

← A4 →

← LETTER →

220



LEVEL BOOK

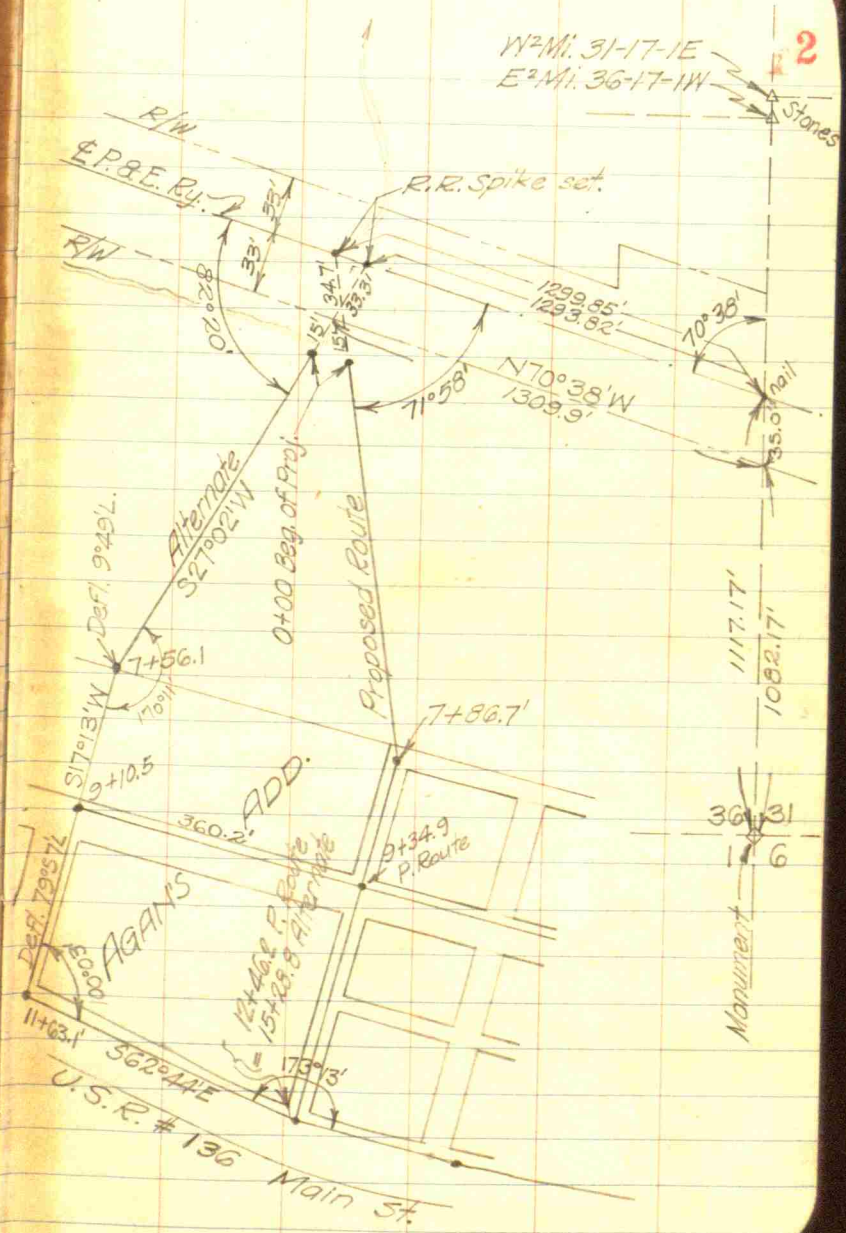
No. 8825

W. W. W.

S1 CHESTER G. HICKS DRAIN
 Pittsboro, Indiana
 Cause No. 16689

June 1951
 John Shelton } viewers
 Ora Hines }
 Stanley Shurtle - Engineer
 James Gossett } Assisting.
 Will A. Shafer }

179 60
 7957
 100 03



Sta.	B.S.	H.I.	F.S.	EL.	Adjusted	Remarks
B.M.#1	4.74	945.23		940.49	940.49'	U.S.C. & G.S. B.M. G-50 (Reset) @ Maple St. & Railroad.
B.M.#2	3.33	943.22	5.34	939.89	939.89'	NW cor. of N. end of W. sidewalk of Meridian St.
⊙	2.71	941.77	4.16	939.06	939.06'	
⊙	1.86	939.75	3.88	937.89	937.89'	
B.M.#3			3.22	936.53	936.53'	Top S end W abutment Bridge #36
0+00			9.98	929.77	929.77'	Top stake 0 Proposed Route
0+00			8.98	930.77	930.77'	Top stake 0 Alternate Route
⊙	3.72	937.29	6.13	933.57		
1			11.40	925.89		Sta. 1+00 on M-Cord (from 0+00 Prop. Rt) N
2			10.20	927.09		2 " " "
3			10.80	926.49		3 " " "
4			11.00	926.29		4 " " "
⊙	3.93	937.50	3.72	933.57		
5			11.60	925.90		5 " " "
6			11.90	925.60		6 " " "
7			12.00	925.50		7
⊙	1.76	935.33	3.93	933.57		
8			10.60	924.73		8
9			10.30	925.03		9
10			11.10	924.23		10
11			10.90	924.43		11
12			10.70	924.63		12
B.M.#4			2.12	933.21		Top SW wing conc. culvert on E & W Road.

(no check for closure)

Sta.	B.S.	H.I.	F.S.	EL.	Adjusted	ROUTE
5 0+00	6.60	936.37		929.77	929.77'	Top stake of Proposed Route
R.R. Culvert			10.75	925.62	925.62	Flowline S. end 72" conc. pipe (Br. #36)
Open ditch			9.80	926.57	926.57	M ^{rs} Cord Dr - S ^W R.R.
0+00			7.98	928.39	928.39	Flowline 8" tile @ 0+00 (P. Route)
0+00			8.95	927.42	927.42	" 16" C.M.P. - end of C. C. Hicks Dr.
0+02			8.30	928.07	928.07	" 10" C.M.P. - 0+02 (P. Route)
0+11			7.62	928.75	928.75	" 10" C.M.P. - 0+11
0+00			8.78	927.59	927.59	" open ditch
0+00			4.54	931.83	931.83	Top E. bank
0+54.8			8.65	927.72	927.72	Top 8" pipe line (Shell Oil Co.) 3.8' deep
0+54.8			9.37±	927.00	927.00	Bottom " " (" ")
1			4.41	931.96	931.96	
0	6.82	939.62	3.57	932.80	932.80	
2			5.88	933.74	933.74	
3			5.97	933.65	933.65	
4			5.60	934.02	934.02	
5			4.69	934.93	934.93	
6			4.02	935.60	935.60	
7			3.22	936.40	936.40	
0	6.22	943.54	2.30	937.32	937.33	
7+86.7			4.60	938.94	938.95	On ground.
8			4.28	939.26	939.27	
9			5.30	938.24	938.25	
9+34.9			5.72	937.82	937.83	Equation: 9+34.9 = 0+00 Osborne Ave. Line

abandoned

All elev. at ground level

7

Sta.	B.S.	H.I.	F.S.	EL.	Adjusted
B.M.#5			3.08	940.46	940.47
10			6.06	937.48	937.49
11			6.10	937.44	937.45
12			6.47	937.07	937.08
12+46.2			6.91	936.63	936.64 Top of stake

8
NE cor. porch floor A.M. Smith (Lot 7 Agans Add.)

Junction with alternate: 12+46.2 = 15+28.8

ALTERNATE ROUTE

0+00	9.74	940.51		930.77	930.77
0+82.2			8.30	932.21	932.21
1			7.95	932.56	932.56
2			5.70	934.81	934.81
3			5.81	934.70	934.70
4			4.83	935.68	935.68
5			5.15	935.36	935.36
6			4.85	935.66	935.66
7			5.75	934.76	934.76
7+56.1	6.23	940.30	6.44	934.07	934.07
8			6.30	934.00	934.00
9			4.43	935.87	935.87
9+10.5			4.28	936.02	936.02
10			4.20	936.10	936.10
B.M.#6			2.11	938.19	938.19
11			4.56	935.74	935.74

Top of stake

Ground over 8" pipe line (Shell Oil Co.)

