

County PUTNAM
 T 16 N R 5 W
 Sec NE, SE and NW, SE 8
 Other Survey
 Plant is located in the SE SE sec.
 5, t. 16N., R. 5 W.

Quarry or Pit Core Dim Other
 Name Russellville Quarry
 Former Names

 Operator Russellville Stone Company
 Former Operators

COAL AND INDUSTRIAL MINERALS SECTION
 INDIANA GEOLOGICAL SURVEY
 DEPARTMENT OF NATURAL RESOURCES
 611 NORTH WALNUT GROVE
 BLOOMINGTON, INDIANA 47401

MEMORANDUM REPORTS BY:

Name	Date
1 G. E. Erickson	August 9, 1947
2 D. J. McGregor	August 11, 1953
3 N. M. Smith	March 31 and April 7, 1954
4 L. F. Rooney	April 17, 1963
5 D. D. Carr	June 22, 1966
6
7
8
9
10

REMARKS

Chemical analyses, 8½ x 11" map
 Chemical analyses
 Chemical analyses

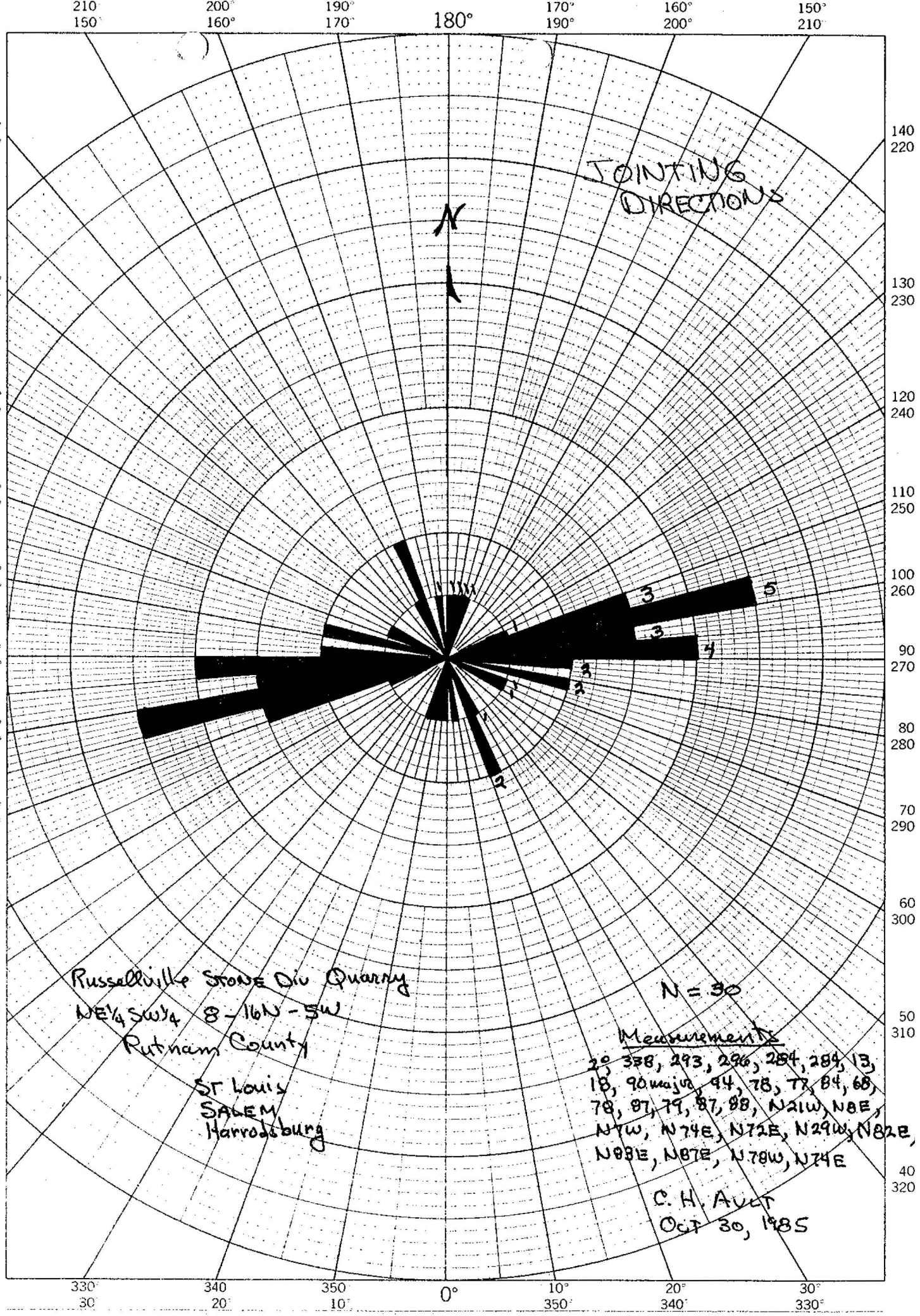
Russellville Stone Company
 Location NE $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 8, T.16 N., R.5 W.
 Putnam County
 by Donald D. Carr
 June 22, 1966

