EXHIBIT 4

c
o
p
y

o
f

Extracts
from
ALSDORF REPORT
on
DOLLY VARDEN GROUP OF MINES
in
Consolidated Montgomery Mining District,
Park County, Colorado,

of
ALMA MINING DISTRICT, COLORADO

OFFICIAL
COPY
O. M. E.
RECEIVED
SEP 7 1965
INITIALS | CODE

E.E. Lewis, Inc.
General Mining
P. O. Box 1481
Grand Junction, Colo.

DOLLY VARDEN GROUP OF MINES

Location: In Section 27, Township 8 s, Range 78 West; in the Consolidated Montgomery Mining District, Park County, Colorado, on the southeast slope of Mount Bross, distant 3-3/4 miles, by wagon road, northwest of the town of Alma, Colorado, at an elevation of 13,200 feet, a rise of 2,800 feet above the elevation at Alma.

Property: The Dolly Varden Group consists of the following lode claims:

	Survey Lot No.:
Dolly Varden - - - - -	73
Hiawatha	60
Tunnel Lode No. 1 - - -	134
Tunnel Lode No. 2 - - -	135
Juanita	137
Joe Thatcher - - - -	152
Compromise	136
German - - - - - -	157
Polaris	248
Iron Dyke - - - - - -	249
Friday	250
Undercliffe - - - - -	251
Milwaukee	476
Triangle - - - - - -	15289
October	15289

Map No! Filed below and Dolly left side

comprising 102.2 acres, in a compact group, as shown by Map No. 1, attached; also the McIntyre Placer, comprising 160 acres, located approximately two miles north of Alma, near the mouth of Dolly Varden Gulch.

History: The main Dolly Varden ore body was discovered in 1873 and mined until 1884, with a production exceeding $3,000,000.00 of silver-lead ore. The ores were exceedingly rich and were hauled mostly by wagon to the smelters at Black Hawk and Denver, or shipped to Omaha. Subsequent development did not enlarge the known ore zones, nor does it show any great amount of the then marginal ores left in the workings.

Geology: The production of ores from this important mining district (the Alma Mining District), has been from the vicinity of two major reverse faults, known as the London Fault and the Cooper Gulch Fault; the Dolly Varden Group lying along one of the branches of the Cooper Gulch Fault. It is generally believed

that the Buckskin Gulch Stock, a quartz monzonite outcropping 6,500 feet west, extends beneath the Dolly Varden Group on Mount Bross as a batholith, and that the several porphyry dikes and sheets originated from this batholith. The resultant minor faulting from this uplift shattered the overlying strata and made them permeable for subsequent percolating, ore-bearing solutions. The major fault (the Cooper Gulch Fault), and the openings along the dikes offered channels for ascending ore solutions emanating from the deep seated igneous rocks, the ore bodies occurring at favorable zones in and out from these fissures along fractures. The geological cross section shows, near the surface, an impervious stratum of Webber grit which has been intruded in most of the Dolly Varden Group area by a porphyry sheet at or near the top of the "Blue Limestone" bed. This porphyry sheet also served as a seal to retard and spread out the ascending mineral solutions. Next below is the "Blue Limestone", averaging about 110 feet in thickness; next below is 20 to 25 feet of "Parting Quartzite"; next below lies 40 to 50 feet of "White Lime", highly altered and silicified and blending into Cambrian Quartzite, 120 to 150 feet in thickness, known as the Sawatch Quartzite, this probably lying on the porphyry batholith.

There are two porphyry dikes in the Dolly Varden ground. Number 1 dike has a general trend North 67 degrees East, and a dip of Northwest seventy degrees. Number 2 dike, which is exposed at the surface only at either side of the porphyry sheet, has the same general trend and is about 350 feet northwest of Number 1 dike. The Dolly Varden-Hiawatha ore bodies are on the southeast side of Dike No. 1, in the "blue lime", the richer bodies being found near the top of the lime near its contact with the overlying porphyry sheet, or with the Webber grit where the porphyry does not extend, although near the center of the ore body the profitable ore was found to be approximately one hundred feet in thickness. The ore bodies were localized by proximity to this porphyry dike and by a series of strong cross faultings running N.W., S.E., shattering the lime and making it permeable for the solutions to readily replace the lime with ore. The ore bodies, from which were produced more than $3,000,000.00, were found in a block of ground measuring 300 x 75 x 100 feet.

Dike No. 2 has had little exploration near it, the surface being mostly covered by a porphyry sheet. In one place on the Joe Thatcher Lode, on the north side of this dike, was found some very rich silver-lead ore, in the blue lime, reached by a shaft and tunnel.

Similar occurrences: The Moose Mine, situated 2,400 feet northwest of the Dolly Varden Group, found their ore similarly on the southerly side of a parallel dike, in the blue lime,

underlying the north rim of this same porphyry sheet. Their ore body was localized by a series of cross faultings. Their production exceeded $5,000,000.00 of silver-lead ores. The entire area between the Moose Mine and the Dolly Varden Group is capped by this porphyry sheet and has not been explored. In the Russia Mine, which has produced $2,000,000.00 in silver-lead ores, situate north of the Moose Mine, the ore bodies were found in the Blue Lime under the Webber grit near a porphyry dike, having been localized, also, by cross faultings.

Probable Unknown Silver Horizon in Dolly Varden Acreage:

The area near Dike No. 2, northwest of the main Dolly Varden workings about 350 feet, has the Blue Lime, capped by the porphyry sheet, has the same cross faultings which show in the Dolly Varden ore zone, and similar channels for ore solutions to ascend from the magmas beneath. Surface deposits in the Blue Lime near this dike are said to have yielded rich silver-lead ore in the early days; no exploration followed the dike, so far as known. Too Thacher mine?

Gold Ores: The gold ores of the Alma District, as well as of the Leadville District, have been found beneath the Blue Limestone in the silicious beds. The bonanza gold ore bodies that have been found and are still producing rich ore along the London Fault, are in the silicious beds. Also, the gold ores found in the Sawatch Quartzite, along the Cooper Gulch Fault south of the Dolly Varden Mine, notably in the Orphan Boy (with a production of $2,000,000.00 from gold ores), the Phillips (with a production of $4,000,000.00 from gold ores), the Paris (with a production of $500,000.00 from gold ores), and the Excelsior,- were replacements and enrichments in silicious beds. North of the Dolly Varden Mine, along the same trend, the Atlantic Pacific Mine and Star Mine produced profitable gold ore from the Sawatch Quartzite in and near the fissures. In a southerly direction from the Dolly Varden Mine the Blue Lime, in which the silver-lead ores occurred, is eroded; in consequence silver-lead ores have not been found there, but the ore in that vicinity has been of the gold predominate type, occurring in the beds underlying the Blue Lime. These profitable gold ores have been found near the major fault, close to the intruded dikes, and localized by cross faultings; developments in the Sawatch Quartzite away from these conditions have not been encouraging.

At and near the Dolly Varden Mine the geological horizon of the silicious beds, below the Blue Lime, has:

(1) Proximity to the deep seated magma, the underlying batholith;

(2) Two dikes cutting through the formation as channels for ascending ore solutions;

(3) The Cooper Gulch Fault, one of the two major reverse faults along which all of the important gold mines of the Alma District have been developed; where located?

(4) Two zones of cross faulting localizing the ore bodies, by making the beds more permeable. Do not know if cross faults extend north to No. 2 dike.

DEVELOPMENTS PROPOSED:

Development No. 1: Silver-lead ore;

Disregarding unknown ore zones along Dike No. 1 and marginal ores showing in the old workings, the Dolly Varden acreage affords opportunity for opening a new mine in formations similar to those where the bonanza silver-lead ore bodies of the Moose Mine and the Dolly Varden Mine were found. By extending the northeast drift of the Drum Major Tunnel (Map No. 2), approximately 350 feet, it would cut through Dike No. 2 near the top of the Blue Lime in an area having the same cross faults shown in the Dolly Varden workings, with the porphyry sheet forming a seal above. The ore channel may be found on either side of the dike, and the ore bodies correspondingly on the same side. The formations to be cut by this drive or crosscut, are illustrated on Map No. 3.

Development No. 2: Gold ore horizon;

Taking advantage of the dip of the formations (14 degrees to northeast), a drift from the Drum Major Tunnel begun at a point 300 feet from its portal, driven North sixty degrees west, four hundred feet, would cut through the silicious beds underlying the Blue Lime, intersecting Dike No. 2 at about the middle of the Sawatch Quartzite. The formations to be cut are shown on Map No. 4. This objective should have an ore channel related to Dike No. 2; the cross faulting is indicated in the Joe Thatcher Mine surface workings; these silicious beds have been found to be favorable for the deposition of gold ores with their associated minerals.

Development No. 3:

Extension of the drift from No. 5 Tunnel (which is 100 feet lower than the Drum Major Tunnel), North sixty degrees West, five hundred feet, would cut through the silicious beds below the Blue Lime and intersect Dike No. 2 in the Sawatch Quartzite. This would be where the ore channels of Dike No. 2 and the crossfaultings shown in the Dolly Varden Mine would make a probable gold horizon in the silicious beds. This is illustrated on Map No. 5.

Development No. 4: Drill Hole I traverses this area

Deepening the shaft (reputed to be 100 feet deep), that is in the Dolly Varden Mine main workings, from No. 5 Tunnel level, an additional one hundred feet, and then crosscutting to Dike No. 1 beneath the Dolly Varden known ore bodies, would reach the silicious zone where channels for ore solutions along Dike No. 1 are in the cross-faulted area, as indicated in Dolly Varden Mine workings. This is illustrated on Map No. 5. Future explorations would be governed by the findings resulting from these developments.

Developments No's. 1 and 2 may be carried on simultaneously and efficiently; the results obtained governing other projects.