Cross N&S fence (div) @ 3+28

On top P.I. stake { cor. post SW. 53.4'
4th. post from cor. SE 39.6'

Junction Osborne Ave. Line 9+10.5 = 0+00

NE cor. porch floor - Rader - Lot 1 Agans Add.

<i>Ug</i>	B.S.	H.I.	F.S.	EL.	Adjusted
11+63.1			4.35	935.95	935.95
12			4.29	936.01	936.01
13			4.00	936.30	936.30
14			4.15	936.15	936.15
15			3.53	936.77	936.77
15+28.8	4.85	941.49	3.66	936.64	936.64
B.M.#7			4.23	937.26	937.26
B.M.#8			2.78	938.71	938.71
B.M.#9	1.90	943.08	0.31	941.18	941.18
B.M.#10	4.05	945.72	1.41	941.67	941.67
B.M.#11	4.61	950.27	0.06	945.66	945.65
B.M.#12			2.94	947.33	947.32
B.M.#13	2.67	945.52	7.42	942.85	942.84
B.M.#14	1.18	945.49	1.21	944.31	944.30
⊙	5.47	946.30	4.66	940.83	940.82
B.M.#1			5.80	940.50	940.49

top P.I. stake

Junction with proposed route 15+28.8=12+46.2
 Orig. Hicks Dr. B.M. End N. walk Main St.-Old El. 9.53
 " " " " Near walk @ 91. between
 Armstrong & Winkelman-Old El. 11.07
 top of fire hyd. cor. Main & 4th Cross St.
 " " " " " " & 2d Cross St.
 " " " " " " & West Cross (Meridian) St.
 " " Center of monument @ Twp. Cor.
 " " fire hyd. @ SE cor. school grounds.
 " " " " rear NE " " "

See page 4 for description

Sta.	B.S.	H.I.	F.S.	EL.	Adjusted
B.M.#5	3.66	944.12		940.46	940.47'
B.M.#15			4.50	939.62	939.63
B.M.#16	3.27	945.92	1.47	942.65	942.66
B.M.#17	6.26	951.09	1.09	944.83	944.85
B.M.#12			3.79	947.30	947.32'

Adjustment of closing error in

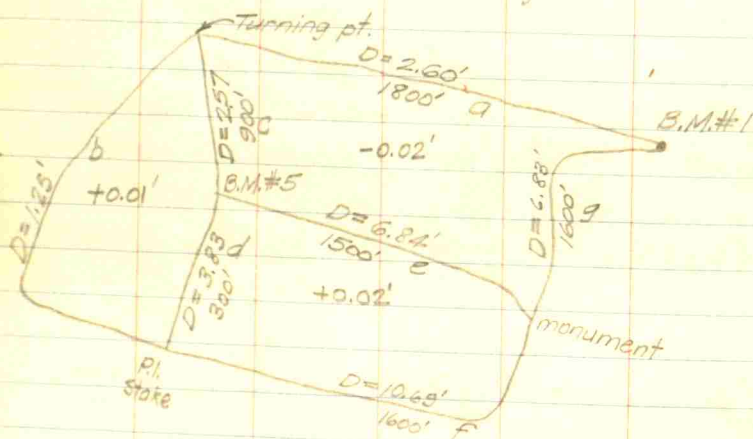


Diagram of circuits.

See page 8 for description.
(Lot 15 Osborne's 2d Add.)
Walk to house of Mary Ashby is old B.M. old el. = 11.32'
Top of fire hyd. cor. 3rd. Cross & Osborne Ave.
" " " " " 1st. Cross &
See page 10 for description.

network of leveling:

condition equations:

$$0 = +0.02 - d - e + f$$

$$0 = -0.02 - a + c + e - g$$

$$0 = +0.01 - b - c + d$$

Correlate equations

Side	weight	I	II	III	Σ
a	1.12		-1		-1
b	0.94			-1	-1
c	0.56		+1	-1	0
d	0.19	-1		+1	0
e	0.94	-1	+1		0
f	1.00	+1			+1
g	1.00		-1		-1

1348

Normal equations:

Eq. No.	I	II	III	η	Σ
1	+2.13	-0.94	-0.19	+0.02	+1.02
2		+3.62	-0.56	-0.02	+2.10
3			+1.69	+0.01	+0.95

Forward solution of normal equations:

	I	II	III	η	Σ
	+2.130	-0.940	-0.190	+0.020	+1.020

$$C_1 = +0.441 +0.089 -0.009 -0.478$$

$$+3.620 -0.560 -0.020 +2.100$$

$$-0.415 -0.084 +0.008 +0.449$$

$$+3.205 -0.644 -0.012 +2.549$$

$$C_2 = +0.202 +0.004 -0.796$$

$$+1.690 +0.010 +0.950$$

$$-0.017 +0.002 +0.091$$

$$-0.130 -0.002 +0.512$$

$$+1.543 +0.010 +1.553$$

$$C_3 = -0.0065 -1.0065$$

Back solution

	3	2	1
	-0.0065	+0.0040	-0.0090
		-0.0013	-0.0006
		+0.0027	+0.0012
			-0.0084

Computation of corrections

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a	b	c	d	e	f	g
-0.0027	+0.0065	+0.0027	+0.0084	+0.0084	-0.0084	-0.0027
1.12	0.94	+0.0065	-0.0065	+0.0027	1.00	1.00
-0.0030	+0.0061	+0.0092	+0.0019	+0.0111	-0.0084	-0.0027
		0.56	0.19	0.94		
		+0.0051	+0.0004	+0.0104		

Adopted corrections:

0	0	+0.01	0	+0.01	-0.01	0
2.60	1.25	2.57	3.83	6.84	10.69	6.83
2.60	1.25	2.58	3.83	6.85	10.68	6.83

13	15	Sta.	B.S.	H.I.	F.S.	EL.
Eq.	B.M.#3	2.90	939.43			936.53
1	0+82.2 (Alt. Route)			10.74		928.69
2	B.M.#18			4.54		934.89
3						
Fd						

16
 Top of 3" pipe line (Shell Oil Co)
 On NW cor. N. rail interurban bridge
 (This is B.M.#3 on McCord Drain
 -old elev. = 95.20')

BASEMENTMain

House Owner	Floor	drain
Rader	none	
Morris	none	
Irons	934.84	934.84
Stevenson	none	
Sullivan	935.15	934.35
Montg.	none	
Cunningham	none	
Ayers	935.74	933.94
Haynes	938.47	938.27
Gibbs	none	
Sparkes	937.63	937.03
Miller	none	
Stewart	none	
Burkey	938.34	937.74
McCord	none	
Scamahorn	938.59	937.99
Kaiser	none	
Fisher	938.24 939.93	936.44 938.73
Scott	none	
Scamahorn	942.79	941.29

N.

