweetser

Date Printed: 01/04/93

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

VERBAL INFORMATION SUMMARY

Information from: Jimmy Vacek

Company: 49ER Minerals

Address:

City, State ZIP: Scottsdale, AZ

Phone:

MINE: Twin Buttes

ADMMR Mine File: Twin Buttes Mine

County: Pima

AzMILS Number: 246

SUMMARY

During the process of discussing a possible concentrate contract for copper concentrates from Cyprus' Twin Buttes Mine Mr. Vacek obtained a copy of the typical concentrate analysis for copper concentrates from Cyprus. A copy was provided for our mine file. It is not clear if the analysis is just pertinent to the Twin Buttes Mine or is typical of all Cyprus' Arizona concentrates.

Ken A. Phillips, Chief Engineer

Date: December 16, 1992

Typical Assay

ARIZONA
COPPER CONCENTRATES

Copper	Cu	28.0 - 30.0%
Sulphur	S	33.0%
Iron	Fe	27.0%
Silica	SiO ₂	10%
Alumina	Al ₂ O ₃	3%
Calcium	CaO	2%
Magnesium Oxide	MgO	.5%
Cobalt	Co	60 ppm
Arsenic	As	100 ppm
Bismuth	Bi	19 ppm
Lead	Pb	380 ppm
Antimony	Sb	80 ppm
Gold	Au	<0.01 oz/DST
Silver	Ag	3 oz/DST
Zinc	Zn	2000 ppm
Fluorine	F	.04%
Chlorine	Cl	.07%
Nickel	Ni	50 ppm
Selenium	Se	37 ppm
Tellurium	Te	<1 ppm

TWIN BUTTES MINE

PIMA COUNTY

KAP WR 9/20/85: Anamax has announced that they are completely closing down the Twin Buttes Mine (file) Pima County. After completing reclamation the last of 130 employees will be laid off.

NJN WR 7/10/87: The phone number and address for the Park Corporation (card) owners of the Twin Buttes Mine (file) Pima County is P O Box 1488, Green Valley, Arizona 85622, 648-1630.

MG WR 1/9/88: Received an unconfirmed report that Cyprus Minerals has bought the Twin Buttes mine (file) Pima County from the Park Corp.

ANAMAX

A field examination was made of Mrs. Rose Samms' property (Prosperity Group - 10 claims; T18S R12E Sec.1 and T17S R12E, Secs. 35 & 36). Her property is surrounded by Anamax and she has received offers to buy. Anamax is extending waste dumps toward her property. They have also run geophysical surveys over her property and have drilled holes adjacent to her property. In all likelihood Anamax needs the ground for dump space. REL WR 8/24/73

C. Miller of Amax reports that Ed J. Eisenach would be the new president of Anamax and that Bob Lynn would go back to Anaconda. GWI WR 3/18/74

ANAMAX MINING COMPANY
Twin Buttes Mine

Pima County

MG/WR 2/2/79 - Visited by Mike Greeley. Engineer there told him several companies were bidding by January 31 on the Lakeshore Property, Conoco may have submitted a bid. 2/28/79 a.p.

Anamax has apparently sold almost all of its 1979 molybdenum (at least 3M pounds) to European buyers for about \$15/16, approximately three times domestic price.

CJH WR 3/5/81: Charles P. Miller, Geologist, Amax Exploration Inc., 130 South Scott, Tucson Arizona 85701, phone 622-3854, was in the office. Mr. Miller (an acquaintance of ten years) reported that AMAX Exploration is not currently active in Arizona but is in New Mexico, Nevada and California---Mo,Au,Ag. He invited me to visit the offices in Tucson.

TWIN BUTTES MINE

PIMA

Anaconda has indicated that the Twin Buttes mine would have to be enlarged to be profitable. GWI QR Oct-Dec '71

Mine visit. Anaconda Twin Buttes Mine from view point, observed the pit extension. GWI WR 8/22/72

Anaconda Twin Buttes is extending their pit operations to the Southeast. The bottom of the pit appears rather narrow. GWI 4 1/4 '72

Production now: 32,000 TPD
73-74 - 35,000 TPD
74+ 40,000 TPD Leach plant by end of '74 or early '75. 1-11-73 GWI info.

Active Mine List 1972 (Figures 1971 7,896,489 T Ore, 78,196,859 T Waste, 50,725 T Copper)
Empl. 1650

During lunch at Mining Club of the Wouthwest, Jerry Irvin and I were joined by Mr. Edwin J. Eisenach, Vice President of AMAX, wh o is in Tucson working out detailed problems on AMAX's 50/50 operation wiht Anaconda at Twin Buttes. KAP report 5-14-73

Tucson Star carried an article regarding Pima County Board of Supervisors approving law suit against State to attempt to force an increase in mine valuations at Sierrita, Twin Buttes and Pima mines. The law firm selected by County is Johnson, Hayes and Dowdall, Ltd. The attorney handling the case is Anthony D. Terry of Phoenix. The county's expert witness will be Alfred Patfick, Jr., Professor of Mineral Economics at Colorado School of Mines. VBD WR 10/9/74

Active Mine List Nov. 1967 - 1149 men
Active Mine List April 1968 - 1181 men

Anaconda is installing a second conveyor belt system in its Twin Buttes pit to move copper ore out of the pit from under primary pit crushers. The ore will be stockpiled until completion of the 60,000 tpd mill next year. The company has 55 million tons of waste stripping yet to do at the rate of 220,000 tpd.
E&MJ August 1968 p. 99

Active Mine List Oct. 1968 - 885 men

Anaconda Twin Buttes expects to have the first 15,000 tpd mill unit operating by fall. Work on the third tailings impoundment dam continues. These tailings areas can be seen on photographs taken from satellites (March Arizona Highways)
GWI QR 3-1969

Active Mine List April 1969 - 1089 men - Robert D. Lynn, Mgr., P.O. Box 127, Sahuarita

Anaconda Twin Buttes was seeing the mill first unit nearing completion, and getting ready for the first ore. GWI QR 9-1969

Active Mine List Oct. 1969 - 1000 men - Location S32, 33, 17S, 13E
Active Mine List May 1970 - 1285 men - Robert Lynn, Mgr.