The Dolly Varden Group of Mines presents an excellent picture, based upon:-

(a) The possibility of opening, inexpensively, under excellent geological indications, a new silver mine beneath a porphyry seal, at two edges of which the Moose Mine and the Dolly Varden Mine, were found;

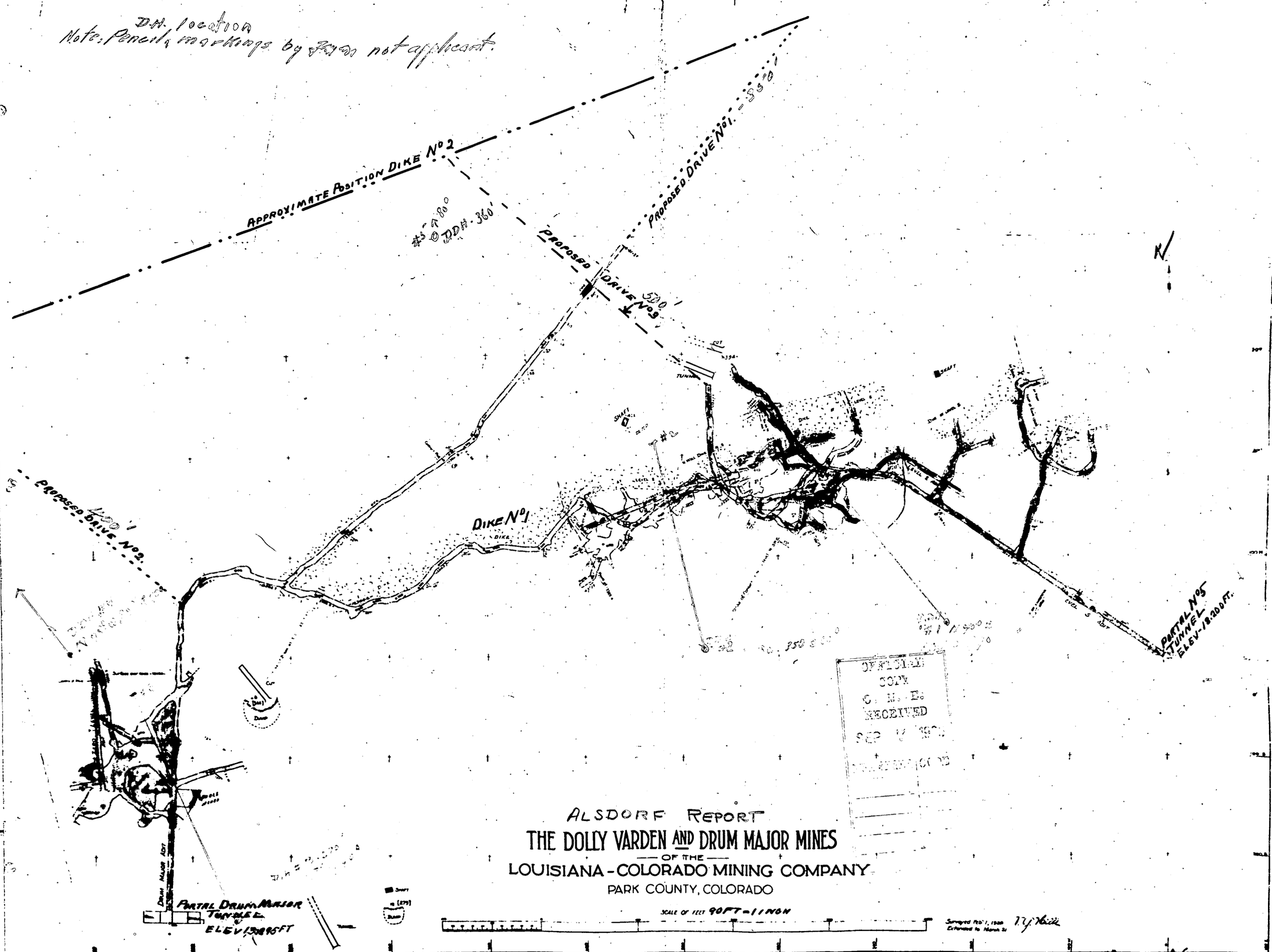
(b) The exploration, simultaneously, of a probable gold horizon whose geological conditions of proximity to ore channels, fracture zones and major faults in the silicious beds are those which have been found profitable in other mines in this same district;

(c) The following up, by development at relatively small expense, of two additional gold occurrence zones.

The possibility of the discovery of mines of major magnitude, through the developments herein outlined, recommends the outlay involved.

Dated:
Denver, Colorado,
May 4, 1933.

D.H. location
Note: Pencil markings by Fran not applicant.



OFFICIAL COPY
C. M. & E.
RECEIVED
SEP 1 1900

ALSDORF REPORT

THE DOLLY VARDEN AND DRUM MAJOR MINES

— OF THE —

LOUISIANA-COLORADO MINING COMPANY

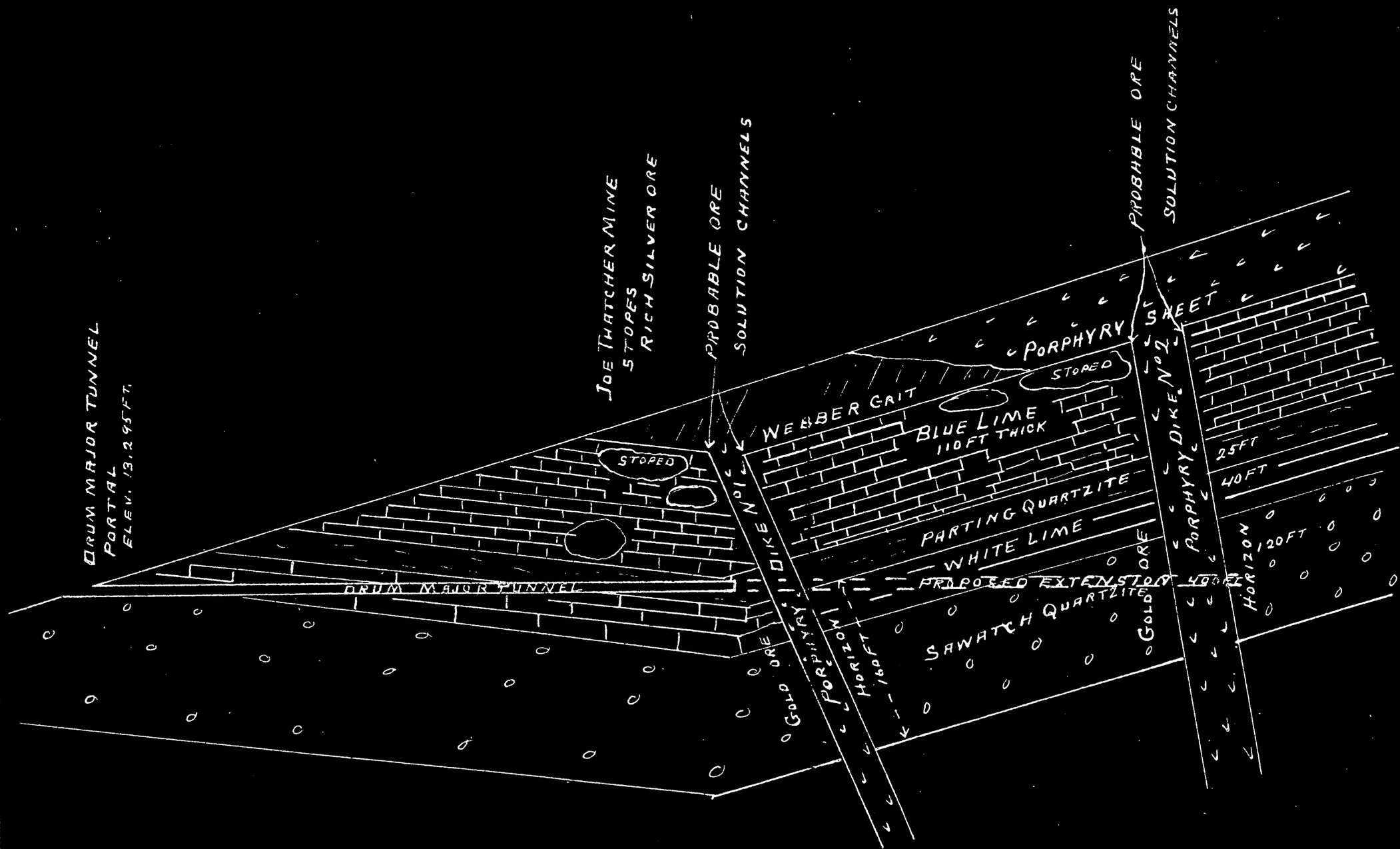
PARK COUNTY, COLORADO

SCALE OF FEET 90 FT = 1 INCH

Surveyed Feb 1, 1900 Extended to March 31 W. J. Hall

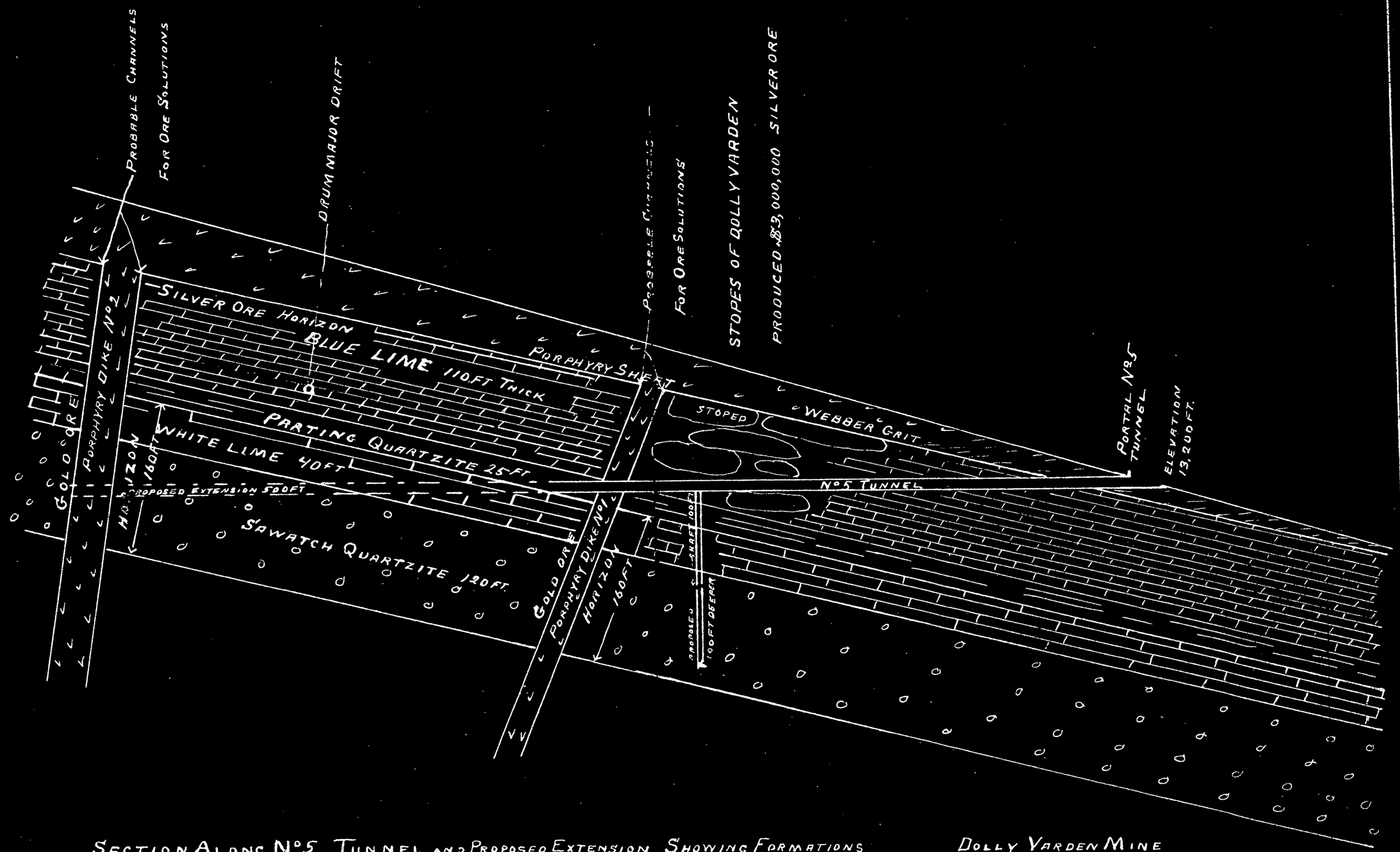
M&P No 2.