ELEVATIONSStreet

Side

(From W. to E.)

* unknown

dr. between pole & fire hydrant.
 dr. from NW cor house to SW cor lot
 drain from NW cor garage to about 20' E. of alley.
 " along E edge walk on E side house & pass water meter

dr. may be on E side house
 drain may be near water line.
 dr. 3' W. of water meter
 drain near W R.

Sump - no pump - siphon

drain 3 or 4' E of house - S along water line ditch.
 out SW cor house to ditch E of W R.

unknown

dr. out W side house - cross walk near power pole.

18

S. side of Main

House	basement	Floor	drain
Westphal	none		
Harland	none		
Hurst	none (8)		
Armstrong	935.43	934.63	
Winkelman	935.82	935.02	
Miller	none		
Cowley			
Sallee	935.86	935.16	
Zerr	936.46	935.76	
Parker			
Gentry	none		
Ellis	none		
Williams	none		
Irons	937.23	936.63	
Stewart	none		
Kirk	none		

St. (W. to E.)

20

on W side house

tile 6' W of house; N to ditch S side St; W to crossover.

Dir. probably cross St. to Hicks ditch.

tile on E side house - tile W side begins 7' E of W edge porch; NW across st.

drain on each side of house.

dry well - ^{cut} no drainage otherwise.

From E side house; NE to street; NW across st & connect 20' W of E.

Dir. S; thence E to Sam'l Jones Road.

tiled SE.

21

N. side of

House	basement floor drain	
Bersot	934.17	933.27
Snyder	none	
Schreck	934.44	934.14
Ashby	none	
Hubble	none	
Oliver	none	
Ward	937.62	937.02
Allen (West)	none	
Allen (East)	none	
Groover	none	
Holmes	none	
Heagy	938.41	936.81
Eldridge	938.93	?
Bennett	none	
Orrell	942.43	941.48

Osborne Ave. (W. to E.)

122

sump pump - floor out -

Mr. enters old Hicks ditch near back of house.

Mr. Winters ^{old} Hicks ditch passing gas meter.

Kit. dr. 5' W of house

Kit. dr. goes 2' W of house - great trap E edge alley of W fence - chicle marks

drain 16' E of W.P.

Have ditched basement N to school house ditch.

Septic tank drain 4' W of Wedge house.

bress trap 3 on E edge house 2 or 3' - septic tank dr. 10' W of house

Drain runs along W side house to ditch.

Kit. drain comes out at water meter.

Sump - drain comes out of Waikie house & goes S to ditch.

Cellar wet - ^{Kit.} drain may be about 8' E of SW cor.

drain N probably.

drain @ NW cor house

23

basement

House Floor drain

Smith 933.21 932.31

Hulse none

Lovell 936.41 934.91

Keeney none

Cangarelli none

Kretzer none

Rains none

Layton none

Wiley none

S. side of

Osborne Ave. (W. to E.)

24

Basement unit

Drain connects 15' S of house

Tiled from SE cor house to SW cor lot; thence S in E alley,

out SW cor house & SE cor garage - to SW cor

drain 2' E of house

" from Schye house to about W lot 20; thence N.

connects with tile crossing lot 21 - outlet unknown.

Septic tank ditch E & N - dit. ditch W to Rains. Tile

Drain W from E house.

Ostorne Ave. Arm ('A')

25 Sta.	B.S.	H.I.	F.S.	EL.	Adjusted
BM#6	4.38	942.57		938.19	938.19
0+0			6.55	936.02	936.02
1			5.34	937.23	937.23
2			5.07	937.50	937.50
3			4.68	937.89	937.89
4			4.54	938.03	938.03
5			4.21	938.36	938.36
6	6.03	945.23	3.37	939.20	939.22
7			5.72	939.51	939.54
8			5.19	940.04	940.08
B.M.#16			2.62	942.61	942.66
9			4.56	940.67	940.72
10			4.32	941.79	941.84
11			4.06	942.05	942.10
12	8.23	949.09	4.37	940.86	940.91
13			7.37	941.72	941.76
14			6.91	942.18	942.22
15			4.76	944.33	944.37
16			3.37	945.72	945.76
B.M.#17			4.28	944.81	944.85

26

0+0 Arm = 9+10.5 Alt. Rt.

9+03- 4' Lt. Twin Box Elder G* to be removed.

28

Main Drain (from 15+28.8' of Alternate Route.)

Sta.	B.S.	H.I.	F.S.	EL.	Adjusted
B.M.#9	2.75	943.93		941.18	941.18
16			6.80	937.13	937.13
17			6.60	937.33	937.33
18			5.88	938.05	938.05
19			5.54	938.39	938.39
20			5.50	938.43	938.43
21			5.36	938.57	938.57
22			5.36	938.57	938.57
23			5.01	938.92	938.92
B.M.#10	3.86	945.55	2.24	941.69	941.67
24			5.88	939.67	939.65
25			5.44	940.11	940.09
26			4.82	940.73	940.71
27			3.99	941.56	941.54
28			3.18	942.37	942.35
28+73			2.74	942.81	942.79

28

6' Shoulder:

Replace Bit coated aggregate from
15+25 to 21+23 & from 23+64
to 28+73

Pavement 21+23 to 23+64

W. edge W. walk Meridian St

29

Sta.	B.S.	H.I.	F.S.	EL.
B.M.#13	5.63	948.47		942.84
			8.20	940.27
			9.00	939.47
			7.25	941.22
			6.20	942.27
			4.40	944.07

30

On walk across from school near low spot.
 Low spot across from school 385⁺ N of Osb. Ave.
 Dale's house
 Peary's house
 1st house N. of Orrell

Approx. costs estimated:

For excavation, laying, backfilling (not
 incl. connection with laterals) \$2.00 per ft.

Catch basins, each, \$75 to \$90.

Manholes, each, \$160 to \$90.

From previous trial designs and estimates it appears that the cost is apt to border on that which those assessed can scarcely afford to pay. That consideration, coupled with the fact that condition has been bad enough that something less than optimum design will suffice, recommends the following design factors:

$$R = \text{max. av. rate of rainfall} = 2.75 \text{ in/hr.}$$

$$I = 0.30 \text{ (might be slightly less)}$$

$$n = 0.015 \text{ (for well-laid concrete pipe)}$$

From	To	Acres	fall/100'	Q	Diam.
0	9+10.5	26.3	0.004	21.7	30"
9+10.5	11+63.1	20.3	0.002	16.8	30"
11+63.1	15+28.8	18.3	0.002	15.1	30"
15+28.8	17+00	16.5	0.004	13.6	27"
		13.0	0.002	10.7	27"
		9.0	0.002	7.4	24"
		4.5	0.006	3.7	18"
	28+73				12"

-STRUCTURES-

Str. No.	From	To	Size	Kind	Length	Special, concrete class D.	Remarks
----------	------	----	------	------	--------	----------------------------------	---------

ARM "B"

Sta.	B.S.	H.I.	F.S.	EL.
B.M.# 9	2.92	944.10		941.18
1			6.05	938.05
2			5.62	938.48
3			5.52	938.58
4			5.60	938.50
5			5.40	938.70
6			5.25	938.85
B.M.#10	3.75	945.42		941.67
7			5.87	939.55
8			5.48	939.94
9			4.88	940.54
10			4.22	941.20
10+59			3.93	941.49

ABRAIDONED

6+57 30" Maple 5' Rt. to be removed
 6+91 29" " 7.5' " " " "

Equation: 17+00 Main = 0+00 Arm "B"

Aug. 30, 1951
Shartle & Shafer

Pavement 0+04.7 to 0+27.3.
Pavement 5+42 to 6+08.