Ammonia Leach plant for Twin Buttes copper ore is now in operation at Sahuarita by Anaconda. Skillings Mining Review 7-25-70

Anaconda Twin Buttes has reached its planned capacity. The failure of the Fairbanks Morse engines to perform as designed on natural gas, had tremendous impact on Colt Industries annual earnings. GWI QR 6-30-70

Anaconda Twin Buttes is building the third large tailings holding basin. GWI QR 10-1-70

Active Mine List Oct. 1970 - 1350 men - Robert D. Lynn, Mgr.

Anaconda Twin Buttes has started another pit. This might be classified as a tax-pit. The way the Arizona law is set up, a producing mine pays a much higher Ad Valorem tax than a developing one. GWI QR 4-1-71

Mine visit - Anaconda Twin Buttes, both of the above with the committee, R. Lynn, E. Peplow and Dean Lynch. GWI WR 4-26-71

Anaconda Twin Buttes announced a projected increase. GWI QR 9/71

TWIN BUTTES

J. J. Coil has been named chief engineer and assistant mine superintendent of the Twin Buttes copping mining operations of the Anaconda Co. in Arizona. Mr. Coil was formerly chief engineer at Britannia Beach, copper mining in British Columbia for Anaconda.
Skillings 3-1966

J. R. Knaeble, Mgr. - retired
New Mines Department (Anaconda)
P.O. Box 127, Sahuarita (1968)

Robert D. Lynn, Manager
Twin Buttes (Pay Dirt 11-1968)
Also manages other Anaconda interests in Pima County
P.O. Box 127, Sahuarita

Don Gill, Mine Supt.
Twin Buttes
Mining Record 6-4-69

Jack J. Coile, Gen. Supt.
Twin Buttes (Pay Dirt 6-23-69)

See: Production Possibilities of the Marginal
Copper Mines in Arizona 1941 p. 91, 92.

See: USGS Bull. # 725-J p. 485

See: ABM Bull # 180 p. 135, 140, 144.

See: Mining World, October 1960 p. 84

See: Engineering & Mining Journal Oct. 1960 p. 15

See: Report of Invest. # 4732 S^Ept. 1950

See: Arizona Mining Journal Oct. 1918 p. 21
Feb. 1920 p. 44 (North Star Mine)

Ariz. Mng. Journal June, 1918, p. 37

See: War Minerals Report, Report #47, 20 pages, Dept. of the Interior,
Bureau of Mines (1942) ap

WR-MG 1/6/78 - The dynamite copper sulfide deposit is owned by the V. B. Smith Estate and
lies, in part, beneath the new conveyor belt that will link the Palo Verde mine to the
Twin Buttes mine. This deposit contains mineralization that has not been drilled suffi-
ciently to determine continuity. 2/17/78 sef

See: Minerology of Arizona p. 14, 16

MAPS - Upstairs in the ABM rolled file boxes - maps are 4 cross-sections of the
underground showing surface.

TWIN BUTTES

Anaconda (file)
Anamax (file)
American Metal Climax (file)
Banner (file)
Amax Arizona Inc. (file)

USGS P.P. 318, p. 105

War Minerals Report 47 (1943)
(CFW Library)

E/MJ, June, 1965 (in file)
" August, 1965, (in file)
" April, 1966, p. 120
" July, 1966, p. 102
" April, 1967, p. 91
" May, 1967, p. 151
" December, 1967, p. 115
" April, 1969, p. 141
" March, 1973, p. 87, 189
" August, 1973, p. 134
" December, 1973, p. 115
" January, 1974, p. 129
" April, 1975, p. 87-91 (use of lignin sulphonate as moly depressent boosts recovery at T.B.)

Skillings Mining Review, March 19, 1966, p. 22
" " " April 23, 1966, p. 1, 4
" " " May 21, 1966, p. 14
" " " October, 1966, p. 4
" " " May 13, 1967, p. 12
" " " June 17, 1967, p. 1, 21
" " " October 28, 1967, p. 4
" " " January 20, 1968, p. 18
" " " February 8, 1969, p. 1-8
" " " September 23, 1972, p. 25
" " " June 9, 1973, p. 23
" " " August 4, 1973, p. 18
" " " November 10, 1973, p. 23
" " " February 16, 1974, p. 16
" " " March 9, 1974, p. 27
" " " March 16, 1974, p. 12
" " " May 11, 1974, p. 1, 10
" " " April 20, 1974, p. 22
" " " March 1, 1975, p. 8 (ore conc. facility will be closed for
a period of up to 6 months starting
3/1/75)

TWIN BUTTES

World Mining, June, 1966, p. 36
" " December, 1968, p. 56

Desert Magazine, March, 1967, p. 34

Mining Engineering, January, 1967, p. 21
" " February, 1967, p. 86
" " April, 1970, p. 51-66
" " April, 1973, p. 6, 37
" " August, 1973, p. 60
" " February, 1974, p. 45

Rocky Mountain Construction, August 29, 1967, p. 24

Mining Congress Journal, April, 1969, p. 23
" " " February, 1973, p. 16, 55
" " " June, 1973, p. 7
" " " January, 1974, p. 23, 63
" " " September, 1973, p.
" " " April, 1975, p. 56-61 (use of belt conveyors in open pit mining)

Mining Magazine, March, 1973, p. 149-153
" " December, 1973, p. 563

Metals Week, April 23, 1973, p. 3
" " December 3, 1973, p. 2
" " July 5, 1974, p. 2
" " , February 17, 1975, p. 9 (shut down ore concentrator for a period of up to 6 months)

Contractor & Engineer, May, 1973, p. 31
" " November, 1973, p. 34

Mining Annual Review, November, 1973, p. 17, 287
" " " 1974, p. 291, 293

ANAMAX

Rosalie Mine (file) Yav. Co.