E.E. Lewis, Ind.
General Mining
P. O. Box 1481
Grand Junction, Colo.



SECTION ALONG DRUM MAJOR TUNNEL AND PROPOSED EXTENSION SHOWING FORMATIONS DOLLY VARDEN MINE

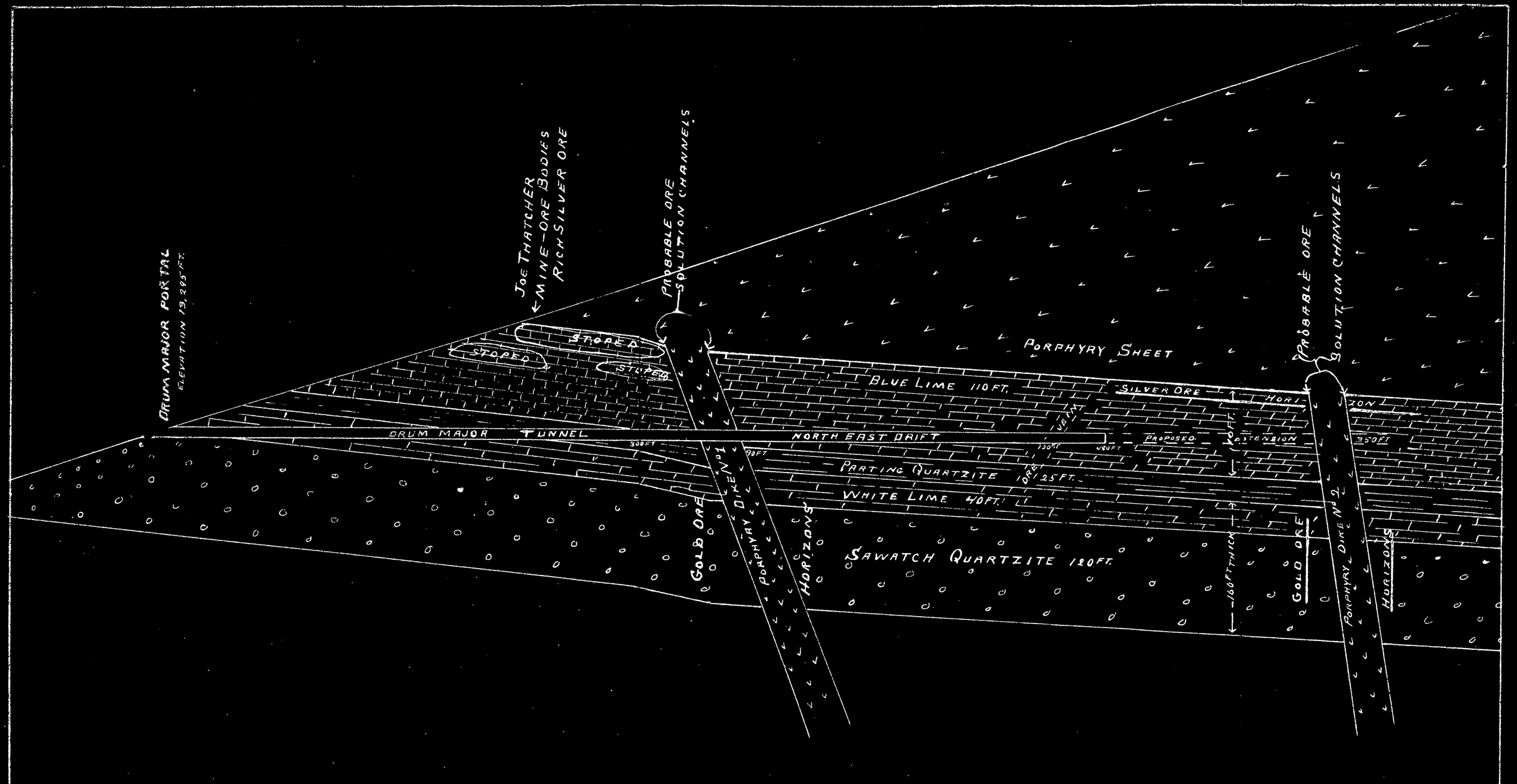
MAY 1, 1933, SCALE 100 FT = 1 INCH.



SECTION ALONG No 5 TUNNEL AND PROPOSED EXTENSION SHOWING FORMATIONS DOLLY VARDEN MINE

MAY 1 1933 SCALE 100 FT = 1 INCH.

OFFICIAL
COPY
C. M. E.
RECEIVED
SEP 7 1965
DOCUMENT CODE



SECTION ALONG DRUM MAJOR TUNNEL, DRIFT AND PROPOSED EXTENSION SHOWING FORMATIONS

DOLLY VARDEN

MAY 1-1933 SCALE 100 FT. = 1 INCH

E.E. Lewis, Inc.
General Mining
P. O. Box 1481
Grand Junction, Colo.

OFFICIAL
COPY
C. M. E.
RECEIVED
SEP 7 1965

INITIALS	CODE

EXHIBIT 3

Copy of

REPORT
ON THE DOLLY VARDEN MINE,
LOCATED IN THE ALMA MINING DISTRICT,
PARK COUNTY,
COLORADO.

OFFICIAL
COPY
O. M. E.
RECEIVED
SEP 7 1965
INITIALS | CODE

By

Etienne A. Ritter,
Mining Engineer and geologist,
Member of the American Institute
of Mining Engineers
and of the
Institution of Mining and
Metallurgy of London, England.

E.E. Lewis, Inc.
General Mining
P. O. Box 1481
Grand Junction, Colo.

TABLE OF CONTENTS.

	Page
Introduction	3
Location	3
The History of the District	4
The Mining Claims	4
General Geology of the District	5
The Ore Deposits	6
The Projected Development Work	8
Conclusions	10
Map No. 1, Mineral Belt of Colorado	11
Map No. 2, Railroad connections, with the Alma Mining District (not with copies--not applicable)	
Map No. 3, Geological Map of the Alma District (Colorado State Geological Survey by R. D. George, Bulletin 3, Plate II)	
Map No. 4, Topographic Map of the Alma District from Colorado State Geological Survey	
Plat No. 5, Geologic Sections, across the Alma District (Colorado State Geological Survey by R. D. George, Bulletin 3, Plate III)	
Map No. 6, Showing the mining claims of the Dolly Varden Mine and adjacent claims	

.....

Colorado Springs, Colorado,
1712 North Nevada Avenue,
June 22nd 1915

INTRODUCTION.

The State of Colorado is crossed from the North-east, in Boulder County, to the South-west, in the San Juan Mountains, by a well defined mineral belt, which has produced almost all the mineral wealth of the State, with the exception of the Cripple Creek District.

The central part of that mineral belt extends from Gilpin to Lake County. It has produced in that small area upwards of $600,000,000 and about one half of the sum has been produced in the part of the belt to the North-east of the Alma Mining District, while the remainder came from mines located to the South-west of the same District. This shows that the Alma mining District is located in the center of the richest part of the main mineral belt of Colorado.

The map No. 1, added to this report shows this fact very plainly.

.....

LOCATION

The Alma Mining District is located on the Eastern slope of the Mosquito Range, in Park County, Colorado. It is reached from Denver by a narrow gauge branch of the Colorado and Southern Railroad, as the Map No. 2 added to this report shows. It can be reached from Colorado Springs, by way of Hartzel, on the main line of the Colorado Midland Railroad, and a twenty mile drive. It is connected with Denver, Colorado Springs and other parts of the State by two good automobiles roads. Alma is situated at an altitude of 10,500 feet and the mines which dot the hills surrounding this picturesque mining town are located at altitudes ranging from 11,000 to 14,000 feet. A mountain road, crossing Mosquito Pass connects Alma with Leadville about 12 miles distant, with mines in sight all the way.

While the altitude is high, Alma is easy of access all the year, being at the upper end of a very large Park. The snowslides are very few and do not offer the same danger in the Alma District as in most of the other mining camps of the State located at the same high altitude.

.....

THE HISTORY OF THE DISTRICT

The Alma Mining District is one of the oldest of the State and dates back to 1861, when placer gold was found in good paying quantities in the upper portion of the Platte river. The placers of Alma and Fairplay have been among the richest and certainly have been mined longer, more continuously, and probably more successfully than any other in the State.

Curiously enough, the lode deposits from where the gold of the richest placers in the State came from have not attracted the attention they deserve and offer an exceptional opportunity to enterprising capital to-day.

The discovery of rich silver ore in the Moose and in the Dolly Varden mines occured in 1871 and these two mines were actively exploited till 1884, when they almost closed down. Since that time no prospecting work of any extent and well conducted has taken place, most of the prospectors and miners of the District having gone to the newer camps of Leadville and Aspen.

The London mine has probably been worked more continuously than any other, and for that reason shows the largest production of any, with an output of about $6,000,000. The Moose is credited with a production of $5,000,000 and the Dolly Varden with a past production of $3,000,000 more than 95% of it having been obtained prior to 1884 out of the old workings now full of ice and inaccessible. How much placer gold?

A number of mines have produced from $100,000 to $1,000,000, so that the total production of the camp can be placed somewhere between $20,000,000 and $30,000,000, and this makes the Dolly Varden one of three best mines of the camp. Various geological conditions render it almost certain that only a fraction of the ores contained in that mine have been opened up and that proper development work will make it the largest mine of the District.

.....

