

229



LEVEL BOOK

No. 380F

229

Dec 30, 1953
Cloudy, Snowing

3

Spirit levelling in Eel River and
Marion Trps. for est. of bench marks.

For A.R. Thompson, Box 69, Mattoon, Ill.

& Denny R. Benner

Shartle π

Burrows

Graham

Watson.

	B.S.	H.I.	F.S.	EL.	Adjusted Elev.
B.M. T75 (0.0 miles)	7.54			887.12	887.12
	11.25		0.55		
	11.95		1.25		
	9.80		0.55		
	11.77		0.36		
	0.15		10.74		
B.M. #1 (0.6 mile)	7.74		12.37	914.36	914.36
	9.59		10.78		
	11.84		1.02		
	8.13		0.53		
	9.71		11.65		
	0.35		10.41		
	0.91		12.13		
	0.87		12.32		
	0.80		11.58		

U.S. & G.S. B.M. T 75

N $\frac{1}{2}$ mile stone 4-16-24.

+

-

0.06

11.86

B.M. #2
(2.2 miles)

5.69 876.39 876.39

11.06

3.18

11.27

0.34

11.66

0.25

~~0.36~~

10.76

0.58

7.59

4.38

1.13

3.15

10.46

0.07

3.97

4.80

B.M. #3
(3.5 miles)

5.80

9.04 924.19 924.20

4.89

3.30

3.63

7.63

1.09

12.43

B.M. #4
(4.5 miles)

7.23

6.68 909.57 909.58

11.20

6.34

4.65

B.M. #5
(5.0 miles)

5.79

5.30 908.67 908.68

3.45

B.M. R75
(5.3 miles)

4.60 911.71 911.72

911.72 correct

0.01 error

B.M. #2 { NE cor NE Handrail conc.
arch in NW4 NE4 32-17-2WB.M. #3 { E. cor. conc. hdr. SW cor "t" roads
near S2 Mi. 30-17-2WB.M. #4 { Top S. end conc sewer pipe
near S2 Mi. 31-17-2WB.M. #5 { SW cor. S. hdr. E. side of road 200' ±
N. of W2 Mi. 6-16-2W

U.S.C. & G.S. B.M. R75

Precision = 0.004√M

B.M.#11 (3.1 miles)	6.43 0.91	0.48 2.33	925.15	925.23
B.M.#12 (3.7 miles)	12.34 12.13 5.90 8.67 0.74	8.86 0.58 0.77 3.01 6.12	921.30	921.39
B.M.#13 (4.6 miles)	1.34 4.99 6.22 0.26 0.01 2.57	1.34 11.65 9.09 2.13 1.93 9.60	949.26	949.37
B.M.#14 (5.6 miles)	2.14 2.92 0.14 9.74 9.75	2.14 10.81 11.23	920.11	920.24
B.M.#15 (6.1 miles)	4.50 10.77 5.85 11.67 11.64 2.66 11.30 6.13	4.50 0.02 0.60 4.52 0.41 2.80 3.47 2.33	898.77	898.91
B.M.#16 (7.5 miles)	5.03	949.35	949.52	

B.M.#11 { center top conc. post W. side rd.
near W² Mi. 19-16-2W

B.M.#12 { NE cor. E handrail bridge
510' South of NW cor. 30-16-2W

B.M.#13 { SW. cor. conc. hdn. SW cor. "t" road.
near SW. cor. 30-16-2W

B.M.#14 { ^{pole} Nail 10" above ground ~~pp~~ NW cor. "t" rd.
near SW. cor 31-16-2W.

B.M.#15 { SW. cor. parapet S. side rd. bridge
1/8 Mi. E. S² Mi. 31-16-2W

B.M.#16 { near SW cor. 33-16-2W
Nail in p. pole NW cor inter
#75 & 10th

	11.35	2.07		
	7.44	1.84		
B.M. C73 (7.8 miles)		3.03	966.23	966.41
			966.41	correct.
			0.18	error

$$\text{Precision} = 0.064\sqrt{M}$$

U.S.G.S. B.M. ~~C76~~^{C73} 3/4 Mi. N. of
New Winchester, Ind.

B.M. #16 (0.0 miles)	3.21			949.52
	6.40	1.72		
	3.80	10.58		
	1.62	7.76		
B.M. #17 (0.9 miles)		6.17	938.32	938.30
	5.64	7.49		
B.M. #18 (1.1 miles)	7.40	3.21	939.43	939.41
	0.58	0.47		
	0.56	11.10		
	0.53	11.28		
B.M. #19 (1.8 miles)	0.11	8.96	916.69	916.65
B.M. #20 (2.0 miles)	4.63	5.81	910.99	910.94

B.M. #17 { SW. cor. N. handrail bridge
W. of SW. cor. 34-16-2W

B.M. #18 { SW cor. N. parapet culvert 300'±
E. SW. cor. 34-16-2W.

B.M. #19 { near Cen. S. SE 1/4 24-16-2W
SW cor. conc. hbr. NW cor T rd.

B.M. #20 { SW cor. N. handrail bridge
over Hicks Ditch

9.26 0.18

8.15 0.75

11.05 0.14

11.36 1.00

12.07 0.70

2.66 1.40

B.M.#21 7.03 0.70 965.30 965.23

(3.0 miles) 9.78 8.37

3.20 4.60

6.00 11.11

B.M.#22 0.49 966.74 966.67

(3.8 miles)

B.M.#21 9.09 965.30 965.23

(3.0 miles) 8.82 8.43

1.80 12.01

3.92 5.99

0.32 11.60

2.24 12.46

7.94 3.66

9.

B.M.#21 { S. step pipeline stile NW cor.
"T" Rd. near SW cor. 36-16-2WB.M.#22 { Nail brace pole NE cor. "L" rd.
near Cen. N. NE 1-15-2W

1.53

9.90

B.M. #23½
(4.3 miles)

9.59

919.32 919.22

B.M. #23½ { SE. cor. Top E. abut. bridge.
330' ± W. of Cen S. SE+ 26-16-2WB.M. #23½ 11.53
(4.3 miles) 6.39

919.22

0.27

B.M. #23
(3.9 miles)

4.87

932.00

B.M. #23½

B.M. #23 { NE cor. E. handrail bridge
350' ± S. of NE cor. 35-16-2W

B.M. #23 $\frac{1}{2}$ 11.53
(4.3 Miles)

719.32 919.22

9.24

2.99

10.63

0.39

2.40

4.57

0.73

9.66

5.19

3.75

7.46

0.35

10.85

0.43

0.87

11.65

B.M. #71WN
(5.8 miles)

8.23

936.20 936.07

1.44

11.25

1.64

11.72

B.M. #24
(6.1 miles)

9.81

5.95

918.59 918.45

16.48

0.11

10.22

0.90

5.69

0.98

B.M. #24 $\frac{1}{2}$
(6.8 miles)

1.64

957.16 957.01

0.27

11.50

0.82

8.77

0.67

10.35

B.M. #25
(7.3 miles)

6.82

923.12 922.95

9.07

9.39

12.50

1.09

7.81

1.40

#24 { U.S.G.S. #71 - Y.M. (Gore 936.6')
SE cor. "T" Rd - Cen. N. SE $\frac{1}{4}$ 23-16-2W

B.M. #24 { S.W. cor. S. Handrail bridge
0.1 mi. E. of E $\frac{1}{2}$ Mi. 23-16-2W

B.M. #24 $\frac{1}{2}$ { rail p. pole S.W. cor. inter. E $\frac{1}{2}$ & W.
E Sec. 24-16-2W with S.R. #236

B.M. #25 { Top S. iron gate post W. side rd.
near Cen. N. NE $\frac{1}{4}$ 24-16-2W

12.35

7.81

2.51

0.59

B.M.#26
(8.3 miles)

6.37

947.53 947.34

7.11

6.90

9.22

0.08

5.23

0.99

B.M.#27
(9.0 miles)

1.20

1.89

965.60 965.40

3.50

6.10

11.30

6.17

0.81

11.76

B.M.#28
(10.0 miles)

5.48

8.45

949.93 949.70

1.26

11.90

1.25

10.48

B.M.#29
(10.5 miles)

5.04

3.35

933.10 932.86

0.25

9.47

8.91

0.86

3.88

5.87

B.M.#30
(11.4 miles)

3.30

3.84

930.87 930.61

1.25

9.94

B.M. U75
(11.9 miles)

3.36

4.55

920.29 920.02

3.81

7.20

3.06

B.M.#31
(12.4 miles)

2.44

919.31 919.03

B.M.#26

{ S.E. cor. conc. hdr. SW cor "T" rd
Near Cen N. NE⁴ 13-16-2W

B.M.#27

{ nail in p. pole SW cor. "4" roads
near NW cor 13-16-2W

B.M.#28

{ nail in p. pole W. side rd.
near NW cor. 12-16-2W

B.M.#29

{ nail in p. pole SE cor "4" rds.
Near E² Mi. 2-16-2W

B.M.#30

{ nail in p. pole N. side rd.
near SE cor. 35-17-2W

U.S.C. & G. B.M. # U75

B.M.#31

{ Nail in p. pole S. side rd.
near SE cor. 34-17-2W

2.09

9.15

2.20

10.57

2.90

5.60

0.61

9.60

B.M. T75
(13.1 miles)

7.21

887.42 887.12

887.12 correct

0.30 error

U.S.C. & G.S. B.M. T75

$$\text{Precision} = 0.083\sqrt{M}$$

$$\text{Precision for whole length} = 0.022\sqrt{M}$$

Shartle House

Meas. for painting estimate

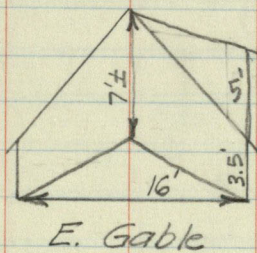
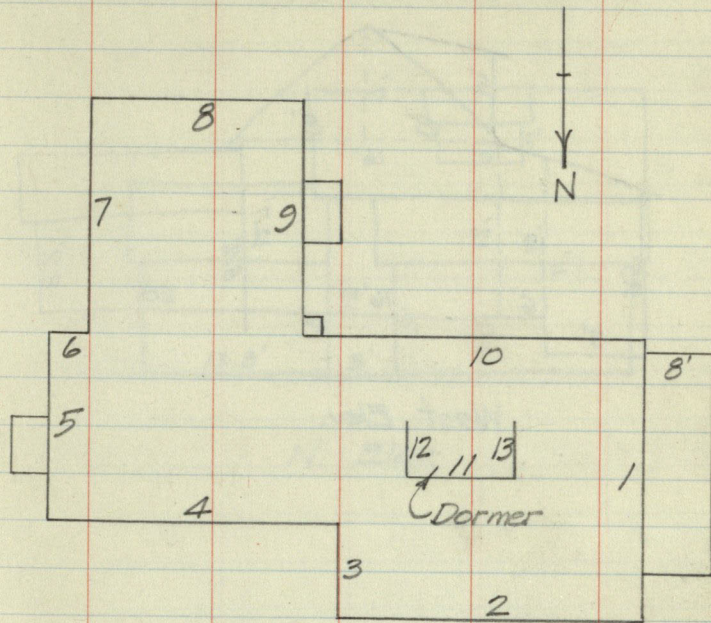
July 2, 1961

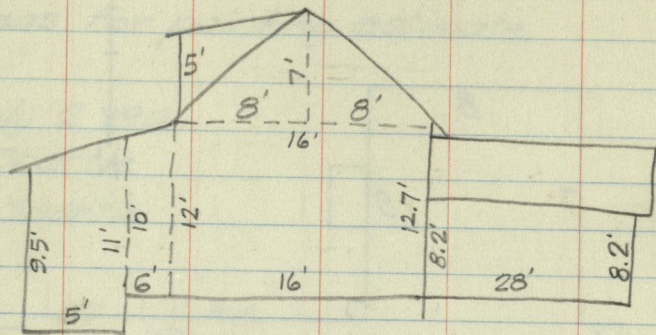
S. Shartle

R. Shartle

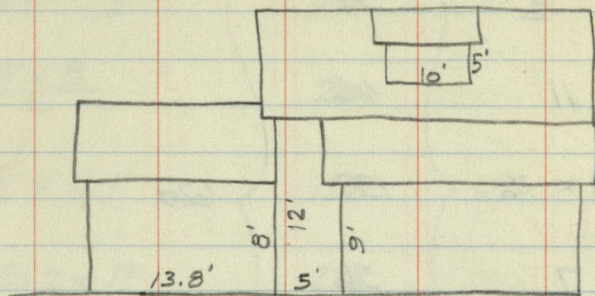
Side	Length	Ave. Ht.	Eave
1	27.0		1.5
2	25.5	9'	"
3	11.1	11'	"
4	18.8		"
5	20.2	11'	"
6	2.8	8'	"
7	23.6	8'	"
8	20.2	11'	0
9	28.0		1.5
10	21.0		"
11			
12			
13			

14





West Elev.



N. Elev.

West Side

$$5 \times \frac{9.5+11}{2} \quad \text{S.F.} \quad 51$$

$$6 \times 11 \quad 66$$

$$12.3 \times 16 \quad 197$$

$$8 \times 7 \quad 56$$

$$8.2 \times 28 \quad 230$$

$$\frac{5 \times 8}{2} \quad 20$$

620

North Side

$$9 \times 25.5 \quad 230$$

$$5 \times 12 \quad 60$$

$$13.8 \times 8 \quad 110$$

$$5 \times 10 \quad 50$$

450

East Side

$$16 \times \frac{3.5+7}{2} \quad 84$$

$$\frac{5 \times 8}{2} \quad 20$$

$$11 \times 11.1 \quad 122$$

$$20.2 \times 11 \quad 222$$

$$23.6 \times 8 \quad 189$$

637

South Side

$$20.2 \times 11 \quad 222$$

$$21 \times 12.7 \quad 267$$

$$2.8 \times 8 \quad 22$$

511

Eaves (neglecting porches)

$$178 \times 1.5 \quad 267$$

Summary

<u>Side</u>	<u>S.F.</u>
W	620
N	450
E	637
S	511
Eaves	267
	<u>2485</u>

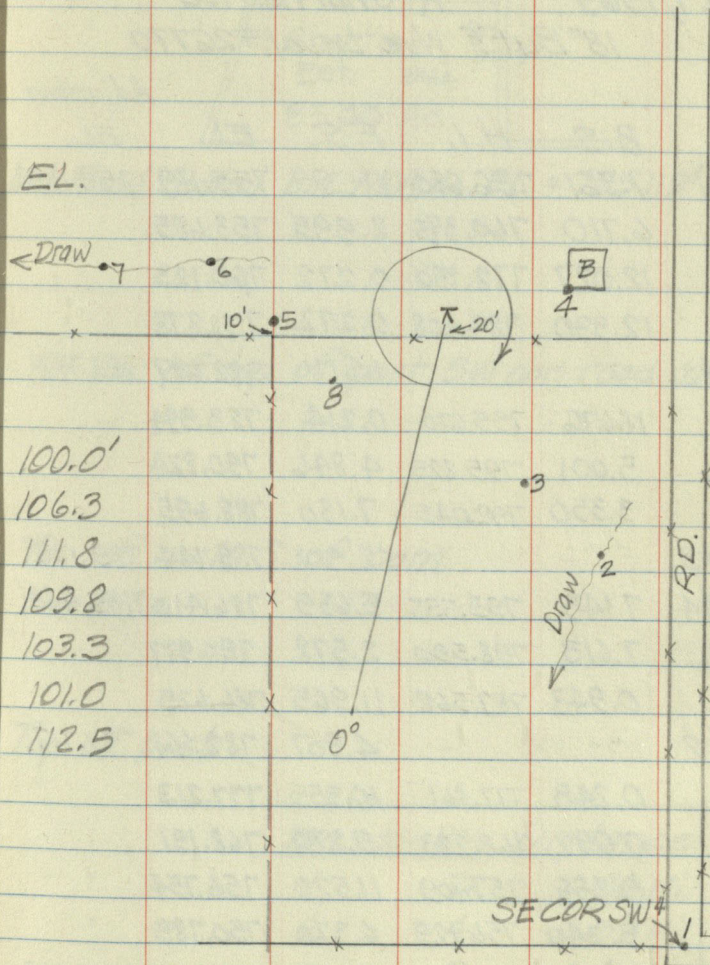
$$\frac{2485}{450} = 5\frac{1}{2} \text{ gallons paint}$$

C.F. Shartle Estate
in S²SW⁴ 4-13-2W
Morgan Co.
S. Shartle
Aug. 8, 1969 R. Shartle