Unit	Description	Thick- ness	Sample
17	Soil and glacial drift	18.0	
	St. Louis Limestone		
16	Limestone: siltstone and shale, interbedded limestone in thin to thick beds compose about 80% of unit. Limestone is light brown or yellow brown, micritic and detrital. Shale and siltstone are light green and brown.	20.5	
15	Shale; black, fissle, even bedded, distinct.	0.7	
14	Limestone: brownish gray, detrital-micritic; even bedded, upper part of unit contains finely laminated argillaceous layers	0.8	DC66-0081
13	Limestone, brownish gray, micritic, silty, thick bedded, chert present as nodules and thin lenses. Top of unit is wavy and has thin black shale.	4.9	DC66-0082
	(ledge)		
12	Limestone, grayish-brown, detrital-micritic, thick bedded, chert is present as nodules and thin lenses near middle of unit. Lower part contains very thin laminae of argillaceous material.	3.1	DC66-0083
	Total thickness of St. Louis Limestone exposed.	30.0	
	Salem Limestone		
11	Limestone, brown, micritic, medium bedding, tabular, parallel, thin gray shale near middle of unit. Top of unit contains a thin gray shale.	1.3	DC66-0084
10	Limestone: grayish-brown, mottled yellow brown detrital-micritic, thick bedded. Upper surface of unit marked by a thin gray shale. Lower part of unit is brecciated.	1.1	DC66-0085
9	Limestone: very light gray, micritic, contains a large amount of silt and very fine clear quartz sand grains. Upper surface wavy. Thickness irregular.	1.9	DC66-0086
8	Limestone: brown and gray brown mottled, micritic with considerable amounts of silt and shale, rubbly; irregular in thickness and in part gradational with overlying unit.	1.4	DC66-0087
7	Limestone: brown, micritic, very finely laminated. Upper part becomes clastic with clasts ranging in size from sand to pebbles. Very thin calcite stringers common.	0.6	DC66-0088
6	Sandstone, light gray, calcareous, thin irregular laminations, pyrite common, argillaceous near top of unit; uneven in thickness.	0.3	DC66-0089

5	Limestone: gray, detrital, contains considerable amount of very fine clear quartz grains; thick-bedded.	4.0	DC66-0090
	Total thickness of Salem Limestone	10.6	
	Harrodsburg Limestone		
4	Shale: black, slaty, slightly calcareous.	0.1	DC66-0091
3	Limestone: light brown, pelletal and micritic, thick bedded becoming medium bedded near top.	7.1	DC66-0092
2	Limestone: light brown skeletal, and partly pelletal, medium even beds, distinct. Top of unit has thin gray shale less than 0.1'	4.2	DC66-0093
1	Limestone: dark gray brown, detrital, very coarse, medium bedded, uneven tabular beds, distinct, many beds have very thin argillaceous laminations; thin interbeds of shale are common. Top of unit forms a prominent line along quarry wall.	9.7	DC66-0094
	Total thickness of Harrodsburg Ls. exposed	21.1	

46 4410

K&E POLAR CO-ORDINATE
KENNELL & ESSER CO. MADE IN U.S.A.



Russellville Stone Company
Russellville, Putnam County

MEMORANDUM REPORT

by

Donald D. Carr

Field Examinations

D. D. Carr	June 22, 1966
L. Rooney	April 17, 1963
N. Smith	April 7, 1954
D. McGregor	Aug. 11, 1953
G. Erickson	Aug. 9, 1947

Location

Plant: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 5, T.16N., R.5W.
Quarry: NE $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 8, T.16N., R.5W.

Officers

Harold C. Gorman, president
Mr. Bouton, office manager
Bryan Zuerner, quarry superintendent
Andy Gross, plant superintendent

Operation

The overburden is stripped and used to fill the eastern part of the quarry. The section that was originally described by Erickson appears to have been covered by this fill.

The stone is blasted in a 35 foot face and hauled by truck to the plant, about $\frac{1}{2}$ mile north of the quarry.

Plant capacity is about 2000 tons per day.

Transportation

About 95% of their sales are carried by truck. They transport a small amount of agricultural limestone into Illinois on the Baltimore and Ohio Railroad.

MEMORANDUM REPORT BY DUNCAN J. MC GREGOR

RUSSELLVILLE STONE COMPANY PLANT AND QUARRY NEAR RUSSELLVILLE,
PUTNAM COUNTY

Date of field examination. -- August 11, 1953.

Location. -- The plant is located on the eastern edge of Russellville.

The quarry is located one-half mile south of the plant and in the ~~SE 1/4~~ ^{NE 1/4 SW 1/4} sec. 8, T. 16 N., R. 5 W.

Geology. -- It appears the geology of this quarry is not too well understood. Erickson (1947) suggests the exposure is Harrodsburg limestone. Others are of the opinion that the section may be St. Louis. The rock exposed lacks any apparent bedding. Horizontally, the bedding planes may often intersect. Thus the section between respective bedding planes shows thickening and thinning of a unit over very short distances. Such rock characteristics cause a very uneven floor for quarry operations. The Russellville quarry is a typical example. Quarries in which the Harrodsburg limestone is quarried, all exhibit this irregular feature. Whether such evidence is a valid criteria is questionable. From lithology and general physical rock characteristics, the rock is probably Harrodsburg.

^{St. Louis, la.}
Chip sample Mc53-78 includes Erickson's units 1 through 5. Chip sample Mc53-79 includes Erickson's units 6 through 10.

Equipment. -- New equipment in use include a No. 20B Telesmith primary crusher, a 4-foot Symons cone first reduction crusher, a 4-foot Symons cone short head crusher, a 36 x 36 Diamond ^{out} hammer mill, a 30-32 Cedar Rapids ^{out} hammer mill, 2 wagon drills, a 2-yard ^{Porain} ~~Bucyrus~~ shovel, a 1 1/3-yard ^{over} stripping shovel, a 3/4-yard ^{out} stock shovel, and 5 Euclid 15-yard trucks.

Operation. -- The overburden, 11 to 25 feet, is stripped to expose the rock. Quarry operations now expose a 34-foot face.

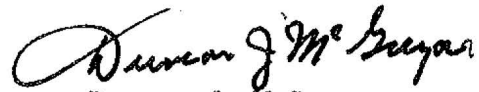
replaced
by 5/19/54

Production. -- Production has dropped off from that of a year ago.
Agricultural limestone sales account for much of the decrease in sales.

References cited. --

Ericksen, George E. (1947) Russellville Stone Company Plant and Quarry near Russellville, Putnam County, Indiana. Indiana Dept. Cons. Div. Geology unpublished memorandum report, 4 pp.