THE MINING CLAIMS

The Dolly Varden Mining Company owns a number of lode mining claims, patented among the first in the State of Colorado. These are:

The Dolly Varden	Patent No. 73	The Hiawatha	Patent No. 60
The Tunnel No. 1	" " 134	The Compromise	" " 136
The Tunnel No. 2	" " 135	The Juanita	" " 137
The Joe Thatcher	" " 152	The Sherman	" " 157

and the following other lode claims:

The Polaris	Patent No. 248	The Iron Duke	Patent No. 249
The Friday	" " " 250	The Undercliff	" " " 251
The Milwaukee	" " " 476	The October	" " " 15829
The Triangle	" " " 15289		

The Company owns one placer claim, covering most of the ground of the lode claims, called The Mc Intyre Placer, Patent No. 247. The area covered by these claims is 102.21 acres for the lode claims and 160 acres for the Placer claim.

They are marked on maps No. 4 and 6 added to this report.

From these maps it can be seen that the Dolly Varden Mining Company owns a very large Estate on the South-east part of Mount Bross, at altitudes varying from 12,500 to 14,000 feet.

.....

GENERAL GEOLOGY OF THE DISTRICT

Most of the ore deposits of the Alma District belong to the class of the so-called "Contact deposits." By this, it is meant that it is not a fissure vein, but that the deposit is concommittant with a special geological horizon.

The Geology of the Alma District is almost an exact duplicate, in the most important features, at least, of the Leadville District, located just on the other side of the Mosquito Range. The various geological formations found in the Alma District are represented in the following columnar section:

Alluvium, landslides and rock streams, Glacial moraines and drift,	Of Quaternary Age.
WEBER GRITS AND SHALES. Coarse to fine grits, mostly of quartz, also locally much feldspar, passing into quartzites and into shales of different colors, the shales being especially pronounced at the bottom of the series, with a little limestone.	Of Carboniferous Age.
BLUE LIMESTONE. Unusually dark, bluish, gray, compact to granular, thick bedded, dolomitic limestone, often silicious.	

PARTING QUARTZITE. at the top, and under it, WHITE LIMESTONE. Granular to compact, whittish to grayish dolomitic, extremely silicious limestones at the top of which is usually a whitish quartzite.	Of Ordovician Age.
LOWER QUARTZITE. Thick beds of whitish to grayish quartzite, in the lower part thin bedded shale and dolomitic quartzite, weathering brownish in the upper part of the series.	Of Cambrian Age.

These sedimentary rocks rest uncomformably on a mass of gneiss, of crystalline schists, cut by masses of granite and by dykes of pegmatite.

These older formations, as well as the sedimentary rocks described in the Columnar Section have been cut by younger eruptive rocks, in the form of dykes, of sills and of sheet of porphyry. Porphyry

From the researches of the State Geological Survey, it results that two different types of recent eruptive rocks have penetrated in the special area, which makes the object of this report. One is a quartz-monzonite porphyry, mostly in dykes. The other variety, to which the local name of Lincoln porphyry has been given, is characterized by a coarse groundmass, with large crystals of orthoclase, sometimes from 1 to 2 inches long.

.....

THE ORE DEPOSITS

It has been said that the ore deposits in the Alma District are very similar to those of the Leadville District. In fact so far as studied, they are exactly similar, with this addition, that the Alma District having exposed much more fully to the surface, the older formations, a more complete understanding of the ore-deposits can be obtained there than at Leadville. At the same time, the proportion of development work having been much smaller, it leaves a much better opportunity to capital for the successful prosecution of development work.

It is a well known fact, in the Leadville District, that the mines, which in the early days have produced well from ore bodies found in the Blue Limestone, have at later periods produced often even much greater amount from ores found at lower horizons, in what became locally known as the "Second" and the "Third" Contacts. These were either in the Parting Quartzite or in the White Limestone.

The latest developments in the Leadville District, confirming a general fact of Economic Geology, found to be true in many other Districts, like the Black Hills, for instance, have shown that in the Leadville, in the Alma, in the Red Cliff and adjoining districts, the main ore bodies in the Blue Limestone have their localisation sharply connected with some vertical fissure. Sometime the fissure has been filled by a dyke of eruptive rock and sometime it has been a narrow crack, which has been used as channel of ascent by the hot ascending mineralizing waters, which have formed the very large and rich "Contact Deposits" at some horizontal horizon, mostly by metasomatic replacement.

In the Alma Districts there are four of the most important deposits, which show these features plainly. They are the Russia mine, with a past production of $500,000, in the Blue Limestone, the Moose and the Dolly Varden, with productions of $5,000,000 and $3,000,000 respectively, and also from the Blue Limestone, and the Morning Star-Cresskill Group, in the Parting Quartzite, with $500,000 worth of ore blocked out.

These four mines are all parallel and they are all genetically connected with some fissures and dykes of eruptive rocks, having a general East and West trend.

A feature, on which it is necessary to insist, is that in the case of the Morning Star-Cresskill Group, the Blue Limestone has been eroded long ago and that is why there the "Second Contact" in the Parting Quartzite is the one which is exposed to the surface, where a very good ore-body of milling grade of quartz gold ore has been uncovered.

I am fully convinced that proper exploration at the horizon of the same Parting Quartzite, just on the other side of the Gulch, in the Dolly Varden Ground will show some exceptionally large and valuable ore bodies, at that "Second

Contact" and somewhere underneath the very rich ore bodies which have been exploited in the early days in the Blue Limestone, and which have already produced $3,000,000. I have no doubt that eventually it will be possible to show that both the old ore-bodies already exploited in the Blue Lime and the new ones to be found in the Parting Quartzite are genetically connected with some eruptive dykes and vertical fissures along which the waters depositing the precious metals have ascended.

It is quite possible that some other and also important ore bodies could be opened up at a lower or "Third Contact" in the White Limestone, or in the Lower Quartzite.

But I think that the work of development work should at first be confined to the horizon of the Parting Quartzite, specially on account of the remarkable ore body found in it, just across the Dolly Varden Gulch and which, I believe is simply an extension towards the South-east of important ore-bodies to be found at the horizon of the Parting Quartzite, in the Dolly Varden Mine.

.....

THE PROJECTED DEVELOPMENT WORK.

The work to be done will be a drift in the Parting Quartzite, and directed under the old workings, which have produced so much in the horizon above of the Blue Lime.

Such a drift can be started either from the Undercliff claim, or from the side of the Dolly Varden Gulch, from a point close to the line of the Milwaukee and Juanita claims.

The work should if possible be made with machine drill and I would advise to start with, the use of the new Electric drill of the "Denver Rock Drill Mfg. Co." This is really a small compressor, on the drill itself, run by an electric motor.

The Colorado Power Company, which furnishes Power to most of the industries of the State has a line passing by the town of Breckenridge. They will build this summer 8 miles of line, towards Hoosier Pass, between Breckenridge and Alma. In continuing this line 5 miles they would reach Alma. They are figuring now on that work. A branch line of 2 miles would connect that main line with the Dolly Varden Mine.

Or a small gasoline engine could be installed at the mine itself and develop the needed power to run the drill. The Electric drill complete, with column, tank, compressor for air and water needed to clean the cuttings from the drill,

electric connections costs $650 F.O.B. Denver. The drill steel for one drill costs $100. The gasoline engine required would be a 12 Horse-power, 2 cylinders Ellis High-speed engine with a 5 K.W., 3 phase A.C. generator. With rheostat and complete in every respect, it would cost $750 F.O.B. Denver. It would be primed with gasoline, but run with kerosene. It has been calculated that at the high altitude of 13,500 feet an engine somewhat specially designed for it will be required and that the consumption will be 12 gallons of kerosene, for running the 12 H.P. engine at full load for 10 hours.

Provision would have to be made to store at the mine a sufficient amount of kerosene, so as to be able to run all winter. On account of the high altitude and heavy snowfall work has to be planned in the fall of the year, so as to be carried all winter from supplies stored in the fall, when good roads made the hauling up of the supplies an easy matter.

A tank of proper strength and guaranteed by the Hardesty Tank Mfg. Co. able to store 3,000 gallons of kerosene will cost, with all the pipe fittings $88 F.O.B. Denver.

The amount of work done by the drill should be a minimum of 3 feet per shift. It can be run by one man, once it is placed on the column. A crew of three men would be required. One machine man, who would be helped in the setting up of the drill by the mucker, a mucker, and a combination blacksmith and cook.

The work should cost between $9 and $10 per foot of drifting, comprising also the putting in of the rails and ties and the overhead charges of the mine management. This is calculated on an advance of from 90 to 95 feet per month. It should be accomplished with one shift per day. With 2 shifts per day, the advance would be doubled and the cost per foot slightly reduced.

On account of the hardness of the Parting Quartzite, work by hand would be unadvisable, unless the first expenditure of $2,000 for the installation of the machine drill would be considered too hard to meet. By hand and with ordinary conditions, the cost per foot would be doubled, and the best a shift would probably do would be 20 feet a month.

As all the supplies have to be taken up to the mine in the fall of the year, their cost has to be added to the cost of installation of the machinery. If three shifts by hand were considered, the first cost of commissary for a larger number of men would greatly offset what sum could be spared from not putting in a machine drill.

.....