Aug. 8, 1969 R. Shartle

Point	Angle	Dist.	B.S.	H.I.	F.S.	EL.
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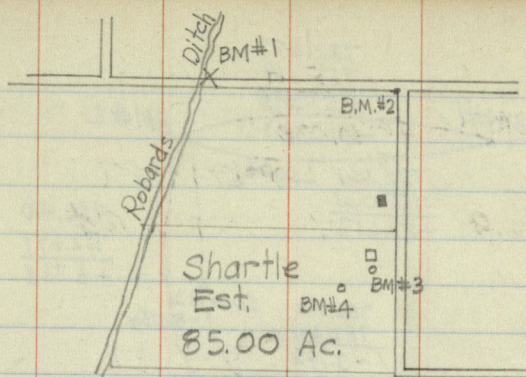
1	329.6 ±				
2	320.8	408'	15.0	115.0	100.0'
3	330°	190			8.7
4	242.4	177			3.2
5	78.5	220			5.2
6	95.2	280			11.7
7	93.6	400 (estimated)			14.0
8	59.5	164			2.5 ±



C.F. Shartle Estate in
S² SW⁴ 4-13-2W

Nov. 1, 1969 S. Shartle T
R. Shartle rod
18" Buff Wye Level #26770

	B.S.	H.I.	F.S.	EL.	Adjusted EL.
B.M.#1	1.561	756.680	2.995	755.119	755.119'
①	6.710	760.395	2.995	753.685	
①	12.027	772.150	0.272	760.123	
①	12.330	784.208	0.272	771.878	
B.M.#2			1.511	782.697	782.717'
①	11.676	795.670	0.214	783.994	
①	5.001	795.825	4.846	790.824	
①	3.350	792.045	7.130	788.695	
B.M.#3			2.901	789.144	789.178'
B.M.#4	7.145	793.555	5.635	786.410	786.448'
①	7.613	798.590	2.578	790.977	
①	0.943	787.568	11.965	786.625	
B.M.#2	10.355		4.907	782.661	782.717'
	0.248	777.461	10.355	777.213	
	0.092	768.283	9.270	768.191	
	0.355	757.109	11.529	756.754	
	5.340	756.129	6.320	750.789	
			1.085	755.044	755.119



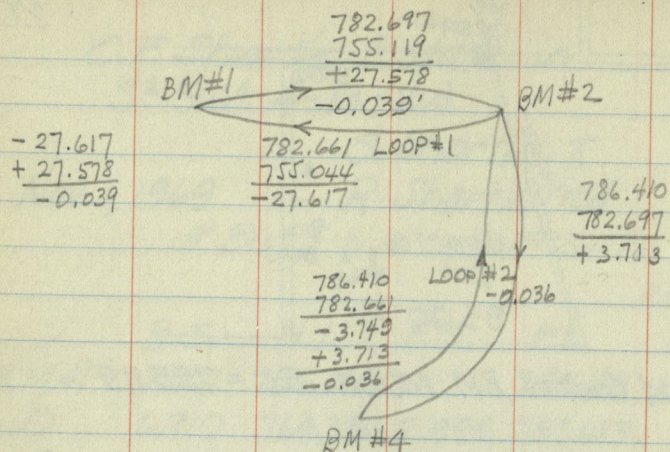
Ind. Flood Control BM MOR 4 EL. = 755.119'

NE cor. of top of post SW cor. road intersection

Top of rock S. of barn
Iron pipe

Top of post

BM	to BM	Distance
1	2	0.36 Mi.
2	4	0.39 Mi.
2	3	0.30 Mi.



Total length = 1.50 miles

Total error = 0.075'

Precision = $0.061' \sqrt{\text{miles}}$

BM#2 Unadjusted	782.697'
Adj. = $\frac{1}{2} \times 0.039 =$	+ 0.020
BM#2 Adjusted =	782.717'
Adj. = $\frac{1}{2} \times 0.036 =$	+ 0.018
BM#2 to BM#4 =	+ 3.713
BM#4 Adjusted =	786.448'

Correction for BM#3 = $\frac{.30}{.78} \times 0.036 = 0.014$

BM#2 Adj. =	782.717
789.144 - 782.697 =	6.447
BM#3 Adj. =	789.178

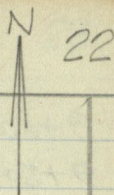
S. & R. Shartle
11-2-69

Line H Wild Theodolite

Sta.	B.S.	H.I.	F.S.	EL.
BM#4	6.62	793.07		786.45
9+00			9.1	784.0
9+50			8.5	784.6
10+00			6.8	786.3
10+50			5.0	788.1
11+00			4.8	788.3
11+24.6			5.5	787.6
11+50			6.7	786.4
12+00			9.3	783.8
12+27			11.3	781.8

Line G.

9+00	8.3	784.8
9+50	7.7	785.4
10+00	6.5	786.6
10+50	5.3	787.8
11+00	5.5	787.6
11+24.6	6.3	786.8
11+50	7.1	786.0
12+00	9.6	783.5



12+50

12+00

11+50

11+00

10+50

10+00

9+50

9+00

swail

11+24.6

⊙ Pipe (BM#4)

50'

50'

50'

50'

50'

E

F

G

H

I

J

K

Line I

9+00	793.07	9.4	783.7
9+50		8.7	784.4
10+00		7.0	786.1
10+50		5.2	787.9
11+00		5.2	787.9
11+50		6.7	786.4
12+00		9.9	783.2

Line J

9+00	793.07	9.9	783.2
+50		9.1	784.0
10+00		7.6	785.5
+50		5.7	787.4
11+00		5.6	787.5
+50		6.8	786.3
12+00		8.7	784.4

Line E

9+00	793.07	8.5	784.6
9+50		8.5	784.6
10+00		8.2	784.9
10+50		7.6	785.5
11+00		7.2	785.9
11+50		8.4	784.7
12+00		12.3	780.8
12+25		14.5	778.6

Line F

9+00	793.07	8.2	784.9
9+50		8.0	785.1
10+00		7.4	785.7
10+50		6.5	786.6
11+00		6.7	786.4
11+50		8.4	784.7
12+00		12.4	780.7
12+08		13.4	779.7

SE cor. SW 4-13-2W - dark gray
stone found about 8" deep.

Conc. cor. post S3°E 16.25'
Sassafras 14 S88W 11.32'

Ch. N. 9.51 ch* (627.66') no seeds;

Ch. N. 10.48 ch* (691.68') came about 1'

N of fence W. no search for stone. (see below)

* from old leads

SW cor. Sec. 4-13-2W

Dark gray stone 5" deep 2' north of fence

Maple 12 S45°W 8.7'

Maple 27 N50°W 29.15'

B. Cherry 22 N15°E 18.0'

NE cor. S 1/2 SW 1/4 4-13-2W

Stone found 6" deep about 1/2 foot N of
range of fence running west.

E. edge wood cor. post West 17.8'

Power pole W 53.95'

EN end C.M.P. SW 37.83'

\$ SW/4 4-13-2W - Random Line
 Dist* West True Object
 along From From from
 Sec. Line Random Random Sec. Line

0.00'	20.00' N.	20.00' N.	0.00'
617.5'	17.90' N.	17.01' N.	0.89' N.
1179.4'	15.13' N.	14.30' N.	0.83' N.
1179.4'	14.57' N.	14.30' N.	0.27' N.
1179.4'	14.15' N.	14.30' N.	0.15' S.
1548.4'	12.25' N.	12.51' N.	0.26' S.**
2331.0'	8.67' N.	8.72' N.	0.05' S.
2708.3'	6.90' N.	6.90' N.	0.00'
2902.3'	2.90' N.	5.96' N.	0.06' S.
2904.8'	2.25' N.	5.95' N.	3.70' S.
2932			
3107.7'	4.95' S.	4.97' N.	9.92' S.
3144 ±			
3168 ±			

@ about 1900' an arrow was driven down
 on the random line due S. 12.37' from
 a double (wood & steel) fence post. S.
 edge of arrow is on the line.

*Corrected to 68°F.

**1975 resurvey = 0.36'

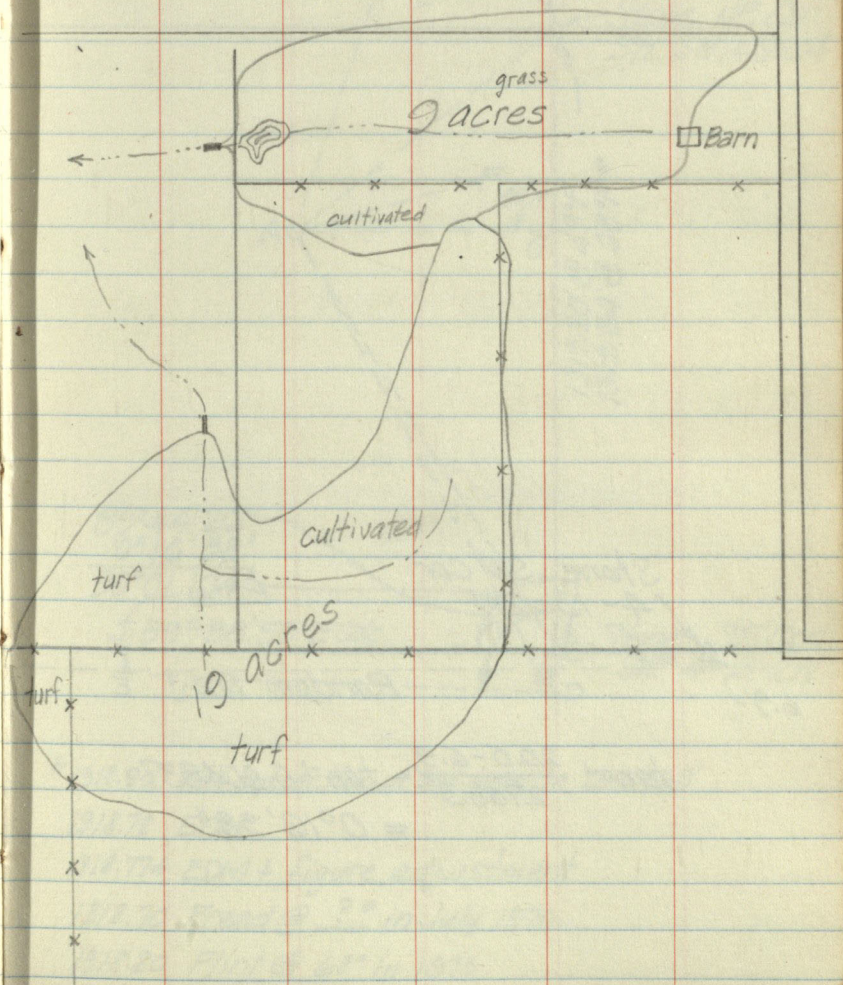
11-9-69 48°F ± S. & R. Shurtle
 Beg. 20.00' S. of SE cor. SW/4 Sec. 4. 25

Description of Object

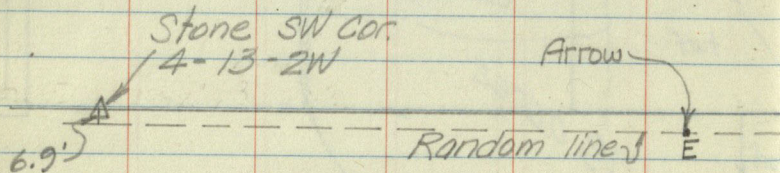
Stone SE cor. SW/4 4-13-2W
 E-W fence where field division runs north
 S edge wood end post where field division runs north
 " " metal post " " " " "
 E-W fence " " " " "
 E pipe cor. post for field division fence running S.
 " " " " " " " " "
 Stone SW cor. Sec. 4-13-2W
 SW cor. very decayed end post
 E of S. edge of 5" O.D. wood cor. post
 E of bed of a dry creek with 5' bottom
 E dead 5" cottonwood on top of levee
 E edge water in Roberts ditch
 E Roberts ditch

Watershed Study for Culvert Design

26



A = Pipe (B.M. #4)
 F = Azimuth Mark (nail in top of
 W. gate post), Destroyed 1971
 H = Middle lightning rod on Wallace barn

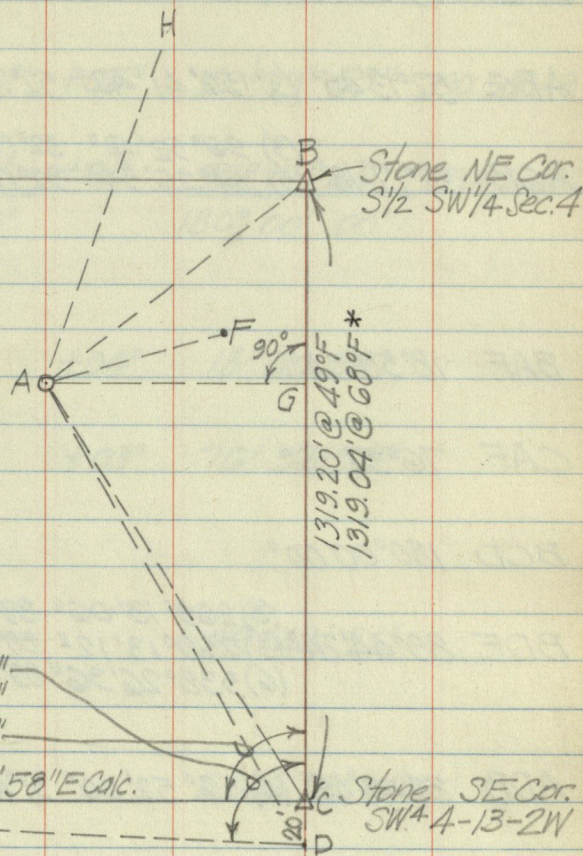


$$\tan^{-1} \frac{20.0 - 6.9}{2708.3} = \tan^{-1} 0.004837$$

$$= 0^{\circ}16'38''$$

S. & R. Shurtle
 Nov. 16, 1969

27



$$89^{\circ}44'26''$$

$$0^{\circ}16'38''$$

$$90^{\circ}01'04''$$

$$589^{\circ}38'58'' \text{ Calc.}$$

* 1318.90' With correction of 300' tape to 299.968'
 1318.78 EDM
 1318.774 EDM + figure adjustment
 1318.70 Freed @ ?° in July 1970.
 1318.80 Flint @ 68° in 1973

	1st Read	Reps	$\frac{\Sigma \text{Reps}}{\text{No. Reps}}$
BAC	95°28'42"	(4) 381°54'24"	95°28'36"
ABC	52°13'48"	(3) 156°41'42"	52°13'54"
ACB	32°17'18"	(3) 96°52'12" 32°17'24" (5) 161°26'54" 32°17'23"	23"

BAF 18°50'54"

CAF 76°37'36"

BCD 180°00'00"

BDE 89°44'24" (3) 269°13'06" 89°44'22"
(3) 269°13'12" 89°44'24"
(6) 538°26'36" 89°44'29" } 26"

ADB 31°42'48" (4) 126°52'00" 31°43'00"

HAF 53°45' (2) 101°14'48" 53°44'54"

	Geometric Correction	Final	$\frac{28}{\sin}$
95°28'36"	+01"	95°28'37"	.99543469
52°13'54"	+05"	52°13'59"	.79050848
32°17'23"	+01"	32°17'24"	.53420482
179°59'53"		180°00'00"	

+04" 18°50'58"

+03" 76°37'39"

89°44'26"

31°42'53".6 (calc)

$$AB = \frac{a \sin C}{\sin A} = 707.8691'$$

$$AC = \frac{a \sin B}{\sin A} = 1047.49'$$

$$AG = c \sin B = 559.5765'$$

$$BG = c \cos B = 433.5352'$$

$$CG = 1319.0400 - 433.5352' = 885.5048$$

$$GD = 885.5048 + 20.0000 = 905.5048$$

$$\tan D = \frac{AG}{GD} = 0.6179718$$

$$D = 31^{\circ}42'53''.6$$

29

Levels to establish BM#5
to replace BM#3 which is
to be destroyed. Jan. 31, 1970

Sta.	B.S.	H.I.	F.S.	EL.
BM#3	3.21	792.39		789.18
BM#5			2.26	790.13

BM#5 is on head of nail driven
horizontally thru bottle cap
into S. face of barn near SW
cor. (Destroyed Apr. 1971)

Brg. of AF from obs. of Polaris
at A.