6' shoulder:
Replace bit coated aggregate
shoulder from 0+29 "B" to 5+42 "B"
& from 6+08 "B" to 10+61 "B".

49

- Repair -
ELIAS LOYETT DRAIN
NE⁴ SE⁴ 19-17-2E
Cause No. 17182

Shartle - Engineer

Davidson } Viewers
Henderson }

Shafer - Deputy

Dec. 6, 1951

Sta.	B.S.	H.I.	F.S.	EL.	Proposed Elev. tile
B.M.	4.71	100.00		95.29	
0+00			10.30	89.70	90.52
0+20			5.56	94.44	
0+20			4.95	95.05	90.59
1			5.35	94.65	
1			4.70	95.30	90.85
2			5.03	94.97	
2			4.38	95.62	91.18
2+49			4.89	95.11	
2+49			4.32	95.68	91.34
3			4.72	95.28	
3			4.02	95.98	91.51
4			4.43	95.57	
4			3.83	96.17	91.84
0+50 ±			8.86	91.14	
3+22 ←			6.91	93.09	

El. Flowline = 91.81'

50

Computed elev. flowline of old tile @ 4+00
= 91.84'

Top of R.R. spike in Elm stump 14' W. of 0+38.

Bottom of open ditch

Ground

stk.

Gr.

stk.

Gr.

stk.

Gr.

stk.

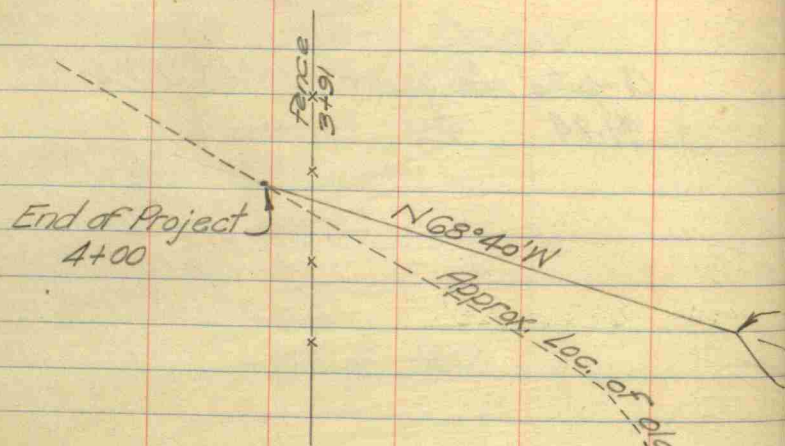
Gr.

stk.

Gr.

stk.

Flowline old tile at lower end
top of " "



Cent. SE 1/4 19-17-2E
Stone found

609.3'

2+49 - Defl. 35° 20' Lt.

stk. (Point "A")

N 33° 20' W

1+00 - Defl. 35° 20' Lt.

Cent. E. SE 1/4
Stone found

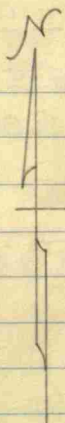
0+57.3'

713.3'

0+00 Beg. of Project

607.3' E. & 57.27' S. of Cent. SE 1/4

nail on timber bridge



53

Relocation

Survey

on top ^{as} noted

Sta.	B.S.	H.I.	F.S.	EL.	As constructed EL. flowline	Deviation from true grade	As constructed: From Point "A" Bearing Dist.	Shartle Burrows 7/3/52
B.M.	5.06	100.35		95.29				
4+00			7.12	93.23	91.93	O.K.	N68°40'W 242'	Spk. in stump
3+50			7.18	93.17	91.87	0.03' high	N67°32'W 192'	
3+23								7" or 8" F.T.
3+00			7.32	93.03	91.73	0.02' high	N67°10'W 142'	
2+50			7.32	93.03	91.73	0.07' high	N73°03'W 93'	
2+00			7.50	92.85	91.55	0.02' low	S80°05'W 58'	
1+50			7.54	92.81	91.51	0.03' high	S33°52'W 65'	
1+00			7.66	92.69	91.39	O.K.	S15°26'W 106.5	
0+86								
0+66			9.10	(flowline) 91.25	91.25	0.08' low	S12°22'W 140'	conc. collar flowline and of 15" C.M.P.

54

Wm. J. Bell Drain
 1952 repair
 SE⁴ NE⁴ 35-16-1W.

Shurtle
 Shafer

Jan. 18, 1952.

Reconstruct:

From	To	Size	Length	fall
47+94	48+06	14"	12'	-0.45%
51+25	51+45	14"	20'	"
53+22	53+32	14"	10'	"
56+77	58+35	14"	158'	"
62+23	62+47	18"	24'	"

Repaired by R. M. Franklin in 1949:

58+86 60+61 18" 175'

fence N. & S. 59+27

W. fence of road 62+47 & W. end of
 24" C.M.P. (14-gage).

Oscar S. Stephenson Ditch
1952 repair
SE⁴ NW⁴ 17-17-2W

Shartle Jan. 21, 1952
Shafer Cloudy-Windy-Cold.

Reconstruct:

From	To	Size	Length	Type
78+58	79+00	18"	42'	Conc.
80+68	81+72	"	104'	"
85+81	85+95	"	14'	"
88+05	90+47	"	242'	"
90+47	90+75	"	28'	C.M.P.

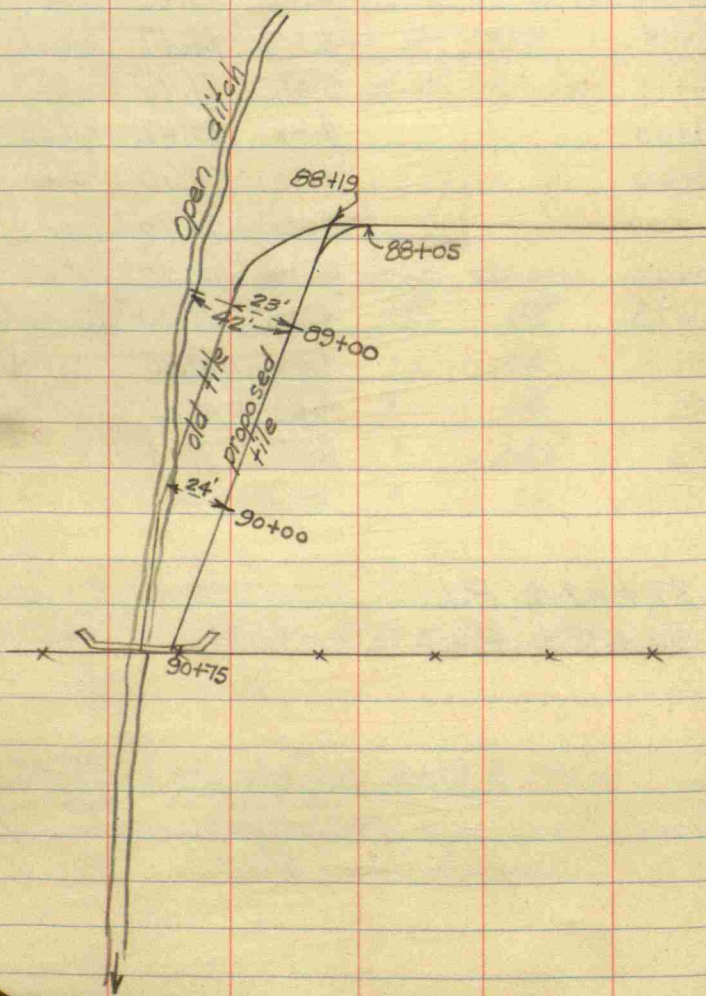
B.M. - Elev. 97.29 - R.R. Spk. in 20" Elm
East of 88+90.