Respectfully submitted,


Duncan J. McGregor,
Party Chief

M080671

Crawfordsville, Indiana
August 11, 1947

MEMORANDUM REPORT BY GEORGE E. ERICKSEN

RUSSELVILLE STONE COMPANY PLANT AND QUARRY NEAR RUSSELVILLE, PUTNAM
COUNTY, INDIANA

Date of field examination. August 9, 1947.

Log
Location. The quarry is 1/2 mile south of Russelville, in the NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 16 N., R. 5 W. The plant is 1/2 mile north of the quarry, near the southeast edge of Russelville, and in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 5, T. 16 N., R. 5 W. Rock from the quarry is trucked 1/2 mile over graveled roads to the plant. Production was started in February 1947 and the quarry is small. Elevation of the quarry floor is 777 feet. See accompanying map.

Products. The plant produces crushed stone and agricultural lime. Most of the rock is sold locally and shipping is by truck. Some agricultural lime is shipped to Illinois on the Baltimore and Ohio Railroad.

Plant. Mr. H. C. Gorman, manager, furnished information on plant and quarry operation.

The plant is powered by diesel motors and electricity. The company would use all electricity but the local power company could not meet their needs. Five crushers are operated: 25" X 40" primary jaw crusher, 30" X 30" Holland impact crusher, set of 54" rolls, and two hammer mills. Various sizes of rock are separated with screens. The crushed stone is not washed but the company plans to install washing equipment as soon as it is available. The plant is rated at 100 tons per hour and 200,000 tons per year. The plant is expected to operate all year around. The company employs 20-25 men.

Geology. The rock exposed in the quarry probably is Mississippian, Harrodsburg limestone. The limestone is gray, hard, lithographic and crystalline, and thick and thin bedded. Fossils are not common, only the following were observed: Brachiopods, Fenestellid bryozoa, Syringopora, and crinoid stems. A chert bed is exposed near the edge of the pond in the north end of the quarry. The chert is about 2 feet thick and consists of light and dark bands which form irregular patterns of rings and folds. A thin zone of chert nodules occurs in the upper quarry wall.

St Louis /s
WES

Beds appear to be horizontal but probably are dipping gently to the west. The rock is broken by many curved fractures and joints. Most of the limestone breaks with conchoidal fracture. The surface rock exposed in the stripped area, is marked by many fine glacial striae which strike N. 38° E.

The geologic map of Indiana shows the rock in this area to be Harrodsburg limestone. No further information is available.

Hopkins and Siebenthal (1897) named the Harrodsburg limestone from exposures near Harrodsburg, Monroe County, Indiana. At the type section the limestone is coarse, crinoidal, crystalline, and fossiliferous and contains numerous geodes. The limestone in the Russelville quarry contains few fossils and no geodes.

The following section was measured in the wall at the north end of the quarry.

Section in Russelville quarry

	Feet	Inches
11. Pleistocene glacial drift at west side of stripped area.....	13	(est.)
10. Gray, fine grained, medium to thick bedded, oolitic limestone with many small masses of pyrite crystals; RS47245.....	2	1
9. Blue-gray, very fine grained, thin irregular bedded limestone with few small masses of pyrite; RS47244.....	2	4
8. Gray, fine grained, massive, thick bedded limestone; at 7 in. and 1 ft. above base are thin irregular bands of white chert nodules which are elongate in direction of bedding; RS47242-47243.....	2	8
7. Gray, lithographic, thin and medium bedded limestone with few thin, drab shale partings; RS47241.....	1	8
6. Gray, crystalline, oolitic, faintly banded, thick bedded limestone; RS47240.....	2	2
5. Shattered glassy quartz with few fragments of gray limestone; thin, drab shale partings at top and bottom of unit; RS47239.....		3
4. Light-gray, oolitic, medium bedded limestone with a few 1-3 mm. masses of white crystalline quartz; few irregular masses of dark-gray limestone; RS47238.....	1	11
3. Gray, lithographic, banded, wavy bedded, slightly brecciated limestone; few thin shale		

see Patton's Thesis
pp. 302-3.

St. Louis ls.

St. Louis ls.
NHS

m^c 53-77
11.0'

	Feet	Inches
partings in upper part; RS47237.....	2	
2. Light- and dark-gray, fine grained, massive limestone containing rounded grains of quartz sand; RS47236.....	1	
3ale m? 1. Gray, crystalline, massive limestone; RS47234-47235.....	4	8
Thickness of Harrodsburg exposed.....	20 ft.	9 in.

replaced
by S1954
M63-78
7.8'

Mining operations. The company core drilled the property before opening the quarry. The overburden removed from the present quarry site averaged 9 feet in thickness. Stripping was contracted. West of the quarry the overburden is as much as 15 feet thick. The limestone is mined to a depth of about 21 feet. Blasting is done in vertical wagon-drill holes spaced about 5 feet apart and 10 feet in back of the quarry face. The rock breaks well and only a few boulders have to be blasted. The broken rock is loaded into dump trucks with a 3/4-yard diesel shovel, and hauled 1/2 mile to the plant. One shovel and four dump trucks are operated. Springs drain into the quarry and the water is pumped out over the east wall.

When the quarry is larger, the company plans to strip the chert bed from the floor and mine 14 feet of stone below present quarry level.

Estimate of reserves. Approximately 85,000 tons have been mined since February 1947. The stripped area should contain at least 200,000 tons, indicated ore. The quarry will be extended southward and westward, there should be at least 1,000,000 tons, estimated ore, readily accessible. If the overburden does not become excessive west of the quarry, there may be several million tons in this area.

Respectfully submitted,

George E. Ericksen

George E. Ericksen
Geologist

Hopkins, T. C. and Siebenthal, C. E. (1897) The Bedford Oolitic limestone of Indiana, 21st. Indiana Report, pp. 291-427.