CONCLUSIONS

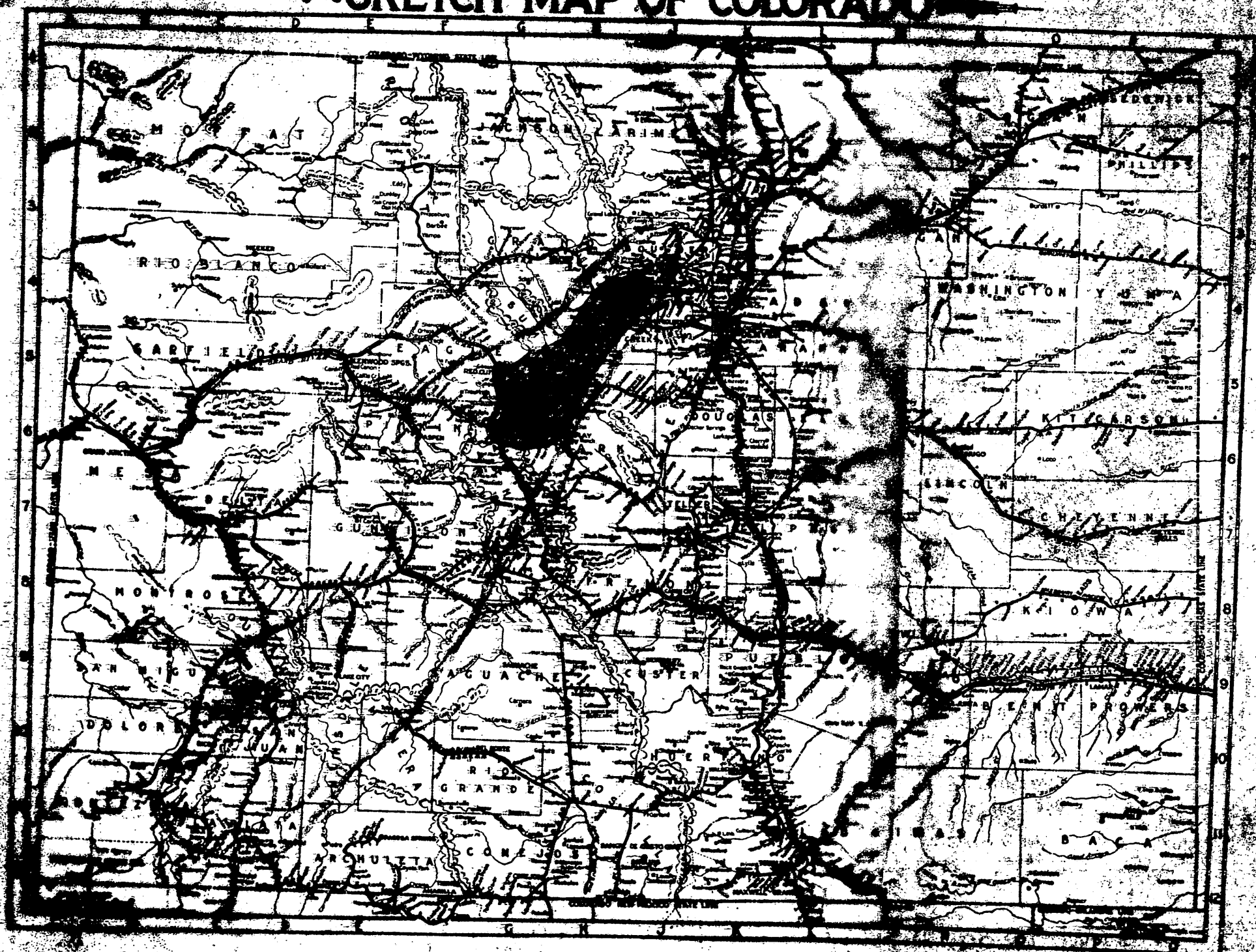
I consider that a systematic exploitation of the Dolly Varden Mine, specially on the Parting Quartzite, or "Second Contact" offers one of the most remarkable possibilities of extraordinary profits, that have come to my knowledge.

Respectfully submitted,

(Signed) Etienne A. Ritter

.....

SKETCH MAP OF COLORADO



E.E. Lewis, Inc.
General Mining
P. O. Box 1481
Grand Junction, Colo.

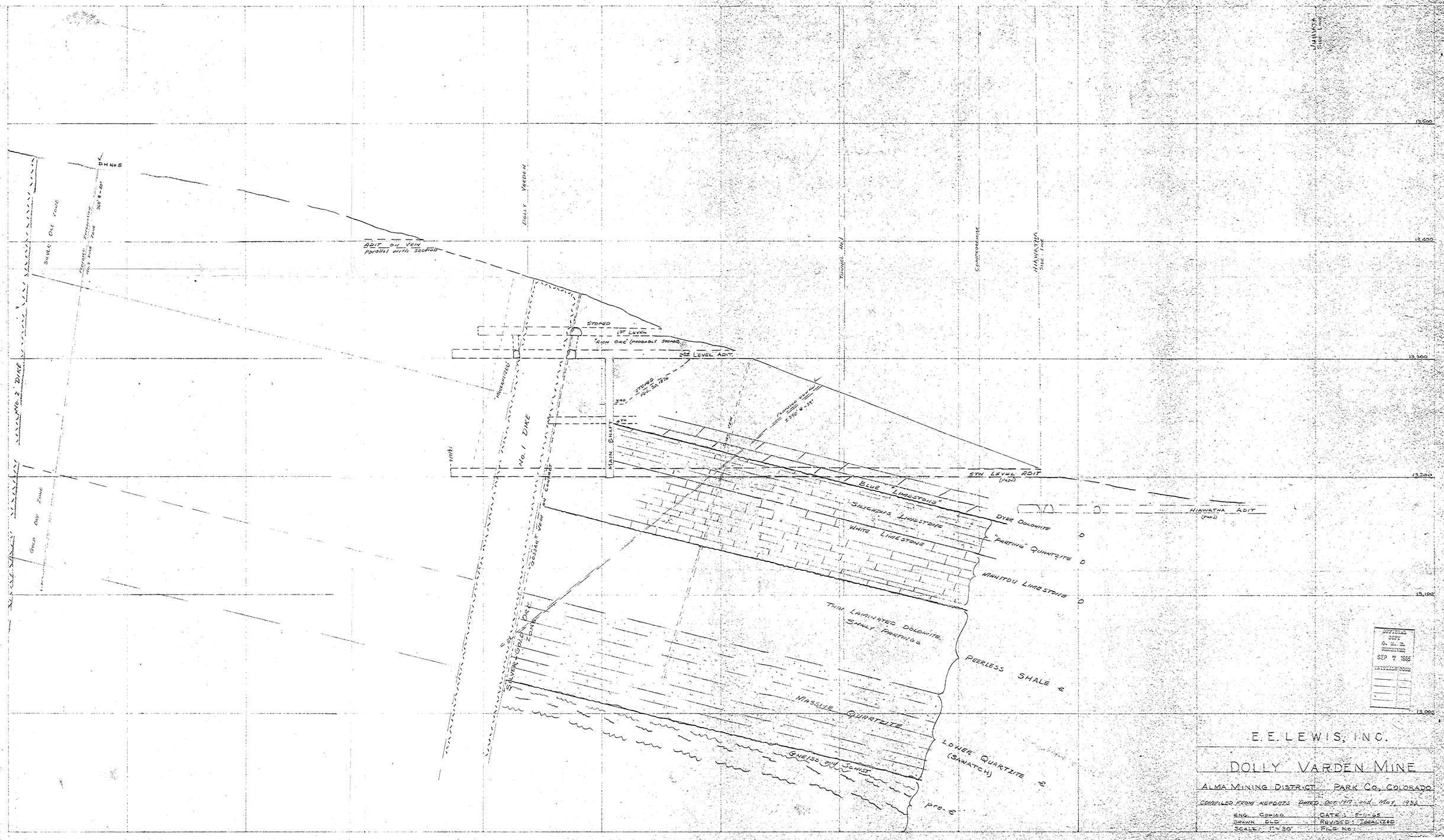
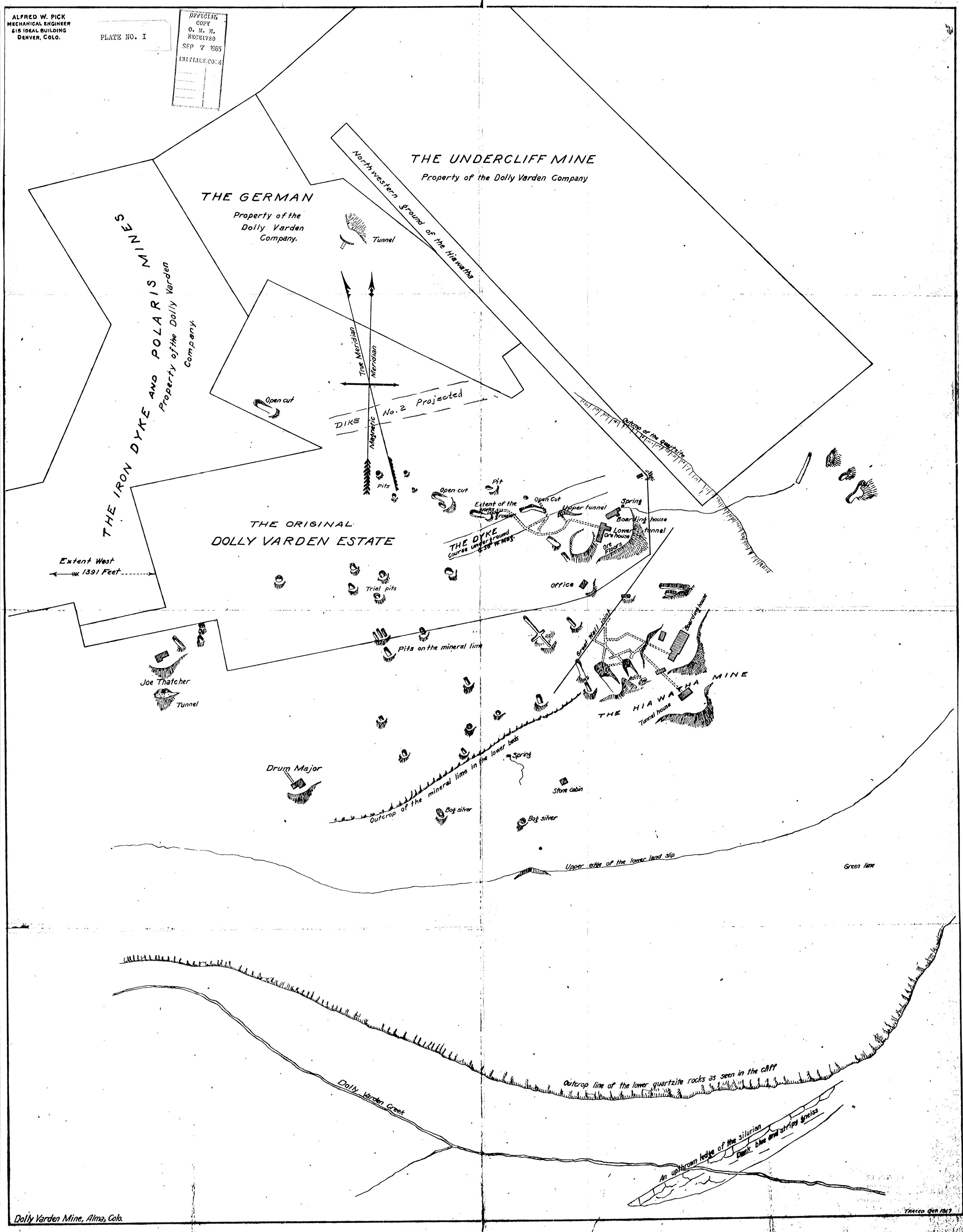

DH No 5
SILVER OR ZONE
PROPOSED CONNECTING RAISE FROM 300 ft LEVEL
ADIT ON VEIN parallel with SCOTTON
DOLLY VARDEN
TUNNEL No 1
COMMONWEALTH
HIAWATHA SIDE LINE
SIDE LINE
No. 2 DIKE
GOLD ORE ZONE
STOPED
1ST LEVEL
"RICH ORE" (PROBABLY STOPED)
2ND LEVEL ADIT
PROPOSED 1000 FT RAISE
3RD
4TH
5TH
MAIN SHAFT
No. 1 DIKE
PROPOSED 1000 FT RAISE 300 @ -38°
5TH LEVEL ADIT (PROP)
HIAWATHA ADIT (PROP)
BLUE "LIMESTONE"
SILICEOUS LIMESTONE
WHITE LIMESTONE
DYER DOLOMITE
"PARTING" QUARTZITE D
MANITOU LIMESTONE D
THIN LAMINATED DOLOMITE SHALY PARTINGS
PEERLESS SHALE Є
MASSIVE QUARTZITE
LOWER QUARTZITE (SAWATCH) Є
GNEISS AND SCHIST
pre-Є
SILVER TOPLAS DATE ZONE
13,500
13,400
13,300
13,200
13,100
13,000
OFFICIAL COPY
U. S. D. I.
RECEIVED
SEP 7 1965
INITIALS DATE
E. E. LEWIS, INC.
DOLLY VARDEN MINE
ALMA MINING DISTRICT PARK CO. COLORADO
COMPILED FROM REPORTS DATED Oct 1917 and May 1933
ENG. COMING
DRAWN DLD
SCALE: 1"=30'
DATE: 8-11-65
REVISED: IDEALIZED
FIG. No:

PLATE NO. V

ALFRED W. PICK
MECHANICAL ENGINEER
615 IDEAL BUILDING
DENVER, COLO.

