



State of New Jersey
Department of Environmental Protection
Geological Survey



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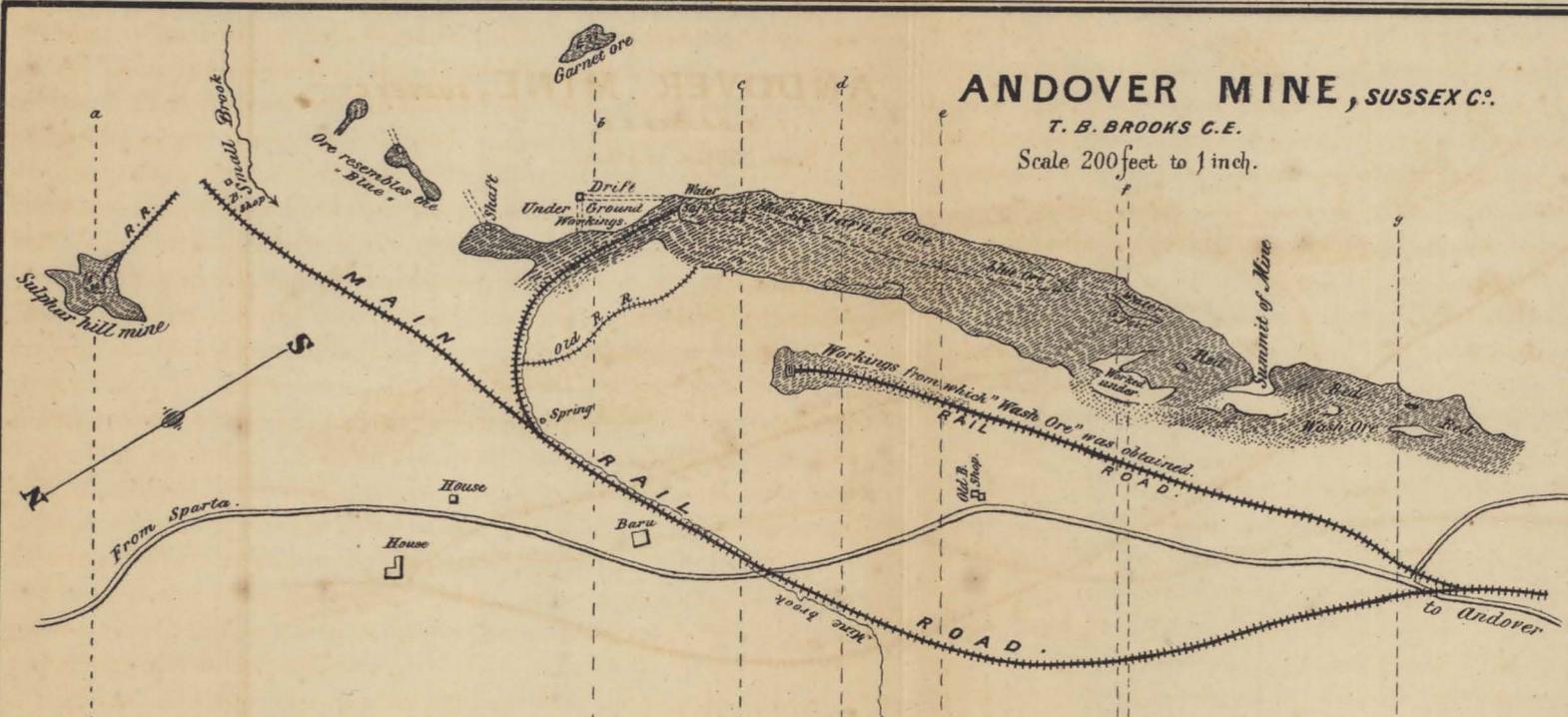
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ANDOVER MINE, SUSSEX CO.

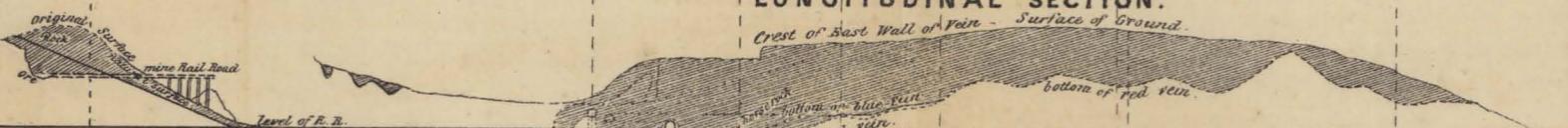
T. B. BROOKS C.E.

Scale 200 feet to 1 inch.

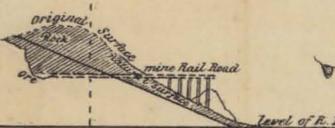


LONGITUDINAL SECTION.

Crest of East Wall of vein - Surface of Ground.

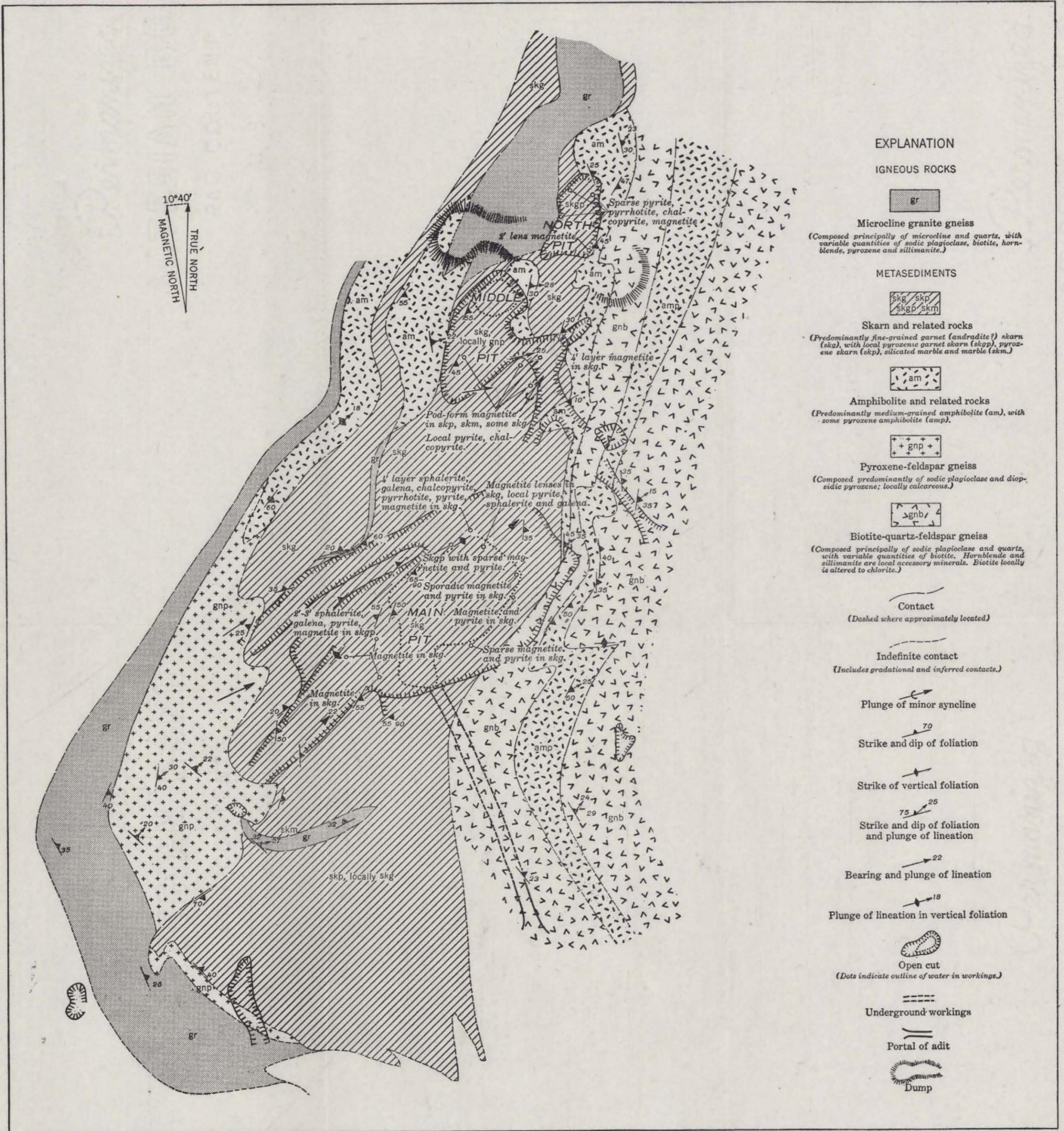


Section of Sulphur hill mine.



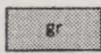
Cross Sections.





EXPLANATION

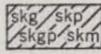
IGNEOUS ROCKS



Microcline granite gneiss

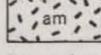
(Composed principally of microcline and quartz, with variable quantities of sodic plagioclase, biotite, hornblende, pyroxene and sillimanite.)

METASEDIMENTS



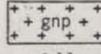
Skarn and related rocks

(Predominantly fine-grained garnet (andradite?) skarn (ska), with local pyroxene garnet skarn (skgp), pyroxene skarn (skp), silicified marble and marble (skm).)



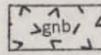
Amphibolite and related rocks

(Predominantly medium-grained amphibolite (am), with some pyroxene amphibolite (amp).)



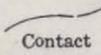
Pyroxene-feldspar gneiss

(Composed predominantly of sodic plagioclase and diopside pyroxene; locally calcareous.)



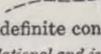
Biotite-quartz-feldspar gneiss

(Composed principally of sodic plagioclase and quartz, with variable quantities of biotite. Hornblende and sillimanite are local accessory minerals. Biotite locally is altered to chlorite.)



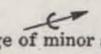
Contact

(Dashed where approximately located)

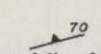


Indefinite contact

(Includes gradational and inferred contacts.)



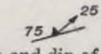
Plunge of minor syncline



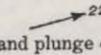
Strike and dip of foliation



Strike of vertical foliation



Strike and dip of foliation and plunge of lineation



Bearing and plunge of lineation

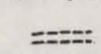


Plunge of lineation in vertical foliation

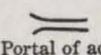


Open cut

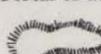
(Dots indicate outline of water in workings.)



Underground workings



Portal of adit



Dump

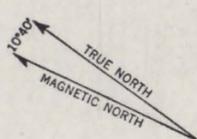
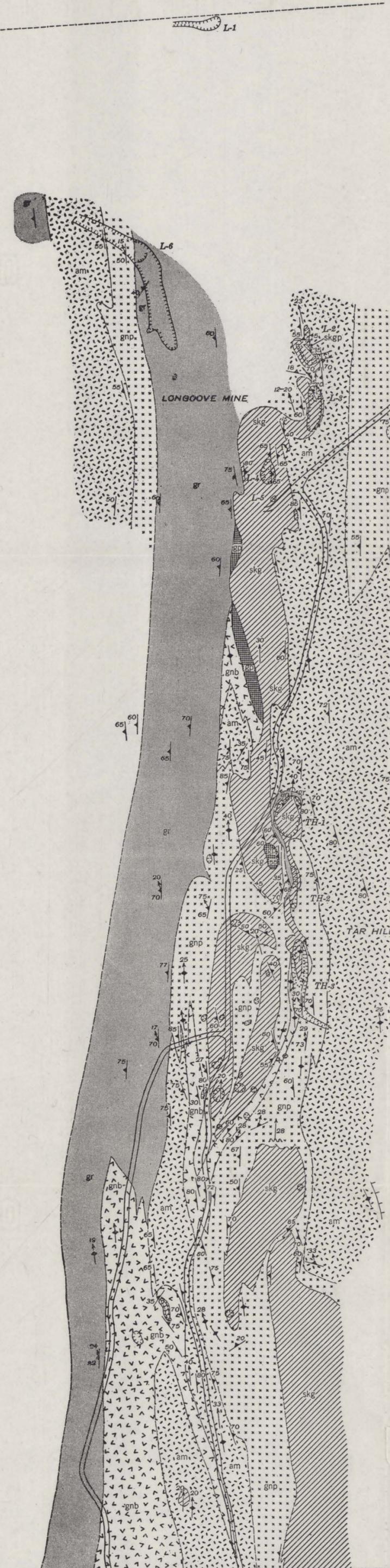
Base map by New Jersey Zinc Co.