Russellville Stone Company Plant and Quarry near Russellville, Putnam County, Indiana

Date of field examination - August 9, 1947

NW¼SE¼ sec. 8, T. 16 N., R. 5 W.

by George E. Ericksen

777 elev

Unit	Description	Feet	Inches	Sample
11	Pleistocene glacial drift at west side of stripped area	13		
10	Gray, fine grained, medium to thick bedded, oolitic limestone with many small masses of pyrite crystals	2	1	RS47-0245
9	Blue-gray, very fine grained, thin irregular bedded limestone with few small masses of pyrite	2	4	RS47-0244
8	Gray, fine grained, massive, thick bedded limestone; at 7 in. and 1 ft. above base are thin irregular bands of white chert nodules which are elongate in direction of bedding;	2	8	RS47-0243
8	Gray, fine grained, massive, thick bedded limestone; at 7 in. and 1 ft. above base are thin irregular bands of white chert nodules which are elongate in direction of bedding;			RS47-0242
7	Gray, lithographic, thin and medium bedded limestone with few thin, drab shale partings	1	8	RS47-0241
6	Gray, crystalline, oolitic, faintly banded, thick bedded limestone;	2	2	RS47-0240
5	Shattered glassy quartz with few fragments of gray limestone; thin, drab shale partings at top and bottom of unit		3	RS47-0239
4	Light-gray, oolitic, medium bedded limestone with a few 1-3 mm. masses of white crystalline quartz; few irregular masses of dark-gray limestone	1	11	RS47-0238
3	Gray, lithographic, banded, wavy bedded, slightly brecciated limestone; few thin shale partings in upper part	2		RS47-0237
2	Light- and dark-gray, fine grained, massive limestone containing rounded grains of quartz sand	1		RS47-0236
1	Gray, crystalline, massive limestone	4	8	RS47-0235
1	Gray, crystalline, massive limestone			RS47-0234
	Thickness of Harrodsburg exposed	20	9	

INDIANA GEOLOGICAL SURVEY
SPECTROCHEMICAL ANALYSES
(IN PERCENT)
RUSSELLVILLE STONE COMPANY
NE SW AND NW SE SEC. 8, T. 16 N., R. 5 W.
PUTNAM COUNTY

RU/SAMPLE NO	THICK	CAC03	MGC03	SI02	AL203	FE203	TIO2	MNO	CALC CO2	CHEM CO2	LOI	S	P205
POST PALEOZOIC, SOIL													
	18.0												
ST. LOUIS													
	20.5												
	.7												
DC66-81	.8	88.5	1.20	7.29	1.27	.60	.083	.034	39.5	39.8		.19	.013
DC66-82	4.9	66.1	10.3	16.6	3.09	1.68	.20	.044	34.5	34.3		.16	.011
DC66-83	3.1	85.2	1.66	11.4	.53	.63	.051	.037	38.3	37.4		.16	.012
SALEM													
DC66-84	1.3	93.6	1.10	3.87	.48	.37	.048	.041	41.8	41.9		.048	.014
DC66-85	1.1	79.9	11.2	6.23	.83	1.27	.076	.040	41.0	40.6		.22	.033
DC66-86	1.9	60.9	20.8	13.6	1.65	1.81	.22	.053	37.7	37.2		.16	.041
DC66-87	1.4	90.0	1.11	5.73	1.37	.45	.081	.24	40.2	39.8		.13	.019
DC66-88	.6	72.2	19.6	4.22	.65	2.62	.050	.068	42.0	42.0		.069	.020
DC66-89	.3	40.2	23.0	30.8	1.48	3.32	.11	.060	29.7	30.7		1.42	.028
DC66-90	4.0	63.8	18.0	13.1	1.93	1.90	.20	.039	37.5	37.0		.49	.060
HARRODSBURG													
DC66-91	.1									3.6		1.10	.025
DC66-92	7.1	92.9	.60	5.97	.080	.27		.028	41.2	42.1		.041	.061
DC66-93	4.2	91.1	1.20	6.29	.66	.49	.050	.029	40.7	41.5		.082	.078
DC66-94	9.7	87.0	1.13	8.57	1.44	.72	.086	.030	38.9	38.9		.26	.066

Russellville Stone Company
Russellville, Putnam County

MEMORANDUM REPORT

by

Donald D. Carr

Field Examinations

D. D. Carr	June 22, 1966
L. Rooney	April 17, 1963
N. Smith	April 7, 1954
D. McGregor	Aug. 11, 1953
G. Erickson	Aug. 9, 1947

Location

Plant: $SE\frac{1}{4}$ $SE\frac{1}{4}$ Sec. 5, T.16N., R.5W.
Quarry: $NE\frac{1}{4}$ $SW\frac{1}{4}$ and $NW\frac{1}{4}$ $SE\frac{1}{4}$ Sec. 8, T.16N., R.5W.

Officers

Harold C. Gorman, president
Mr. Bouton, office manager
Bryan Zuerner, quarry superintendent
Andy Gross, plant superintendent

Operation

The overburden is stripped and used to fill the eastern part of the quarry. The section that was originally described by Erickson appears to have been covered by this fill.

The stone is blasted in a 35 foot face and hauled by truck to the plant, about $\frac{1}{2}$ mile north of the quarry.

Plant capacity is about 2000 tons per day.

Transportation

About 95% of their sales are carried by truck. They transport a small amount of agricultural limestone into Illinois on the Baltimore and Ohio Railroad.

Spectrochemical Analyses
Russellville Stone Co.

Putnam County

NE $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 8, T. 16N., R. 5W.

[illegible]

MEMORANDUM REPORT BY LAWRENCE F. ROONEY

RUSSELLVILLE STONE COMPANY PLANT AND QUARRY NEAR RUSSELLVILLE, PUTNAM COUNTYDate of field examination.--April 17, 1963

The purpose of this visit was to meet the operator and have a quick look at the quarry. Most of our information was obtained from Bryan Zuerner, superintendent. *+ Harold Corman, pres?*

Additional equipment.--Two 36x36 Pennsylvanian hammer mills, one track air drill (3"), a 2½ yard Northwest shovel, a 600 foot Ingersoll-Rand air compressor, a 3 yard front-end Hough loader, a 2 yard front end Hough loader, and a D-7 caterpillar.