PLATE NO. I

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 7 1965
INITIALS CODE



Dolly Varden Mine, Alma, Colo.

TRACED OCT. 1917

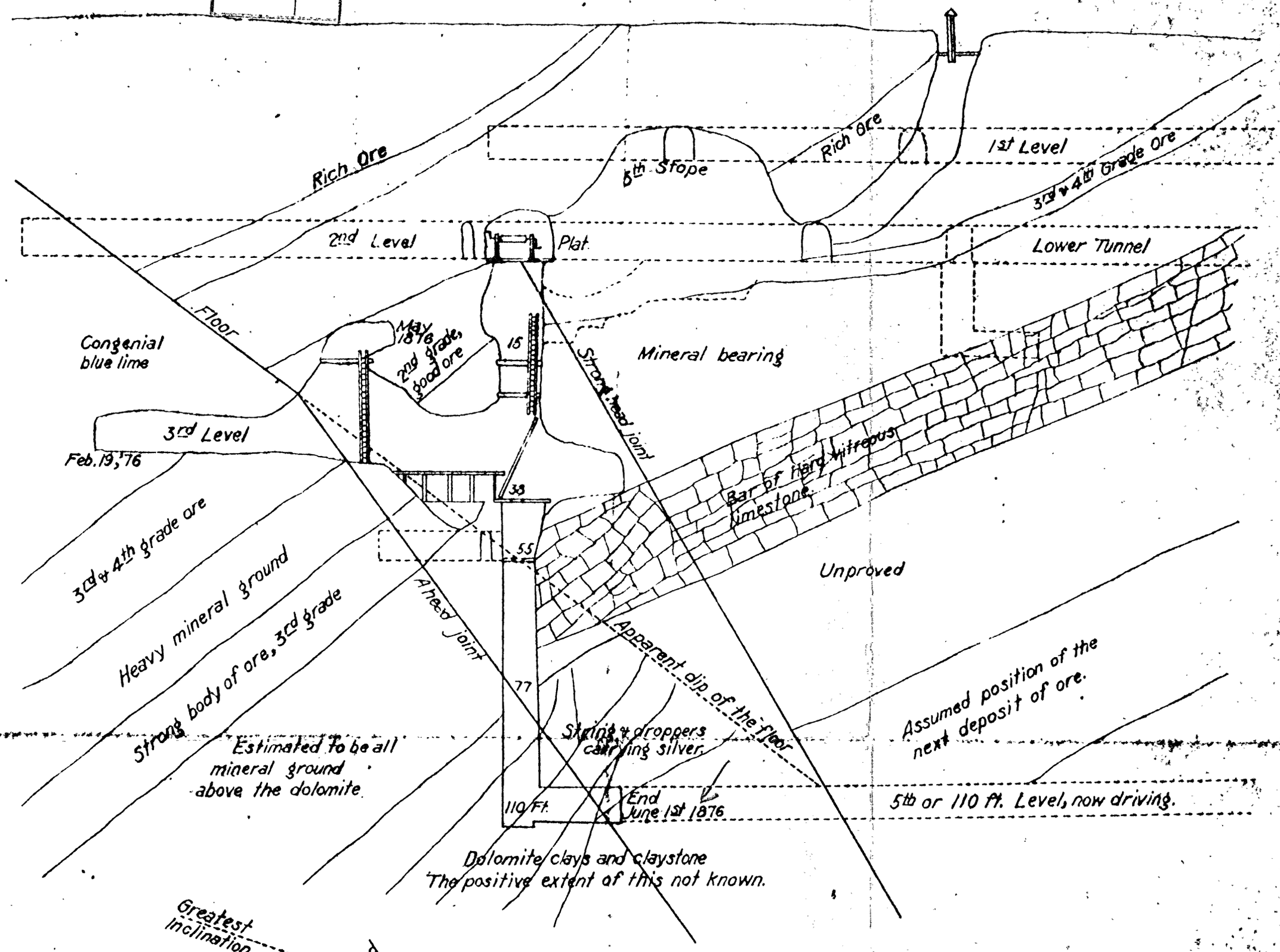
ALFRED W. PICK
MECHANICAL ENGINEER
615 IDEAL BUILDING
DENVER, COLO.

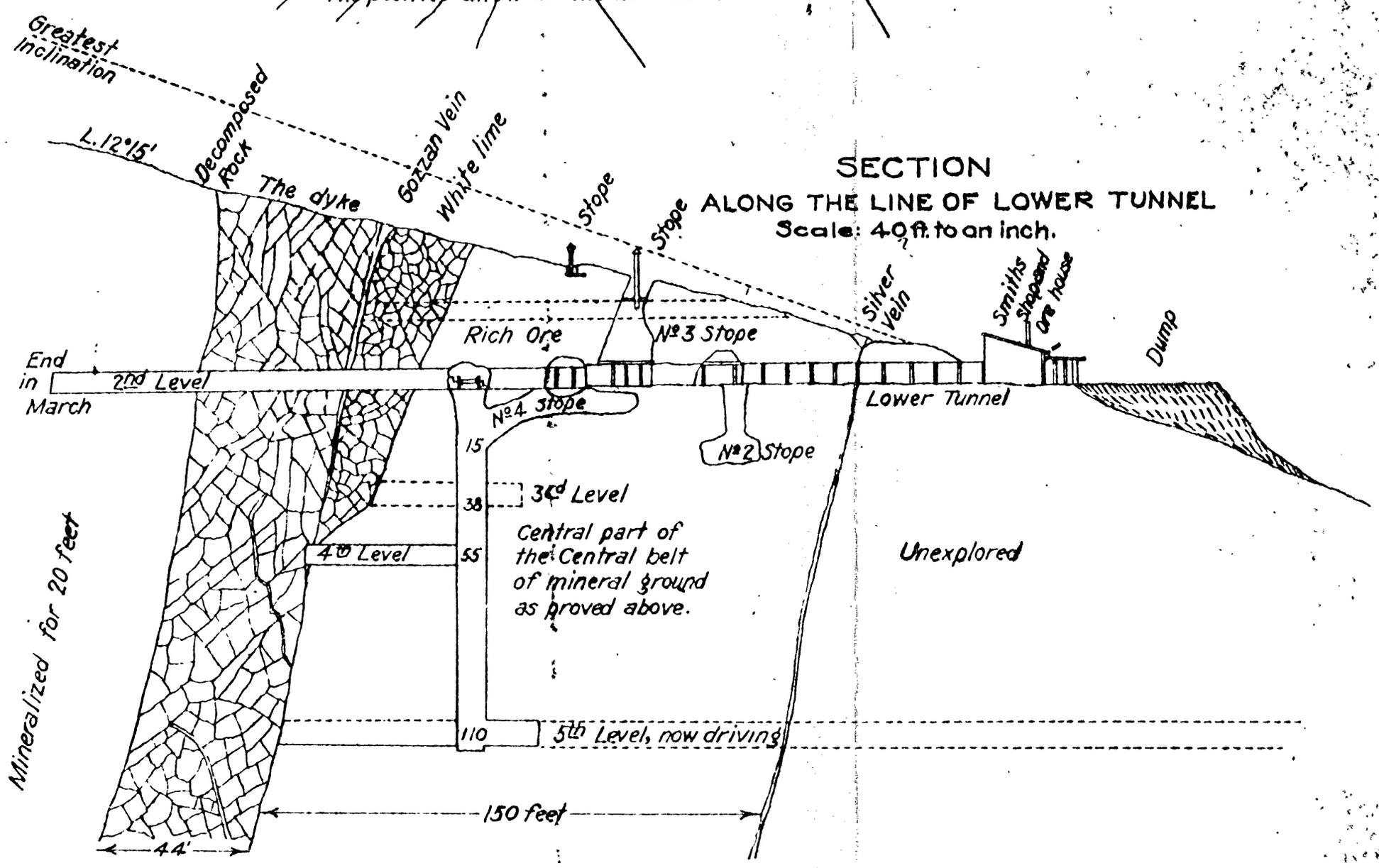
PLATE NO. IV

OFFICIAL COPY
O. M. E.
RECEIVED
SEP 7 1965
INITIALS | CO. #

LONGITUDINAL SECTION OF THE MAIN WORKINGS

Scale: 20 ft. to an inch.