Stan Shartle

Anna Shartle

+37°F windy, clear

1970	★ to F	D/R	U.T.
Jan. 31	71°40'54"	D	23 ^h 55 ^m 00 ^s
Feb. 1	71°43'10"	R	0 01 00
" "	71°45'12"	D	0 07 00
" "	71°47'06"	R	0 15 00

$$Z = \frac{\sin t}{\cos h} p \text{ where } p \text{ is polar dist. (0°51'9")}$$

$$1 \quad 71°40'54" - Z = N 71°26'28"E$$

$$2 \quad 71°43'10" - Z = N 71°26'58"E$$

$$3 \quad 71°45'12" - Z = N 71°27'17"E$$

$$4 \quad 71°47'06" - Z = N 71°26'54"E$$

$$\text{Brg. of AF} = N 71°26'54"E$$

$$\text{BAF} = 18°50'54"$$

$$\text{Brg. of AB} = N 52°36'00"E$$

$$\text{ABC} = 52°13'54"$$

$$\text{Brg. of BC} = S 0°22'06"W$$

30

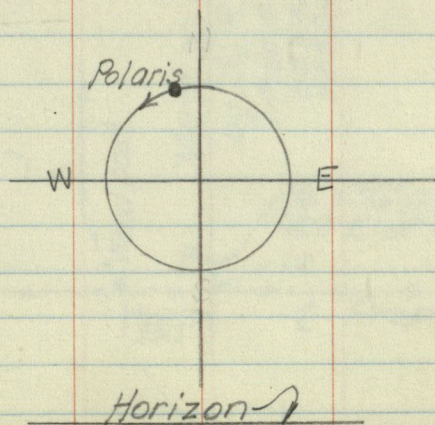
$$A \begin{cases} \text{Lat. } +39°35'20" \\ \text{Long. } 86°38'36" W \end{cases}$$

GHA 0 ^h U.T.	Corr. for elapsed time	GHA	t*	h**	Brg. of ★ Z
99°06'.9	+359°43'.9	98°50'.8	12°12'.2	40°26'12"	N 0°14'26"W
100°06'.3	+0°15'.0	100°21'.3	13°42'.7	40°25'54"	N 0°16'12"W
100°06'.3	+1°45'.3	101°51'.6	15°13'.0	40°25'36"	N 0°17'55"W
100°06'.3	+3°45'.6	103°51'.9	17°13'.3	40°25'04"	N 0°20'12"W

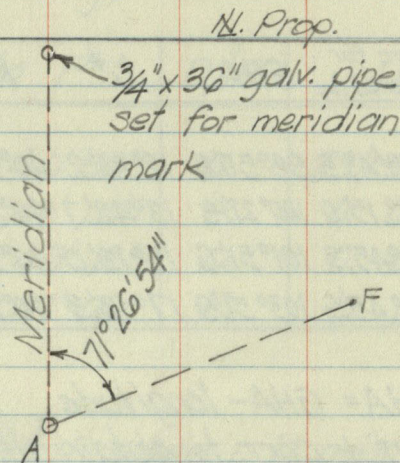
$$*t = \text{LHA} = \text{GHA} - \text{longitude}$$

$$**h = \text{lat.} + \text{corr. to obtain alt.} = \text{alt. of } \star$$

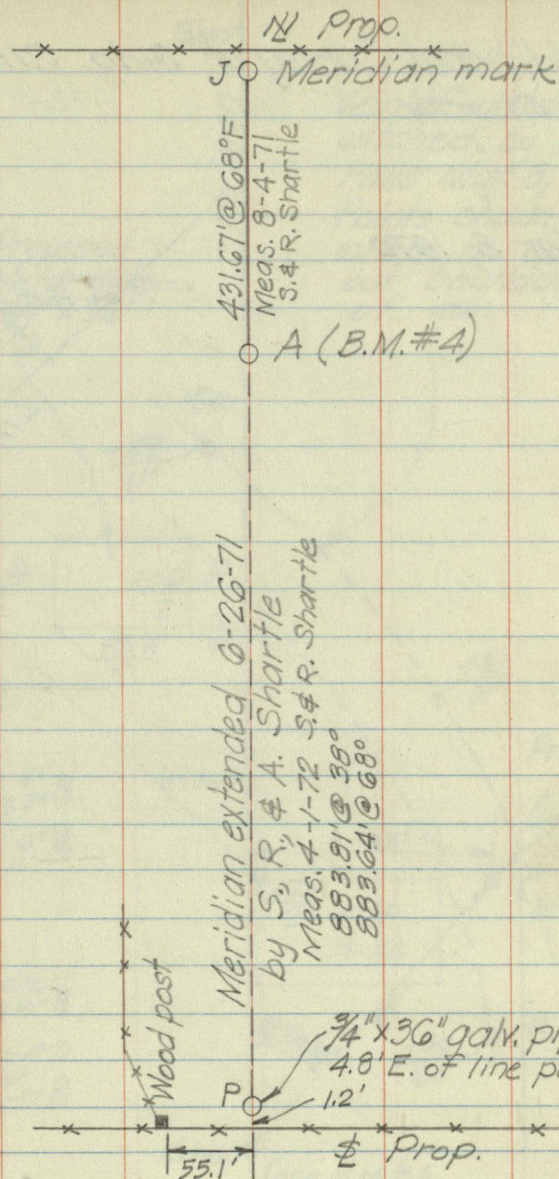
Time by ear from WWV signals
Ephemeris: K&E, 1970



2-22-70 $\pm 50^\circ$
S. & A. Shartle



31



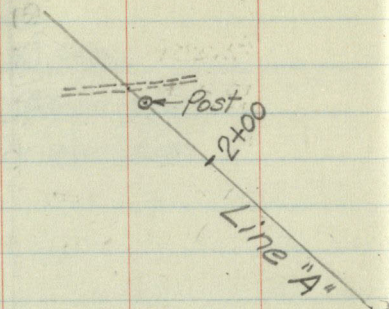
Additional Survey of Bldg. Site

S. Shartle

A. "

R. "

Mar. 8, 1970



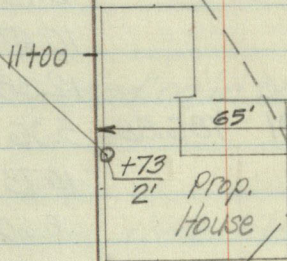
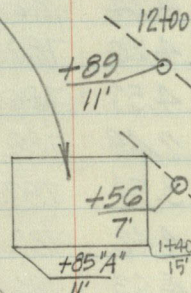
+99 Cherry 4" ⊙
+95.5 Cherry 3" ⊙
+84 Cherry 6" ⊙
+79 Elm 11" ⊙

+42.5 Sassafras 10" ⊙
+39.5 Cherry 10" ⊙

+27.5 Cherry 4" ⊙
+18 Twin loc. 6" ⊙
+14 Cherry 8" ⊙

+82.4 Cherry 13" ⊙

Proposed
Metal Bldg.
24' x 36'



Pipe B.M. #4
Elev. 786.45'

12+00

+89

11'

+56

7'

+85'A"

11"

1+40

15'

11+00

65'

+73

2'

Prop.
House

42°04'30"

5'

+30

64'

10+00

H

13+00

Meridian

Vein of water
witched by Bill
Falls Mar. 8, 1970.
Points shown are
where he pointed
out boundaries
of vein.

Proposed
well

+64

78'

+21

51'

+30

64'

72'

32

Sta.	B.S.	H.I.	F.S.	EL.
B.M. #4	4.28	790.73		786.45
NW cor.			5.06	785.67
" "			5.40	785.33
NE "			4.54	786.19
" "			4.92	785.81
SE "			3.89	786.84
" "			4.24	786.49
SW "			4.20	786.53
" "			4.57	786.16
0+00 "A"			2.48	788.25
+50			3.31	787.42
+85			4.42	786.31
1+00			4.63	786.10
+50			8.16	782.57
2+00			10.67	780.06
+23.6			12.38	778.35
T.P.	0.91	786.58	5.06	785.67
+29			10.78	775.80
+29			9.60	776.98
+50			6.85	779.73

S. & R. Shartle
Mar. 8, 1970

33

On stake at cor. proposed 24'x36' bldg.

" ground	"	"	"	"
" stake	"	"	"	"
" ground	"	"	"	"
" stake	"	"	"	"
" ground	"	"	"	"
" stake	"	"	"	"
" ground	"	"	"	"

Tempy post set - reading in bot. of swail

F.L. of tile drain

Bot. of sink hole above tile

Percolation Test No. 1

Made 58' N. & 90' W. of A

Hole 6 1/2" x 39" First 8 1/2" dk. gray
top soil; balance Lt. yellow sandy
clay, friable, damp.

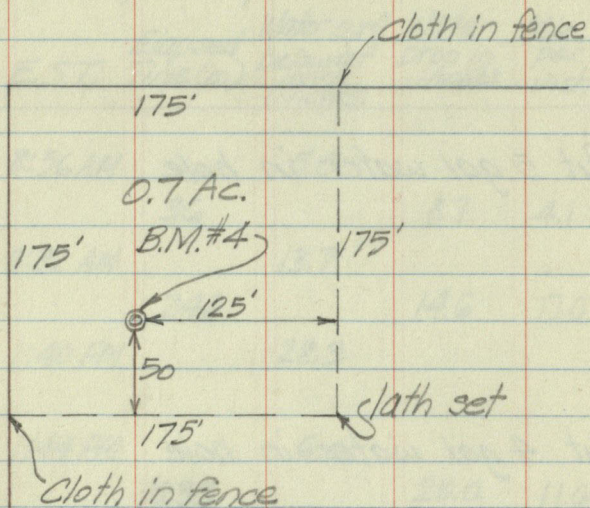
Date	E.S.T.	Elapsed Time (m)	Water surf. below ref mark (inches)	Water drop in inches	Min. per inch
3-21-70	8:56 AM		5.0		
		36		8.7	4.1
"	9:32 AM		13.7		
		248		14.6	17.0
"	1:40 PM		28.3		
"	1:44 PM		6.0		
		233		20.0	11.6
"	5:37 PM		26.0		
3-22-70	9:04 AM		27.7		
		30		0.8	37.5
"	9:34 AM		28.5		
		69		1.0	69.0
"	10:43 AM		29.5		
		72		1.2	60.0
"	11:55 AM	72	30.7		
		132		1.6	82.5
"	2:07 PM	132	32.3		

Put 5 gal. water in hole

Put 4 gal. water in hole

Found hole empty; put in 1 gal.

Corn planting limits set 3-28-70
S. & R. Sharple



Polaris at Western Elongation
Observed at B.M. #4 (Point "A")
to check pp. 30-31

S. & A. Shartle

April 4, 1970 +40°F

U.T. of W. Elong. $19^h 04^m 14$

$.011^m \times 86.643^\circ$ W. of Greenwich. - 0.95

$4^m \times (86.643 - 75.000)$ + 40.57

L.C.T. of W.E. $19^h 49^m 76$

12 00.00

E.S.T. of W.E. $7:46.76$ P.M.

Brg. of Polaris = $\frac{\text{Polar Dist. (minutes)}}{\cos \text{lat.}}$

$$= \frac{52.17^m}{0.77064}$$

$$= N 1^{\circ} 07.70' W$$

$$= N 1^{\circ} 07' 42'' W$$

36

Lat. $39^{\circ} 35' 20''$

Long. $86^{\circ} 38' 36'' = 86.643^\circ$

Observations began 5^m before
elong. & ended 5^m after. Brg.
of azimuth mark (p. 31) checked.

Obs.	D/R	1st read	2d read	Mean	Final
1	D	$1^{\circ} 07' 15''$			
2	R		$2^{\circ} 15' 12''$	$1^{\circ} 07' 36''$	$1^{\circ} 07' 30''$
3	D	$1^{\circ} 07' 30''$			
4	R		$2^{\circ} 14' 48''$	$1^{\circ} 07' 24''$	

Brg. of Azimuth Line:

by surveys pp. 30-31

$N 0^{\circ} 00' 00'' W$

by this survey

$N 0^{\circ} 00' 12'' W$

Diff.

$0^{\circ} 00' 12''$

Percolation Test No. 2

Made 19' N. & 93' W. of A.

Hole 6½" Dia. x 36" deep. First 8" dark gr. top soil & balance same as on p. 34.

Apr. 4, 1970

Poured in 4 gal. water at 8:50 A.M. which came to 5.5" below nail (nail was 4.5" below ground level). Did not scarify sides of hole.

4-4-70

10:34 A.M. water 15.9" below nail

10:35 A.M. added 1 gal. & raised to 10.0" below nail.

4:18 P.M. 22.2" below nail

6:47 P.M. 23.5" " "

6:49 P.M. added 1 gal. & raised to 17.0" below nail

4-5-70

9:37 A.M. 25.5" below nail

Scarified sides of hole and placed second nail in side of hole 17.5" below first nail. Filled with water to nail no. 2 at 9:45 A.M. Thereafter, level raised to nail no. 2 at each reading.

From	To	Elapsed Time (m)	Drop in inches	Rate drop per ½ hour	Hourly fall
9:45	10:15	30	0.90	0.90	1.80"
10:15	11:45	90	2.05	0.68	1.36
11:45	12:15	30	1.00	1.00	2.00
12:15	12:45	30	0.80	0.80	1.60
12:45	1:45	60	1.40	0.70	1.40
1:45	3:15	90	2.00	0.67	1.34
3:15	3:45	30	0.65	0.65	1.30

Average last 3 hrs. = $\frac{4.04}{3} = 1.35$ " fall/hr.
or 1" fall in 44½ minutes.

2" gravel put in bottom of hole at beg. of test on second day.

Effective absorption area in sq. ft. needed in trench bottom = 300 sq. ft. per bedroom.

Staked for house 6/28/70
R.M. Franklin & S.M. Shartle

Sta.	B.S.	H.I.	F.S.	EL.
B.M. #4	6.25	792.70		786.45'

top basement wall*(proposed)	3.21		789.49'
------------------------------	------	--	---------

580 LF #4 bars on site

* For $11\frac{1}{2}$ blocks @ 8" $\neq$ 8" ftg.

6-29-70 } dug basement & installed outlet
6-30-70 } drain for perimeter tile

7-1-70 basement ftg.

7-2-70 ftg. for kitchen, fam. rm., & garage

7-2-70 wheat harvested by Sam Hughes

7-8-70 electricity - pole lite came on 9:35 P.M.
well water available; meter zero.

7-11-70 ftgs. completed; bsmt. walls done

7-16-70 basement floor poured; photos

7-22-70 backfilled basement excavation at crawl
space till 4 A.M. following day.

7-29-70 roof trusses up - photos

8-31-70 } Septic system installed
9-1-70 }

10-16-70 furnace turned on

10-17-70 corn picked; driveway roughed out

10-21-70 garage floor poured

10-23-70 porch floor and apron poured

11-14-70 snow, rain, wind - painted - draperie rods up

11-15-70 erected mail box

12-15-70 moved to new house

12-18-70 fireplace used first time

4-9-71 began plowing front field

4-11-71 planted garden

5-8-71 dog Vela acquired

5-22-71 corn planted

5-31-71 first emergence of corn

6-10-71 soybeans planted

6-12+13-71 planted bushes

6-14-71 soybeans emerged very strong

7-28-71 moved observatory

1-18-72 finished picking & shelling corn

1-19, 20-72 Morton bldg. erected

2-16-72 sold dog Vela

3-20-72 finished harvesting soybeans

5-2-72 plowed field behind house

5-4-72 " front field

5-6-72 planted corn

5-15-72 first emergence of corn

5-19-72 planted soybeans

5-20-72 finished plowing far back field

5-21-72 disced, planted beans " "

Check levels for house

S. & A. Shartle
7-3-70

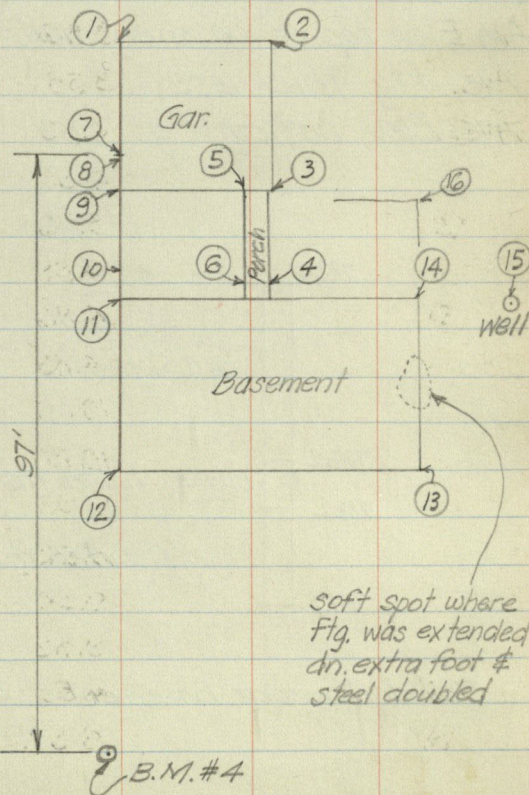
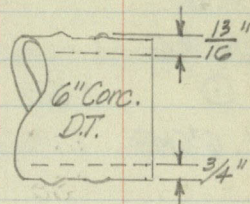
TF = top of footing

B.M.	Sta.	B.S.	H.I.	F.S.	EL.
to	B.M. #5	1.70	791.83		790.13
	B.M. #4	4.88	791.33	5.37	786.46 } Use 786.45'
*	TF ①			3.55	787.78
	TF ②			3.55	787.78
6	TF ③			3.56	787.77
6	TF ④			3.58	787.75
7	TF ⑤			4.86	786.47
7	TF ⑥			4.90	786.43
7	TF ⑦			3.56	787.77
7	TF ⑧			4.89	786.44
	TF ⑨			4.86	786.47
7	TF ⑩			4.89	786.44
7	⑪			10.30	781.03
7	⑪			10.80	780.53
	TF ⑪			9.53	781.80
7	⑫			10.02	781.31
8	TF ⑫			9.54	781.79
9	TF ⑬			9.52	781.81
10	TF wing ⑬			4.85	786.48
10	TF ⑭			9.52	781.81
10					

Perimeter: 4" clay tile
Outlet drain: 6" conc. tile

40

O.D. 4" D.T. = 5"



Top 6" tile

Bot. 4" tile

Top 4" tile

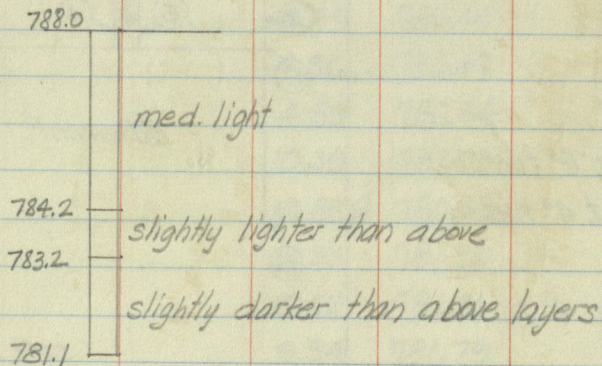
Sta.	B.S.	H.I.	F.S.	EL.
Top well casing (15)			5.94	785.39
TF (16)			3.58	787.75
B.M. #6			4.53	786.80
⊙	1.65	788.51	4.47	786.86
FL 6" CMP			10.14	778.57

As-built conditions:

Ave. Elev. top of basement wall ftg. = 781.80'

Ave. ftg. thickness = 0.67'

Ave. Elev. bottom ftg. = 781.13'



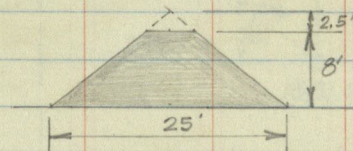
Soil darkness at basement 7-4-70

Top of well casing 785.39'
 Part cut off 4.03
 Orig. top of casing 789.42'
 Length casing 26.00
 Bottom " 763.42'

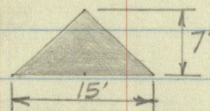
41

Conc. fl. shop S. end E. door near edge of floor.