Geology by P. K. Sims and B. F. Leonard, U. S. Geological Survey, 1949.

PLATE 4—DETAILED GEOLOGIC MAP OF SULPHUR HILL MINE, SUSSEX COUNTY, NEW JERSEY

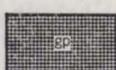


Datum is assumed

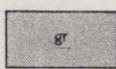


EXPLANATION

IGNEOUS ROCKS

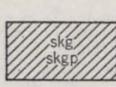


Granite pegmatite
(Coarse-grained and generally undeformed.
Composed principally of quartz and feldspar.)

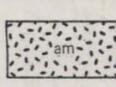


Microcline granite gneiss
(Composed principally of microcline and quartz,
with variable quantities of sodic plagioclase,
biotite, hornblende, pyroxene and sillimanite.)

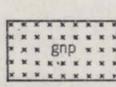
METASEDIMENTS



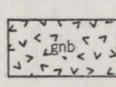
Skarn and related rocks
(Predominantly fine-grained garnet (andradite?)
skarn (skg), with local pyrozoenic garnet skarn
(skgp).)



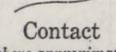
Amphibolite and related rocks
(Predominantly medium-grained amphibolite
(am))



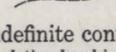
Pyroxene-feldspar gneiss
(Composed predominantly of sodic plagioclase
and diopsidic pyroxene; locally calcareous.)



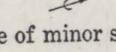
Biotite-quartz-feldspar gneiss
(Composed principally of sodic plagioclase and
quartz, with variable quantities of biotite.
Hornblende and sillimanite are local access-
ory materials. Biotite locally is altered to
chlorite.)



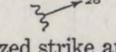
Contact
(Dashed where approximately located.)



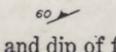
Indefinite contact
(Includes gradational and inferred contacts.)



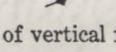
Plunge of minor syncline



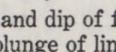
**Generalized strike and plunge
of crumpled, crenulated, or
undulating foliation**



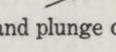
Strike and dip of foliation



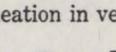
Strike of vertical foliation



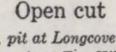
**Strike and dip of foliation
and plunge of lineation**



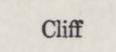
Bearing and plunge of lineation



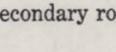
Plunge of lineation in vertical foliation



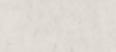
Open cut
L-1, pit at Longcore mine;
TH-1, pit at Tar Hill mine.
(Dots indicate outline of water in workings.)



Cliff



Secondary road



Center line of power line right-of-way

PRE-CAMBRIAN

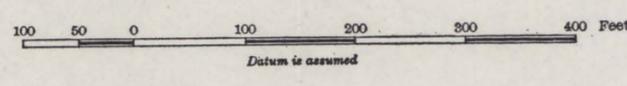
PRE-CAMBRIAN

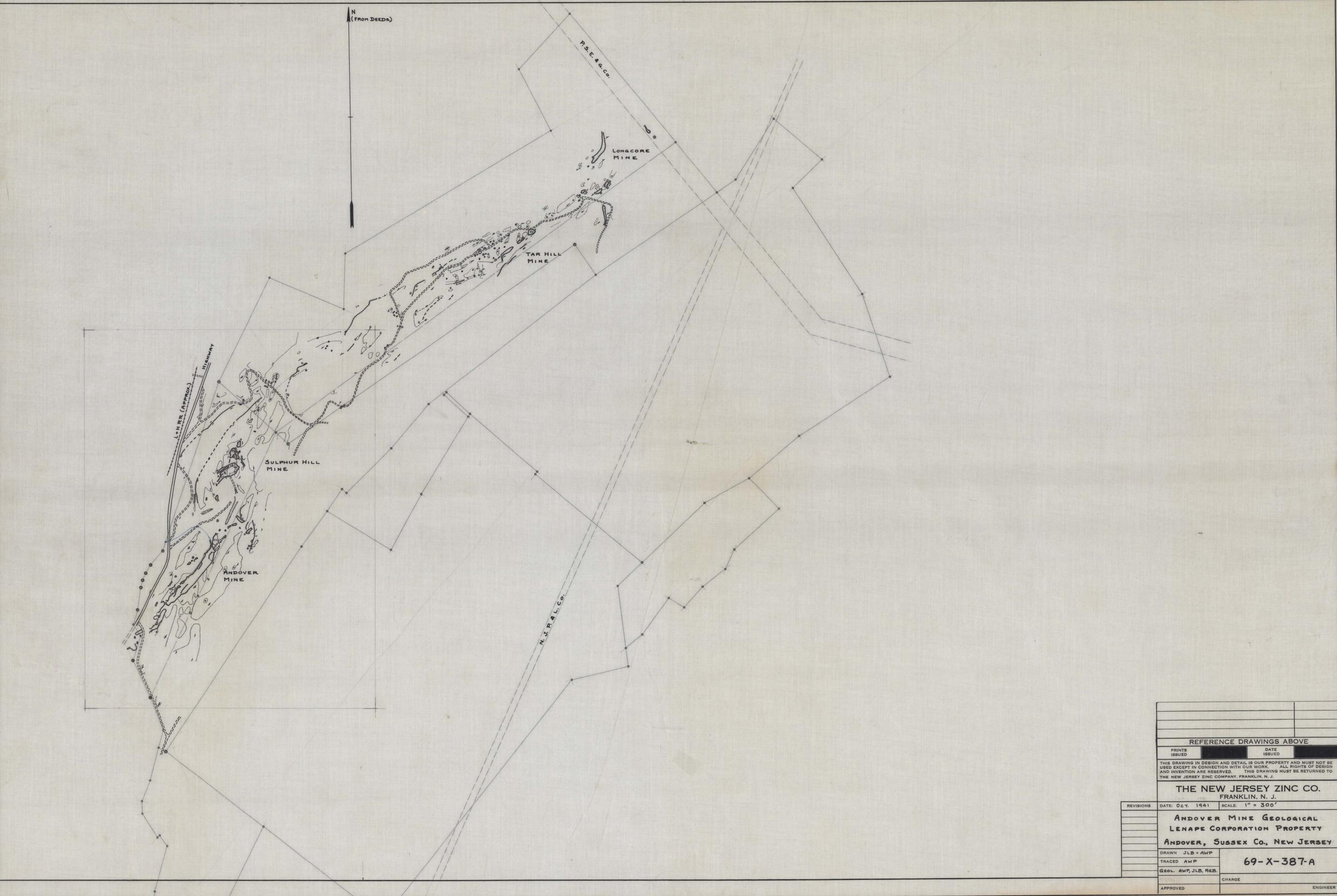
Age relations of these units are unknown

Base map by New Jersey Zinc Co.
with additions by P. K. Sims

Geology by P. K. Sims and B. F. Leonard,
U. S. Geological Survey-1949

**PLATE 2.—GEOLOGIC MAP OF THE TAR HILL AND LONGCORE
MINES, SUSSEX COUNTY, NEW JERSEY**





REFERENCE DRAWINGS ABOVE	
PRINTS ISSUED	DATE ISSUED

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THE NEW JERSEY ZINC CO.
FRANKLIN, N. J.

REVISIONS	DATE: Oct. 1941	SCALE: 1" = 300'
ANDOVER MINE GEOLOGICAL		
LENAPE CORPORATION PROPERTY		
ANDOVER, SUSSEX CO., NEW JERSEY		
DRAWN	JLB + AWP	69-X-387-A
TRACED	AWP	
GEOL.	AWP, JLB, REB.	
APPROVED	CHARGE	ENGINEER



REFERENCE DRAWINGS ABOVE	
SERIAL NUMBER	DATE ISSUED

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THE NEW JERSEY ZINC COMPANY
FRANKLIN, N. J.

REVISIONS	DATE	SCALE
	Oct. 1941	1" = 100'
<p>ANDOVER MINE GEOLOGICAL LENAPE CORPORATION PROPERTY ANDOVER, SUSSEX CO., NEW JERSEY</p>		
DRAWN	JLB + AMP	69-X-386-A
TRACED	JLB + AMP	
GEOLOGICAL		CHARGE
PT. GLB, JLB, LEK		ENGINEER
APPROVED		

REVISIONS:

- LEGEND
- PROPERTY CORNER TIED IN TO SURVEY OF MINE WORKINGS
 - PROPERTY CORNER PLOTTED FROM DEED DESCRIPTION
 - C OPEN PIT
 - UNDERGROUND WORKINGS
 - OLD DUMPS

MAP BASED ON STADIA-PLANE TABLE SURVEY



Prospecting Limited to Northwest Side of Broken Line, under Lease of July 16, 1941.

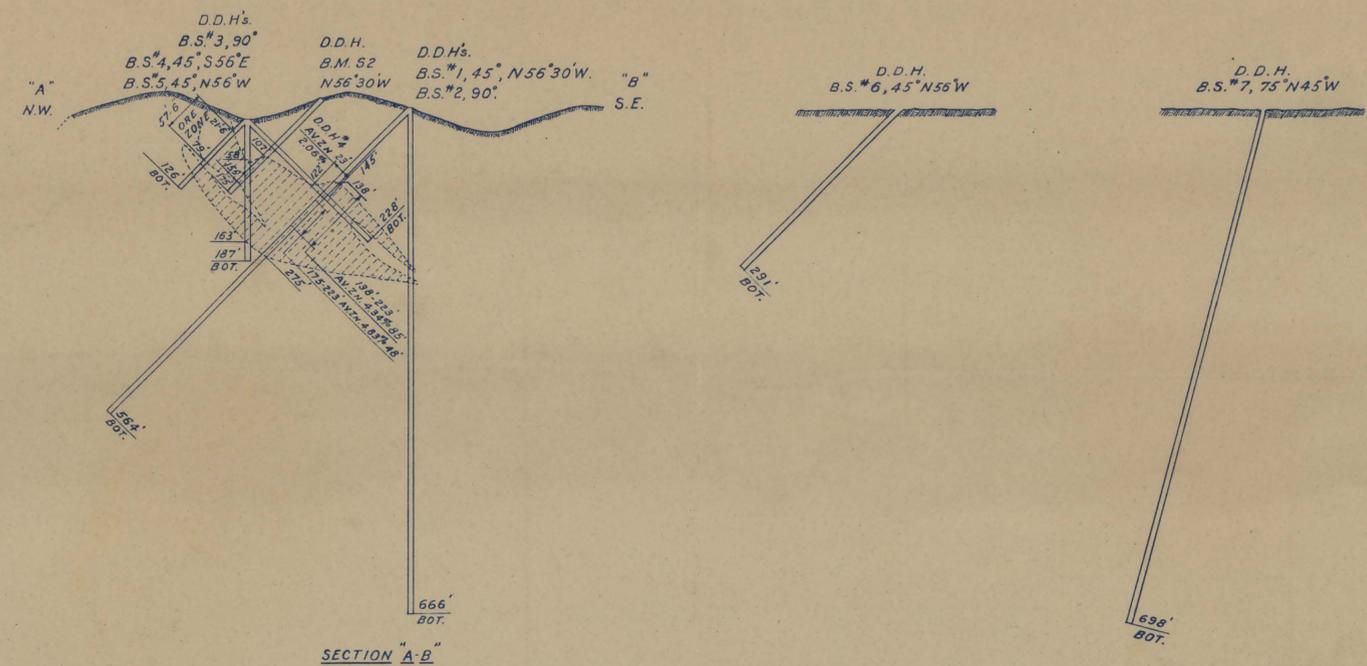
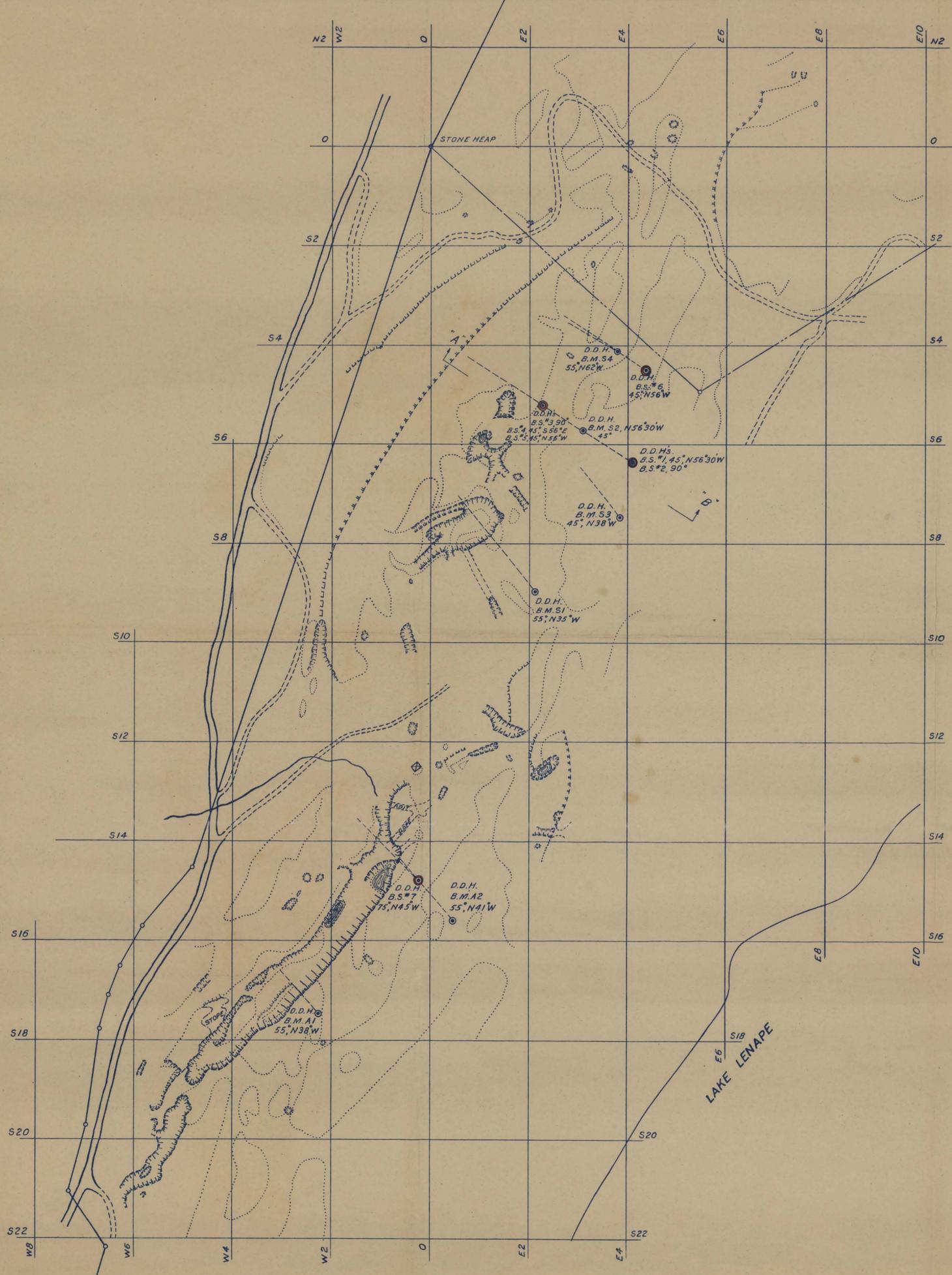
Copy of this Map given to Mr. Hewitt by R.A. Paul - 11-4-41
 Also a copy of 69-A-387 1" = 300'
 Copies also sent to Mr. Paul the following day -
 without title block etc. - RWP