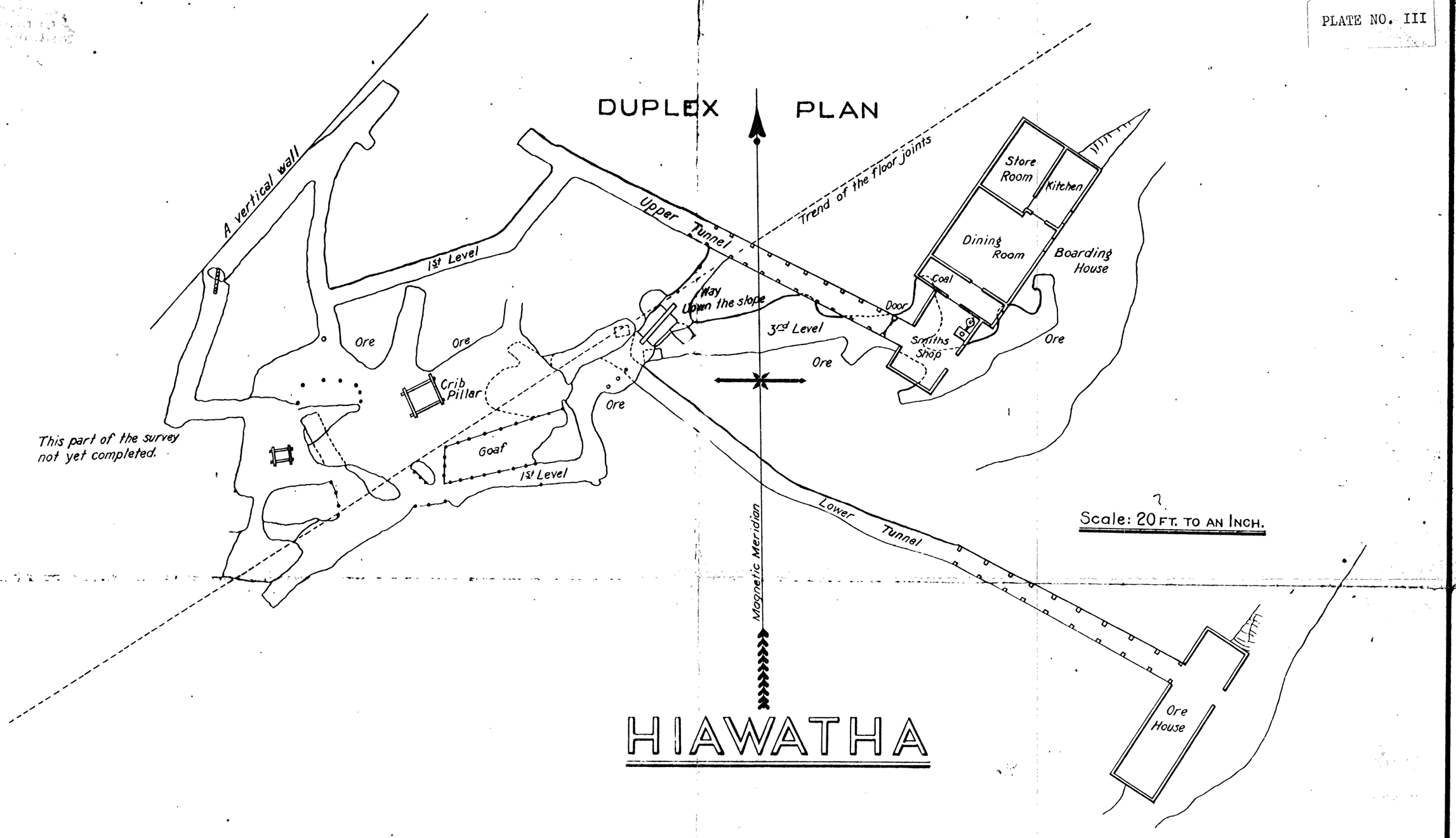


Dolly Varden Mine, Alma, Colo.

TRACED OCT. 1917

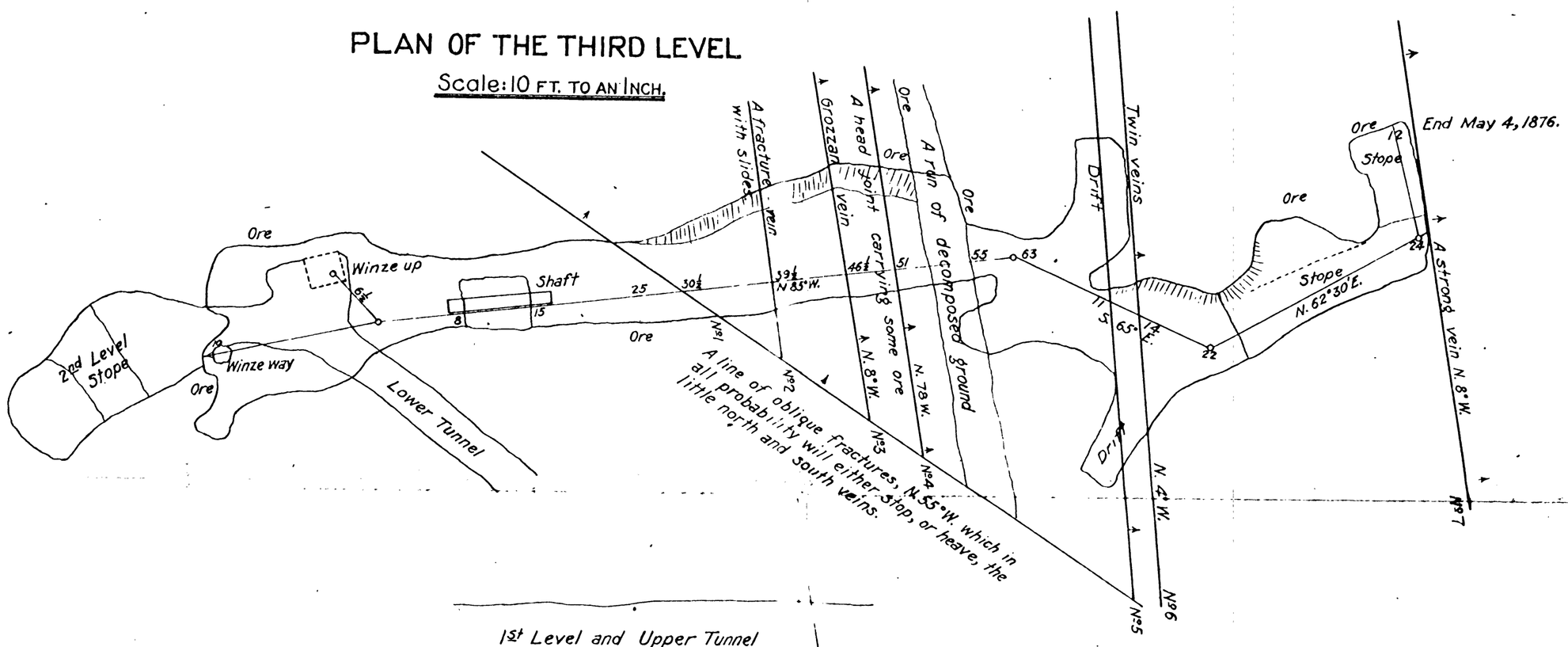
PLATE NO. III

DUPLEX PLAN



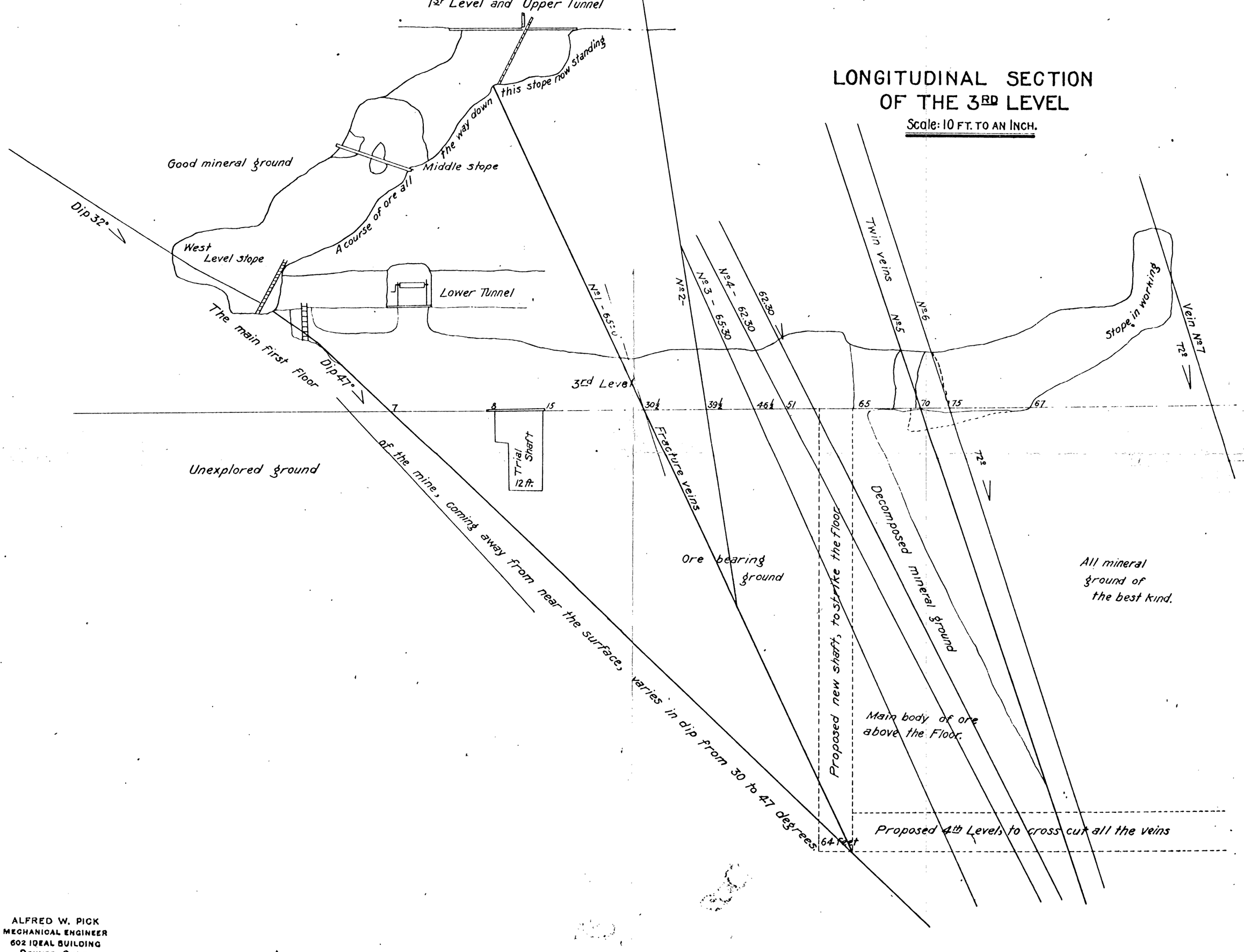
PLAN OF THE THIRD LEVEL

Scale: 10 FT. TO AN INCH.