Clearing - remove junk pile 78+58 to 79+00
- " old hdwl.
- " willows near headwall

Sta.	B.S.	H.I.	F.S.	EL	
B.M.	2.71	100.00		97.29	
88+05			8.69	91.31	floridic tile
88+05			4.65	95.35	ground
88+05			4.17	95.83	stk
88+19			5.53	94.47	ground
88+19			5.05	94.95	stk
89+00			4.38	95.62	ground
89+00			3.90	96.10	stk
90+00			5.10	94.90	gr.
90+00			4.70	95.30	stk
90+75			9.70	90.30	floridic tile
91			9.05	90.95	" open
92			9.67	90.33	" "
93			10.07	89.93	" "

87+02 ± P.L.

90+75 ± P.L.



Checked 3/8/52.

Sta.	Proposed Elev.	Actual Elev.	Error
88+52	91.15	91.30	+0.15
89	90.98	90.88	-0.10
89+50	90.80	90.71	-0.09
90	90.63	90.75	+0.12
90+50	90.46	90.35	-0.11

Ditch along W. side of Jake
Higgins Rd. Center Twp.
Near $\frac{1}{2}$ NE⁴ 2-15-1W

Shurtle π 6/6/52
Burrows
Watson

Sta.	B.S.	H.I.	F.S.	EL.
B.M.#1	1.61	100.00		98.39
0+00			6.64	93.36
0+30.4			6.80	93.20
0+51.0			7.05	92.95
0+55'-15" Rt.			6.95	93.05
1+00			6.85	93.15
2+00			7.00	93.00
3+00			7.55	92.45
4+00			8.15	91.85
⊙	5.41	100.62	4.79	95.21
5+00			9.00	91.62
5+45			8.87	91.75
6+00			9.22	91.40
⊙	4.46	99.65	5.43	95.19
7+00			8.50	91.15
8+00			8.85	90.80
B.M.#2			3.32	96.33

Send E. handrail bridge
top of end of 8" tile. EL. flowline = 92.62'
E. end of bridge
W. " " "
On top of 14" tile about 15' due N of 0+55 F.L. = 91.78'

3+01 $\frac{1}{2}$ McElain - N Straight off

top 8" tile from E. EL. flowline = 91.01'

8+07 turn right
 $\frac{1}{2}$ Stump

Levels along S. side of Jordan
Road from approx. Cor. N. NW⁴ 20-17-2W
to Stephenson Drain 500' ± E. of N¹/₂
Mi. Stone 19-17-2W.

Shurtle π 8/26/52 Fair-hot
Burrows
Graham

Sta.	B.S.	H.I.	F.S.	EL.
B.M.#1	3.49	100.00		96.51
0			3.25	96.75
1			4.18	95.82
2			4.96	95.04
3			6.30	93.70
3+15±			6.85	93.15
4			5.48	94.52
4+05			5.82	94.18
5			5.98	94.02
6			6.52	93.48
7			6.78	93.22
8			6.90	93.10
9			7.30	92.70
⊙	2.67	96.92	5.75	94.25

Top W. end S. header of 24" C.M.P. culvert
Flowline W. end 12" C.M.P. under N¹/₂S. Road.

173

Sta.	B.S.	H.I.	F.S.	EL.
10			4.60	92.32
11			4.05	92.87
12			5.05	91.87
13			5.73	91.19
14			5.85	91.07
15			6.22	90.70
15+85			7.02	89.90
16			6.58	90.34
17			6.00	90.92
18			5.70	91.22
19			5.65	91.27
20			6.20	90.72
0	3.31	95.62	4.61	92.31
21			4.80	90.82
22			5.43	90.19
22+44			6.62	89.00
23			5.95	89.67
24			5.60	90.02
25			5.75	89.87
26			5.80	89.82
27			6.32	89.30
28			6.75	88.87
29			7.60	88.02
30			8.80	86.82
0	2.52	90.83	7.31	88.31

174

13+24 Line betw. Secs. 19 & 20.

flowline culvert across road

75

Sta.	B.S.	H.I.	F.S.	EL.
31			4.80	86.03
32			5.45	85.38
33			6.40	84.43
34			7.75	83.08
34+62			9.90	80.93
34+78			12.50	78.33
B.M.#2			5.05	85.78

76

± Oscar Stephenson ditch
 Top E. end SE. wing of conc. bridge

88

First National Bank
Danville, Ind.

Shurtle
Burrows

8/28/52

Sta.	B.S.	H.I.	F.S.	EL.
0	13.64	100.00		86.36
0+15			6.06	93.94
0+30			5.73	94.27
0+45			5.60	94.40
0+60			5.60	94.40
0+77			5.88	94.12
0+80			12.20	87.80

89

Sta.	B.S.	H.I.	F.S.	EL.	
0	12.20	100.00		87.80	Bank floor
0+50			4.82	95.18	
0+75			5.20	94.80	
1+25			5.05	94.95	
0	3.98	99.92	4.06	95.94	
1+42			4.67	95.25	allies ± N+S & E+W Depth of M.H.
				9.60	
				85.65	EL. M.H.

Bottom sewer

95.94
3.98
99.92
4.67
95.25

Sta.	B.S.	H.I.	F.S.	EL.	El. prop drain
0	4.50	111.93	3.28	107.43	
7			4.90	107.03	101.90
7+72			3.30	108.63	102.04
7+95			8.40	103.53	102.09
8			4.20	107.73	102.10
9			5.00	106.93	102.30
10			5.90	106.03	102.50
11			5.40	106.53	102.62
12			4.85	107.08	102.75
13			4.58	107.35	102.88
14			4.30	107.63	103.00
15			4.38	107.55	103.12
0	4.95	113.23	3.65	108.28	
16			5.12	108.11	103.25
17			5.78	107.45	103.38
18			6.02	107.21	103.50
19			6.15	107.08	103.62
19+80±			8.54	104.69	
20			6.10	107.13	103.75
21			5.37	107.86	103.88
22			4.13	109.10	104.00
23			4.60	108.63	104.12
0	3.82	113.00	4.05	109.18	
B.M.#2			1.44	111.56	

7+55± ~~E~~ Rd7+90± ~~W~~ Rd

5.13

6.59 ~~E~~ Rd.