Samms Claims (file) Pima
Red Rover Mine (file) Maricopa

See: Anaconda (file)

American Metal Climax (file)

Banner (file)

Twin Buttes (file)

Amax Arizona Inc. (file)

Helortia Mng. & Mfg. Co. (file) Pima

E/MJ 8/73, p. 130, 131; 5/74, p. 32, 112; 1/75, p. 78

Mining Congress Journal 8/73, p. 9; January, 1974, p. 63; May, 1974, p. 15

Mining Magazine 7/73, p. 61

" " 8/73, p.139

GJBX 143 1981 Radioactive Occurrences and Uranium Production in Arizona p. 235
ABG&MT Report

Skillings Mng. Rev., Oct. 13, 1973, p. 16

" " " Nov., 10, 1973, p. 23

" " " April 6, 1974, p. 13

" " " Jan. 18, 1975, p. 16 (acquired Empire Ranch from GAC Prop. Inc.)

" " " March 15, 1975, p. 8 (pledged 2 mining claims to UofA)

Metals Week, Oct. 22, 1973, p. 6

" " July 22, 1974, p. 2 (strike)

" " July 29, 1974, p. 1 (strike)

" " November 4, 1974, p. 1 (cu production)

Contractor & Engineer, November, 1973, p. 34

Mining Engineering, June, 1974, p. 55, 56

Mining Journal, December 27, 1974, p. 550 (purchase of Empire Ranch - 47,000 acres)

Mining Congress Journal, January, 1975, p. 5 (purchase of Empire Ranch)

ARIZONA DEPARTMENT OF MINES AND MINERAL RESOURCES

INFORMATION FROM MINE CARDS IN MUSEUM

ARIZONA

MM-1099 Native Copper
K 956 Galena

PIMA COUNTY

BANNER MINING CO.
(Twin Buttes)

MILS # 246

1-A1A

Twin Buttes Mine (26)

Information from MINE INSPECTOR'S OFFICE - August 15, 1957

✓ TWIN BUTTES MINE (42 claims)
Twin Buttes, Ariz.

3-14-57

✓ BANNER MINING CO., 132 South Main, Salt Lake City

✓ COPPER 1800 tons - 23 men

L.A.S.

- ✓ *William B. Brownman, Prop.*
- ✓ *"Copper Queen Mine"*
- ✓ *"Copper Glance Mine"*
- ✓ *Castile, Idaho*
- ✓ *Castile, Idaho*
- ✓ *Fields, Nevada*
- ✓ *Costa Rica, Mexico*
- ✓ *Flay, Utah*

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Anaconda Twin Buttes Project Date June 14, 1967
District Pima Engineer G. W. Irvin
Subject: Mine visit
 Information from J. Kelly, geologist

The Mine - Material is being removed at approximately a 300,000 tpd rate. It is expected that the ore body will be reached in one area of the pit within the next 4 or 5 months. The primary crusher will then be set and two conveyor belts from the crusher to the surface will be installed.

The underground exploration operations will be discontinued soon, and this may unload a few underground miners on the labor market.

The long surface conveyor belt has been extended north to near the railroad, and the construction of a long dike east of this point has started.

The Mill - Excavation for mill buildings foundations is in progress. The railroad from Sahuarita to the mill site has been completed and is in use.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine ANACONDA- TWIN BUTTES OPERATIONS Date June 2, 1966
District PIMA- PIMA COUNTY Engineer G. W. Irvin
Subject: MINE VISIT- interview with Robert Lynn, Land Manager for the Company.

Open Pit- Depth is still at 164' but the pit is being extended to the south and west. The new conveyor belt is operating but has some bugs. The steel core makes the belt so stiff that it has trouble tracking on the return side. Some large boulders have all ready been found, so changes in the loading grizzlies had to be made. At the dumping end of the belt, the large 100 ton trucks can be loaded in 7 to 9 seconds.

New Construction A concrete block change room has beeb started across the road from the present gard shack.

Sahuarita R. R. The surveys for the new railroad to the mine and mill have been made. New ties and used rails have been stacked at Sahuarita. The railroad will belong to the Southern Pacific so that if any other company wishes to take off from it they can. The Southern Pacific will install a new timber pile bridge across the Santa Cruz. (Timbers on wooden piling).

Helvetia area Drilling is still going on.

(Note: the difficulties with the belt are being corrected)

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DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Twin Buttes # 1 Shaft Date May 12, 1965
District Pima (Twin Buttes) District, Pima Co. Engineer Axel L. Johnson
Subject: Mine Visit. Information from Art Hendrickson, Mine Superintendent.

References: Report of Feb. 10, 1965

Present Mining Activity Drifting on the 880 ft. level on two headings. 46 men working at the mine. The work is carried on with 3 shifts working, 13 men working underground on each of 3 shifts, and, in addition there are 5 mechanics and 2 bosses.

Milling The pilot plant (the old Banner Mining Co. mill converted into a pilot plant is now running 3 shifts. Jack Pate is the mill foreman at the plant.

Review of Recent Operations

- (1) Centennial Development Co. sank the shaft on contract to a depth of 970 ft. finishing their work the first part of March.
- (2) Centennial also cut a station on the 880 ft. level, this work also being done on contract.
- (3) Centennial is also reported to have done some work on the sump and ore pocket.
- (4) Centennial's contract was finished about March 15, after which Anaconda took over all the work.
- (5) Anaconda Co. first completed the pocket, started by Centennial.
- (6) Drifting was then started, with drifting in two headings -- North and South-West from the shaft simultaneously. The North drift is now in 282 ft. North and 43 ft. West (90 deg. turn); and the South-West drift is in 296 ft.

Proposed Plans Stripping for the open pit will probably start in late August or September. It is reported that some equipment for the operation has already been purchased.

L. Pollish left Twin Buttes 4/21/65 - transferred to British Columbia.
Art. Hendrickson, formerly with Brittain-Hendrickson Mining Co., now Mining Supt.

ALJ Memo 4/22/65

4

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Twin Buttes # 1 Shaft Date Feb. 10, 1965
District Pima (Twin Buttes) District, Pima Co. Engineer Axel L. Johnson
Subject: Mine Visit. Information from Lloyd Pollish, Mine Superintendent

References Report of Dec. 11, 1964

Present Mining Activity Shaft sinking on contract to Centennial Development Co., Eureka, Utah, with 16 men working for Centennial Development Co. and 6 men working for Anaconda Copper Co. Shaft is a 6' x 16' vertical shaft sunk for the purpose of obtaining bulk samples for pilot tests at the old Banner mill, which has been converted into a pilot mill. The shaft is now down to a depth of 901 ft., and a station is now being cut for the 880 ft. level. The shaft will ultimately go down to a depth of 950 to 1,000 ft. and will include a sump and an ore pocket at the bottom. A Cryderman mucking machine is used for the sinking, with 3 men stationed at the bottom, a hoistman and a top man. Work is carried on 3 shifts -- 7 days per week. It is expected that Centennial Development Co. will finish their contract in from roughly 4 to 6 weeks more.