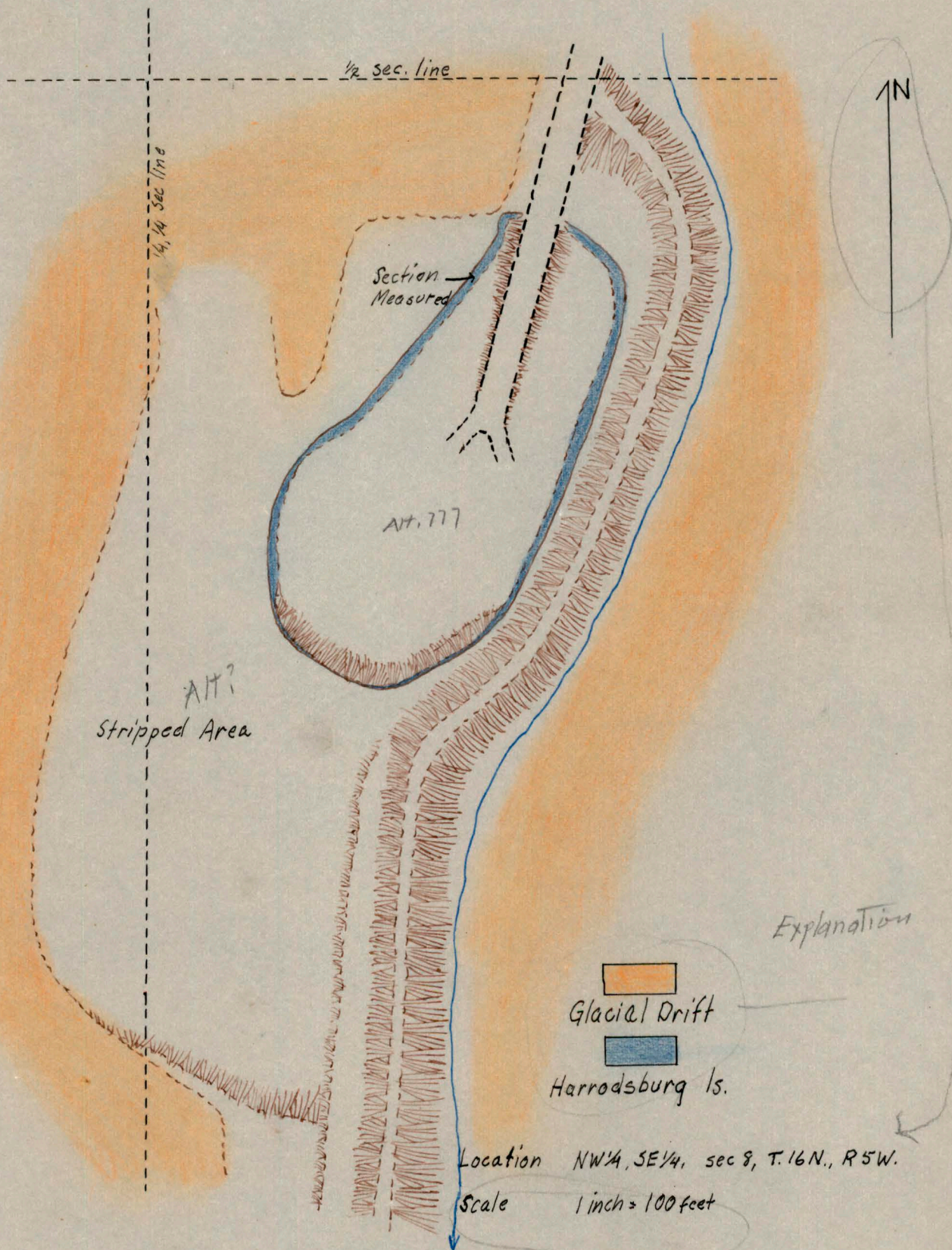
Geology.--The following section is exposed in the quarry.

<u>Unit</u>	<u>Description</u>	<u>Estimated thickness</u>
	Drift - large slabs of St. Louis turned up on end in drift	20
	St. Louis	
4	Limestone, dolomite and shale - interbedded. Six to 10 inch beds. Limestone is deep maroon, fine grain, cherty or yellow-brown, silty (total unit stripped with drift)	15
	St. Louis or Salem	
3	Limestone - massive beds - not closely examined. With a 1 to 2-foot bed of dolomitic limestone at base that grades laterally to shale.	8
	Salem?	
2	Limestone - gray, fine-grained massive, microfoss, even bedding with large elliptical chert nodules in lower part.	10
	Harrodsburg	
1	Limestone - dark gray, fine- to medium-grained, argillaceous at base.	12
	Total exposed bedrock	45

Below the floor of the quarry, 10 feet of brown pinky limestone overlies over 100 feet of blue shale. The limestone at the base of the exposed ledge is too soft for good aggregate.

We had difficulty with correlating the exposed section with the previously measured sections but believe the St. Louis, Salem and Harrodsburg to be present.

SKETCH MAP OF RUSSELLVILLE STONE CO.



mapped
Date August 9, 1947

Mapped by R.H. Stewart

SPECTROCHEMICAL ANALYSES OF THE RUSSELLVILLE STONE COMPANY PLANT AND QUARRY NEAR RUSSELLVILLE, PUTNAM COUNTY

[illegible]

MEMORANDUM REPORT BY LAWRENCE F. ROONEY

LONE STAR CEMENT CORPORATION PLANT AND QUARRY NEAR LIMEDALE, PUTNAM COUNTY

Date of field examination.---April 16, 1963

Jack Sunderman and I toured the quarry with Mr. Coppinger, general manager. It has not been deepened since the last sampling. The quarry produces about 700,000 tons of stone per year, 15 percent of which is clay and shale. Two shales occur in the upper part of the quarry. The upper one is stripped. The lower is shot and blended. All the shale is used in the plant and one-third of the total shale used has to be purchased from a strip mine south of Brazil. Part of the clay in the overburden is used.