Top of old 12" tile - Flowline = 102.46'

5.63

4.63

3.53

3.91

4.33

4.47

4.63

4.43

4.86

4.07

3.71

3.46

Turn Left

Top old (1892) 10" tile - EL. Flowline = 103.80'

3.38

Turn Left

3.98

5.10

4.51

23+27 N. fence Rd.

nail in Ash tree

Sta.	B.S.	H.I.	F.S.	EL.	El. prop. drain
23+42			3.39	109.61	104.17
24			4.45	108.55	104.25
25			4.75	108.25	104.38
26			5.06	107.94	104.50
0	4.24	112.49	4.75	108.25	
26+50			6.60	105.89	104.56
26+50			4.67	107.82	104.56
27			4.58	107.91	104.62
28			4.62	107.87	104.75
29			4.82	107.67	104.88
30			4.57	107.92	105.00
31			3.99	108.50	105.12
32			3.89	108.60	105.25

0	112.49	4.67	107.82	104.56
1		4.19	108.30	104.70
1+73		4.06	108.43	104.80

5.44 \neq Rd.
4.30 Defl. Lt. slightly - S. fence Rd. = 23+57

3.87

3.44

Top of old 10" tile - EL. Flowline = 105.00'

3.26 Ground - Turn left

3.29

3.12

2.79

2.92

3.38

3.35

0.147°

26+50 Main = 0+00 Arm (runs W)

0+10 ± cross old 10" tile

089

Levels over flowline of tile
as constructed

Shartle

9/17/52

Burrows

Graham

Sta.	B.S.	H.I.	F.S.	actual EL.	planned EL.	
0+00	9.86	109.86		100.00		B.M. #1 (See p. 83)
0+00			9.33	100.53	100.50	0.03' high
1			9.08	100.78	100.70	0.08 "
2			8.90	100.96	100.90	0.06 "
3			8.70	101.16	101.10	0.06 "
5			8.20	101.66	101.50	0.16 "
6			8.05	101.81	101.70	0.11 "
7			7.78	102.08	101.90	0.18 "
8	8.77	110.98	7.65	102.21	102.10	0.11 "
10			8.31	102.67	102.50	0.17 "
12			8.07	102.91	102.75	0.16 "
13			7.91	103.07	102.88	0.19 "
14			7.84	103.14	103.00	0.14 "
15			7.62	103.36	103.12	0.24 "
16			7.52	103.46	103.25	0.21 "
17	9.08	112.71	7.35	103.63	103.38	0.25 "
18			8.95	103.76	103.50	0.26 "
19			8.77	103.94	103.62	0.32 "
B.M. #2			1.09	111.62	111.56 =	0.06' error

1.10'

1094
108
86
1041
108
33

090

Nathan B. Lowe et al Ex Parte
Drain - continued

Sta.	B.S.	H.I.	F.S.	actual EL.	planned EL.
B.M.#2	1.69	113.25		111.56	
20			9.33	103.92	103.75
22+60			9.05	104.20	104.07
24			8.88	104.37	104.25
25			8.79	104.46	104.38
26			8.70	104.55	104.50
26+50			8.66	104.59	104.56
27	7.07	111.76	8.56	104.69	104.62
28			6.96	104.80	104.75
29			6.84	104.92	104.88
30			6.71	105.05	105.00
31			6.58	105.18	105.12
31+75			6.44	105.32	105.21

Shartle T }
Burrows }
Graham } Sept. 18, 1952.

Stout-Richardson Ditch
& John Brown Arm
Liberty Twp.

Shartle-Office Dec. 12-15-1952

Scherschel }
Turner } Field
Sutton }
Barber }

Begin at E. bank of Mud Creek 0+00

6+25 fence E+W.
11+23 " N+S.
13+85 " E+W.
17+62.5 Φ Rd. N+S.
25+85 outlet of John Brown Arm.
32+00 fence N+S
38+58 " "
46+00 " "
53+02 " N.
60+17 " N+S.
66+84 " "
67+10 " "
74+88 " "
84+56 Φ . Rd. E+W.

92+90 fence N+S.
104+43 " E+W.
113+51 Φ Rd N+S.
121+89 fence E+W.
139+95 " N+S.
152+20 " "
152+50 end of drain 30' farther E.
than intended.

John Brown Arm

0+00 = 25+85 Stout-Richardson
5+37 fence N+S.
17+72 " S.
23+83 " N+S.
37+06 " "

Sta.	B.S.	H.I.	Stake F.S.	Ditch F.S.	Stake EL.	Ditch EL.	Prop. EL.	Stake cut	Ditch cut	Remarks.
B.M.#1	2.00	768.06								U.S.C. & G.S. - 976-765.46
B.M.#2			3.52							Abut. @ NE. shoe iron br. ^{764.54}
Bridge Floor			2.41							765.65
0+00				20.7		747.36	750.30			12-19-52
1+00			4.69	16.6	763.37	751.46	750.50	12.87	0.96	Field Party
2+00			6.99	16.4	761.07	751.66	750.70	10.37	0.96	Scherschel
3+00			8.09	16.2	759.97	751.86	750.90	9.07	0.96	Sutton
4+00	T.P.		8.58	15.9	759.48	752.16	751.10	8.38	1.06	Barber
	4.76	764.24								
5+00			4.51	11.9	759.73	752.34	751.30	8.43	1.04	
6+00			4.60	12.0	759.64	752.24	751.50	8.14	0.74	
7+00			5.07	11.8	759.17	752.44	751.70	7.47	0.74	
8+00			5.47	11.6	758.77	752.64	751.90	6.87	0.74	
9+00			5.61	11.4	758.63	752.84	752.10	6.53	0.74	
10+00			5.50	11.0	758.74	753.24	752.30	6.44	0.94	
11+00			5.96	11.0	758.28	753.24	752.50	5.78	0.74	
	T.P.		6.10							
	5.63	763.77								
12+00			4.91	10.7	758.86	753.07	752.70	6.16	0.37	
13+00			4.78	10.4	758.99	753.37	752.90	6.09	0.47	
14+00			4.88	9.6	758.89	754.17	753.10	5.79	1.07	
15+00			4.61	9.5	759.16	754.27	753.30	5.86	0.97	
16+00			4.42	9.5	759.35	754.27	753.50	5.85	0.77	
17+00	T.P.		4.37	9.3	759.40	754.47	753.70	5.70	0.77	