Outlet perimeter dr. in swail



South pile = 63 C.Y.



North pile = 15 C.Y.

Stockpiled Topsoil = 78 C.Y.

VEJ05412 Goulds pump
Submersible No. 147736
Goulds Pumps, Inc., Seneca Falls, N.Y.
Installed by Danville Plumbing & Heating

42

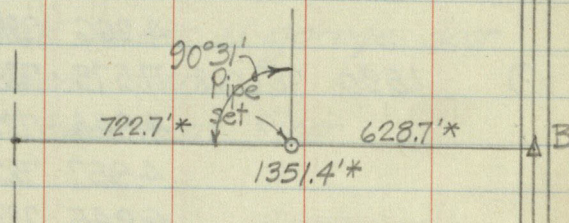
Pipe set flush by Freed
who reproduced BC northward
after digging for
stone without success.

Bottom of pipe cor. post

Power pole
N4°W 16.3'
(1975) → S50°W 32.15' (on slope) } destroyed
This is BM #2 on p. 20 } 1973

N0°22'25"1E 1317.82'

S.M.S.
7-12-75



* Meas. given to me by
Jas. Freed, L.S., 7-25-70
Probably uncorrected
for temp.

** Steve Flint for Alan
Stanley 5-9-73 @ 75°F.±

N0°22'06"3E 1318.77'

S.M.S.
7-12-75

1318.7' *
1318.74' **

C

Levels at house Aug. 15, 1970
S. & A. Shartle

	B.S.	H.I.	F.S.	EL.
B.M. #4	6.305	792.753		786.448'
			2.652	790.101'
			2.645	790.108'
			2.657	790.096
			2.674	790.079
			4.300	788.453
			5.843	786.910
			4.266	788.487
⊙	1.890	787.068	7.575	785.178
			4.944	782.124
			4.957	782.111
			4.945	782.123
			4.984	782.084
			5.055	782.013

Subfloor at laundry exit

" 2' N. of SE cor. SE. bedroom

" at SE cor hall coat closet

" " SW cor. liv. rm.

Top 8" block found W. door garage

" 4" tile SW cor. fireplace

" 8" block under N. garage door

5th basement step

NW cor basement floor

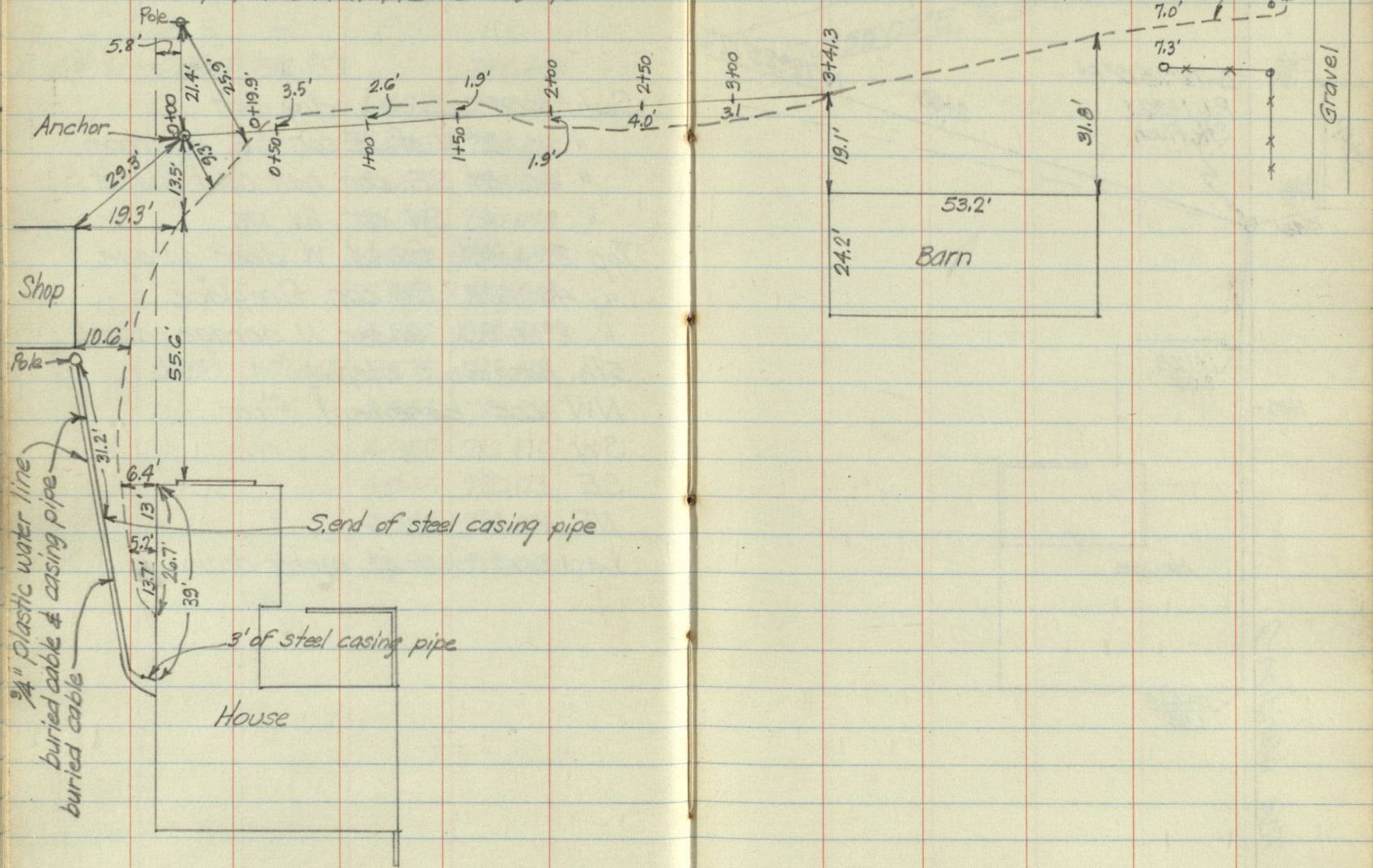
SW " " "

SE " " "

NE " " "

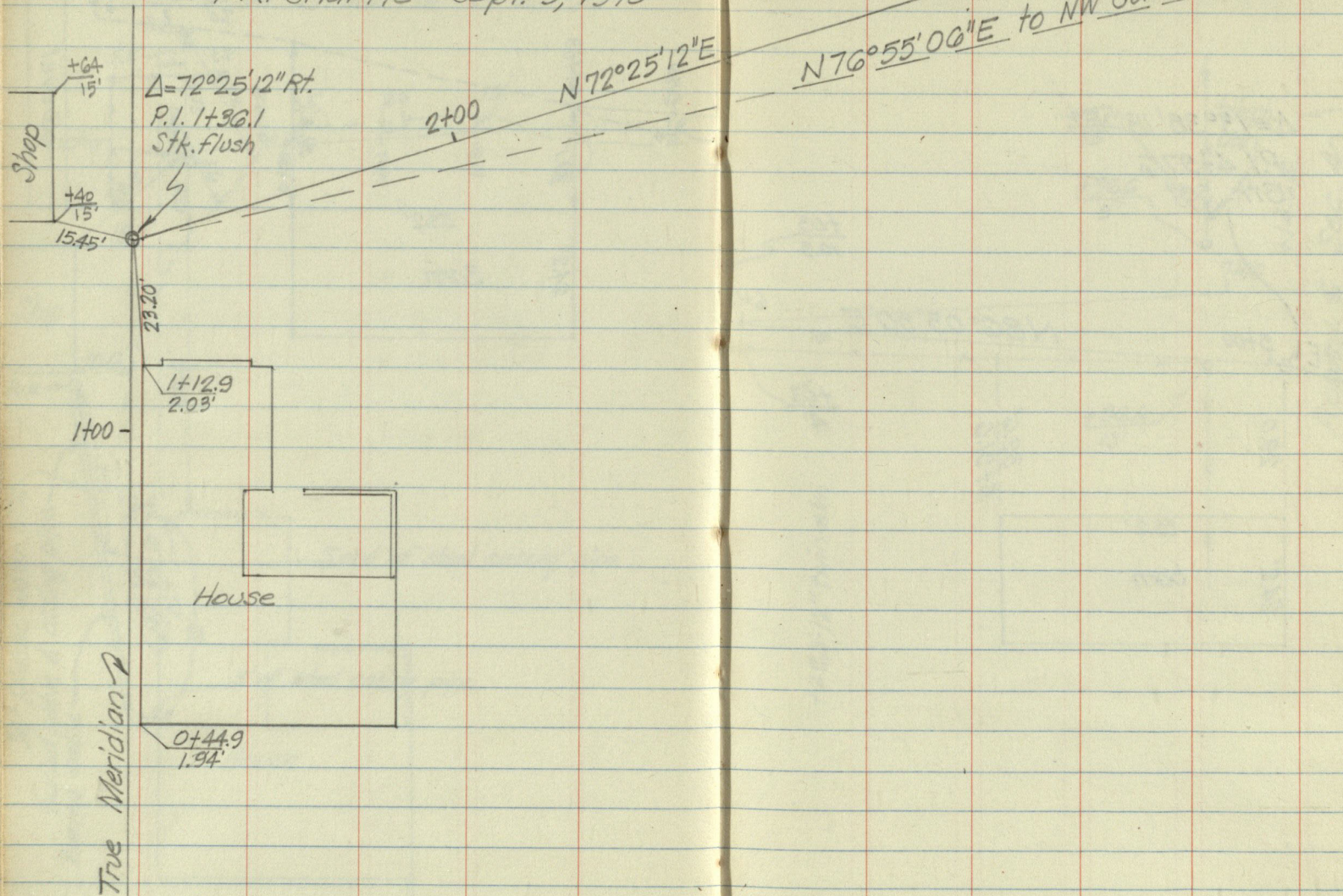
basement floor at center drain

Location of buried telephone line S. & A. Shartle 8-29-70



Topo for Driveway Study

Topo for Driveway Study
S & R. Shartle Sept. 5, 1970



$$\Delta = 13^\circ 38' 18'' \text{ Rt.}$$

P.I. 4+97.6

Stk. set

N72°25'12"E

5+00

29.0'

24.2'

53.2'

barn

N86°03'30"E

32.6'

5+51.6

+03
10.3

6+00

+03
4'

+253'-12" twin elm

+97
15+96.6
9'teleph.
box

7+00

+96.6
13'

+14.6±

Approx. E Sec. 4

Survey of Septic System
S. & R. Shartle 8-31-70

$$2 \times 20 = 40 \text{ L.F.}$$

$$5 \times 65' = 325 \text{ L.F.}$$

$$2 \times 10' = 20 \text{ L.F.}$$

length of tile = 385 L.F.

Tank cleaned 1st time Nov. 18, 1978. Nearly full. In future, clean out every 5 yrs. Center of cleanout door is 76.35' from house & 86.3' from cor. of shop. Door is 1.7' dia.

*These arms covered
by extra green grass
Dec. 1972.

Sys. cleaned 2 about Nov. 1983
" " 3 May 30, 1989

3' bottom trenches

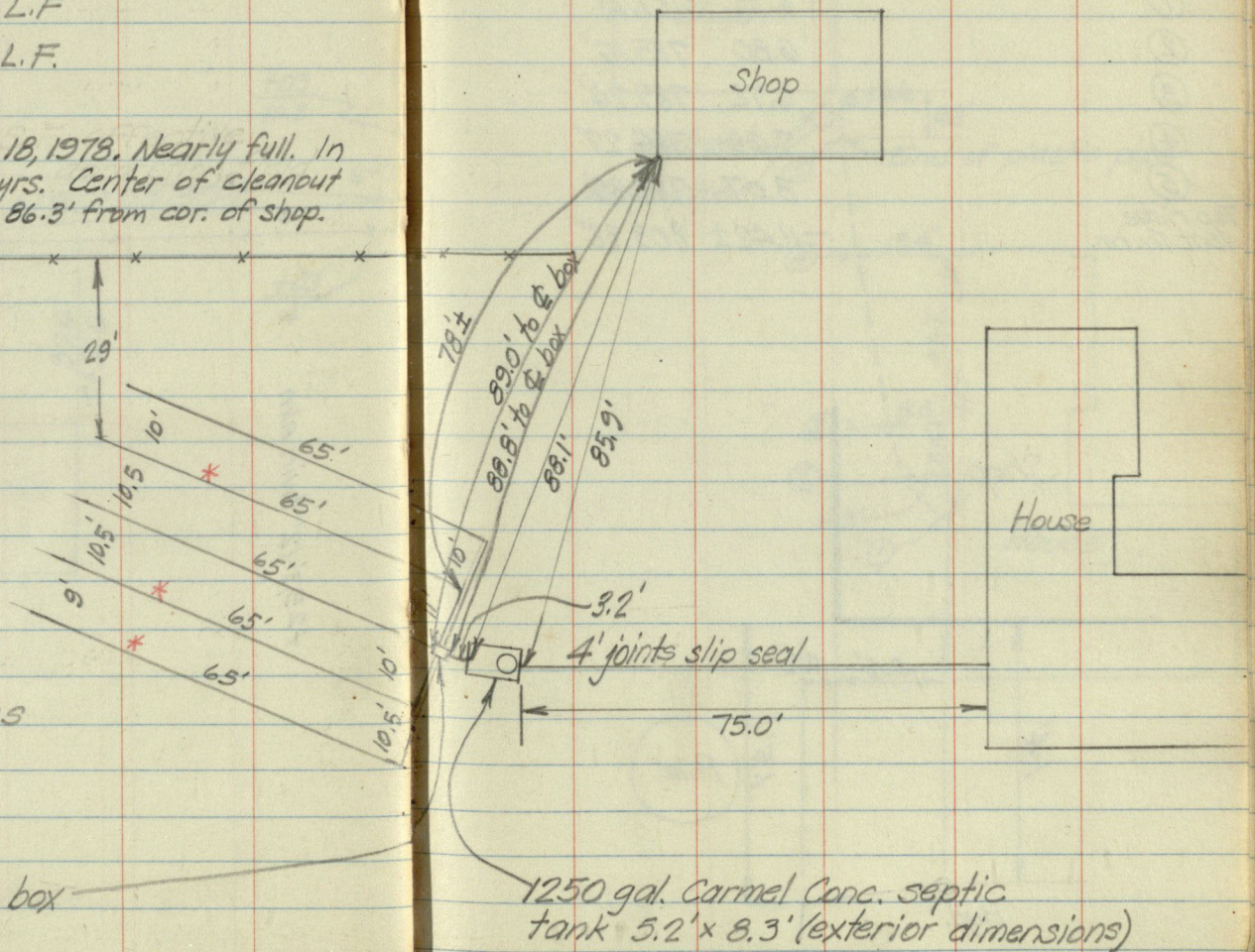
1.25' x 2.00' dist. box

$$1 \times 43 \times 3 = 129 \text{ S.F.}$$

$$5 \times 63.5 \times 3 = 952.5 \text{ S.F.}$$

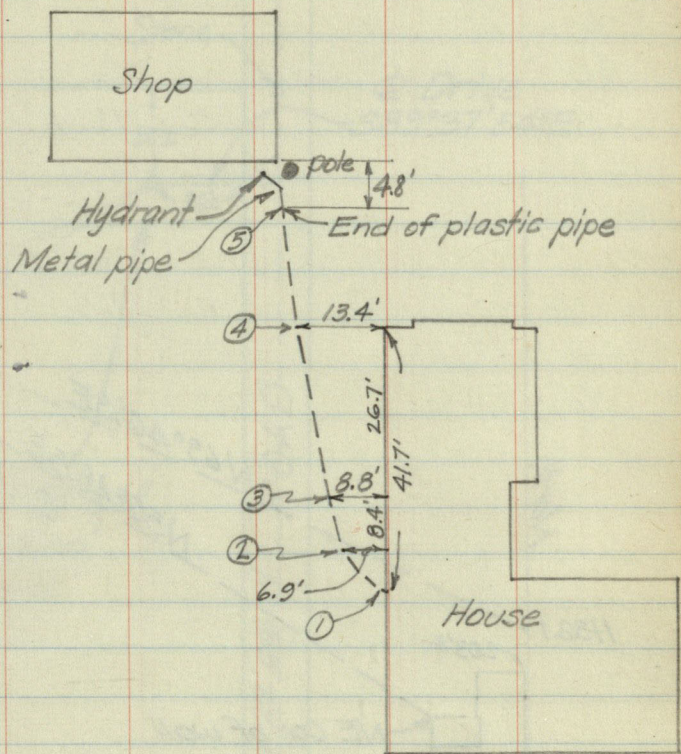
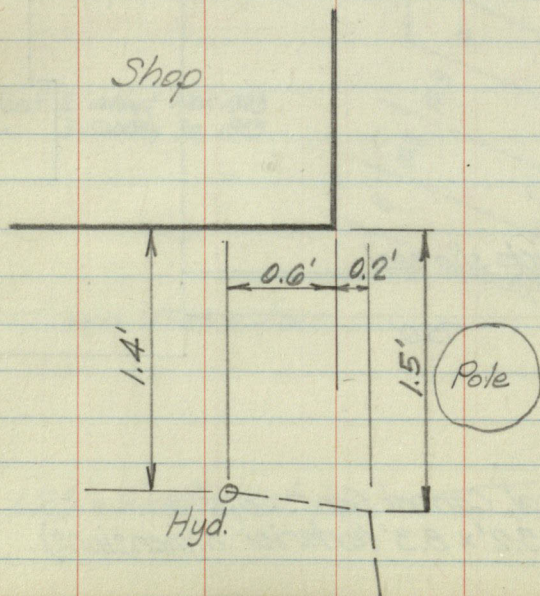
1081.5 SF. effective
absorption field