The total proved reserves are about 28 million tons, enough to last about 40 years. About 2-3/4 acres of stone per year are consumed. In 1955 a fourth kiln was added.

A former chief chemist, John Knight, prepared a lengthy report with numerous cross-sections based on 136 cores taken in the quarry.

If a new lengthy core is taken, we shall be consulted.

QUARRY SECTION

Name Russellville Stone Company

Location NE $\frac{1}{4}$ SW $\frac{1}{4}$ and NW $\frac{1}{4}$ SE $\frac{1}{4}$ Sec. 8, T.16N., R.5W.

<u>Unit</u>	<u>Description</u>	<u>Thickness</u>	<u>Sample No.</u>
17	Soil and glacial drift	18	
	<u>St. Louis Limestone</u>		
16	Limestone: siltstone and shale, interbedded Limestone in thin to thick beds compose about 80% of unit. Limestone is light brown or yellow brown, micritic and detrital. Shale and siltstone are light green and brown.	20.5	
15	Shale; black, fissile, even bedded, distinct.	0.7	
14	Limestone; brownish gray, detrital-micritic; even bedded, upper part of unit contains finely laminated argillaceous layers	0.8	DC 66-81
13	Limestone, brownish gray, micritic, silty, thick bedded, chert present as nodules and thin lenses. Top of unit is wavy and has thin black shale. (ledge)	4.9	DC 66-82
12	Limestone, grayish-brown, detrital-micritic, thick bedded, chert is present as nodules and thin lenses near middle of unit. Lower part contains very thin laminae of argillaceous material.	3.1	DC 66-83
	Total thickness of St. Louis Limestone exposed.	30.0	
	<u>Salem Limestone</u>		
11	Limestone, brown, micritic, medium bedding, tabular, parallel, thin gray shale near middle of unit. Top of unit contains a thin gray shale.	1.3	DC 66-84

<u>Unit</u>	<u>Description</u>	<u>Thickness</u>	<u>Sample No.</u>
10	Limestone: grayish-brown, mottled yellow brown detrital-micritic, thick bedded. Upper surface of unit marked by a thin gray shale. Lower part of unit is brecciated.	1.1	DC 66-85
9	Limestone: very light gray, micritic, contains a large amount of silt and very fine clear quartz sand grains. Upper surface wavy. Thickness irregular.	1.9	DC 66-86
8	Limestone: brown and gray brown mottled, micritic, with considerable amounts of silt and shale, rubbly; irregular in thickness and in part gradational with overlying unit.	1.4	DC 66-87
7	Limestone: brown, micritic, very finely laminated. Upper part becomes clastic with clasts ranging in size from sand to pebbles. Very thin calcite stringers common.	0.6	DC 66-88
6	Sandstone, light gray, calcareous, thin irregular laminations, pyrite common, argillaceous near top of unit; uneven in thickness.	0.3	DC 66-89
5	Limestone: gray, detrital, contains considerable amount of very fine clear quartz grains; thick-bedded.	4.0	DC 66-90
Total thickness of Salem Limestone		10.6	
<u>Harrodsburg Limestone</u>			
4	Shale: black, slaty, slightly calcareous.	0.1	DC 66-91
3	Limestone: light brown, pelletal and micritic, thick bedded becoming medium bedded near top.	7.1	DC 66-92
2	Limestone: light brown skeletal, and partly pelletal, medium even beds, distinct. Top of unit has thin gray shale less than 0.1'	4.2	DC 66-93
1	Limestone: dark gray brown, detrital, very coarse, medium bedded, uneven tabular beds, distinct, many beds have very thin argillaceous laminations; thin interbeds of shale are common. Top of unit forms a prominent line along quarry wall.	9.7	DC 66-94
Total thickness of Harrodsburg Ls. exposed		21.1	

INDIANA GEOLOGICAL SURVEY
SPECTROCHEMICAL ANALYSES
(IN PERCENT)
RUSSELVILLE STONE COMPANY
NW SE SEC. 8, T. 16 N., R. 5 W.
PUTNAM COUNTY

*Salem Russellville
ddc*

RU/SAMPLE NO	THICK	CAC03	MGC03	SI02	AL203	FE203	TI02	MNO	CALC C02	CHEM C02	LOI	S	P205
ST. LOUIS, LOWER													
MC53-79	11.0	82.9	3.36	9.95	1.73	.88	.10	.033	38.2	39.2	38.6	.20	.018
S54-16	1.9	62.5	15.3	18.2	1.31	1.50	.11	.044	35.5	35.2		.21	.035
S54-15	2.3	87.3	1.79	8.19	1.08	.51	.085	.024	39.3	40.5	40.1	.12	.030
S54-14	3.2	56.5	26.6	11.8	1.73	2.20	1.20	.54	87.3 38.7	85. 38.5	2.0 0.20	2.00 0.20	.26 0.026
SALEM													
S54-13	6.6	97.1	.71	1.50	.12	.31		.0024	43.1	43.7	43.1	.052	.070
S54-17	3.4	87.2	1.11	9.94	.63	.52	.052	.022	38.9	39.4	38.8	.21	.080
HARRODSBURG													
S54-19	.2	36.4	3.38	42.3	12.3	2.92	.67	.023	17.8	16.8	17.7	1.00	.059
S54-37	3.2	84.0	1.28	11.4	1.58	.60	.11	.022	37.6	37.3		.18	.050
S54-39	8.0	89.1	2.55	6.22	.70	.82	.052	.029	40.5	41.1	40.8	.30	.061
SALEM													
MC53-78	9.8	74.7	13.7	8.96	.82	1.18	.061	.044	40.0	40.7	40.2	.11	.036