OCT. 1941. 1" = 100'
ANDOVER MINE WORKINGS
LENAPE CORPORATION PROPERTY
ANDOVER, SUSSEX CO. NEW JERSEY

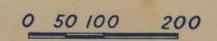


DATE: Nov. 1941	SCALE: 1"=100'
ANDOVER-SULPHUR HILL MINES GEOLOGICAL ANDOVER, SUSSEX CO. NEW JERSEY	
DR: AWP	69-X-389
TR: AWP	

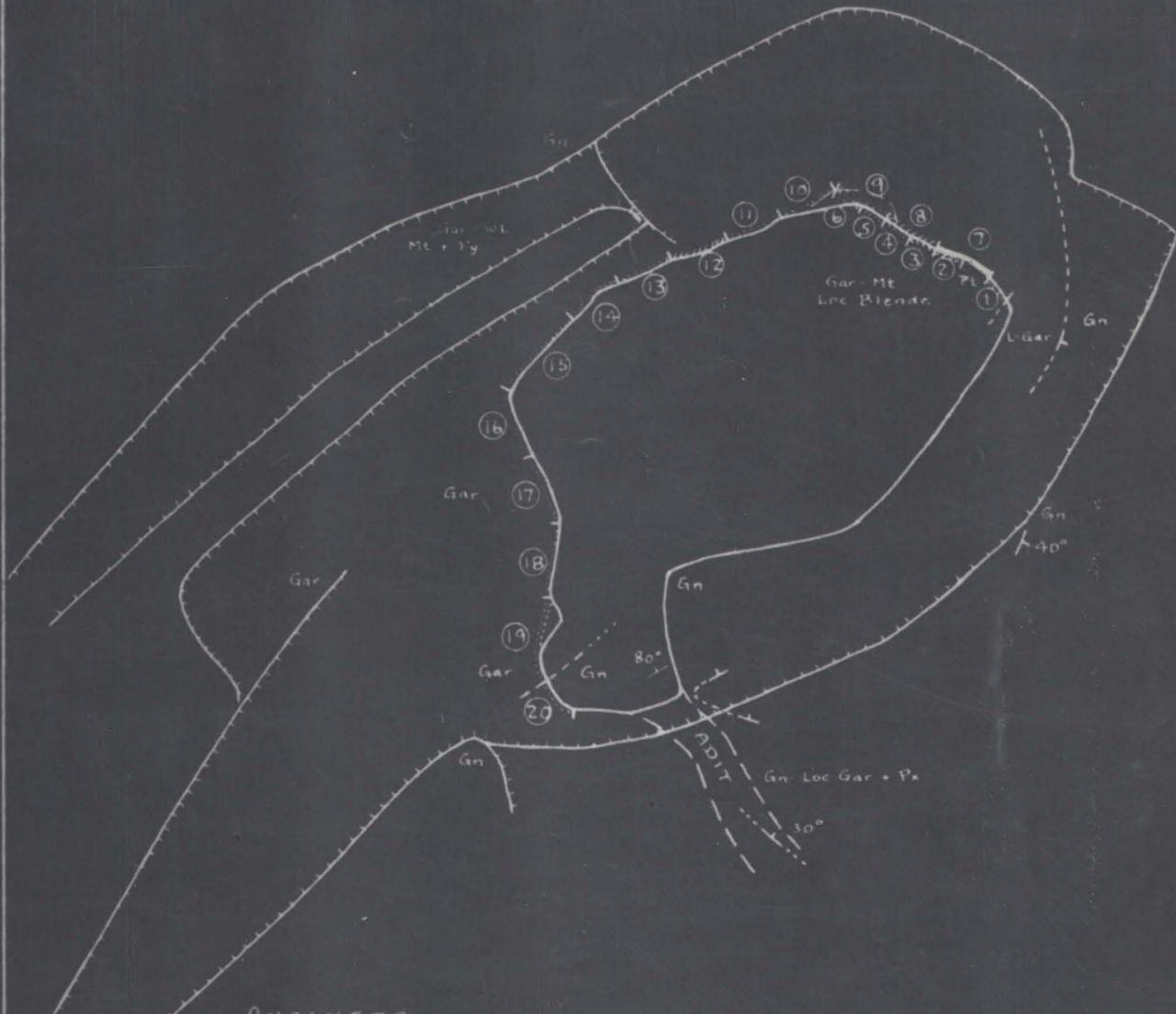
NORTH



ANDOVER AND SULPHUR HILL
 PLAN AND DRILL SECTIONS
 SUSSEX CO., N.J.
 DRILLED BY N.M. GIBSON, 1944
 FOR DETAILED DRILL SECTIONS SEE MAP 552A
 SCALE 1"=100'



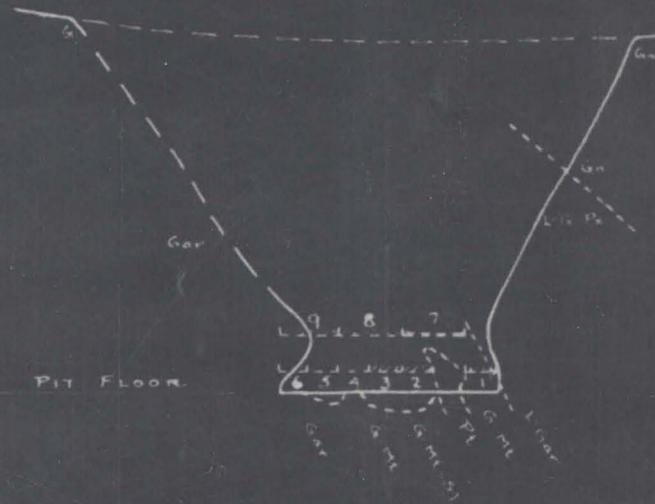
NOTE:-
 B.S.#1 ETC. INDICATES HOLES DRILLED BY THE B.S.CO. (7 HOLES)
 B.M. 51 ETC. INDICATES HOLES DRILLED BY U.S. BUREAU OF MINES. (6 HOLES)
 LINES SHOWN THUS INDICATE OUTCROP AREAS.



ANALYSES

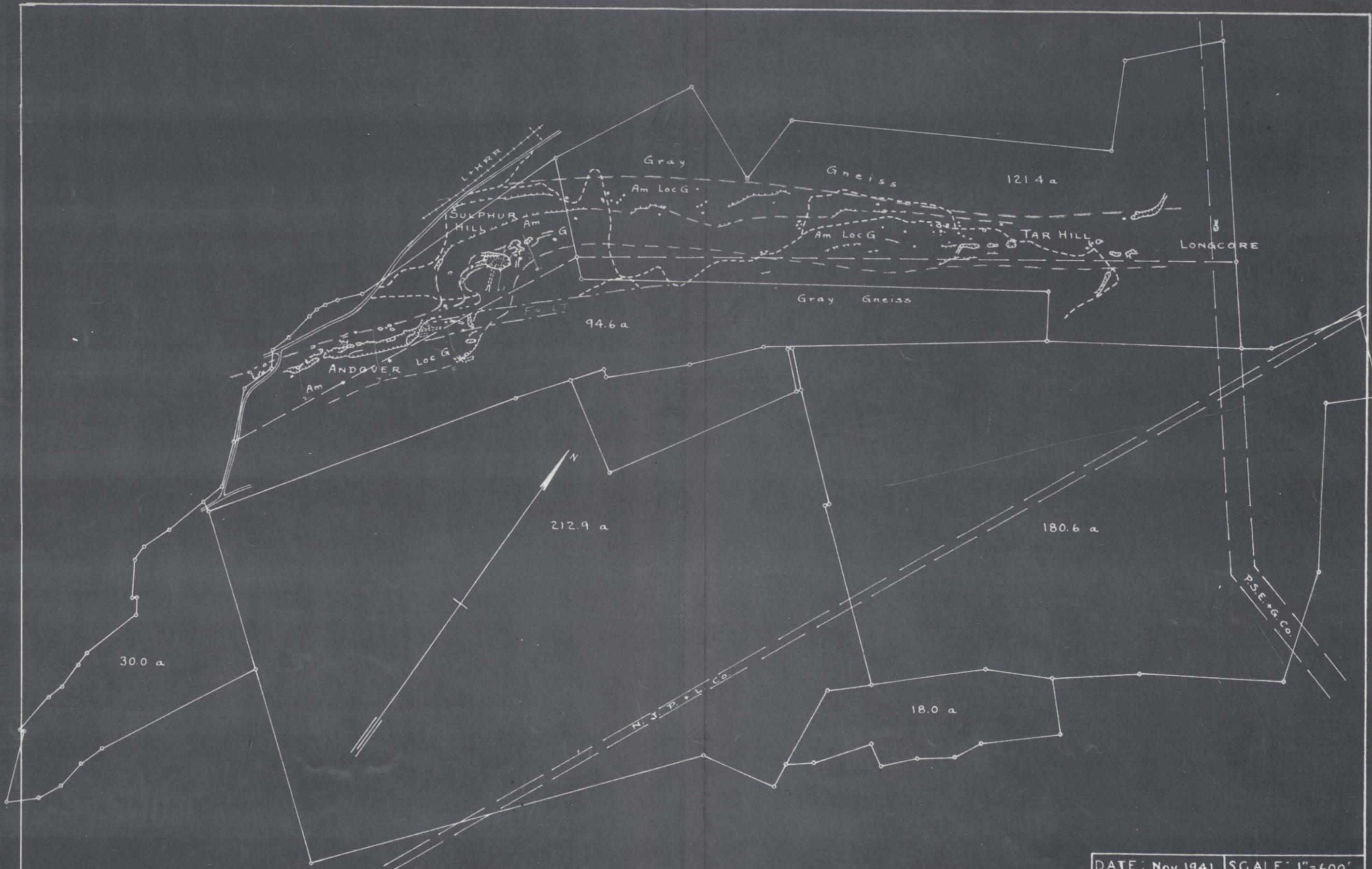
No.	Zn	Fe	Pb	Mn	S
1	0.59	28.20	0.00		
2	4.26	35.40	0.08		
3	4.85	28.98	0.16	1.05	5.08
4	0.45	41.10	0.10		
5	0.56	32.16	0.06		
6	2.22	14.10	0.38		
7	6.01	22.92	0.00		
8	2.58	33.78	0.88	1.10	2.44
9	2.66	18.60	0.18		
10	1.72	11.70	0.06		
11	1.84	17.22	0.00		
12	4.07	17.34	0.09	0.69	1.65
13	2.73	19.56	0.33		
14	2.79	15.06	0.53		
15	0.85	22.92	0.72		
16	0.59	21.54	0.26		
17	0.15	22.32	0.04		
18	0.27	11.70	0.00		
19	0.25	10.86	0.00		
20	0.15	3.60	0.04		