Milling Facilities The old Banner Mining Co. mill was converted into a pilot plant for testing bulk samples obtained from the drifts and cross cuts on the 880 ft. level of the mine. The ball mills were cut down in size by using wood liners, and new flotation cells were installed. No ore has been shipped to the pilot plant as yet, except for some short test runs to check the operation of the equipment. Jack Pate is the mill superintendent in charge of mill operations.

Proposed plans

- (1) Cutting station on 880 ft. level on contract to Centennial Development.
- (2) Sinking shaft to a depth of 950 to 1,000 ft. on contract to above co.
- (3) Cutting sump and ore pocket at bottom of shaft on contract to Centennial.
- (4) To drive a drift on the 880 ft. level for a distance of approximately 2,000 to 3,000 ft., on one side of shaft only, with possible cross cuts, using company's own pay roll and not contracting. The ore extracted will be used as bulk samples for mill tests, etc. The amount of drifting & crosscutting is not definite as yet. It will depend a lot on requirements. This underground work will be carried on with 3 shifts working. The ore hoisted will be dropped into dump trucks, and then dumped on the surface in piles, according to the type of ore and grade. Later, these piles will be picked up and hauled to the mill for mill tests.
- (5) Let out a contract for the mill after all the preliminary pilot tests have been made. Location of mill has not been decided on according to Mr. Pollish.
- (6) According to Mr. Pollish, the present plans call for an open pit, even though the average depth of the alluvial overburden to be stripped is 460 ft. He stated that it will require approximately 4 years to strip the overburden. He also stated that the type of equipment to be used and the method of stripping has, as yet, not been decided on.

Equipment at the Mine Site

- (1) Steel head frame --- purchased from Banner Mining Co. This ~~was~~ is the old Mammoth-St. Anthony head frame.
- (2) 3 -- 500 c. f. m. compressors --- purchased from Banner Mining Co. These came from the Palo Verde Mine.
- (3) 1 -- 325 H. P. hoist -- purchased from Banner Mining Co. This also came from the Palo Verde Mine.
- = (4) Change house
- (5) Water tank of 22,000 gal. capy., supplied from the 18" drill hole

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Twin Buttes #1 Shaft

Date December 11, 1964

District Pima(Twin Buttes) District, Pima Co.

Engineer Axel L. Johnson

Subject: Mine Visit. Information from J.B. Knaebel

References: Report of August 25, 1964

Present Mining Activity: Sinking vertical, 3 compartment, 6' x 16' shaft on contract to Centennial Development Co., Eureka, Nevada.

Milling Facilities: The company will use the old Banner Mining Co. Mill at Mineral Hill for mill tests of the ore obtained from the shaft sinking operations and the proposed drifting on the 900 ft. level.

This mill is now being repaired on contract to Southern Arizona Construction Co. This repair work is now almost completed.

The company plans to mill about 200 tons per day for test purposes from ore excavated from the shaft and the proposed 900 ft. level workings.

Review of Recent Operations:

(1) The 18" drill hole or well, 1300 ft. deep, located $62\frac{1}{2}$ ft. east of the shaft location was finished and a pump installed.

(2) The shaft is now down to a depth of 815 ft. below the collar. It will be sunk to a depth of 1,000 ft.

Proposed Plans: The company expects to be able to start stripping some time next year. They are now waiting for the delivery of equipment required in the stripping operations.

Address for Centennial Development Co. is Box 290, Eureka, Utah

Note from Axel Johnson Dec. 18, 1964

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Narragansett Exploration Date Aug. 25, 1964
District Pima District, Pima County Engineer Axel L. Johnson
Subject: Mine Report (Preliminary) ----- Information from diamond drillers & personal visit.

Location 1 1/2 to 3 miles south-west of Twin Buttes. Sec. 3 - T 18 S - R 12 E and
Sec. 12 - T 18 S - R 12 E.

Operators Narragansett Wire Co., Pawtucket, Rhode Island.

Number of Claims No information as yet. Will be reported later.

Principal Minerals Exploration for Copper.

Present Activity Diamond drilling by Boyles Bros. on contract. 2 diamond drills
are working 3 shifts. Engineer visited both drills. One drill is drilling on Sec.
3 -- T 18 S -- R 12 E, and the other drill is drilling on Sec. 12 -- T 18 S -- R 12 E.
The second drill started working last Saturday, and the first drill started some time
before that.

mail net 12-21-64

Officer in Charge The field engineer was informed that Jerry Bell, 3801 E. 4th St.,
Tucson, Ariz. -- Tel. 793 - 8664 was in charge of the work for Narragansett Wire.
Engineer tried to locate Mr. Bell, and found that he had left on a trip to California
for a week or two, and could not find out who was taking care of the work in his absence.
Engineer will contact Mr. Bell later after he has returned from California.
Note:- This is not J. D. Bell, who represents Hecla Mining Co.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Twin Buttes #1 Shaft Date August 25, 1964
(see Anaconda-Banner Exploration)
District Pima (Twin Buttes) District, Pima Co. Engineer Axel L. Johnson
Subject: Mine Visit. Information from J.B. Knaebel

References: Report of Anaconda-Banner Exploration - April 16 & 27, 1964

Location: Approx. Sec. 5 - T. 18 S. - R. 13 E. To reach shaft, drive past the old Copper Glance shaft and continue east for $1\frac{1}{4}$ miles.

Owners: Banner Mining Co., P.O. Box 5605, Tucson, Ariz.

Lessees: Anaconda Co. -
Anaconda Co. New Mines Dept., P.O. Box 3039, Tucson
J. B. Knaebel, Manager

Principal Minerals: Ores of copper.