47

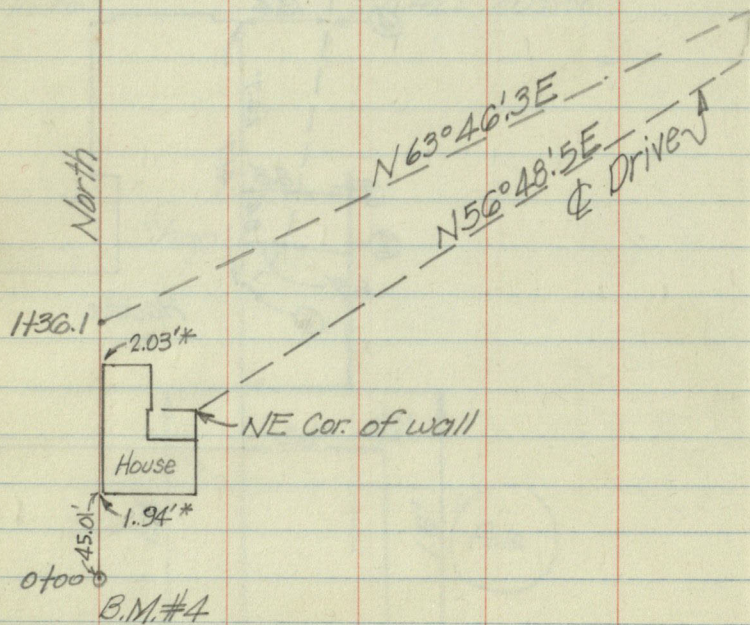


Survey of $\frac{3}{4}$ " plastic water line
S. & A. Shartle 9-15-70

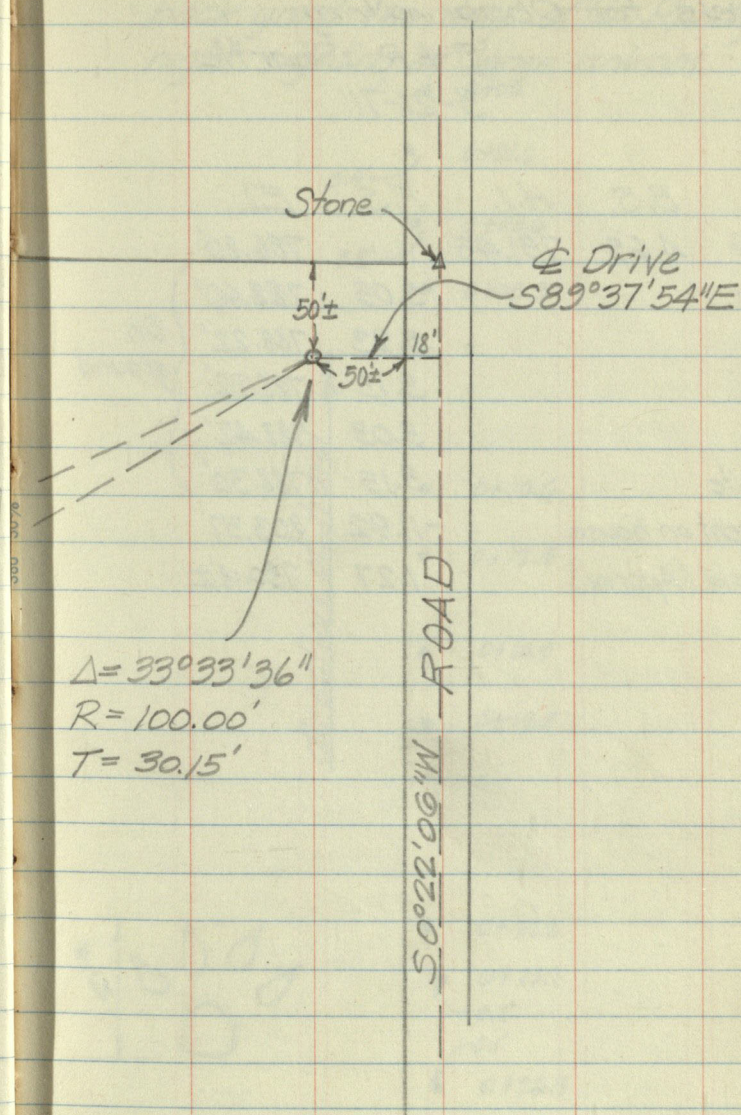
Sta.	B.S.	H.I.	F.S.	EL.
B.M.#4	5.51	791.96		786.45'
①			6.75	785.21'
②			6.80	785.16'
③			6.72	785.24'
④			7.69	784.27'
⑤			8.07	783.89'
to Top ridge D. Vent liv. rm.			-11.42±	803.38'



Survey for Drive Layout
S. & R. Shartle Sept. 29, 1970



*To cor. of conc. block found.



$$\Delta = 33^{\circ} 33' 36''$$

$$R = 100.00'$$

$$T = 30.15'$$

Levels for Observatory

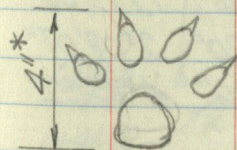
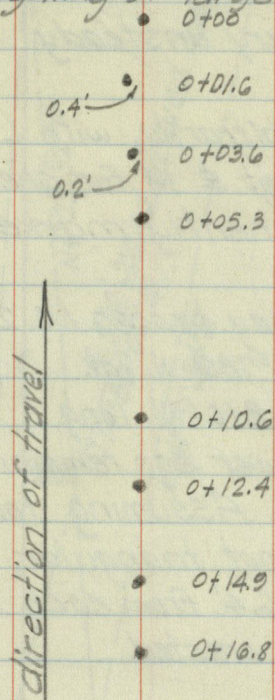
S. & R. Shartle

3-21-71

Sta.	B.S.	H.I.	F.S.	EL.
B.M. #6	4.65	791.45		786.80'
NW cor.			3.05	788.40'
SW "			3.23	788.22'
SE "			3.13	788.32'
NE "			3.03	788.42'
Pier site			3.15	788.30'
Ridge vent on house			-11.92	803.37'
Threshold (Approx.)			1.27	790.18'±

On
ground

Footprints found 3-21-71 in muddy 50
back yard two days after Randy's
night sighting of large animal.



* Near the shop
4 1/2" prints were
found, together with 1 1/4" prints.

Atmosphere very unsteady

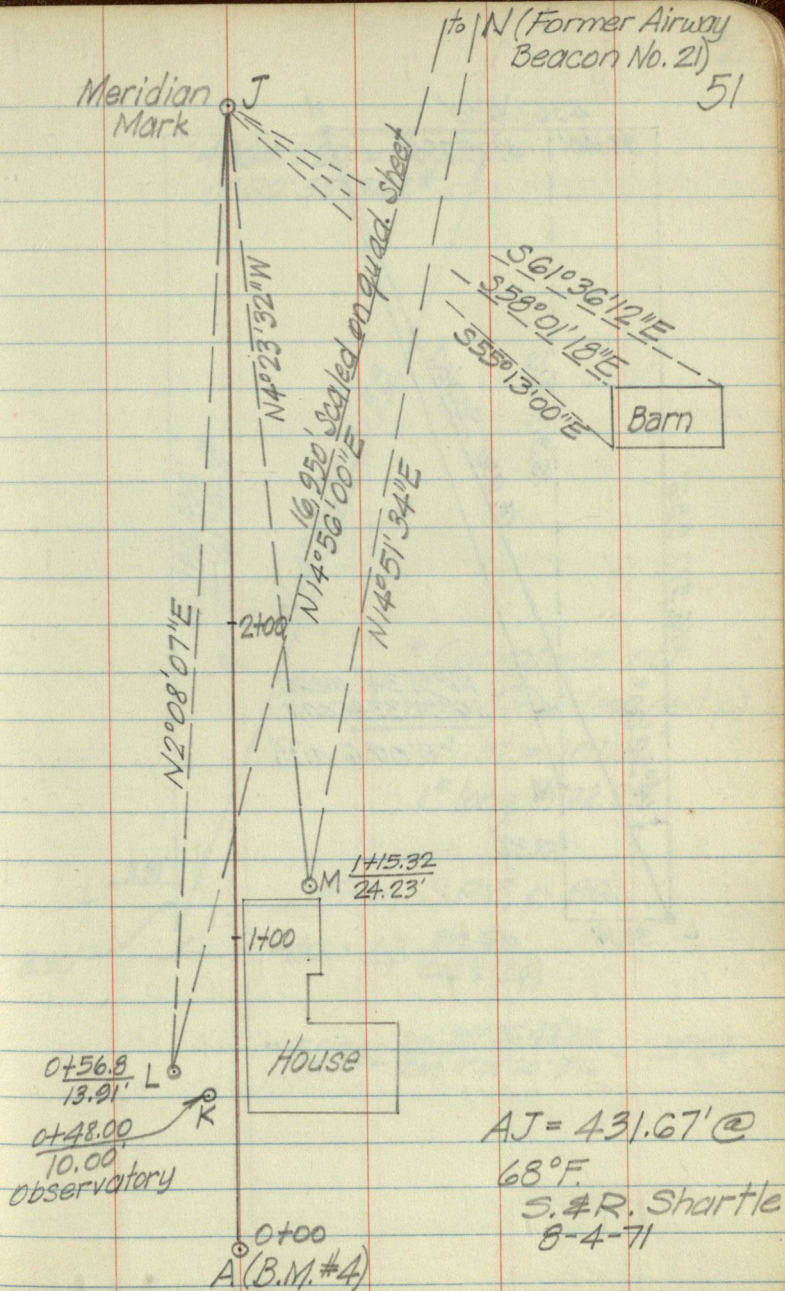
$L \neq M$ chosen arbitrarily, with L being the primary point $\neq M$ for checking only.
Not permanently marked.

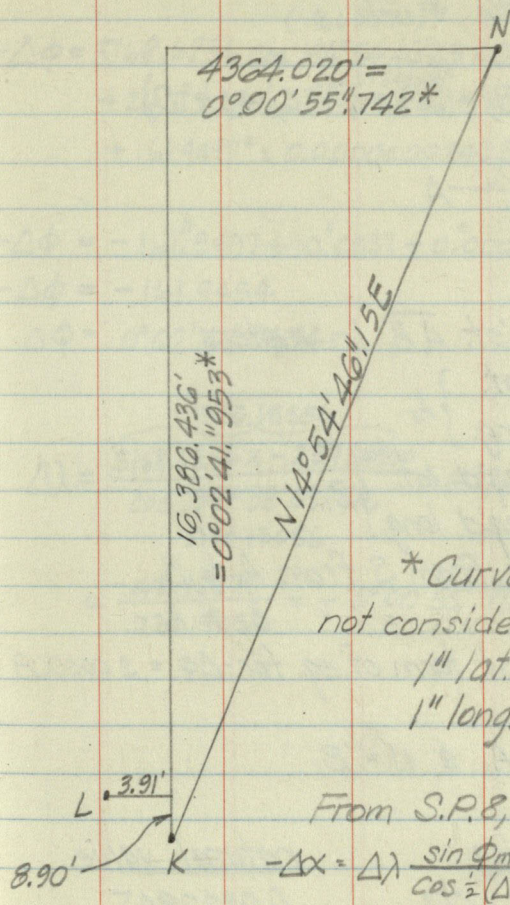
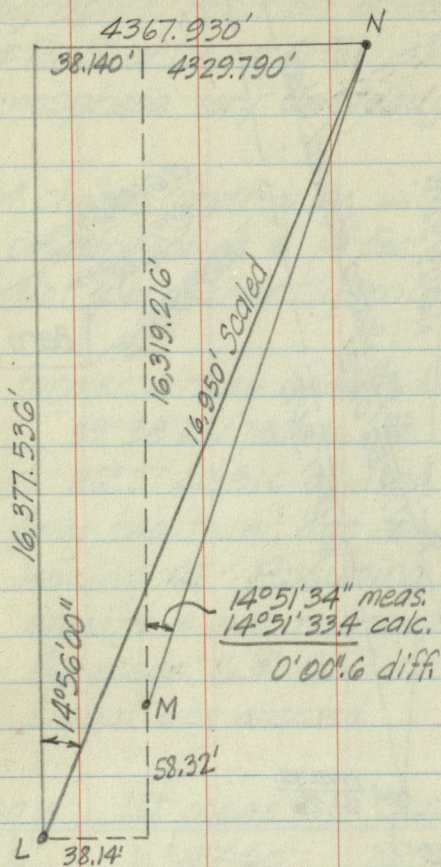
N, former airway beacon No. 21, at

39°38'03."786 N. lat. } U.S.C. & G.S.
86°37'40.810 W. long. } 1939

Only two tower legs remaining 9' apart leaning NE. Assuming tower was square & not triangular, found $\frac{1}{2}$ by meas. 6.4' from each leg where signal was erected.