Handwritten notes in the left margin:
 1.15%
 2.95
 2.7
 3.75%



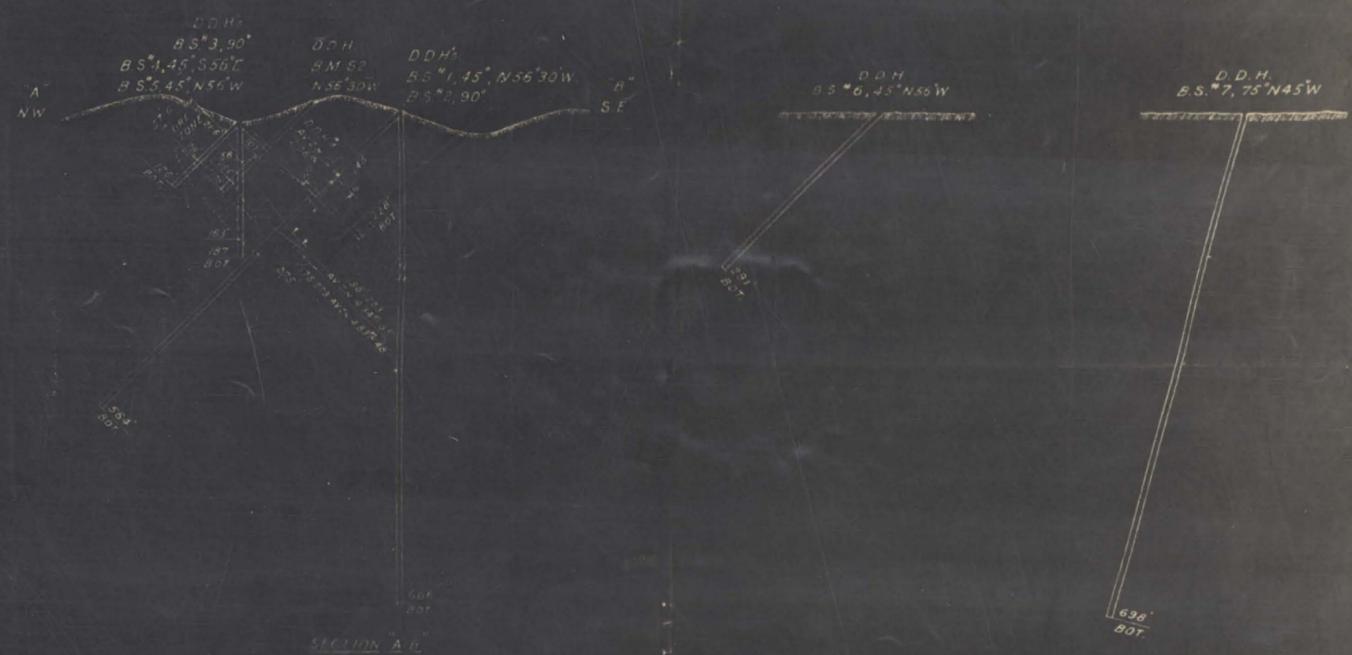
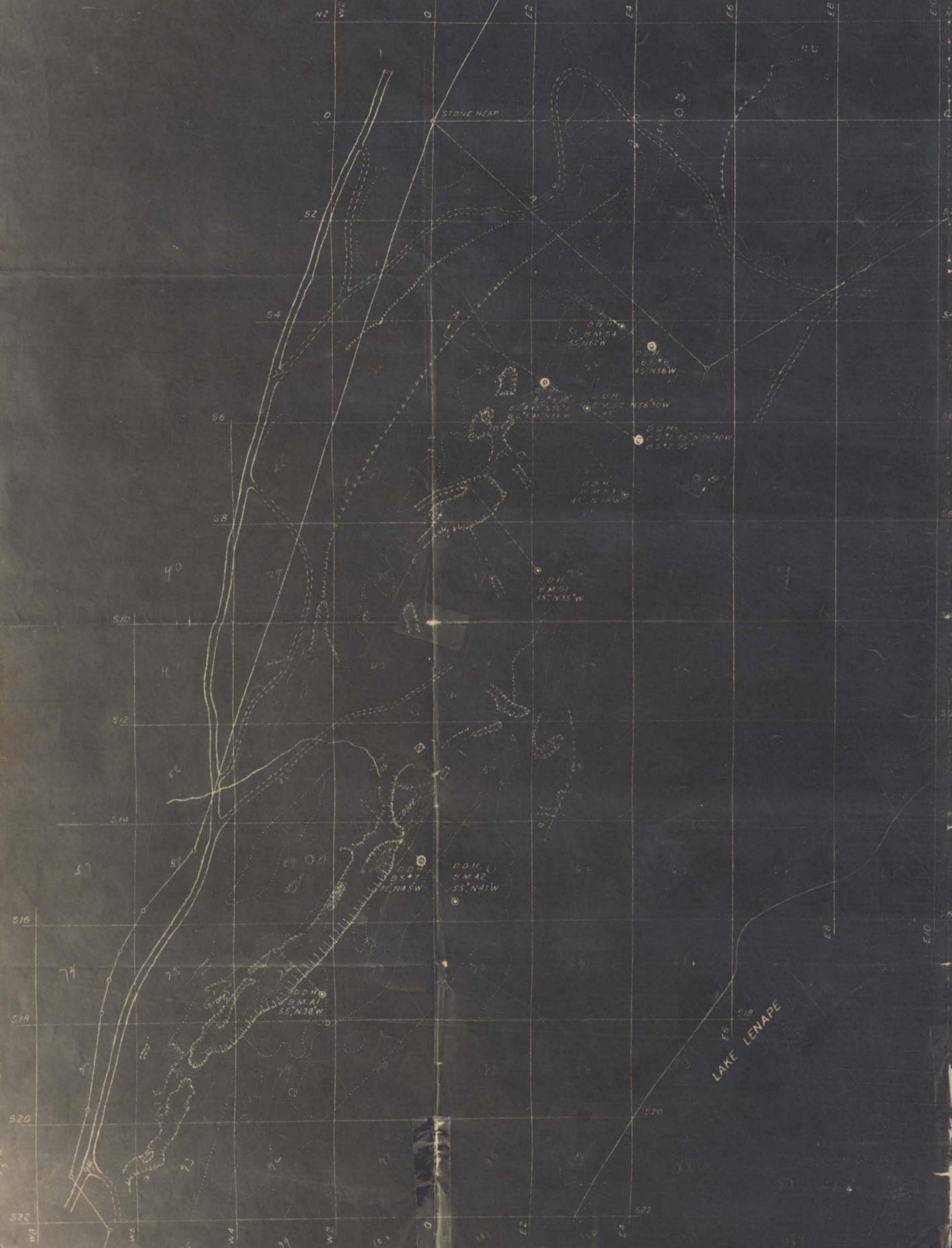
SECTION LOOKING NORTH-EAST

DATE: Oct 1941	SCALE: 1" = 30'
SULFUR HILL MINE	
SAMPLE MAP	
ANDOVER, SUSSEX CO., NEW JERSEY.	
THE NEW JERSEY ZINC CO.	
DR. A.W.P.	69-X-389
TR. A.W.P.	



DATE: Nov. 1941	SCALE: 1"=600'
ANDOVER MINE GEOLOGICAL LENAPE CORPORATION ANDOVER, SUSSEX CO., NEW JERSEY	
THE NEW JERSEY ZINC CO.	
DR: A.W.P.	69-X-387-B
TR: A.W.P.	

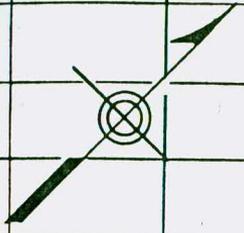
NORTH



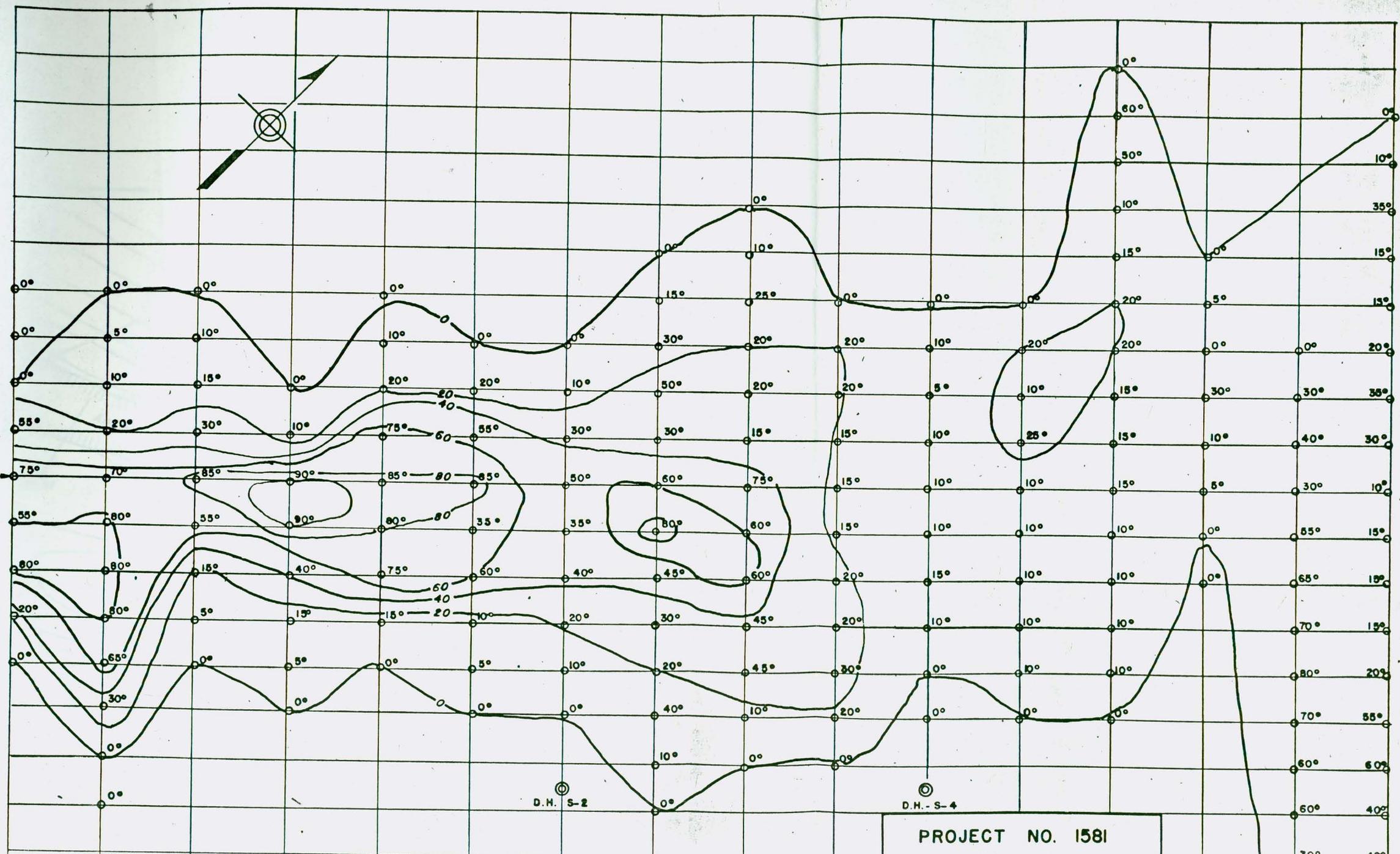
ANDOVER AND SULPHUR HILL
 PLAN AND DRILL SECTIONS
 SUSSEX CO., N. J.
 DRILLED BY N.M. GIBSON, 1944
 FOR DETAILED DRILL SECTIONS SEE MAP 552A

SCALE 1"=100'
 0 50 100 200

NOTE:
 (a) INDICATES HOLES DRILLED BY THE B.S. CO. (7 HOLES)
 (b) INDICATES HOLES DRILLED BY THE BUREAU OF MINES. (6)
 LINES SHOWN THUS ... INDICATE DDT FOR ALEAS.