1911

Sta	B.S.	H.I.	Stake	Ditch	EL. Stk.	EL. Ditch	Prop. EL.	Stk. cut	Ditch cut	
T.P. 17+00	4.57	763.97					753.70			
BM # 3	Top w. Rail Bridge		0.66							763.31
BM # 4	Top S. End. E. Rail		1.05							762.92
18+00			5.32	9.8	758.65	754.17	753.90	4.75	0.27	
19+00			4.30	9.2	759.67	754.77	754.10	5.57	0.67	
20+00			4.21	9.2	759.76	754.77	754.30	5.46	0.47	
21+00			4.00	8.9	759.97	755.07	754.50	5.47	0.57	
22+00			4.28	9.0	759.69	754.97	754.70	4.99	0.27	
23+00			4.41	8.9	759.56	755.07	754.90	4.66	0.17	
T.P. 24+00			3.69	8.9	760.28	755.07	755.10	5.18	0	
	4.14	764.44								
25+00			4.23	9.3	760.21	755.14	755.30	4.91	0	
26+00			4.32	8.7	760.12	755.74	755.50	4.62	0.24	
27+00			4.26	8.2	760.18	756.24	755.63	4.55	0.61	
28+00			3.74	8.9	760.70	755.54	755.76	4.94	0	
29+00			3.24	8.2	761.20	756.24	755.89	5.31	0.35	
30+00			2.80	7.9	761.64	756.54	756.02	5.62	0.52	
31+00			2.92	7.8	761.52	756.64	756.15	5.37	0.49	
T.P. 32+00			3.02	7.6	761.42	756.84	756.28	5.14	0.56	
	5.08	766.50								
33+00			5.26	9.5	761.24	757.00	756.41	4.83	0.59	
34+00			4.24	9.2	762.26	757.30	756.54	5.72	0.76	
35+00			3.97	9.2	762.52	757.30	756.67	5.85	0.63	
36+00			4.10	9.3	762.40	757.20	756.80	5.60	0.90	

1921

108

Sta	B.S.	H.I.	Stake	Ditch	El. Stk.	Elk. Ditch	Prop. EL.	Stk. cut	Ditch cut
37+00			4.20	9.0	762.30	757.50	756.93	5.37	0.57
38+00			4.16	8.7	762.39	757.80	757.06	5.28	0.74
39+00			4.27	8.2	762.23	758.30	757.19	5.04	1.11
	4.07	766.30							
40+00			4.00	8.1	762.30	758.20	757.32	4.98	0.75
41+00			4.02	7.5	762.28	758.80	757.45	4.83	1.35
42+00			4.11	7.5	762.19	758.80	757.58	4.61	1.22
43+00			4.08	7.7	762.22	758.60	757.71	4.51	0.89
44+00			4.14	7.2	762.16	759.10	757.84	4.32	1.26
45+00			4.02	7.0	762.28	758.70	757.97	4.31	0.73
46+00			3.83	7.0	762.47	759.30	758.10	4.37	1.20
BM Bottom Bolt in s. side 12" x 12" conc. Post Sta 46+80			2.91		763.39				
47+00			3.66	6.9	762.64	759.50	758.23	4.41	1.27
	5.29	767.93							
48+00			4.26	8.6	763.07	759.33	758.36	4.71	0.97
49+00			5.17	8.8	762.76	759.13	758.49	4.27	0.64
50+00			4.74	8.7	763.19	759.23	758.62	4.57	0.61
51+00			4.34	8.6	763.59	759.33	758.75	4.84	0.58
52+00			3.38	8.6	764.55	759.33	758.88	5.67	0.45
53+00			2.30	8.5	765.63	759.43	759.01	6.62	0.42
	2.78	768.41							
54+00			3.89	8.4	764.52	760.01	759.14	5.38	0.72
55+00			4.46	8.3	763.95	760.11	759.27	4.68	0.84
56+00			4.33	8.4	764.08	760.01	759.70	4.68	0.61

109

Sta	B.S.	H.I.	Stake	Ditch	EL. STK.	EL. Ditch	PROP. ELI.	STK. CUT	Ditch CUT
57+00			4.02	8.0	764.30	759.81	759.53	4.86	0.23
58+00			3.70	8.2	765.34	760.21	759.66	5.68	0.55
59+00			3.58	8.1	764.83	760.31	759.79	5.04	0.52
60+00			3.31	8.1	765.10	760.31	759.92	5.18	0.39
	4.57	769.67							
61+00			4.38	8.4	764.79	760.27	760.05	4.74	0.22
62+00			4.54	8.9	765.13	760.77	760.18	4.95	0.59
63+00			4.32	8.9	765.35	760.77	760.31	5.04	0.46
64+00			4.74	9.0	764.93	760.67	760.44	4.49	0.29
65+00			4.37	8.8	765.30	760.87	760.57	4.73	0.30
66+00			4.20	8.2	765.47	761.47	760.70	4.77	0.77
67+00			4.47	8.3	765.20	761.37	760.83	4.37	0.54
	4.33	769.53							
68+00			4.17	8.1	765.36	761.43	760.96	4.40	0.47
69+00			4.27	7.7	765.26	761.83	761.09	4.17	0.74
70+00			4.30	7.8	765.23	761.73	761.22	4.01	0.51
71+00			4.12	7.7	765.41	761.83	761.35	4.06	0.48
72+00			3.93	7.7	765.60	761.83	761.48	4.12	0.35
73+00			3.53	7.4	766.00	762.13	761.61	4.39	0.52
74+00			3.49	7.4	766.04	762.13	761.74	4.30	0.39
	4.53	770.57							
75+00			4.42	8.4	766.11	762.17	761.87	4.24	0.30
76+00			4.12	8.2	766.45	762.37	762.00	4.45	0.37
77+00			4.16	8.1	766.41	762.47	762.13	4.28	0.34

Sta	BS	HT	Stake	Ditch	EL. STK	EL. Ditch	PROP. EL.	STAKE CUT	DITCH CUT
78+00			3.90	7.5	766.61	763.07	762.26	4.35	0.81
79+00			3.72	7.8	766.85	762.77	762.39	4.46	0.38
80+00			3.52	7.5	767.05	763.07	762.52	4.53	0.55
81+00			3.12	7.3	767.45	763.27	762.65	4.80	0.62
	6.57	774.02							
82+00			6.35	9.9	767.67	764.12	762.78	4.89	1.34
83+00			6.30	9.6	767.72	764.42	762.91	4.81	1.51
84+00			6.37	9.3	767.65	764.22	763.04	4.61	1.18
BM #6	SE. Cor. of Curb		3.71		770.31				
	of Bridge								
BM #7	E. End of N.		4.10		769.92				
Header: Top Rail 2.80 Higher									
85+00			5.38	9.9	768.64	764.12	763.17	5.47	0.95
86+00			5.40	9.8	768.62	764.22	763.30	5.32	0.92
87+00			5.50	9.5	768.52	764.52	763.43	5.09	1.09
88+00			5.29	9.5	768.73	764.52	763.56	5.17	0.96
	4.74	773.47							
89+00			4.30	8.8	769.11	764.67	763.69	5.42	0.98
90+00			4.76	9.7	768.71	764.77	763.82	4.89	0.95
91+00			4.47	9.4	769.00	765.07	763.95	5.05	1.12
92+00			4.02	8.3	769.45	765.17	764.08	5.37	1.09
93+00			3.88	8.3	769.59	765.17	764.21	5.38	0.96
94+00			3.92	8.0	769.55	765.47	764.34	5.21	1.13
95+00			3.70	8.2	769.77	765.27	764.47	5.30	0.80
	4.74	774.51							