Present Mining Activity: Sinking vertical, 3 compartment 6' x 16' shaft on contract to Centennial Development Co., Eureka, Utah - 14 men working.

Also drilling 18" hole for dewatering the shaft on contract to Technical Drilling Services, Midland, Texas.

Milling Facilities: The company will use the old Banner Mining Co. Mill at Mineral Hill for mill tests of the ore obtained from the shaft sinking operations and the proposed drifting on the 900 ft. level.

Old Mine Workings: Extensive underground workings of the Copper Glance and Copper Queen mines (also called Twin Buttes mines) about $1\frac{1}{4}$ to $1\frac{1}{2}$ miles to the west.

Review of Recent Operations:

(1) An 18" drill hole or well 1300 ft. deep is being drilled $62\frac{1}{2}$ ft. to the east of the shaft location. The purpose of this well is to dewater the ground in the area of the shaft in order to facilitate the shaft sinking operations. The work is being done on contract to Technical Drilling Services, Midland, Texas. Work on the well was started last May, and is now completed except for the installation of the pump. The well is 1300 ft. deep and is cased with 18" casing to a depth of 1100 ft. The water pumped from the well will be ditched to a nearby ranch and used for irrigation purposes, until such time as it is needed in mining.

(2) A vertical, 3 compartment, 6' x 16' shaft is being sunk on contract to Centennial Development Co., Eureka, Utah, with 14 men working.

Work on the shaft was started last June.

First the shaft was sunk to a depth of 12 ft., after which a headframe was erected and a mine hoist installed. On Aug. 10, the shaft sinking was resumed, and the shaft is now reported to be down to a depth of 125 ft.

The purpose of the shaft is to obtain ore for making pilot tests at the old Banner mill and also for miscellaneous other metallurgical tests. The ore samples from the shaft and the proposed 900 ft. level workings will also be compared and checked with the samples from the diamond drill holes in the immediate area.

Proposed Plans:

(1) To sink the shaft to a depth of 1000 ft.

(2) To drive a drift on the 900 ft. level for a distance of approximately 3,000 to 5,000 ft.

(see anaconda-Banner Imp. file)

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

FIELD ENGINEERS REPORT

Mine Copper Queen & Copper Glance Mines Date July 26, 1961
also called Twin Buttes Mines
District Pima Mining District, Pima County Engineer Axel L. Johnson
Subject: Field Engineers Report. Information from F.D. MacKenzie, Geologist

References Report of June 26, 1957 and previous reports.

Present Activity Exploration by rotary and diamond drilling from the surface. Boyes Bros. are drilling on contract with 1 rotary drill and 3 diamond drills. Glen Thatcher, Tucson is drilling on contract with 1 diamond drill.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Copper Queen & Copper Glance Mines Date June 26, 1957
also called Twin Buttes Mines
District Pima Mining District, Pima Co. Engineer Axel L. Johnson
Subject: Present Status. Information from G. W. Irvin. Not visited.

References Report of March 30, 1955 and previous reports.

Present Status This mine, which has been operating with 30 men employed ---- Banner Mining Co. operators ---- closed down about two weeks ago. Present status -- Idle.

Additional Information Banner Mining Co. is also reported as laying off about 40 men in their Mineral Hill and Daisy mine operations.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Copper Queen & Copper Glance Mines
also called Twin Buttes Mines
District Pima Mining District, Pima County.

Date March 30, 1955.

Engineer Axel L. Johnson

Subject: Mine Report. Present Status. Information from A. B. Bowman, Manager.

Location 2 1/2 miles south of Tucson. 6 miles south of San Xavier Mine.

Owners William F. Foy, Tucson, Ariz. owns the Copper Queen property.
Twin Buttes Mining and Smelting Co., Milwaukee, Wis., owns the Copper Glance.

Lessee and Operators Banner Mining Co., Twin Buttes Road, Tucson, Ariz.

Officers Allan B. Bowman, 2042 Conner Strav., Tucson, Ariz.---Manager.

Metals and Minerals Copper ores

Number of Men Employed None. Mines are idle.

Production Rate No production.

Ore Average Values Records of past ore shipments from these mine, show an average of
6 % copper content. Ore remaining in the mines is probably somewhat lower in grade.

Ore in Sight and Probable Information not published.

Milling and Marketing Facilities Any and all sulphide ores, mined from these mines,
will be milled at the Banner Mining Co. mill near the Mineral Hill Mine.

Past Operations of the Company The Banner Mining Co., in 1952, had a D. M. E. A.
Exploration Loan on these 2 mines in the amount of \$ 135,789. See my report on these
properties under date of Aug. 5, 1952.

Present Operations of the company The company is keeping these mines dewatered and
in shape for possible future production. No plans of future production of these prop-
erties have been announce, however.

Old Workings and Past Production Large amount of old workings. Considerable past
production.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Copper Queen & Copper Glance Mines
also called Twin Butte Mines
District Pima District, Pima County.

Date Aug. 5, 1952.

Engineer Axel L. Johnson

Subject: Mine Report--- Personal visit & information from Allan B. Bowman, Mgr.

Location 24 miles south of Tucson,---- 6 miles south of San Xavier.

Number of Claims

Owners William F. Foy, Tucson, Ariz. owns the Copper Queen property.
Twin Buttes Mining & Smelting Co., Milwaukee, Wis. owns Copper Glance.

Lessee and Operator Banner Mining Co., 2042 Conner strav., Tucson, Ariz.

Officers Allan B. Bowman, 2042 Conner strav., Tucson, Ariz. Tel 6-2971--- Mgr.
E. E. Bray, 2632 N. LaVern dr., Tucson, Ariz. Tel 5-2802 ----Foreman.

Metals Found Copper

Men Employed 13 men

Production Rate No production. Doing exploration work on D. M. E. A. Program.

Milling Facilities None at present. Operators plan on the installation of a mill, when enough ore has been developed ~~at~~ at these properties and the Mineral Hill property to warrant its installation.

Ore Values Records of the past ore shipments from these mines, show approximately an average of 6 % copper content. Exploration work not far enough along yet to determine future expected ore values.

Old Workings & Past Production Considerable.