SULPHUR HILL OPEN PIT

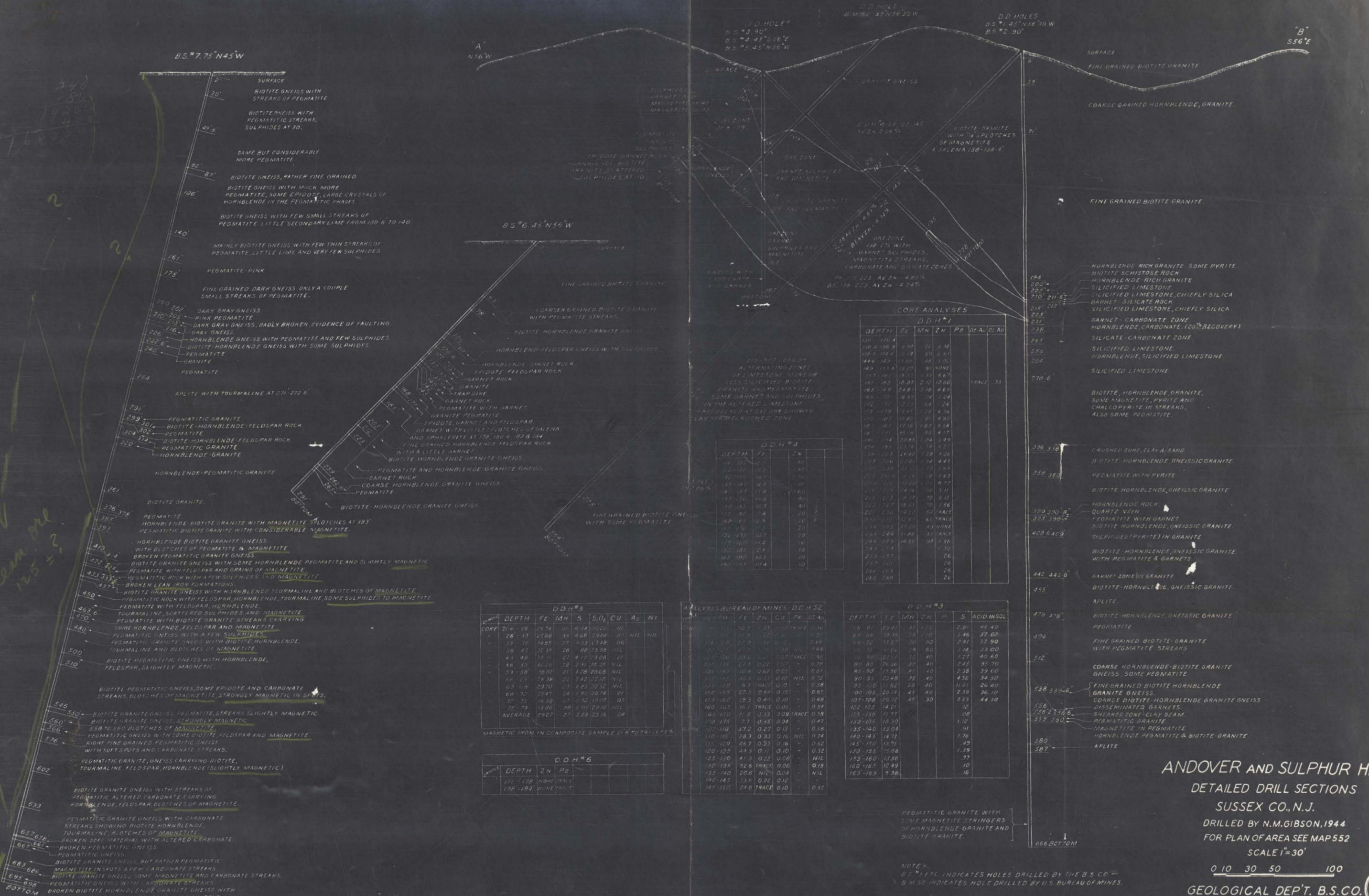


D.H. S-2

D.H. S-4

PROJECT NO. 1581

300 400



B.S. # 7.75' N45' W

B.S. # 6.45' N56' W

B.S. # 1.45' N56' 30' W
B.S. # 2.90'

B.S. # 5.45' N56' W

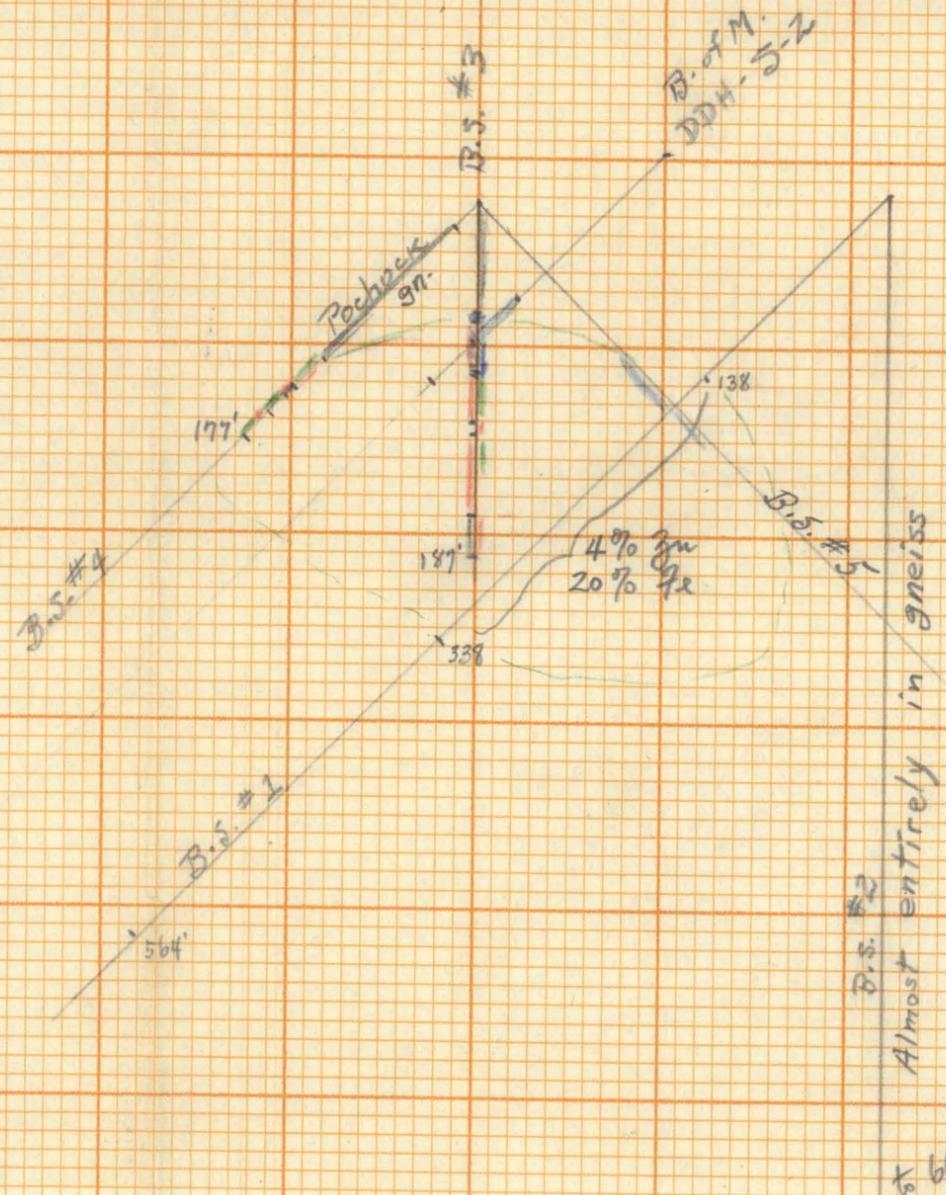
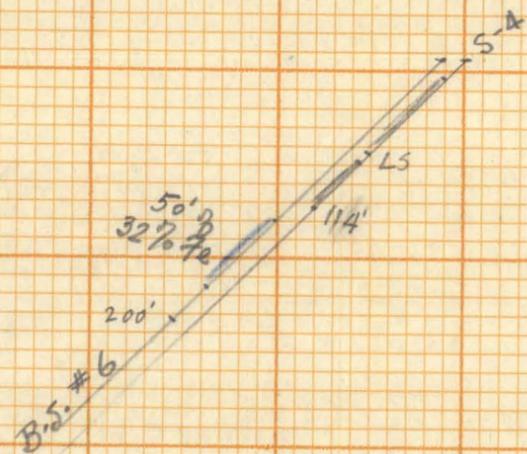
CORE ANALYSES

DEPTH	D.D.H. #1					
	Fe	Mn	Zn	Pb	Or	Al
136-136.4						
136-140.9	9.90	2.4	1.12			
136-144.7	10.14	6.9	2.41			
144-145	13.86	4.8	3.01			
149-153.4	13.00	9.3	5.06			
157-161	15.01	1.15	6.67			
161-163	18.87	2.12	10.60			TRACE .35
165-169	24.81	3.18	4.69			
169-172	16.43	7.4	1.04			
172-175	22.7	6.4	7.6			
175-179	17.42	7.24	6.36			
179-183	17.80	1.01	4.93			
183-187	17.76	1.67	5.58			
187-191	15.18	8.6	4.77			
191-194	20.85	1.04	3.49			
194-198	17.74	1.74	3.27			
198-203	14.40	1.78	3.26			
203-206	17.00	1.34	4.47			
206-209	21.12	1.79	5.43			
209-211.6	17.24	2.8	3.63			
211-215	13.00	1.01	6.77			
215-219	14.74	5.11				
219-223	16.54	7.3				
223-227	18.01	7.0	1.56			
227-230	14.23	6.4	TRACE			
230-233	13.20	6.1	TRACE			
233-236	11.88	3.1	NONE			
236-244	11.88	3.1	TRACE			
244-249	14.52	5.4	1.56			
249-253	17.30	1.70				
253-257	15.7	7.6				
257-261	15.18	1.6				
261-265	11.88	2.6				
265-269	14.5	2.60	2.6			