Russellville Stone Company Plant And Quarry
Near Russellville, Putnam County
Date of field examination - March 31 and April 7, 1954
By Ned M. Smith

Unit	Description	Thick- ness	Sample
	St. Louis limestone		
5	See Erickson report. These two unit s were sampled together as a single unit.	11	U53-0079 776
4	See Erickson report. These two unit s were sampled together as a single unit.	1.9	S54-0016
3	See Ericksen report.	2.3	S54-0015
2	See Ericksen report.	3.2	S54-0014
	Salem limestone		
1	See Ericksen report. Pods or small nodules of silicified fossils and fossil fragments are present at the base of this unit in local areas of the deeper parts of the quarry. Hand sample S54-12 is from these pods and show some whole specimens of Endothyra.	6.6	S54-0013
1	See Ericksen report. Pods or small nodules of silicified fossils and fossil fragments are present at the base of this unit in local areas of the deeper parts of the quarry. Hand sample S54-12 is from these pods and show some whole specimens of Endothyra.		S54-0012
-1	Limestone: Gray, medium to coarse grained, granular, and with some crystalline material. Unit is fossiliferous, includes some Endothyra, in thin beds and lenses. Thin, black fissile shale partings are between the thin beds. Hand sample S54-18 was obtained 0.6 foot from the top of the unit while S54-20 was obtained 0.6 foot from the base.	3.4	S54-0018 hand sample
-1	Limestone: Gray, medium to coarse grained, granular, and with some crystalline material. Unit is fossiliferous, includes some Endothyra, in thin beds and lenses. Thin, black fissile shale partings are between the thin beds. Hand sample S54-18 was obtained 0.6 foot from the top of the unit while S54-20 was obtained 0.6 foot from the base.		S54-0020
-1	Limestone: Gray, medium to coarse grained, granular, and with some crystalline material. Unit is fossiliferous, includes some Endothyra, in thin beds and lenses. Thin, black fissile shale partings are between the thin beds. Hand sample S54-18 was obtained 0.6 foot from the top of the unit while S54-20 was obtained 0.6 foot from the base.		S54-0017
	Total thickness of Salem limestone	10.0	
	Harrodsburg limestone		
-2	Shale: Black, fissile	0.2	S54-0019
-3	Limestone: Dark gray, medium grained, granular, fossiliferous, and dense. Black, fissile shales, each 0.2 foot thick, are present at top and base of unit, while material adjacent to these shales are shaly limestone. Hand sample S54-38 was obtained 1.2 foot from top of unit. The top shale was sampled separately as unit -2 and was also included with unit -3.	3.2	S54-0037

-3	Limestone: Dark gray, medium grained, granular, fossiliferous, and dense. Black, fissile shales, each 0.2 foot thick, are present at top and base of unit, while material adjacent to these shales are shaly limestone. Hand sample S54-38 was obtained 1.2 foot from top of unit. The top shale was sampled separately as unit -2 and was also included with unit -3.		S54-0038
-4	Limestone: Dark gray, fine grained, granular. The thin beds, separated by black fissile shale partings, contain lenses of small fossils and fossil fragment hash. Hand sample S54-21 was obtained 1.5 feet from top of unit while S54-22 was obtained 1.0 foot from base.	8.0	S54-0021
-4	Limestone: Dark gray, fine grained, granular. The thin beds, separated by black fissile shale partings, contain lenses of small fossils and fossil fragment hash. Hand sample S54-21 was obtained 1.5 feet from top of unit while S54-22 was obtained 1.0 foot from base.		S54-0022
-4	Limestone: Dark gray, fine grained, granular. The thin beds, separated by black fissile shale partings, contain lenses of small fossils and fossil fragment hash. Hand sample S54-21 was obtained 1.5 feet from top of unit while S54-22 was obtained 1.0 foot from base.		S54-0039
	Total thickness of exposed Harrodsburg limestone	11.2	
	Thickness of 1954 sampling	28.6	
	Thickness of rock exposed	39.5	

Russellville Stone Company Plant And Quarry Near Russellville, Putnam County
 Date of field examination - April 17, 1963
 By Lawrence F. Rooney

Unit	Description	Thick- ness
	Drift - large slabs of St. Louis turned up on end in drift	20
	St. Louis	
4	Limestone, dolomite and shale - interbedded. Six to 10 inch beds. Limestone is deep maroon, fine grain, cherty or yellow-brown, silty (total unit stripped with drift)	15
	St. Louis or Salem	
3	Limestone - massive beds - not closely examined. With a 1 to 2-foot bed of dolomitic limestone at base that grades laterally to shale.	8
	Salem?	
2	Limestone - gray, fine-grained massive, microfoss, even bedding with large elliptical chert nodules in lower part.	10
	Harrodsburg	
1	Limestone - dark gray, fine- to medium-grained, argillaceous at base.	12
	Total exposed bedrock	45

MEMORANDUM REPORT BY NED M. SMITH

Loc. 67

RUSSELLVILLE STONE COMPANY PLANT AND QUARRY
NEAR RUSSELLVILLE, PUTNAM COUNTYDate of field examination.---March 31 and April 7, 1954.

Geology.---Units 1 to 5 referred to in this memorandum report are the same units of the same numbers in the memorandum report by George E. Ericksen, dated August 11, 1947. The samples taken and assigned S-1954 numbers replace chip sample Mc53-78.