LONGITUDINAL SECTION OF THE 3RD LEVEL

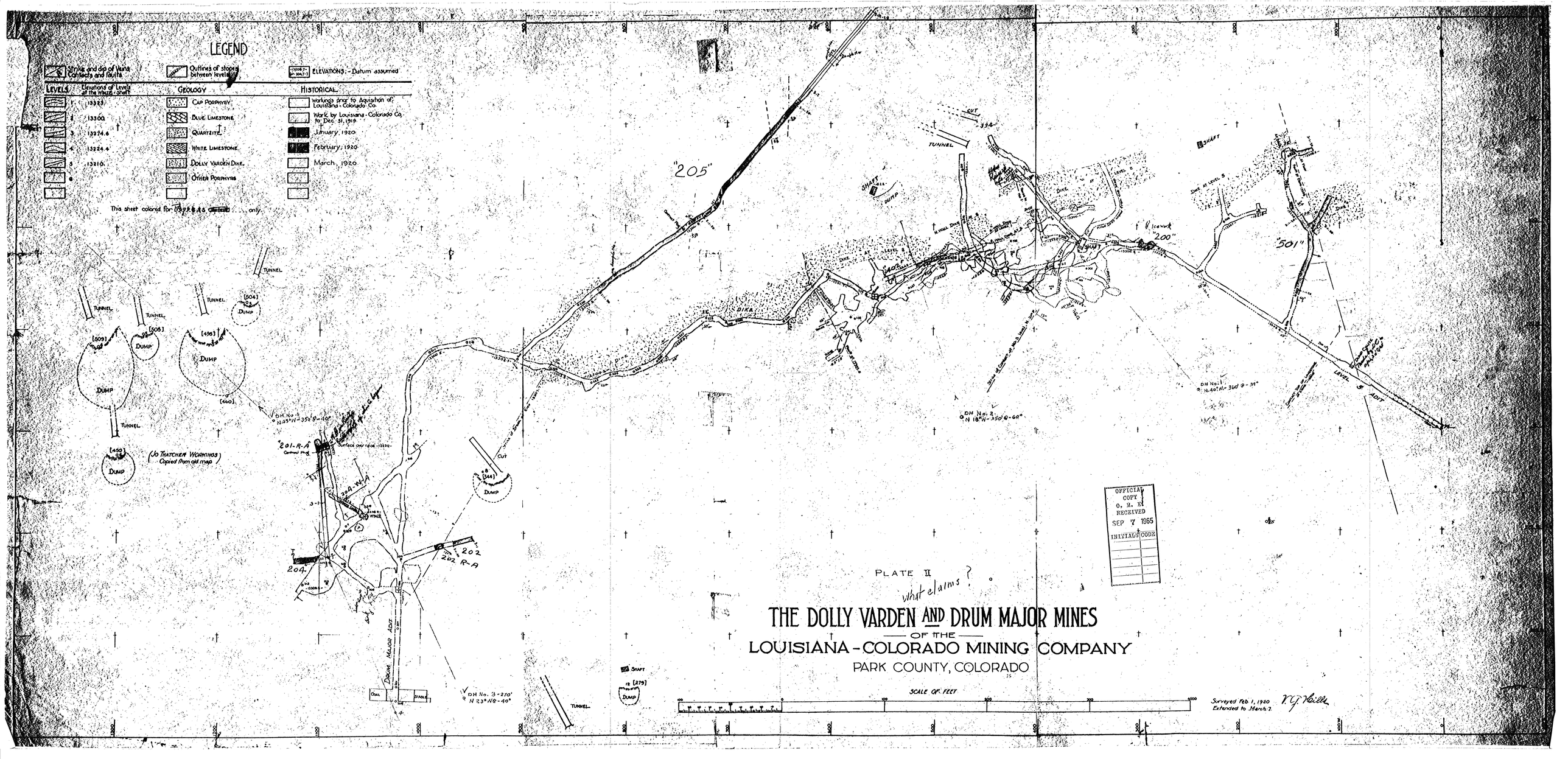
Scale: 10 FT. TO AN INCH.



ALFRED W. PICK
MECHANICAL ENGINEER
602 IDEAL BUILDING
DENVER, COLO.

Oct. 3, 1917

Property of — THE DOLLY VARDEN MINING COMPANY


LEGEND
Strike and dip of Veins Contacts and faults
Outlines of stopes between levels
ELEVATIONS - Datum assumed
LEVELS
Elevations of Levels at the Vertical Shaft
1 13373
2 13360
3 13274.6
4 13224.4
5 13210.
6
GEOLOGY
Cap Porphyry
Blue Limestone
Quartzite
White Limestone
Dolly Varden Dike
Other Porphyries
HISTORICAL
Workings prior to Acquisition of Louisiana - Colorado Co.
Work by Louisiana - Colorado Co. to Dec. 31, 1919
January, 1920
February, 1920
March, 1920
This sheet colored for Map 2 & 3 only.
"205"
"200"
"501"
TUNNEL
SHAFT
DUMP
DIKE
DIKA
CUT
LEVEL 5 ADIT
DRUM MAJOR ADIT
"201-R-A"
202-W-A
202
202 R-A
204
DH No. 1
DH No. 2
DH No. 3 - 270'
N 23° W 8 - 40°
(Jo Thatcher Workings)
Copied from old map
OFFICIAL COPY
O. M. E.
RECEIVED
SEP 7 1965
INITIALS CODE
PLATE II
what claims?
THE DOLLY VARDEN AND DRUM MAJOR MINES
OF THE
LOUISIANA - COLORADO MINING COMPANY
PARK COUNTY, COLORADO
SCALE OF FEET
Surveyed Feb 1, 1920
Extended to March 7
R. G. Hill

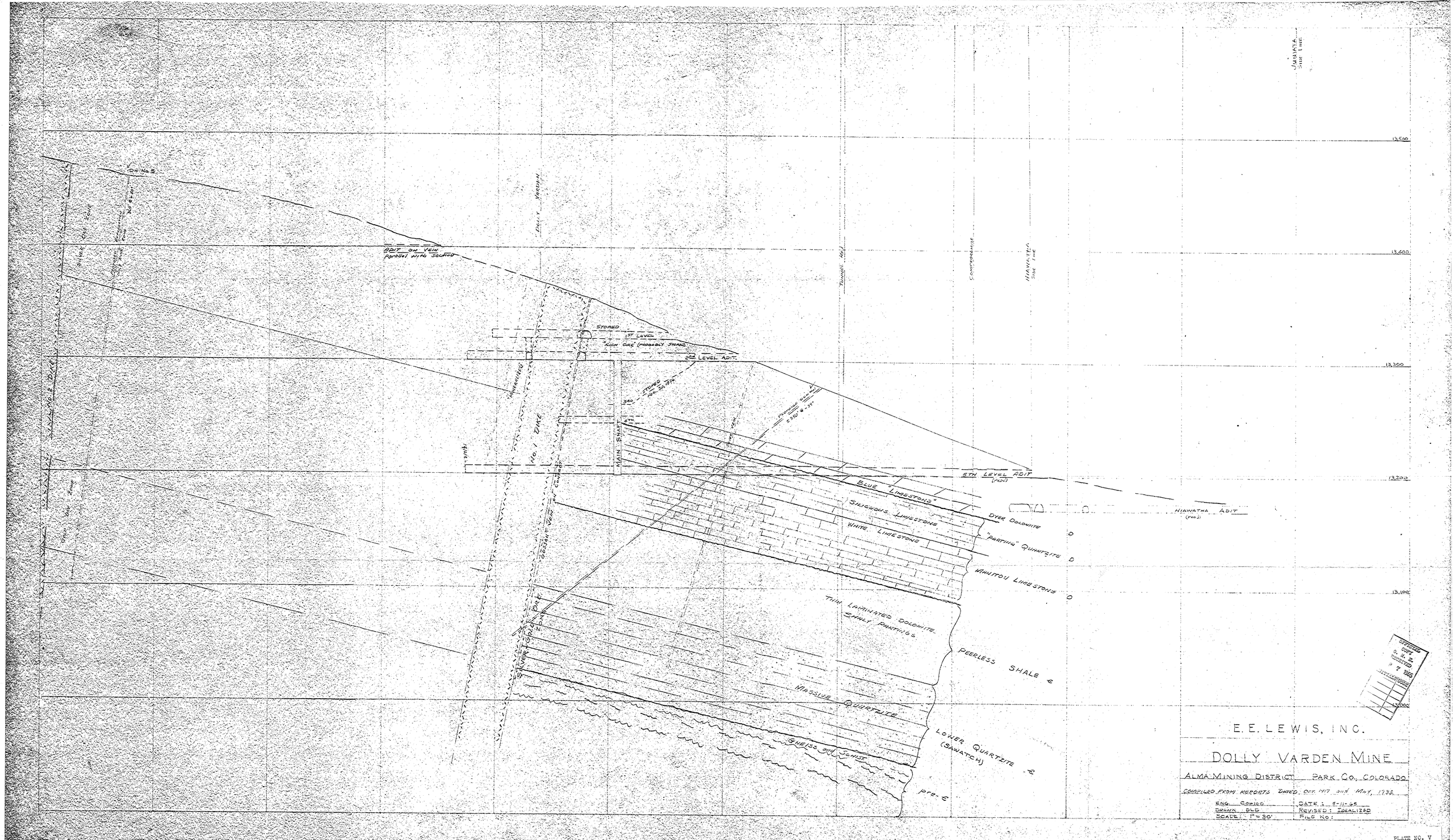

DIKE OF VEIN
DIKE No. 2
DIKE No. 5
DOLLY VARDEN
FISSURE VEIN
FAULT OF VEIN parallel with Seafoot
STOPED
1ST LEVEL
RICH ORE (PROBABLY STOPED)
2ND LEVEL ADIT
UNDERCUT
No. 1 DIKE
MAIN SHAFT
STOPED
5TH LEVEL ADIT
BLUE "LIMESTONE"
SILICEOUS LIMESTONE
WHITE LIMESTONE
DYER DOLOMITE
"PARTING" QUARTZITE
MINNITOU LIMESTONE
HIAWATHA ADIT
THIN LAMINATED DOLOMITE
SHALY PARTINGS
PEERLESS SHALE
MASSIVE QUARTZITE
LOWER QUARTZITE (SAWATCH)
GNEISS and SCHIST
pre-C
SILVER TOWER ZONE
TUNNEL No. 1
COMPROMISE
MINNEHAHA SIDE LINE
JAMAICA SIDE LINE
13,500
13,400
13,300
13,200
13,100
13,000
E. E. LEWIS, INC.
DOLLY VARDEN MINE
ALMA MINING DISTRICT PARK CO., COLORADO
COMPILED FROM REPORTS DATED OCT. 1917 and MAY, 1933.
ENG. COMLEG
DRAWN DLG
SCALE: 1" = 30'
DATE: 5-11-45
REVISED: IDEALIZED
FILE NO:

PLATE NO. V