D.D.H. #4

DEPTH	Fe	Zn
116-118	11.7	4.6
122-126	8.8	1.40
127-131	11.1	3.36
131-135	12.6	1.00
141-145	17.4	2.40
155-159	11.3	4.6
159-163	10.5	4.1
173-177	7.8	1.0
187-191	11.9	2.0
191-195	11.3	2.0
195-199	10.7	2.0
199-203	11.4	1.0
203-207	11.4	1.0
207-211	11.4	1.0
211-215	11.4	1.0
215-219	11.4	1.0
219-223	11.4	1.0
223-227	11.4	1.0
227-231	11.4	1.0
231-235	11.4	1.0
235-239	11.4	1.0
239-243	11.4	1.0
243-247	11.4	1.0
247-251	11.4	1.0
251-255	11.4	1.0
255-259	11.4	1.0
259-263	11.4	1.0
263-267	11.4	1.0
267-271	11.4	1.0
271-275	11.4	1.0
275-279	11.4	1.0
279-283	11.4	1.0
283-287	11.4	1.0
287-291	11.4	1.0
291-295	11.4	1.0
295-299	11.4	1.0
299-303	11.4	1.0
303-307	11.4	1.0
307-311	11.4	1.0
311-315	11.4	1.0
315-319	11.4	1.0
319-323	11.4	1.0
323-327	11.4	1.0
327-331	11.4	1.0
331-335	11.4	1.0
335-339	11.4	1.0
339-343	11.4	1.0
343-347	11.4	1.0
347-351	11.4	1.0
351-355	11.4	1.0
355-359	11.4	1.0
359-363	11.4	1.0
363-367	11.4	1.0
367-371	11.4	1.0
371-375	11.4	1.0
375-379	11.4	1.0
379-383	11.4	1.0
383-387	11.4	1.0
387-391	11.4	1.0
391-395	11.4	1.0
395-399	11.4	1.0
399-403	11.4	1.0
403-407	11.4	1.0
407-411	11.4	1.0
411-415	11.4	1.0
415-419	11.4	1.0
419-423	11.4	1.0
423-427	11.4	1.0
427-431	11.4	1.0
431-435	11.4	1.0
435-439	11.4	1.0
439-443	11.4	1.0
443-447	11.4	1.0
447-451	11.4	1.0
451-455	11.4	1.0
455-459	11.4	1.0
459-463	11.4	1.0
463-467	11.4	1.0
467-471	11.4	1.0
471-475	11.4	1.0
475-479	11.4	1.0
479-483	11.4	1.0
483-487	11.4	1.0
487-491	11.4	1.0
491-495	11.4	1.0
495-499	11.4	1.0
499-503	11.4	1.0
503-507	11.4	1.0
507-511	11.4	1.0
511-515	11.4	1.0
515-519	11.4	1.0
519-523	11.4	1.0
523-527	11.4	1.0
527-531	11.4	1.0
531-535	11.4	1.0
535-539	11.4	1.0
539-543	11.4	1.0
543-547	11.4	1.0
547-551	11.4	1.0
551-555	11.4	1.0
555-559	11.4	1.0
559-563	11.4	1.0
563-567	11.4	1.0
567-571	11.4	1.0
571-575	11.4	1.0
575-579	11.4	1.0
579-583	11.4	1.0
583-587	11.4	1.0
587-591	11.4	1.0
591-595	11.4	1.0
595-599	11.4	1.0
599-603	11.4	1.0
603-607	11.4	1.0
607-611	11.4	1.0
611-615	11.4	1.0
615-619	11.4	1.0
619-623	11.4	1.0
623-627	11.4	1.0
627-631	11.4	1.0
631-635	11.4	1.0
635-639	11.4	1.0
639-643	11.4	1.0
643-647	11.4	1.0
647-651	11.4	1.0
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659-663	11.4	1.0
663-667	11.4	1.0
667-671	11.4	1.0
671-675	11.4	1.0
675-679	11.4	1.0
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683-687	11.4	1.0
687-691	11.4	1.0
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695-699	11.4	1.0
699-703	11.4	1.0
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707-711	11.4	1.0
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723-727	11.4	1.0
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731-735	11.4	1.0
735-739	11.4	1.0
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743-747	11.4	1.0
747-751	11.4	1.0
751-755	11.4	1.0
755-759	11.4	1.0
759-763	11.4	1.0
763-767	11.4	1.0
767-771	11.4	1.0
771-775	11.4	1.0
775-779	11.4	1.0
779-783	11.4	1.0
783-787	11.4	1.0
787-791	11.4	1.0
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815-819	11.4	1.0
819-823	11.4	1.0
823-827	11.4	1.0
827-831	11.4	1.0
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839-843	11.4	1.0
843-847	11.4	1.0
847-851	11.4	1.0
851-855	11.4	1.0
855-859	11.4	1.0
859-863	11.4	1.0
863-867	11.4	1.0
867-871	11.4	1.0
871-875	11.4	1.0
875-879	11.4	1.0
879-883	11.4	1.0
883-887	11.4	1.0
887-891	11.4	1.0
891-895	11.4	1.0
895-899	11.4	1.0
899-903	11.4	1.0
903-907	11.4	1.0
907-911	11.4	1.0
911-915	11.4	1.0
915-919	11.4	1.0
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955-959	11.4	1.0
959-963	11.4	1.0
963-967	11.4	1.0
967-971	11.4	1.0
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979-983	11.4	1.0
983-987	11.4	1.0
987-991	11.4	1.0
991-995	11.4	1.0
995-999	11.4	1.0
999-1003	11.4	1.0
1003-1007	11.4	1.0
1007-1011	11.4	1.0
1011-1015	11.4	1.0
1015-1019	11.4	1.0
1019-1023	11.4	1.0
1023-1027	11.4	1.0
1027-1031	11.4	1.0
1031-1035	11.4	1.0
1035-1039	11.4	1.0
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1063-1067	11.4	1.0
1067-1071	11.4	1.0
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1075-1079	11.4	1.0
1079-1083	11.4	1.0
1083-1087	11.4	1.0
1087-1091	11.4	1.0
1091-1095	11.4	1.0
1095-1099	11.4	1.0
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1103-1107	11.4	1.0
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1111-1115	11.4	1.0
1115-1119	11.4	1.0
1119-1123	11.4	1.0
1123-1127	11.4	1.0
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1143-1147	11.4	1.0
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1191-1195	11.4	1.0
1195-1199	11.4	1.0
1199-1203	11.4	1.0
1203-1207	11.4	1.0
1207-1211	11.4	1.0
1211-1215	11.4	1.0
1215-1219	11.4	1.0
1219-1223	11.4	1.0
1223-1227	11.4	1.0
1227-1231	11.4	1.0
1231-1235	11.4	1.0
1235-1239	11.4	1.0
1239-1243	11.4	1.0
1243-1247	11.4	1.0
1247-1251	11.4	1.0
1251-1255	11.4	1.0
1255-1259	11.4	1.0
1259-1263	11.4	1.0
1263-1267	11.4	1.0
1267-1271	11.4	1.0
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1279-1283	11.4	1.0
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1287-1291	11.4	1.0
1291-1295	11.4	1.0
1295-1299	11.4	1.0
1299-1303	11.4	1.0
1303-1307	11.4	1.0
1307-13		

Section through DDH 5-4 & B.S. #6

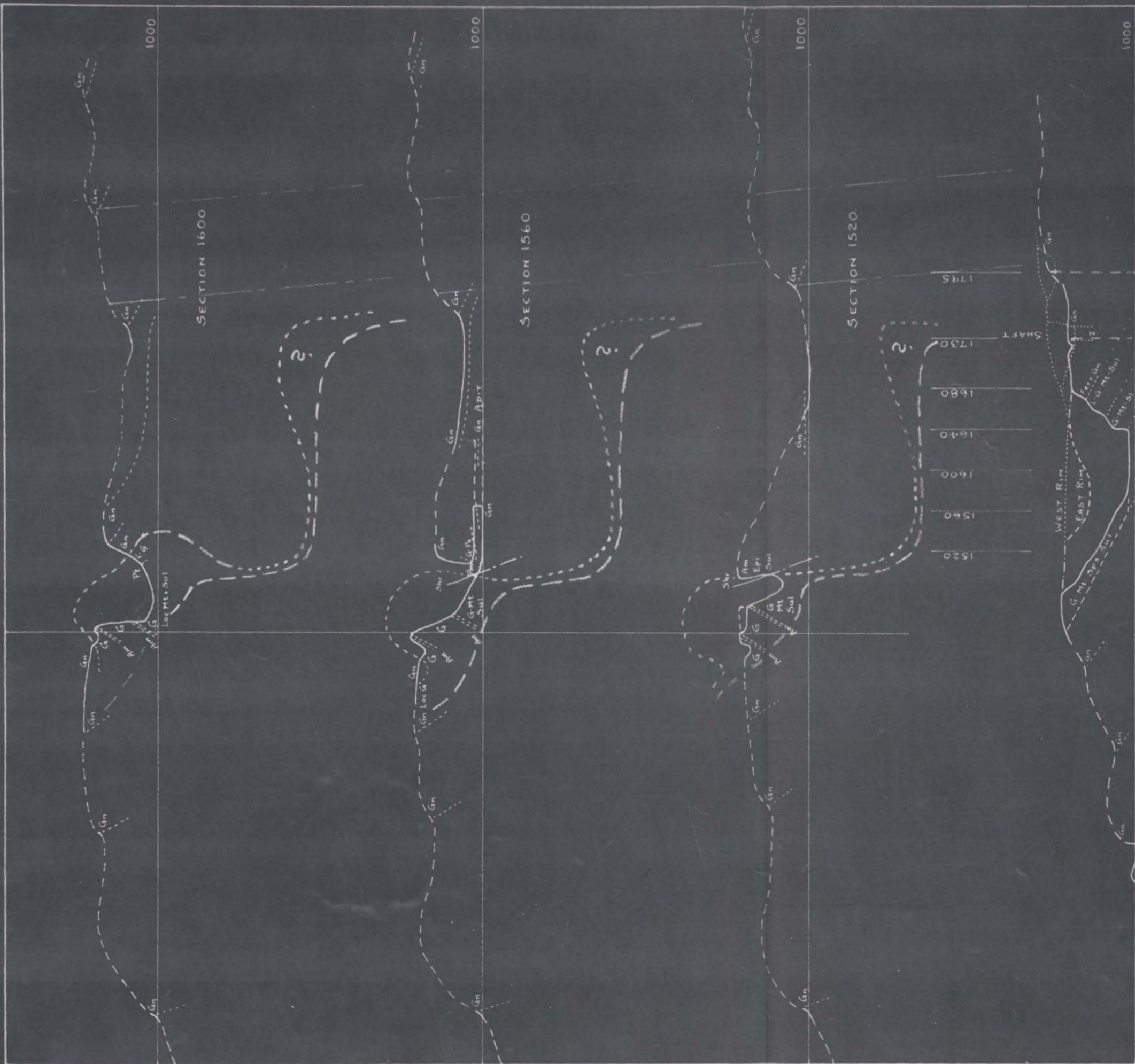


ORE IN BLUE

Elev. 750

B.S. #2
Almost entirely in gneiss

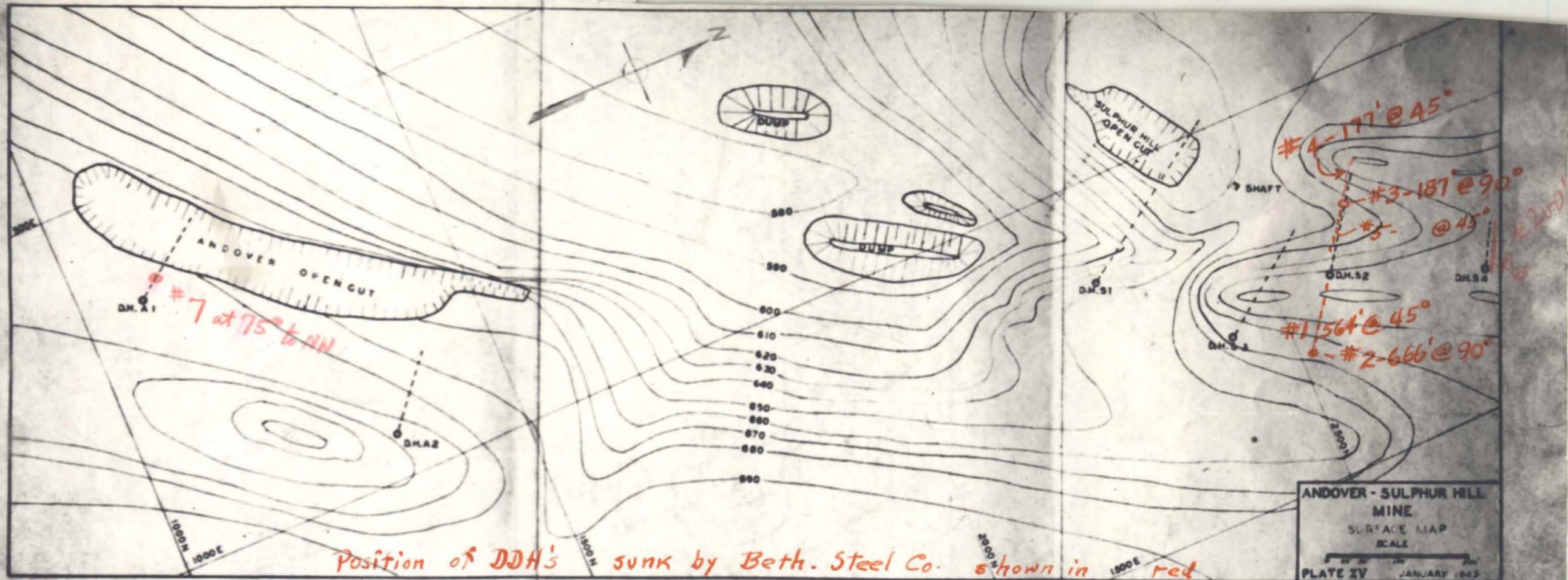
666'