Present Operations Doing exploration and development work in accordance with Defense Minerals Exploration Administration contract in amount of \$ 135,789, with 50 % of government participation. The work called for unwatering and repairing the Glance shaft down to the 625 ft. level, and repairing drifts on the Copper Queen and Copper Glance, and also some repairs to the Copper Queen shaft. Both the Copper Queen and Copper Glance shafts are 6' x 10' two compartment shafts. The Copper Queen shaft is an inclined (inclined 72 deg. south) shaft, while the Copper Glance shaft is vertical. The two mines are connected underground--- the 7th level of the Copper Queen connects with the 525 foot level of the Copper Glance. The D. M. E. A. contract is about 50 % completed, and will take from 6 to 8 months more to finish. No ore is shipped. Extensive sampling & mapping of geology is being done.

Proposed Work Will continue the D. M. E. A. exploration work until the completion of the contract. Plan on installing a mill if the tonnage of ore developed on these properties and the Mineral Hill property is enough to justify same.

Proposed Plans May apply for a government guarantee for price support. May be interested in a production loan at the expiration of their D. M. E. A. contract.

DEPARTMENT OF MINERAL RESOURCES
STATE OF ARIZONA
FIELD ENGINEERS REPORT

Mine Twin Buttes Mines ✓

Date September 23, 1942

District Pima

Engineer George A. Ballam

Subject: Production Possibilities Survey

Supplementing Henderson report:

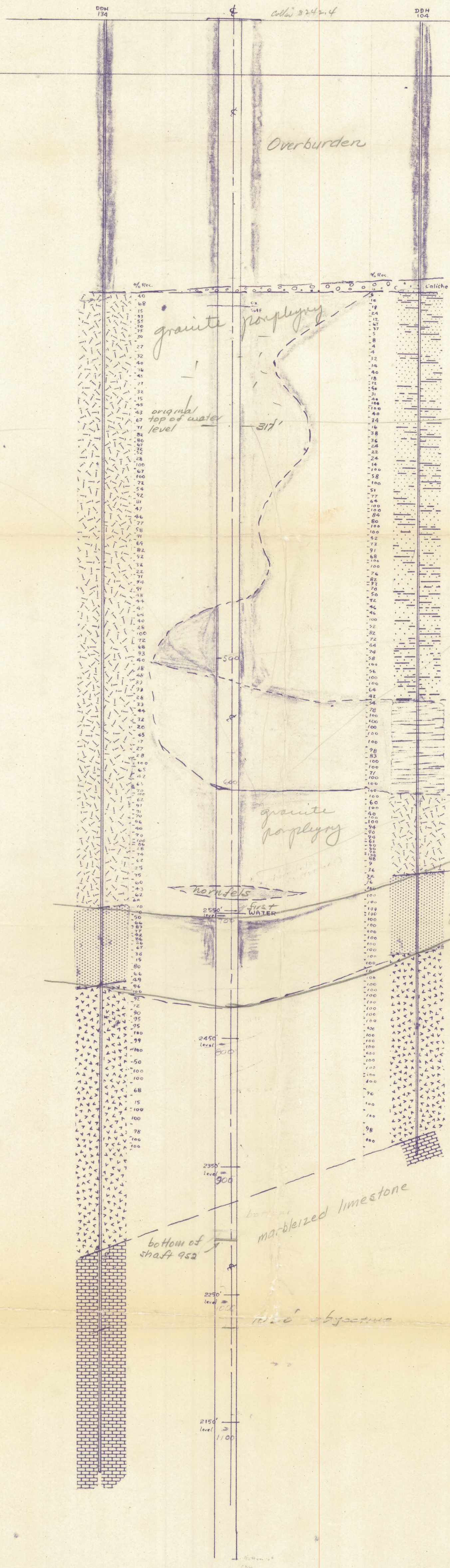
Wm. F. Foy, Ruby Star Route, Tucson, obtained a \$20,000 RFC loan to develop the Contention, the only zinc property in the Foy holdings. He has about 25,000 tons of ore blocked out which averages 18% Zn and less than 3% Cu. This ore must be milled and he is tentatively planning on the Jacobs mill handling it when ready. He is continuing development, raise in ore, and increasing this tonnage as development proceeds.

In addition, he and Howard Fields, whom he has taken in as a partner, have obtained a preliminary development loan on the Glance which is being unwatered and repairs started on shaft. He believes he can proceed to the first level in which considerable ore is available, with the \$5,000 allotted. This will be shipping ore, between 6% and 7% Cu (from the Glance) but he expects to have considerable tonnage of lower grade which should mill.