Angle	1st meas.	3 reps	Final
JLN	12°47'40"	38°23'40"	12°47'53"
JMN	19°15'06"	57°45'18"	19°15'06"
LJA	2°08'10"	6°24'20"	2°08'07"
MJA	4°23'24"	13°10'36"	4°23'32"





* Curvature not
not considered (see next p.)

$$1'' \text{ lat.} = 101.18'$$

$$1'' \text{ long.} = 78.29'$$

From S.P. 8, p. 96:

$$-\Delta x = \Delta l \frac{\sin \phi_m}{\cos \frac{1}{2}(\Delta \phi)}$$

$$= 55.742 \frac{\sin 39^\circ 36' 42''.810}{\cos 0^\circ 01' 20''.976} = 35''.54$$

S.P.B, p. 96 & 97:

$$-\Delta\phi = (s \cos\alpha B) + (s^2 \sin^2\alpha C) + (h^2 D)$$

$$\Delta\lambda = \frac{s \sin\alpha}{\cos\phi'} A$$

where

s = dist. $\overline{A, B}$, in meters

ϕ = lat. } A ,

λ = long. } A ,

ϕ' = req'd. lat. } B ,

λ' = req'd. long. } B ,

α = az. from S from A , to B ,

α' = " " " " B , to A ,

h = first term of eq. for $-\Delta\phi = s \cos\alpha B$

In dwg., $K = A$, & $N = B$,

	<u>log</u>	<u>natural value</u>
A	8.509 1277	0.0322945
B	8.510 8796	0.0324250
C	7.32 271	0.00000000 21024
D	2.3847	0.0000000 2425

$$s = \overline{A, B} = \frac{16386.436}{.96631853} = 16,957.59' = 5168.6836 \text{ meters}$$

53

(-.96631853)

$$\begin{aligned} -\Delta\phi &= 5168.6836 \cos 194^\circ 54' 46''.15 \times 0.0324250 \\ &\quad + 26,715,290 \sin^2 194^\circ 54' 46''.15 \times 0.00000000 21024 \\ &\quad + 161,9497^2 \times 0.0000000 2425 \end{aligned}$$

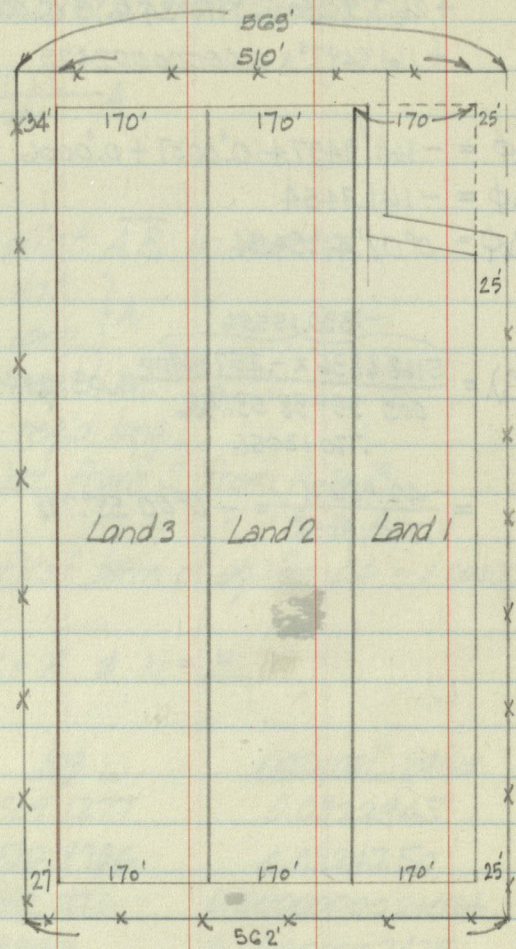
$$-\Delta\phi = -161''.9497 + 0''.0037 + 0''.0006$$

$$-\Delta\phi = -161.9454$$

$$\Delta\phi = 0^\circ 02' 41''.9454$$

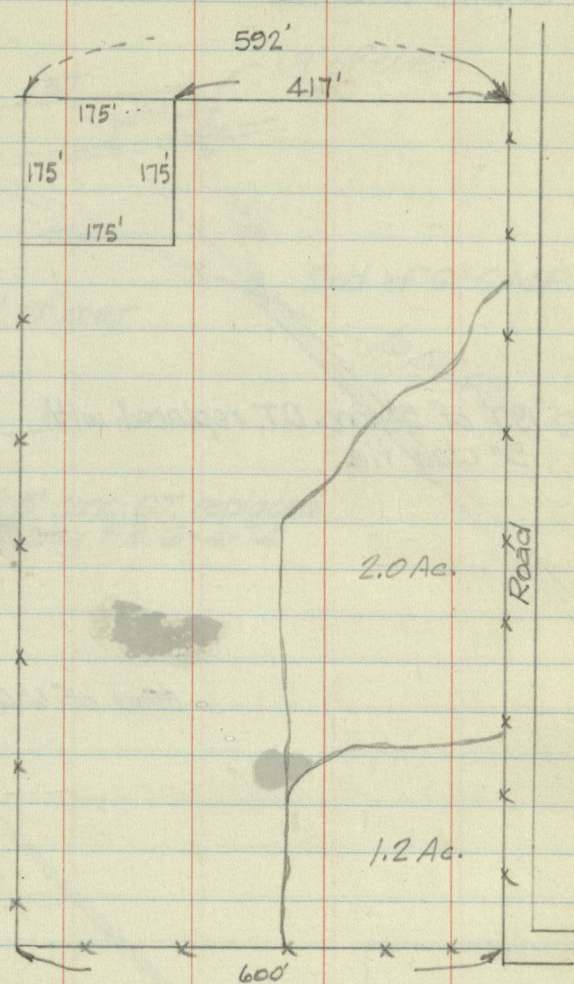
$$\begin{aligned} \Delta\lambda &= \frac{\overbrace{5168.6836 \times -1330.15556}^{(-.25734900)^2}}{\cos 39^\circ 38' 03''.786} \times .0322945 \\ &\quad .77013056 \\ &= \frac{-42.95671}{.77013056} = -0^\circ 00' 55''.778 \end{aligned}$$

Plowing Plan for Middle Field
S. & A. Shartle 4-17-71



See next book, p. 26

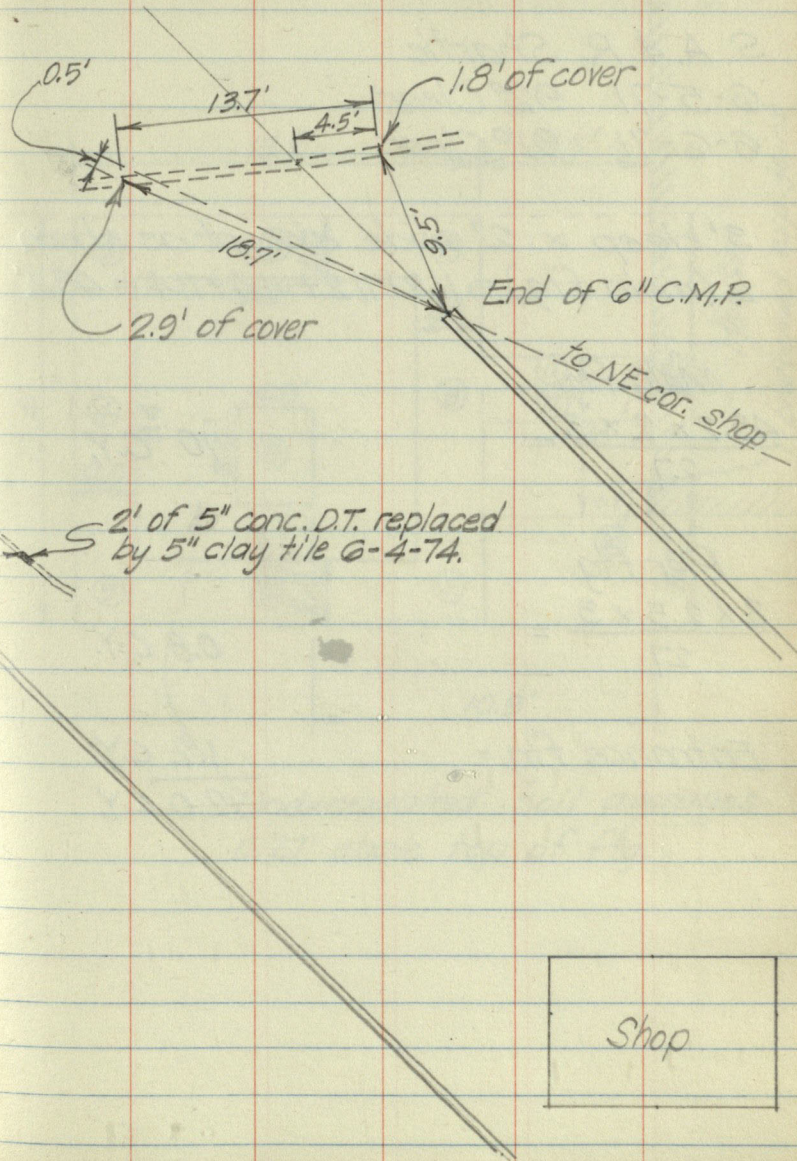
East Field



Tile Drain Repairs made 5-31-71
S. & R. Shartle

13.7' of 5" conc. D.T. replaced with
5" clay tile

End of 6" C.M.P.



S. A. & R. Shartle
6-5-71 92° Clear
6-6-71 91° Clear

S. A. & R. Shartle

6-5-71 92° Clear

6-6-71 91° Clear

3' deep $\times$ 2' wide except as shown
 $L(\text{main ftg.}) = 11.2 + 11.2 + 11.4 + 11.4 = 45.2'$

Main ftg.
 $\frac{45.2 \times 2 \times 3}{27} =$

10 C.Y.

Pier ftg.

$$\frac{3 \times 2.5 \times 3}{27} =$$

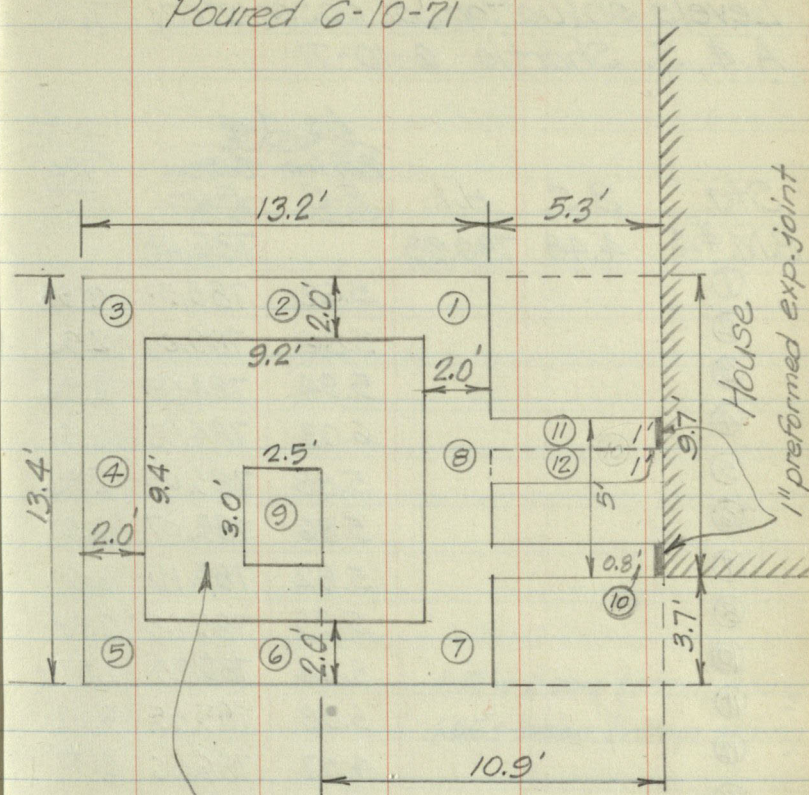
O.B C.Y.

Entrance ftg. =

$$\begin{array}{r} 1.2 \text{ C.Y.} \\ \hline 12.0 \text{ C.Y.} \end{array}$$

Poured 6-10-71

56

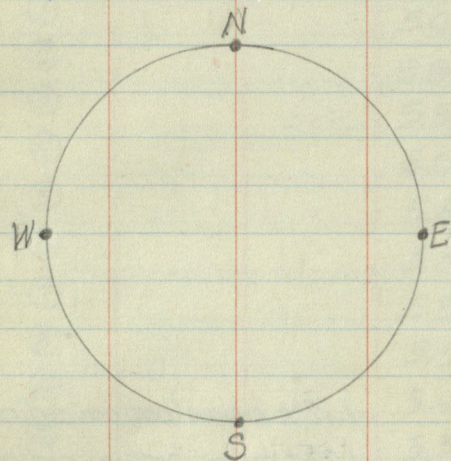


Unexcavated soil averages
0.27' above top of ftg.

Levels on ^{ top } { bottom } of observatory ftgs.
A. & S. Shartle 6-10-71

Sta.	B.S.	H.I.	As dug		As	poured	B.M.#6	
			Bottom F.S.	Bottom Elev.	Top F.S.		F.S.	Elev.
B.M.#4	4.48	790.93		786.45'				
①			5.62	785.31	2.98	787.95		
②			5.86	785.07	2.96	787.97		
③			5.94	784.99	2.96	787.97		
④			6.03	784.90	2.95	787.98		
⑤			5.88	785.05	2.96	787.97		
⑥			5.86	785.07	2.97	787.96		
⑦			5.82	785.11	2.99	787.94		
⑧			5.85	785.08	2.99	787.94		
⑩			5.64	785.29	2.97	787.96		
⑪			5.38	785.55	3.02	787.91		1.12'± below bottom siding
⑫			4.27	786.66	2.97	787.96		1.06'± below bottom siding
⑬			5.59	785.34	2.75	788.13		
B.M.#6							4.13	786.80' check

Observatory Anchor Bolts
(Surveyed at top of flg.)



58

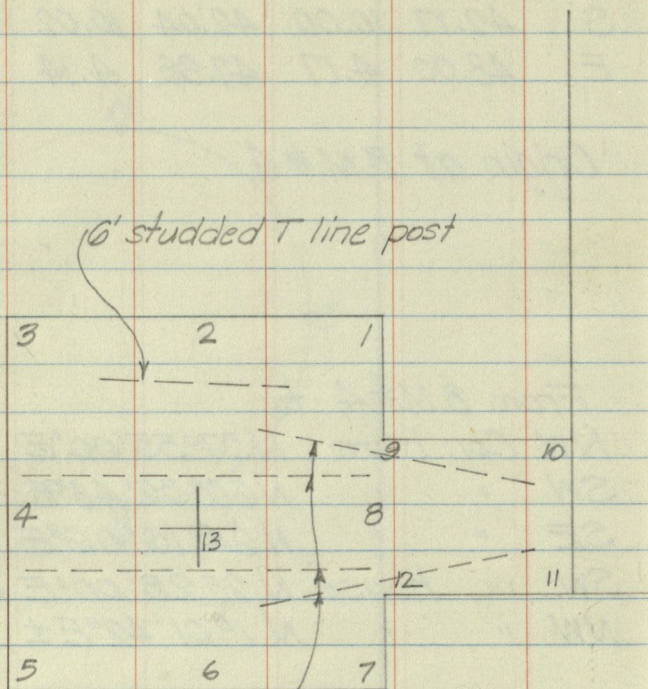
Bolt	Planned Loc.		Final Loc.	
	N	W	N	W
N	53.83	10.00	53.82	9.95
W	48.00	15.83	47.93	15.89
S	42.17	10.00	42.04	10.02
E	48.00	4.17	47.98	4.14

Origin at B.M.#4

From B.M.#4 to:

NW	Cor. barn	N 57° 55' 00" E	
SW	" "	N 60° 52' 48" E	
SE	" "	N 64° 16' 06" E	
SW	house	N 2° 28' 00" E	45.05'
NW	" "	N 1° 01' 42" E ±	

Observatory Floor Slab
 4.6 C.Y. 3500# air-entrained conc.
 placed June 23, 1971

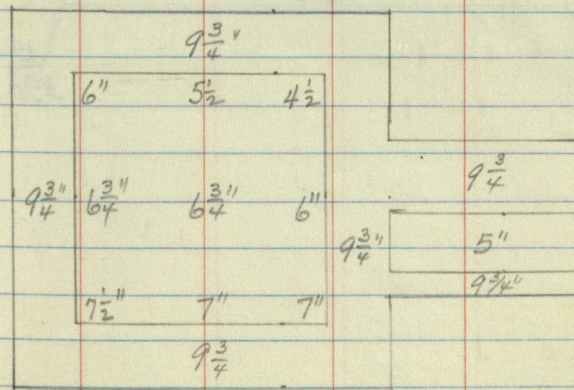


1/2 ϕ rebars covered about 3"

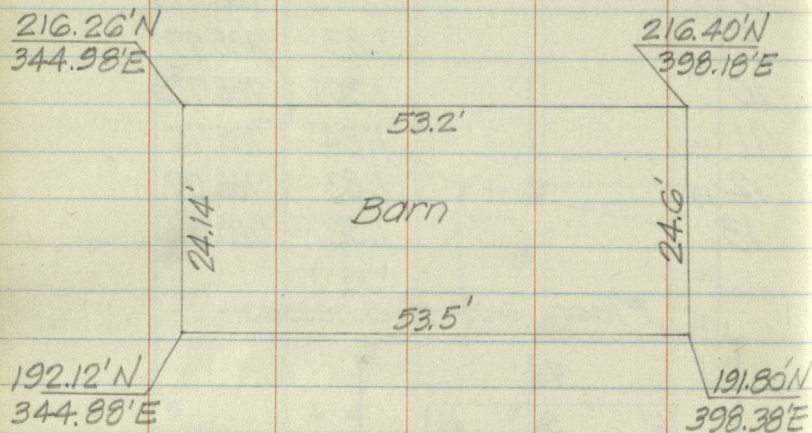
S.A. Shurtle 6-26-71
Fair & hot 59

Sta.	B.S.	H.I.	F.S.	EL.
B.M.#4	4.15	790.60		786.45
1			1.84	788.76
2			1.825	788.775
3			1.81	788.79
4			1.82	788.78
5			1.825	788.775
6			1.84	788.76
7			1.835	788.765
8			1.825	788.775
9			1.83	788.77
10			1.805	788.795
11			1.84	788.76
12			1.83	788.77
13			1.82	788.78

Floor slab thicknesses:

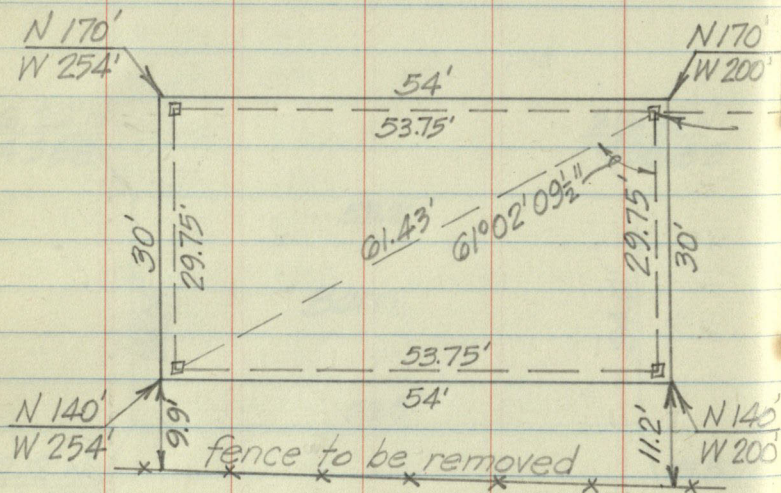


Coordinate of Corners of Barn
(Origin at A or B.M. #4)
Calc. by S. Shartle 8-5-71



Stakes for Marton Bldg. 30'x54'
S. & R. Shartle 12-24-71

□ Stake set



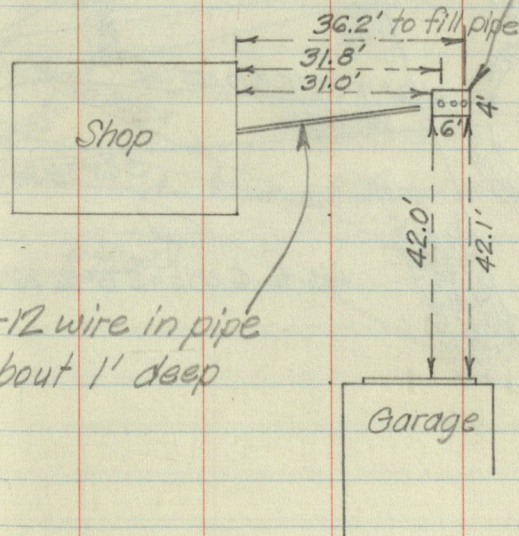
Cor. elev. (inches)

SE	0"
SW	-12"
NW	-8"
NE	-10"
Center	-3"

Meridian

N 0.00'
W 0.00' ↓ A

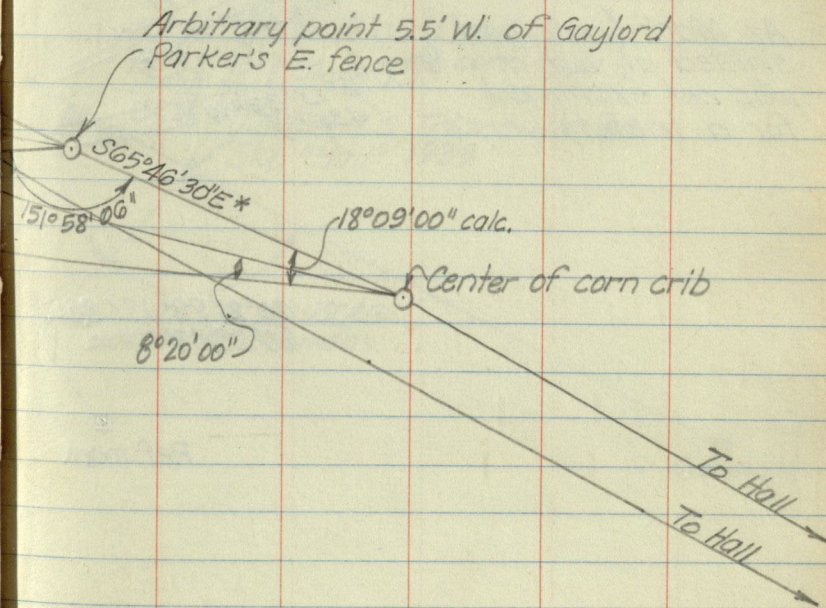
48" dia. x 6' Kennedy 7-ga.
550 gal. underground gas
tank set 3-25-72 about 22"
below ground level.



3-31-72 S. & R. Shartle
4-1-72 +38°F

Well to Φ crib = $S75^{\circ}52'26''E^*$

* Subj. to adj.



80
75
74
Sec474
@6

Az. Mark (conc. post
sighted at, but it
was not examined
for a tablet)

to ♀ corn crib $N60^{\circ}33'58''W$
 to S. gable ~~Bob Wallace's House~~
 $N60^{\circ}54'45''W$ mistaken
 NT $60^{\circ}13'33''W$ U.S.C. & G.S.
 (used)

$60^{\circ}21'29''$ U.S.C. & G.S.
 $60^{\circ}22'03''$ meas.

Ref. mark

$15^{\circ}39'35''$ to ♀ corn crib
 $15^{\circ}38'45''$ to S. edge corn crib
 $15^{\circ}38'52''$
 $15^{\circ}38'51''$
 U.S.C. & G.S. Triangulation
 Sta. "Hall" 1939

$106^{\circ}03'35''$ U.S.C. & G.S.
 $106^{\circ}03'24''$ meas.

Ref. mark

COORDINATES (ORIGIN AT A)

Well 301.806'N 455.915'E

Gable 715.048'N 511.297'E

Arb. Point 126.805'N 1905.786'E Calc. thru gable

Arb. Point 126.885'N 1906.982'E " " J

⊕ Crib 304.956'S 2865.379'E " " Arb. Pt.

⊕ Crib 305.294'S 2868.555'E " " J

2) 610.250' 2) 5733.934

⊕ Crib 305.125'S 2866.967'E MEAN USED

4 @ K (Obs.) 48.000'N 10.000'W

⊕ Crib 305.061'S 2864.965'E FINAL USED

- USED

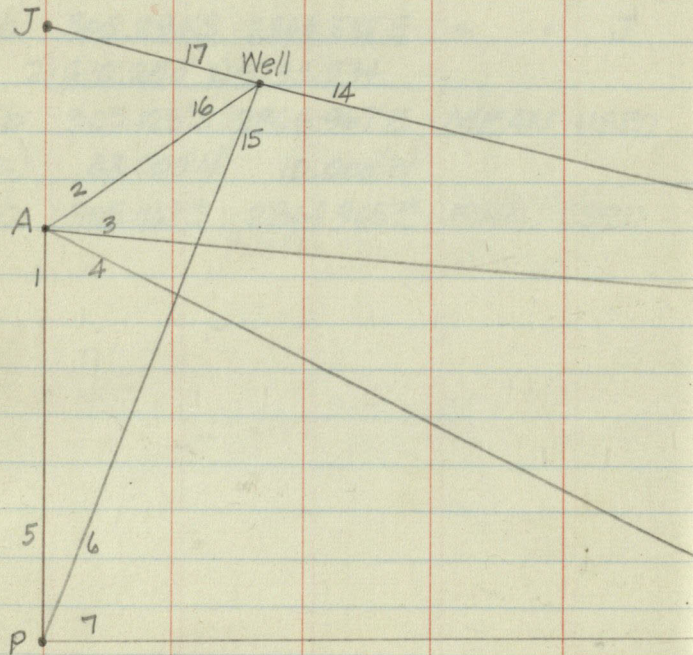
- NOT USED

} " "

To Determine More Precisely the Differences of Lat. & Dep. between A and Corn crib.

S. & A. Shartle 4-19-72 (angles)
4-22-72 (distances)

Directions are numbered



Distance Value Date

A-Well 546.68' @ 60° 4-22-72

546.65' @ 68° 4-22-72

Well-P 1270.21' @ 38° 4-1-72

1269.96' @ 68° 4-1-72

1269.87' @ 60½° 4-22-72

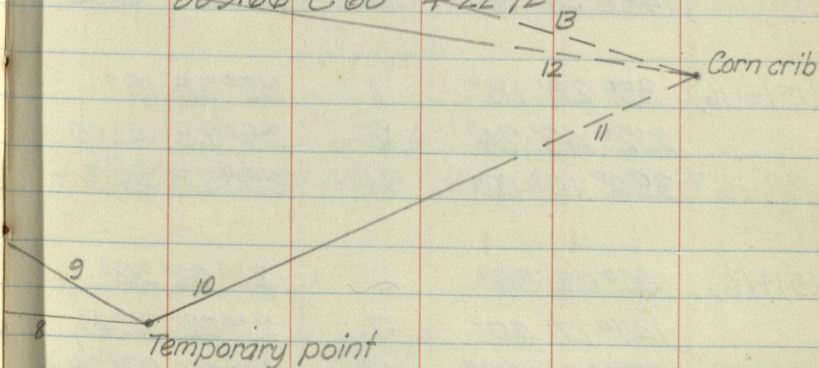
1269.81' @ 68° 4-22-72

A-P 883.81' @ 38° 4-1-72

883.64' @ 68° 4-1-72

883.70' @ 61° 4-22-72

883.66' @ 68° 4-22-72



Angle	Gross Obs. Value	Reps.	Net Obs. Value	Sta. Corr.	Adj. for Sta. Corr.	Fig. Adj.	Final Angle	67
-(4)+(1)	63° 17' 33"	1	63° 17' 33"					
	379° 45' 15"	6	63° 17' 32".50	+0".58	63° 17' ^{32".58*} 33".08	-0".51	63° 17' 32".07	
-(5)+(7)	89° 51' 45"	1	89° 51' 45"					
	539° 10' 32"	6	89° 51' 45".33	-0".23	89° 51' 45".10	-0.69	89° 51' 44".41	
-(8)+(9)	26° 50' 42"	1	26° 50' 42"					
	107° 22' 54"	4	26° 50' 43".50	+0".25	26° 50' 43".75	-0.23	26° 50' 43".52	
-(2)+(1)	123° 29' 21"	1	123° 29' 21"					
	740° 55' 30"	6	123° 29' 15".00					
	1481° 51' 18"	12	123° 29' 16".50	-0".41	123° 29' ^{14".59*} 16".09	+0.27	123° 29' 14".86	
-(15)+(16)	35° 28' 18"	1	35° 28' 18"					
	212° 49' 24"	6	35° 28' 14".00					
	390° 10' 03"	11	35° 28' 11".18	+0".60	35° 28' ^{16".87*} 11".78	-0.14	35° 28' 16".73	
-(5)+(6)	21° 02' 36"	1	21° 02' 36"					
	147° 17' 40"	7	21° 02' 31".43					
	273° 32' 22"	13	21° 02' 29".38	+0".16	21° 02' ^{28".54*} 29".54	-0.13	21° 02' 28".41	
-(6)+(7)	68° 49' 20"	1	68° 49' 20"					
	428° 55' 32"	6	68° 49' 15".33	+0".23	68° 49' 15".56	+0.44	68° 49' 16".00	

*Fig. adj. $\Delta A-P-Well$

Angle	Gross Obs. Value	Reps	Net Obs. Value	Sta. Corr.	Adj. for Sta. Corr.	Fig. Adj.	68 Final Angle
-(16)+(17)	49°23'50"	1	49°23'50"				
	296°23'22"	6	49°23'53".67	+0".59	49°23'54".26	-4".69	See P. 69 49°23'49".57
-(17)+(14)	178°13'48"	1	178°13'48"				
	1069°21'28"	6	178°13'34".67	+0".59	178°13'35".26	0.00	178°13'35".26
-(14)+(15)	96°54'15"	1	96°54'15"				
	581°25'36"	6	96°54'16".00				
	1162°51'41"	12	96°54'18".42	+0".28	96°54'18".70	-0.12	96°54'18".58
-(2)+(3)	39°34'00"	1	39°34'00"				
	197°49'24"	5	39°33'52".80	+0".63	52".93* 39°33'53".43	+2.50	39°33'55".43
-(3)+(4)	20°37'48"	1	20°37'48"				
	123°46'54"	6	20°37'49".00	+0".58	49".08* 20°37'49".58	-1.72	20°37'47".36
-(9)+(10)	126°05'00"	1	126°05'00"				
	504°19'18"	4	126°04'49".50	+0".25	126°04'49".75	+0.27	126°04'50".02
-(8)+(10)	152°55'42"	1	152°55'42"				
	611°42'15"	4	152°55'33".75	-0".25	152°55'33".50	+0.04	152°55'33".54

*Fig. adj. $\Delta A-P-Well$

	Calc.	Fig. Adj.	Final Angle
-(12)+(13)	8°03'31".50	-2".24	8°03'29".26
-(11)+(12)	33°17'21".17	+1.45	33°17'22".62
-(14)+(16)	132°22'35".57	-0.26	132°22'35".31

REOBSERVED 5-7-72

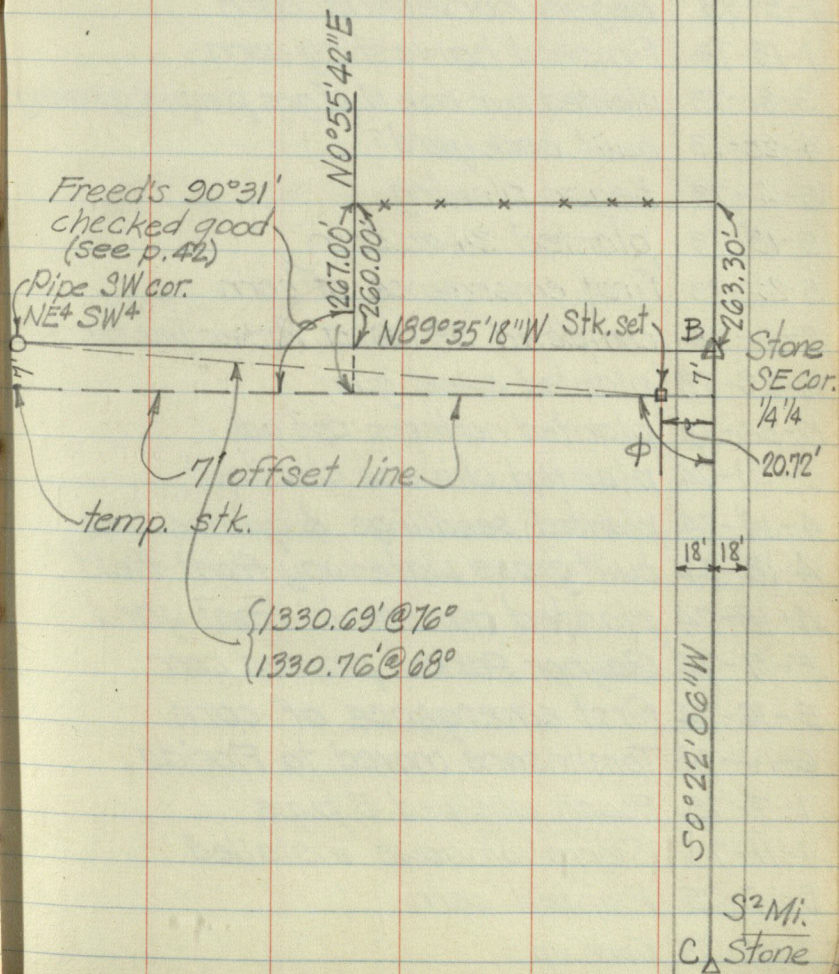
Angle	Gross Obs. Value	Reps.	Net Obs. Value	Sta. Corr.	Adj. for Sta. Corr.	Fig. Adj.	Final Angle
A-J-Well	74°05'33"	10	74°05'33"				
	74°05'24"	10	74°05'38".4				
-(16)+(17)	49°23'51"	1	49°23'51"				
	493°59'00"	10	49°23'54".0	-2".55	49°23'51".45		
-(15)+(16)	35°28'12"	1	35°28'12"				
	283°46'00"	8	35°28'15".0				
	283°46'21"	8	35°28'17".62				
	Mean =		35°28'16".31	+0".42	35°28'16".73		
-(15)+(17)	84°52'10"	1	84°52'10"				
	678°56'45"	8	84°52'05".62	+2".56	84°52'08".18		

Purchase from Bobbie M. Wallace
Pt. NE⁴ SW⁴ 4-13-2W

S. & A. Shartle
May 28, 1972

Reps	ϕ	Reduced	Wt.
1	90°02'36"		
10	90°02'36"	90°02'39".6	2
5	45°12'24"	90°02'28".8	1
Weighted mean = 90°02'36"			

Stone SE Cor. NE⁴ SW⁴
N. end C.M.P. @ E 37.83'
Power pole W 53.95'