LONGITUDINAL SECTION
AND PROJECTION
SULPHUR HILL MINE

SECTIONS LOOK NE

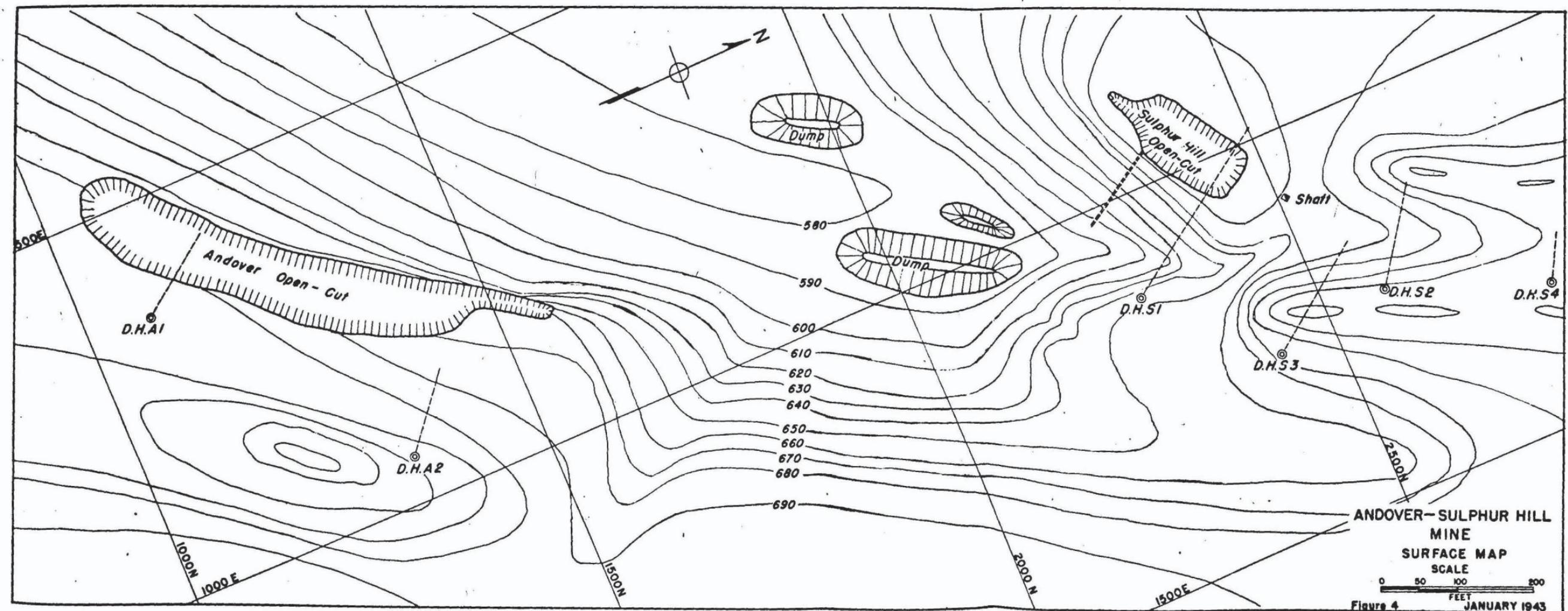
DATE Nov. 1941	SCALE 1" = 100'
ANDOVER MINE GEOLOGICAL SECTIONS THRU SULPHUR HILL ANDOVER, SUSSEX CO., NEW JERSEY	
THE NEW JERSEY ZINC CO.	
DR: A.W.P.	69-X-388
TR: A.W.P.	



Position of DDH's sunk by Beth. Steel Co. shown in red

ANDOVER - SULPHUR HILL
MINE
SURFACE MAP
SCALE
0 20 40 60
PLATE IV JANUARY 1943

52
309
22



ANDOVER-SULPHUR HILL MINE
SURFACE MAP
 SCALE
 0 50 100 200
 FEET
 Figure 4
 JANUARY 1943

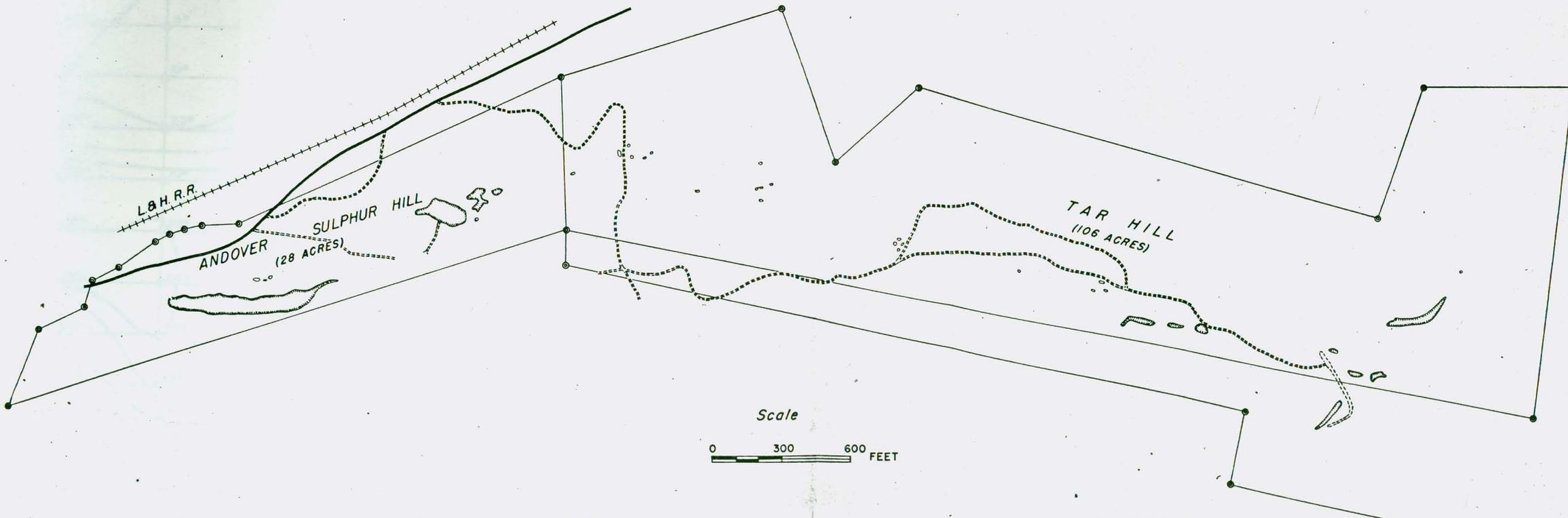
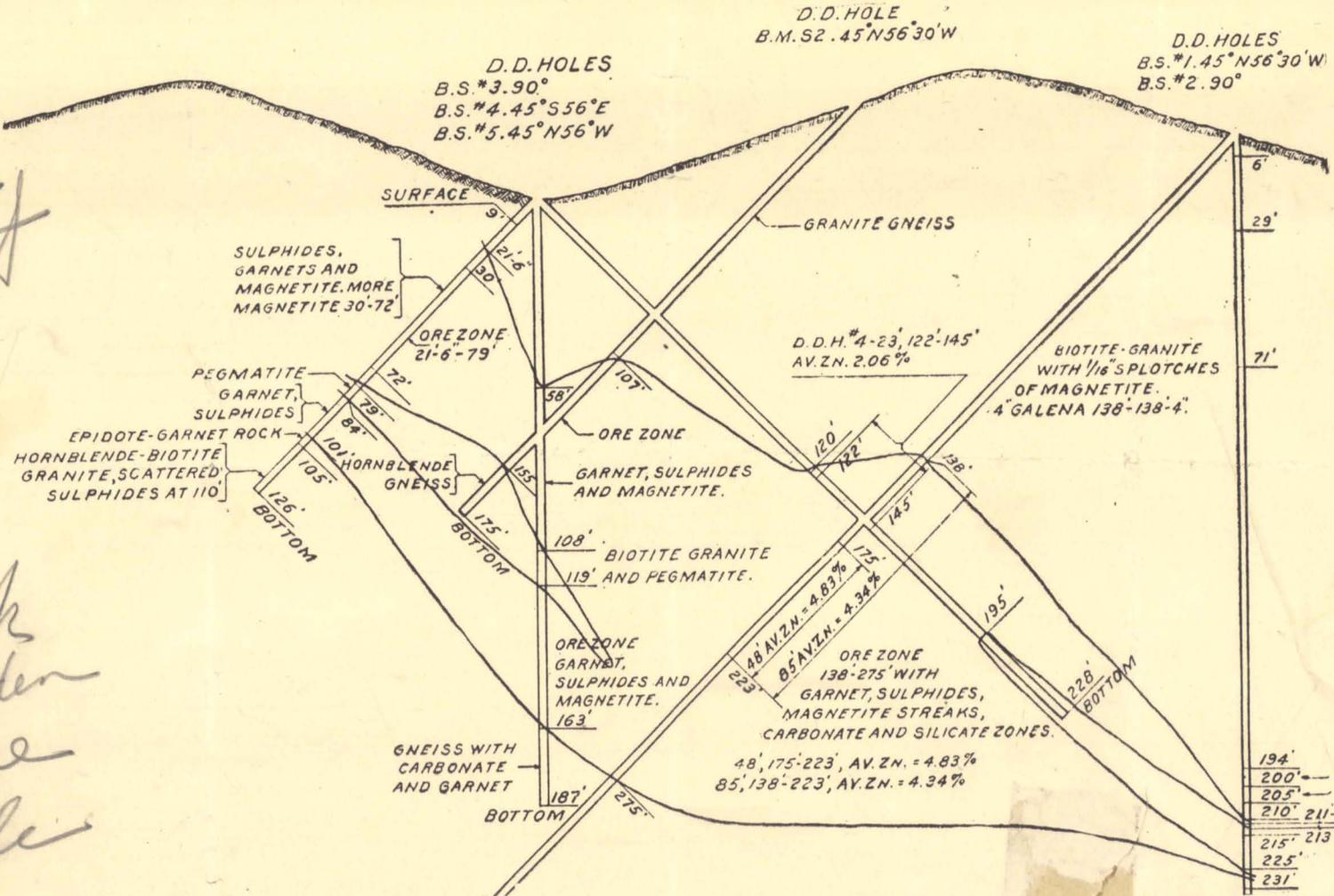


Figure 2.— CLAIM MAP, ANDOVER —SULPHUR AND TAR HILL MINES, NEW JERSEY.

Have Howard J. Hewitt, New Jersey's Greatest Prospector, Prospect Your Mines, Lands And Farms For Minerals To Help Win The War.

Diamond Core Drilling Test, Cross Section of the Andover Sulphur Hill Zinc Discovery, a Small Zinc Mine.



See Visit

Rock Garden Stone Sale

RECEIVED
MAY 31 1949
Department of Conservation
DHE. - F. & P. H. S.

Watch Indian Mine ?? Prospect

Watch the Cranberry Lake Iron Prospect

Watch the Broadway Mica Prospect

Have you a good prospect on your land?