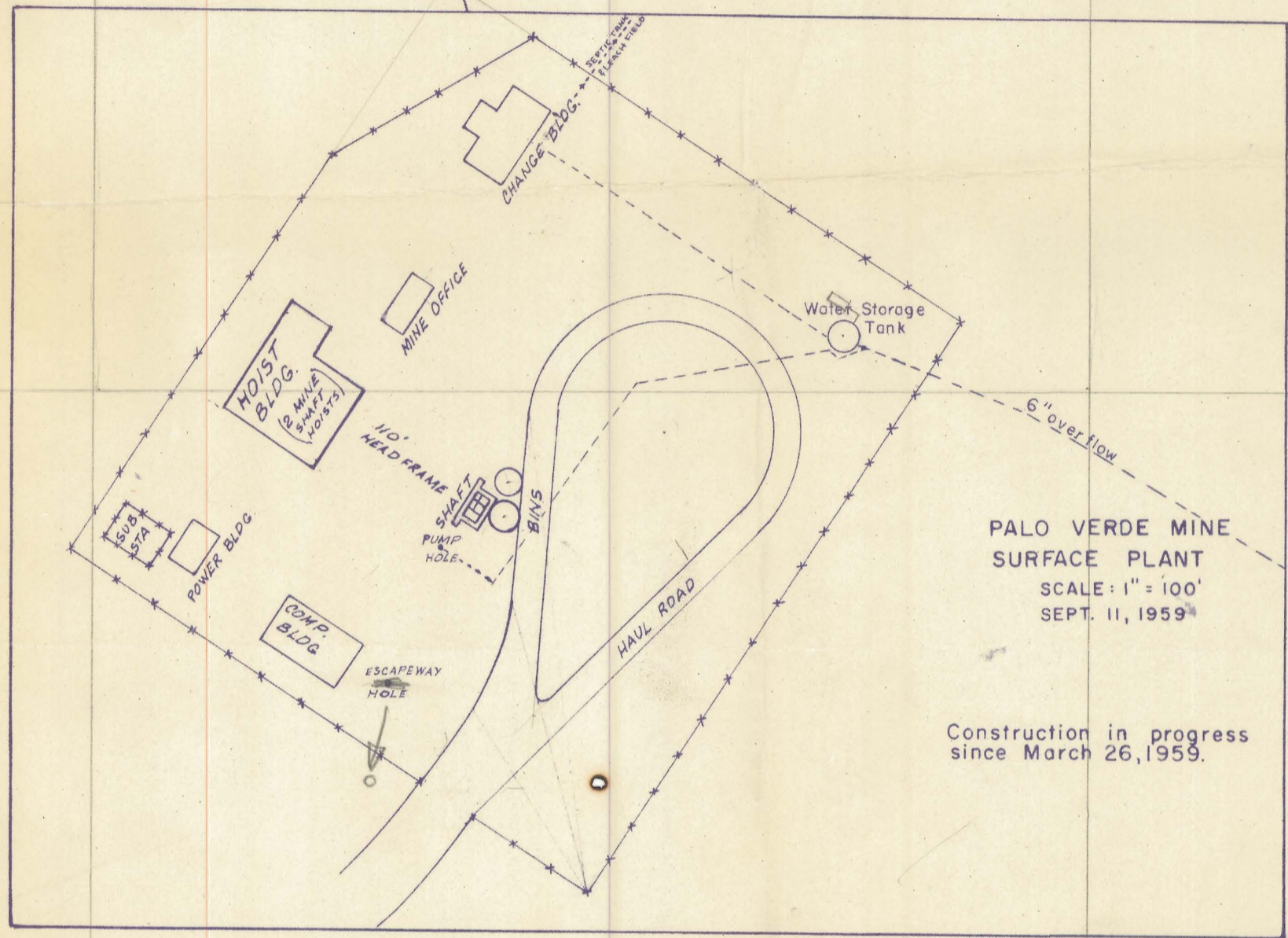
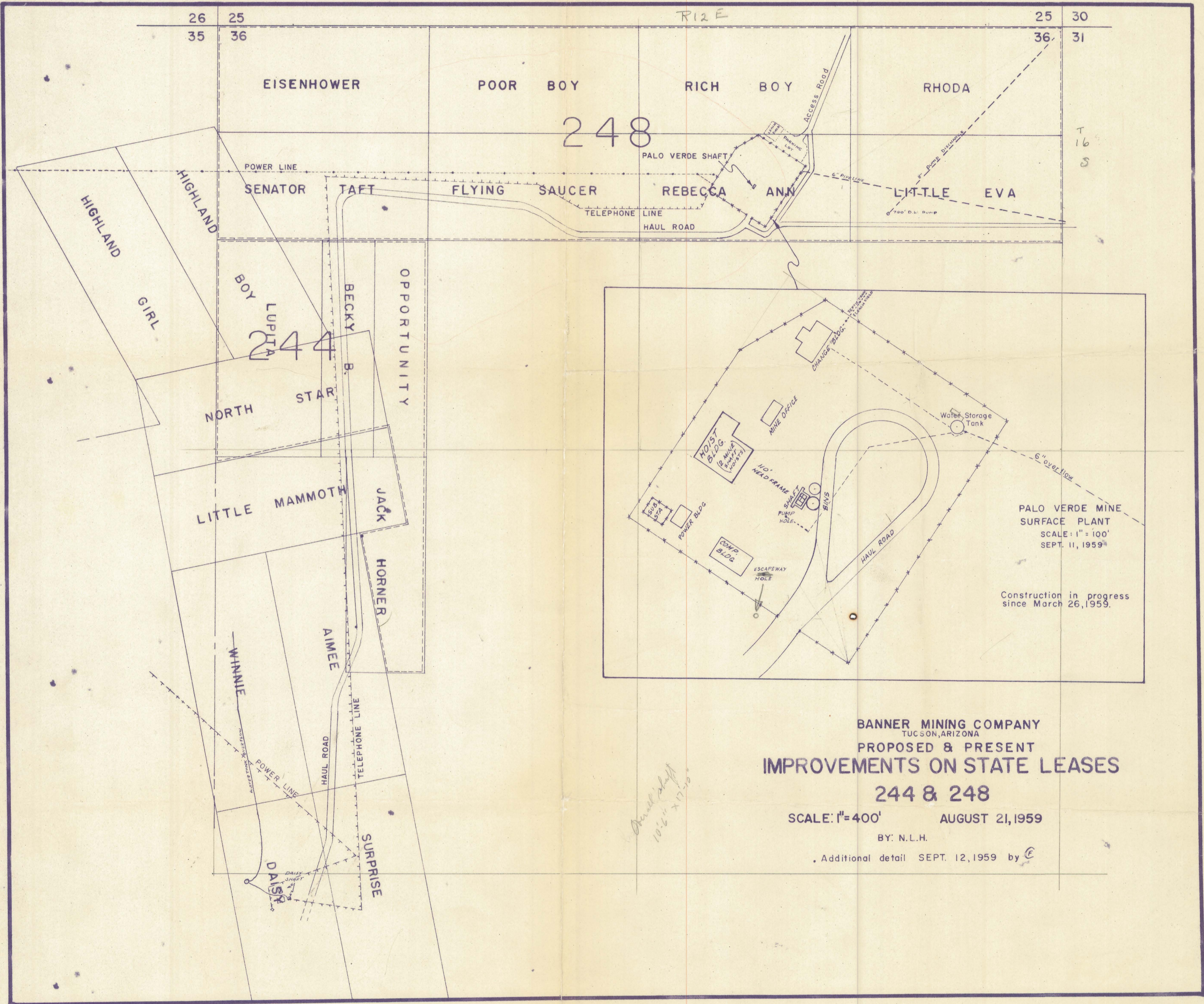
The Minnie has 75,000 of positive ore running about 3% Cu, sulfides, which is also milling grade. This can be taken out immediately on unwatering. Mr. Foy cannot get enthusiastic about becoming involved in a milling operation, but would make a deal with a competent operator. Such a tonnage immediately available, with unknown probable reserves, seems to warrant mill consideration. I believe a lease on the Contention and Minnie could be arranged, and Foy's brother and brother-in-law, who are in the picture, intimated that aid of the department in this direction would be well received.