<u>Unit</u>	<u>Description</u>	<u>Thickness in feet</u>	<u>Chip Sample Number</u>
St. Louis limestone			
5	See Ericksen report. These two units were sampled together as a single unit.	1.9	S54-16 ✓
4			
3	See Ericksen report.	2.3	S54-15 ✓
2	See Ericksen report.	3.2	S54-14 ✓
Salem limestone			
5 1	See Ericksen report. Pods or small nodules of silicified fossils and fossil fragments are present at the base of this unit in local areas of the deeper parts of the quarry. Hand sample S54-12 is from these pods and show some whole specimens of <u>Endothyra</u> .	6.6	S54-13 ✓
4 -1	Limestone: Gray, medium to coarse grained, granular, and with some crystalline material. Unit is fossiliferous, includes some <u>Endothyra</u> , in thin beds and lenses. Thin, black fissile shale partings are between the thin beds. Hand sample S54-18 was obtained 0.6 foot from the top of the unit while S54-20 was obtained 0.6 foot from the base.	3.4	S54-17 ✓
Total thickness of Salem limestone		10.0	
Harrodsburg limestone			
3 -2	Shale: Black, fissile.	0.2	S54-19

<u>Unit</u>	<u>Description</u>	<u>Thickness in feet</u>	<u>Chip Sample Number</u>
2 -3	Limestone: Dark gray, medium grained, granular, fossiliferous, and dense. Black, fissile shales, each 0.2 foot thick, are present at top and base of unit, while material adjacent to these shales are shaly limestone. Hand sample S54-38 was obtained 1.2 foot from top of unit. The top shale was sampled separately as unit -2 and was also included with unit -3.	3.2	S54-37 ✓
1 -4	Limestone: Dark gray, fine grained, granular. The thin beds, separated by black fissile shale partings, contain lenses of small fossils and fossil fragment hash. Hand sample S54-21 was obtained 1.5 feet from top of unit while S54-22 was obtained 1.0 foot from base.	8.0	S54-39 ✓
Total thickness of exposed Harrodsburg limestone		11.2	
Thickness of 1954 sampling		28.6	
Thickness of rock exposed		39.5	

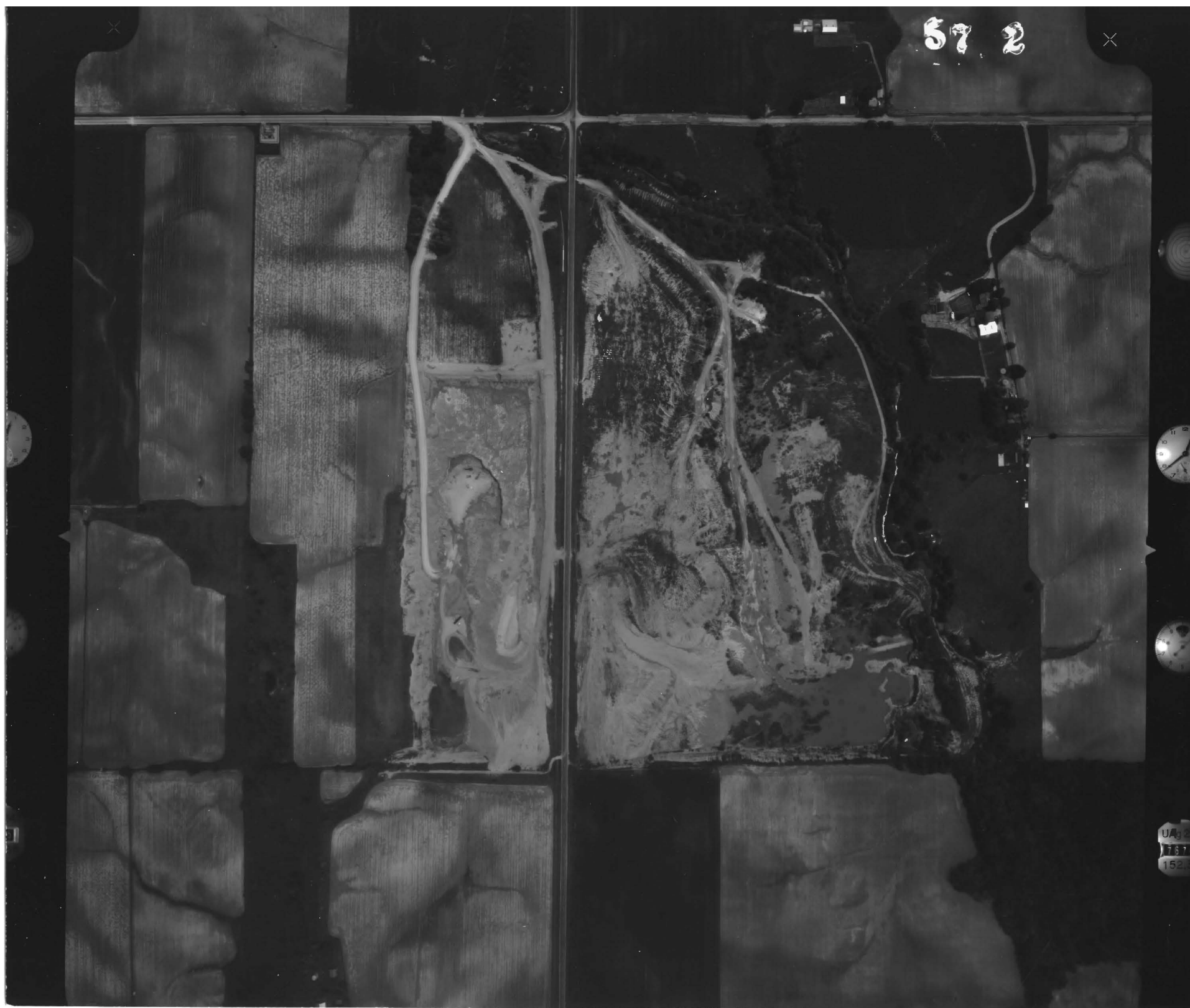
The base of unit -4 is 723 feet above sea level.

Respectfully submitted,

Ned M. Smith

Ned M. Smith

57 2



UA 2
767
152.3

6-16-58

BWL-1V-30



6-16-58

BWL-IV-31