Consult

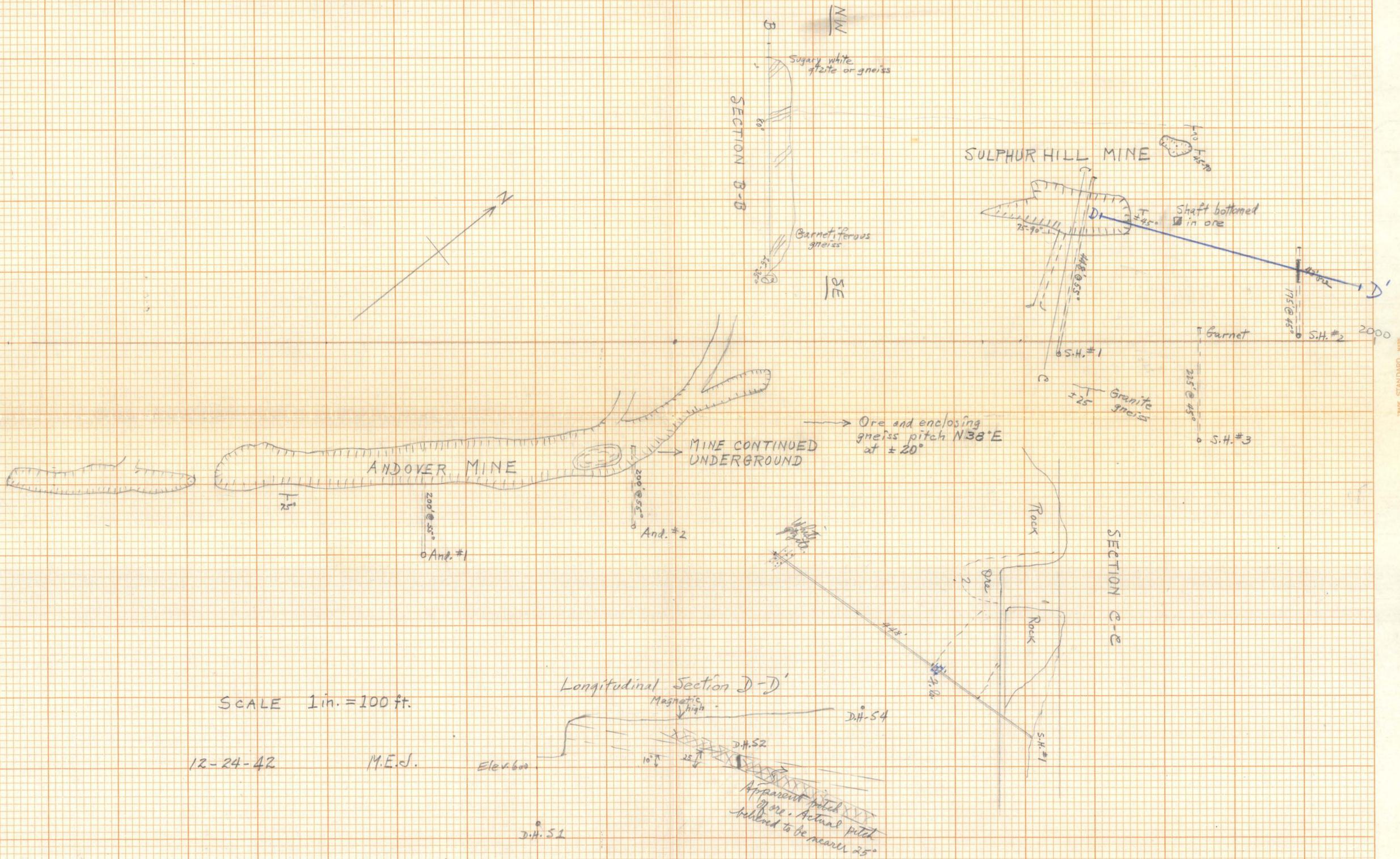
Howard J. Hewitt, Prospector

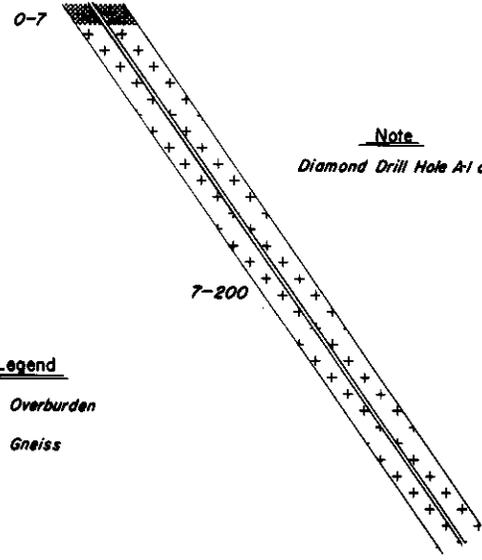
Indian Mine, Lafayette, N. J.

142 Carroll St., Paterson, N. J.

Phone Lambert 5-1546

SKETCH MAP OF ANDOVER AND SULPHUR HILL MINES





Note
Diamond Drill Hole A-1 and A-2

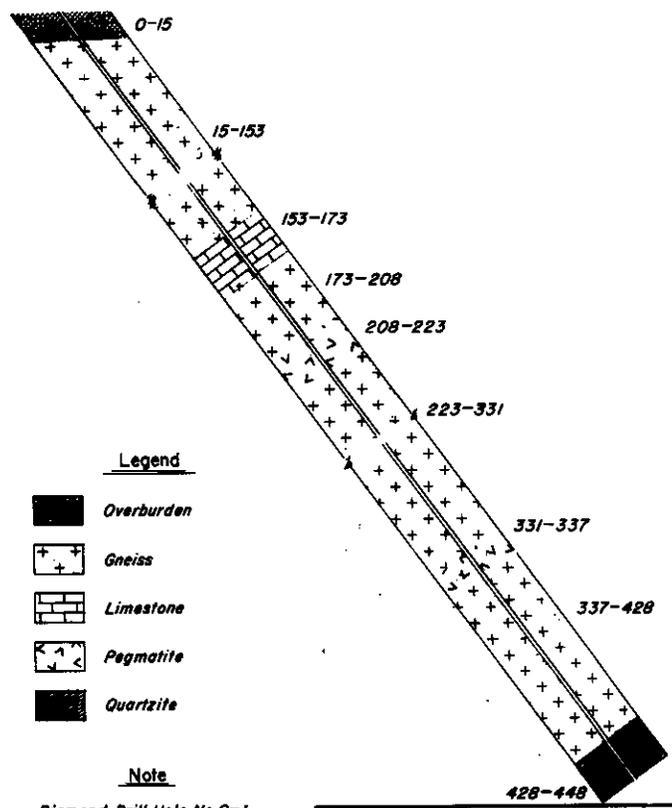
Legend
 Overburden
 Gneiss

U. S. DEPARTMENT OF THE INTERIOR
 BUREAU OF MINES
 FACTUAL DATA FOR ANDOVER-SULPHUR HILL
 MINE
 SCALE

 0 30 60 FEET
 PROJ. ENG. _____ DISTRICT ENG. _____
 DATE _____ PROJECT 1581 MAP No. 2

4597

300020415 14.5.1 300844



Legend

-  Overburden
-  Gneiss
-  Limestone
-  Pegmatite
-  Quartzite

Note

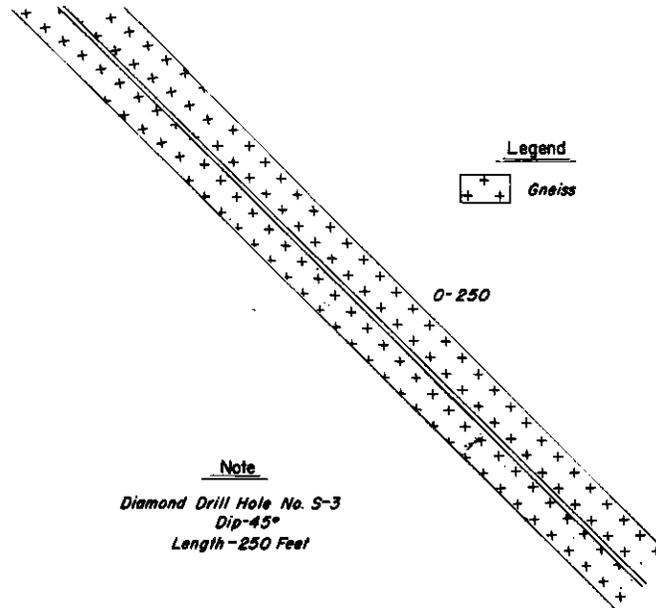
Diamond Drill Hole No. S-1
 Dip-55°
 Length -448 Feet

U. S. DEPARTMENT OF THE INTERIOR
 BUREAU OF MINES
 FACTUAL DATA FOR ANDOVER-SULPHUR HILL
 MINE

SCALE
 0 40 80
 FEET

PROJ. ENG. _____ DISTRICT ENG. _____
 DATE _____ PROJECT 1581 MAP No. 3

30002 | 416 | 14.5.1 | 300845



U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

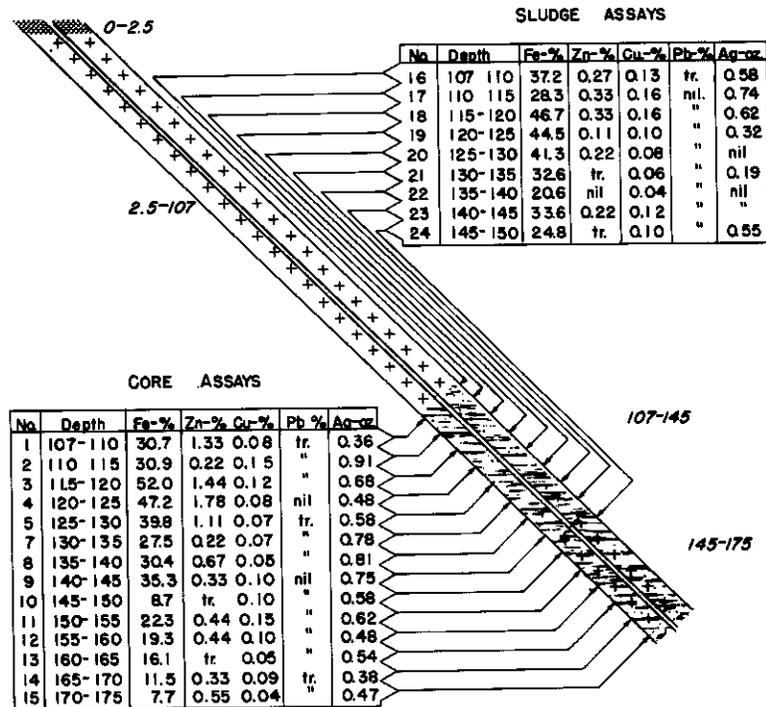
FACTUAL DATA FOR ANDOVER-SULPHUR HILL
MINE

SCALE
0 30 60 FEET

PROJ. ENG. _____ DISTRICT ENG. _____

DATE _____ PROJECT 1581 MAP No. 5

300020418 || 14.5.1 300847



Legend

- Gneiss**
- Magnetite Ore**
- Gneiss-with some magnetite and garnet**
- Overburden**

Diamond Drill Hole No. S-2

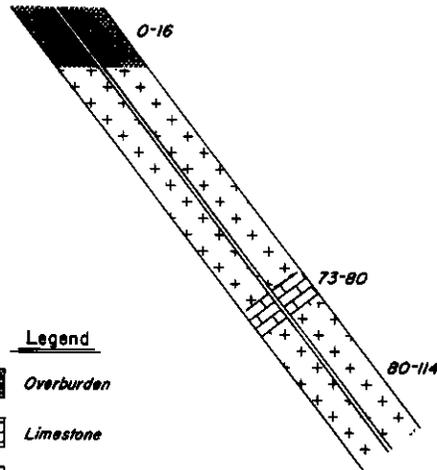
U. S. DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

FACTUAL DATA FOR ANDOVER-SULPHUR HILL MINE

SCALE
0 20 40
FEET

PROJ. ENG. _____ DISTRICT ENG. _____
DATE _____ PROJECT 1581 MAP No. 4

30002 417 14.5.1 300846



Legend

-  Overburden
-  Limestone
-  Gneiss

Note

Diamond Drill Hole No. 5-4
 Dip-55°
 Length-114 Feet

542

U. S. DEPARTMENT OF THE INTERIOR
 BUREAU OF MINES

FACTUAL DATA FOR ANDOVER-SULPHUR HILL
 MINE

SCALE
 0 20 40
 FEET

PROJ. ENG. _____ DISTRICT ENG. _____

DATE _____ PROJECT 1581 MAP No. 6

300021419 14.5.1 300848