Foy has had difficulty in getting labor and supplies, as everyone else had. However, he is doing better than most. Has been in the game too long to get caught entirely flatfooted. Has some of his old men with him, and is picking up additional help as he goes along. Is one of the best rustlers when it comes to getting supplies and equipment, and gets his share.

(Signed) Geo. A. Ballam



- BANNER MINING COMPANY -
 GEOLOGIC SECTION LOOKING NORTH THRU
 PALO VERDE SHAFT
 SCALE: 1" = 50' 3-5-59 FDM



PALO VERDE MINE
SURFACE PLANT
SCALE: 1" = 100'
SEPT. 11, 1959

Construction in progress
since March 26, 1959.

BANNER MINING COMPANY
TUCSON, ARIZONA
PROPOSED & PRESENT
IMPROVEMENTS ON STATE LEASES

244 & 248

SCALE: 1" = 400' AUGUST 21, 1959

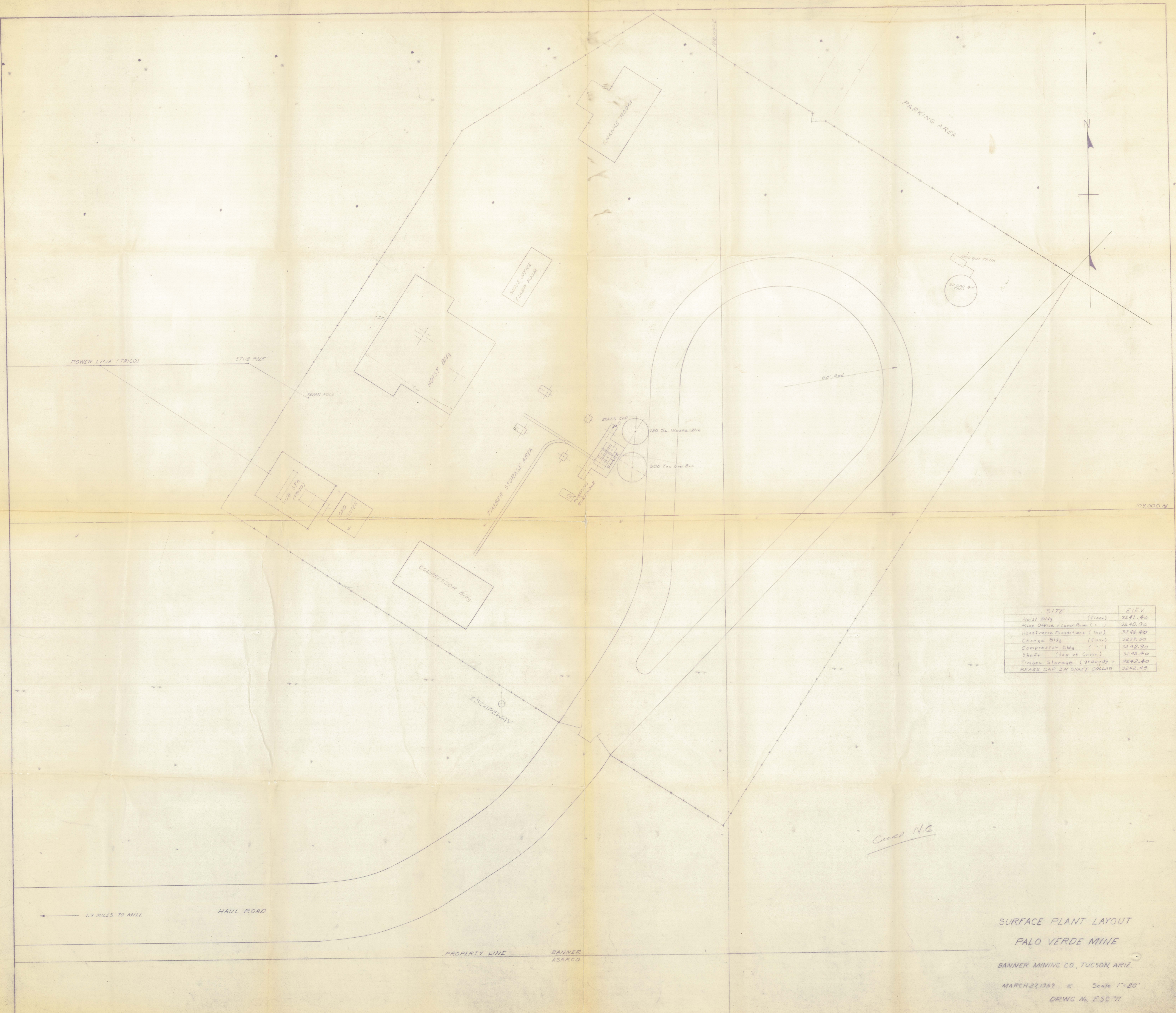
BY: N.L.H.

Additional detail SEPT. 12, 1959 by *E*

*Overall shaft
10-6 x 17-10*

*Use
also
17*

*T
16
S*



SITE	ELEV
Moist Bldg (floor)	3241.40
Mine Office (Lamp Room) (")	3240.70
Headframe Foundations (top)	3246.40
Change Bldg (floor)	3237.50
Compressor Bldg (")	3242.90
Shaft (top of collar)	3242.40
Timber Storage (ground)	3242.40
BRASS CAP IN SHAFT COLLAR	3242.45

COORD. N.C.

1.1 MILES TO MILL

HAUL ROAD

PROPERTY LINE BANNER ASARCO

SURFACE PLANT LAYOUT
 PALO VERDE MINE
 BANNER MINING CO., TUCSON, ARIZ.
 MARCH 27, 1959 Scale 1"=20'
 DRWG No. ESC 711