Continued from p. 39

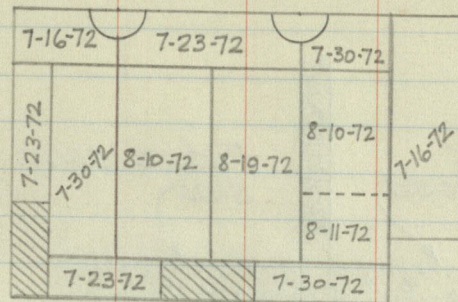
- 5-23-72 first emergence of soybeans
- 5-27-72 planted corn in north field
- 6-3-72 first emergence of corn, N. field
- 1-7-73 quit harvesting soybeans
- 1-9-73 began harvesting corn
- 1-13-73 finished harvesting corn
- 3-31-73 planted bur oak N. of gas pump, & ginseng
- 4-28-73 built back yard
- 5-4-73 began plowing
- 5-18-73 planted 34 ac. corn
- 5-26-73 first emergence of corn
- 9-6-73 completed 39 rds. of Parker line fence
- 12-29-73 planted sweet gum
- 12-30-73 planted northern red oak
- 3-31-74 planted chinese chestnut
- 4-14-74 planted seedlings & quince tree
- 4-18-74 built grass waterway front field
- 4-18-74 planted bur oak in front yard
- 5-7-74 Gaynor Parker planted corn
- 5-16-74 first emergence of corn
- 6-14-74 Tomlinsons moved to Florida
- 1-7-75 Pooch whelped 5 pups
- 1-11-75 Storm windows installed
- 5-6,7-75 Planted corn
- 5-15-75 Corn up

Dates of Placement of Concrete

Conc. Mix: (per 1-bag batch)

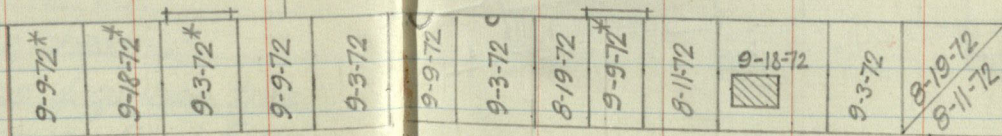
	Water	Aggregate Fine	Course #5
sand damp	45.5#	207#	282#
" wet	41.5#	211#	282#
" very wet	34.5#	218#	282#

COURT YARD



Garage

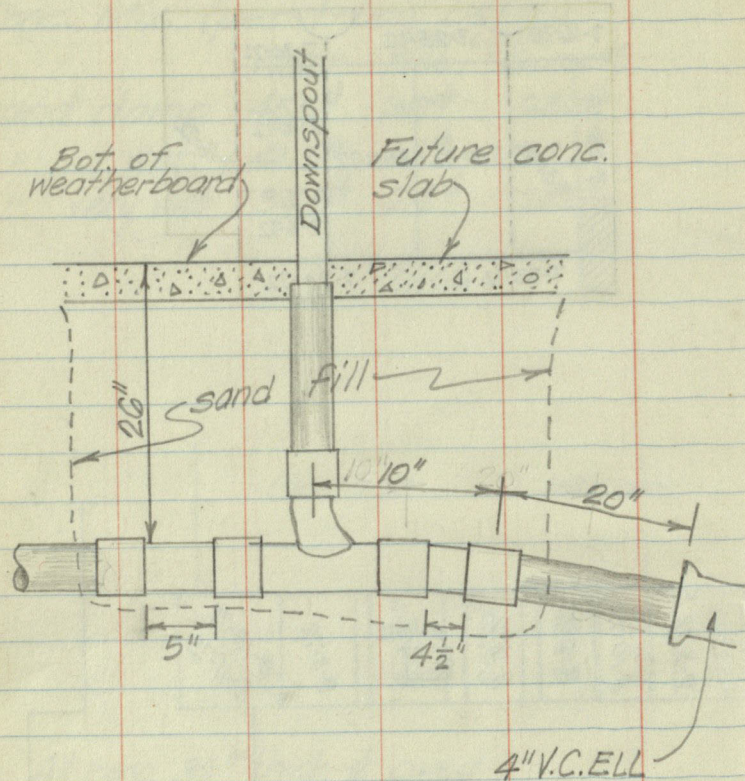
House



All conc. $3\frac{1}{2}$ " thick & cured with curing membrane compound except areas marked * which were cured with water under 4-mil plastic for about 5 days+.

Observatory

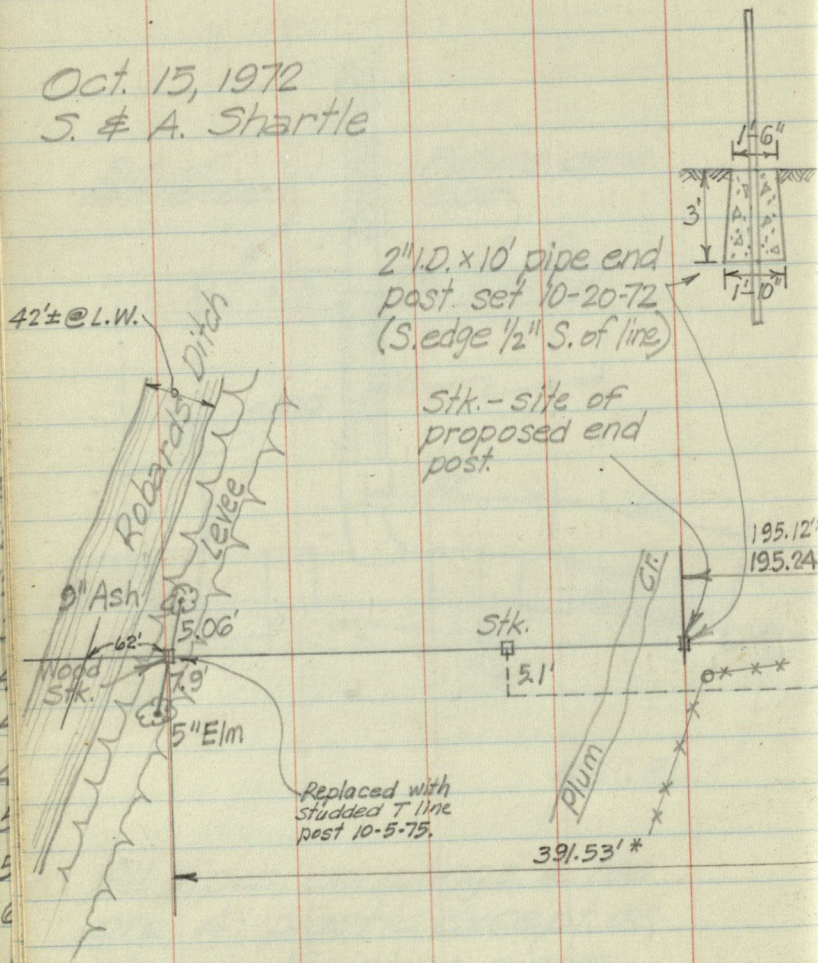
Repair of Downspout Connection Near Laundry Door 8/26/72



All pipes, couplings, & tee
are 4" plastic except as
shown. Existing pieces
shaded.

FOR FENCE ALONG VERN PARKER LINE

Oct. 15, 1972
S. & A. Shartle



2" I.D. x 8'-4" pipe
(pull post set 10-20-72)

2.27' Stone - SW Cor. Sec. 4

427.38'

427.71'

377.68'

Sec. line 0.05' N.
of 2" pipe cor. post
2331.0' W. SE. cor.
sec. (see p. 25)

377.45'*

Sec. line

9" Elm

Stk.

20" W. Cherry

Offset

new post

Edge of Maple
5.0' S. of Sec. line

50.03'

5.1'

237'

258.5'

All meas. corrected to 72°F.

* From EDM traverse of 1975

TILE TRACED BY PROBING IN BACK FIELD

S.M. Shartle
Jan. 1, 1973

Point	Dist. From Cherry 10"	Beech 4 1/2"	Remarks	Sta.
1	91.3'	95.6'		
2	91.8'	84.6'		6+14.5
3	88.2'	71.4'		6+01.4
4	82.0'	54.8'		5+84.4
5	77.8'	38.4'		5+67.4
6	76.6'	24.9'		5+51.8
7	78.4'	16.3'		
8		15.0'		5+35.5
9	88.3'	31.1'	3.2' to top of tile	
10	78.5	41.5	Jct. two tiles	5+70.6

85.3' to end of pipe
8+00
Willow

7+00

Grass

Corn

sink hole 6+30

6+00

sink hole
5+70.6

Large
Twin
Cherry

Beech 4 1/2"

Cherry 10"

Fence

59'

94.5'

57.0'
35.5'

76
Conrad Milhous told me
4-12-74 that the tile
on this farm was put
in by Bert Walker in
1923.

9+87? Maple 15"

15.8'

9+61 Maple 22'

14'

9+39 Tw. Elm 5"

1.6'

Top of tile 6" below
stream bed

9+26.9 Elm 4"

2.6'

9+31

9+00

8+97

8+90

8+67 Willow

12'

8+53

Pipe culv.

20'

8+32.6

10.5'

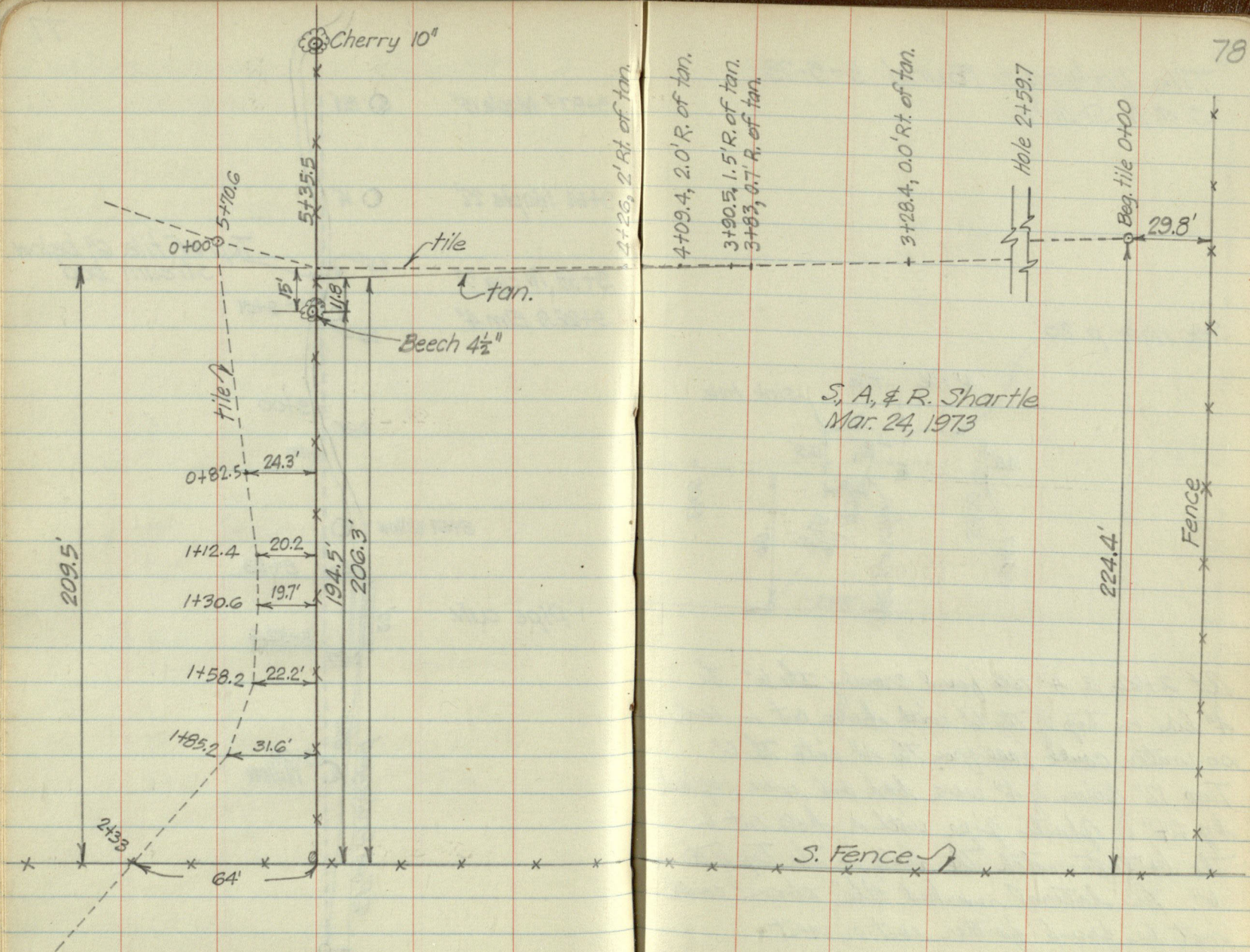
85.3'

8+00

Willow

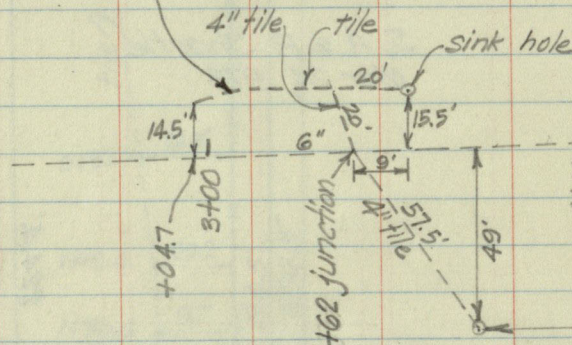
Pipe Prolonged

9+00



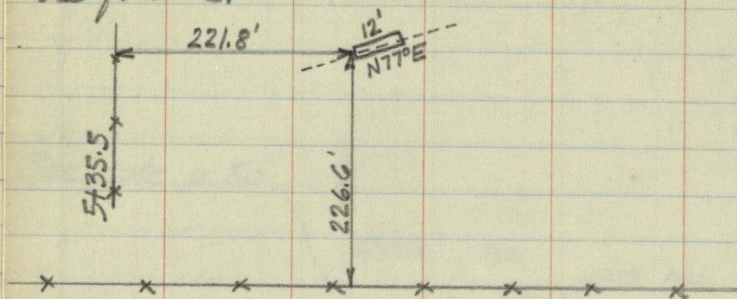
Tile Laterals Found 5-5-73
S. & A. Shurtle

See note p. 80



At 2+62 a 4" tile found crossing the 6". The 4" lies on top of the 6" with holes cut in each so water could fall from the 4" into the 6". Two 12" pieces of 4" were bad and were replaced by 24" of plastic pipe with a hole cut in the bottom to match the hole in the top of the 6". The lateral marked "tile" above could not be found farther east or west.

* See diag. on previous page. A sink hole developed here. On Nov. 8, 1978, I excavated and removed 12' of 5" conc. tile as follows:



The tile was so badly etched and deteriorated that a probing rod could be pushed thru it without noticeable resistance. The whole line is worthless and abandoned, with the hole being backfilled without tile being replaced.

IMPROVED TABLES AND INFORMATION

HORIZONTAL STADIA CORRECTIONS

2°-00' — 0.1	21°-00' — 12.8	33°-00' — 29.7
3°-00' — 0.3	21°-30' — 13.4	33°-15' — 30.1
4°-00' — 0.5	22°-00' — 14.0	33°-30' — 30.5
5°-00' — 0.8	22°-30' — 14.7	33°-45' — 30.9
6°-00' — 1.1	23°-00' — 15.3	34°-00' — 31.3
7°-00' — 1.5	23°-30' — 15.9	34°-15' — 31.7
8°-00' — 1.9	24°-00' — 16.5	34°-30' — 32.1
9°-00' — 2.5	24°-30' — 17.2	34°-45' — 32.5
10°-00' — 3.0	25°-00' — 17.9	35°-00' — 32.9
10°-30' — 3.3	25°-30' — 18.6	35°-15' — 33.3
11°-00' — 3.6	26°-00' — 19.2	35°-30' — 33.7
11°-30' — 4.0	26°-30' — 19.9	35°-45' — 34.1
12°-00' — 4.3	27°-00' — 20.6	36°-00' — 34.6
12°-30' — 4.7	27°-30' — 21.3	36°-15' — 35.0
13°-00' — 5.1	28°-00' — 22.0	36°-30' — 35.4
13°-30' — 5.5	28°-30' — 22.8	36°-45' — 35.8
14°-00' — 5.9	29°-00' — 23.5	37°-00' — 36.2
14°-30' — 6.3	29°-30' — 24.3	37°-15' — 36.6
15°-00' — 6.7	30°-00' — 25.0	37°-30' — 37.1
15°-30' — 7.2	30°-15' — 25.4	37°-45' — 37.5
16°-00' — 7.6	30°-30' — 25.8	38°-00' — 37.9
16°-30' — 8.1	30°-45' — 26.2	38°-15' — 38.3
17°-00' — 8.5	31°-00' — 26.5	38°-30' — 38.7
17°-30' — 9.0	31°-15' — 26.9	38°-45' — 39.1
18°-00' — 9.5	31°-30' — 27.3	39°-00' — 39.6
18°-30' — 10.1	31°-45' — 27.7	39°-15' — 40.0
19°-00' — 10.6	32°-00' — 28.1	39°-30' — 40.5
19°-30' — 11.2	32°-15' — 28.5	
20°-00' — 11.7	32°-30' — 28.9	
20°-30' — 12.3	32°-45' — 29.3	

Chains to Feet

1	66
2	132
3	198
4	264
5	330
6	396
7	462
8	528
9	594
10	660

Feet to Chains

100	1.515
200	3.030
300	4.545
400	6.060
500	7.575
600	9.090
700	10.606
800	12.121
900	13.636
1,000	15.151