770.31

Sta	P.S.	H.I.	Stake	Ditch	EL. STK	EL. Ditch	PROP EL	Stake CUT	Ditch cut
96+00			4.26	8.7	769.65	765.61	767.60	5.05	1.01
97+00			4.47	9.0	770.04	765.51	767.73	5.31	0.78
98+00			4.42	8.8	770.09	765.71	767.86	5.23	0.85
99+00			4.15	8.6	770.36	765.91	767.99	5.37	0.92
100+00			3.71	8.1	770.80	766.41	765.12	5.68	1.29
101+00			3.94	7.7	770.57	766.81	765.25	5.32	1.56
T.P. 102+00			3.48	7.6	771.03	766.91	765.38	5.65	1.53
	5.29	776.32							
103+00			5.34	9.3	770.98	767.02	765.51	5.47	1.51
104+00			5.01	8.8	771.31	767.52	765.64	5.67	1.88
105+00			4.44	8.1	771.88	768.22	765.77	6.11	2.45
106+00			4.06	7.9	772.26	768.42	765.90	6.36	2.52
107+00			3.75	7.9	772.57	768.42	766.03	6.54	2.39
108+00			3.32	7.6	773.00	768.72	766.16	6.84	2.56
T.P. 109+00			3.03	7.6	773.29	768.72	766.43	6.86	2.29
	4.46	777.75							
110+00			4.53	9.2	773.22	768.55	766.70	6.52	1.85
111+00			4.21	9.0	773.54	768.75	766.97	6.57	1.78
112+00			4.02	8.7	773.73	769.05	767.29	6.49	1.81
113+00			4.12	8.8	773.69	768.95	767.51	6.12	1.44
BM #7 Top N.E. Wing Bridge			4.03		773.72				773.72
BM #9 Top S. end E. Rail			4.44		776.31				776.31
114+00			3.37	8.3	774.38	769.45	767.78	6.60	1.67

Sta	B.S.	H.T.	Stake	Ditch	EL. STK.	EL. Ditch	PROP EL.	Stake Cut	Ditch Cut
115+00			3.63	7.5	774.12	770.25	768.05	6.07	2.20
T.P. 116+00			3.18	7.1	774.57	770.65	768.32	6.25	2.33
	5.22	779.79							
117+00			5.05	9.0	774.74	770.19	768.59	6.15	1.60
118+00			5.00	9.2	774.79	770.59	768.86	5.93	1.73
119+00			4.57	8.7	775.22	771.09	769.13	6.09	1.96
120+00			4.77	8.5	775.02	771.29	769.40	5.62	1.89
121+00			4.29	8.2	775.50	771.59	769.67	5.83	1.92
T.P. 122+00			3.96	8.0	775.83	771.79	769.94	5.89	1.85
	3.53	779.36							
123+00			4.35	7.5	775.01	771.86	770.21	4.80	1.65
124+00			3.71	7.9	775.65	771.76	770.48	5.17	0.98
T.P. 125+00			3.62	7.8	775.74	771.56	770.75	4.99	0.81
	4.03	780.37							
126+00			4.00	8.1	776.37	772.27	771.02	5.35	1.25
127+00			3.77	7.4	776.60	772.97	771.29	5.31	1.68
128+00			3.33	7.5	777.04	772.87	771.56	5.48	1.31
T.P. 129+00			3.18	7.0	777.19	773.37	771.83	5.36	1.54
	4.52	781.71							
130+00			4.22	7.4	777.49	774.31	772.10	5.39	2.21
131+00			3.87	7.3	777.84	774.41	772.37	5.47	2.04
132+00			3.54	7.3	778.17	774.41	772.67	5.53	1.77
133+00			3.40	7.2	778.11	774.51	772.91	5.20	1.60
134+00			3.39	7.2	778.32	774.51	773.18	5.14	1.33

113!

114

STA	B.S.	H.I.	Stake	Ditch	EL. STK.	EL. DITCH	Prop EL.	STAKE CUT	Ditch CUT.
135+00			3.38	7.1	778.33	774.61	773.45	4.88	1.16
T.P.			4.55		777.16				
	5.92	783.08							
136+00			5.12	8.0	777.96	775.08	773.72	4.24	1.36
137+00			4.60	7.5	778.48	775.58	773.99	4.49	1.59
138+00			4.08	7.0	779.00	776.08	774.26	4.44	1.82
139+00			3.25	6.3	779.83	776.78	774.53	5.30	2.25
140+00			3.11	5.9	779.97	777.18	774.80	5.17	2.38
141+00			2.93	5.5	780.15	777.58	775.07	5.08	2.51
142+00			2.64	5.2	780.44	777.88	775.34	5.10	2.54
	6.62	787.06							
143+00			5.78	9.1	781.28	777.96	775.61	5.67	2.35
144+00			5.16	8.6	781.90	778.46	775.88	6.02	2.58
145+00			4.48	8.0	782.58	779.06	776.15	6.43	2.91
146+00			3.91	7.6	783.15	779.46	776.65	6.50	2.81
147+00			3.74	7.2	783.32	779.86	777.15	6.17	2.71
148+00			3.42	6.6	783.64	780.46	777.65	5.99	2.81
149+00			2.71	6.2	784.35	780.86	778.15	6.20	2.71
	5.10	789.45							
150+00			4.50	8.6	784.95	780.85	778.65	6.30	2.20
151+00			3.69	7.8	785.76	781.65	779.15	6.61	2.50
152+00			2.88	7.2	786.57	782.25	779.65	6.92	2.60
152+50			2.81	6.8	786.64	782.65	779.90	6.74	2.75
Top conc. Base of Fence									
Post sta 152+20			4.47		784.98				

115

Level Circuit Closed to Bridge B.M.

Sta	B.S.	H.I.	F.S.
T.P.			6.77
	2.90	785.48	
T.P.			4.85
	4.40	785.03	
T.P.			4.52
	3.49	784.00	
T.P.			3.87
	4.80	784.93	
B.M. #11 W. End N. Abut of Boyd Bridge		3.55	EL = 781.38'

$$\frac{781.15'}{0.23'}$$

by this survey
by Shartle, 1946.
error in $6\frac{1}{2}$ miles.

$$\frac{0.23}{16.5} = 0.09' = \text{probably error per mile.}$$

116

Brown Arm

Sta. B.S. H.I. Stake Ditch

EL.
Stk.EL.
DitchProp.
el.Stk.
cut.Ditch
cut.

B.M. 28+00
Stout Richardson
Ditch

3.97

764.67

755.47 @ 0+00

760.70'

1+00

4.32

8.6

760.35

756.07

755.57

4.78

0.50

2+00

4.77

7.9

759.90

756.77

755.67

4.23

1.10

3+00

4.44

7.7

760.23

756.97

755.77

4.46

1.20

4+00

4.50

7.5

760.17

757.17

755.87

4.30

1.30

5+00

4.43

7.4

760.24

757.27

755.97

4.27

1.30

6+00

3.74

7.3

760.93

757.37

756.07

4.86

1.30

7+00

T.P.

4.13

7.2

760.54

757.47

756.17

4.37

1.30

5.25

765.79

8+00

5.05

7.9

760.74

757.89

756.27

4.47

1.62

9+00

4.64

7.9

761.15

757.89

756.37

4.78

1.52

10+00

4.63

8.1

761.16

757.69

756.47

4.69

1.22

11+00

4.36

7.9

761.43

757.89

756.57

4.86

1.32

12+00

4.29

7.8

761.50

757.99

756.67

4.83

1.32

13+00

3.79

7.7

762.00

758.09

756.77

5.23

1.32

14+00

T.P.

3.49

7.6

762.30

758.19

756.87

5.43

1.32

5.66

767.96

15+00

5.98

9.1

761.98

758.86

756.97

5.01

1.89

16+00

5.64

9.1

762.32

758.86

757.07

5.25

1.79

17+00

4.99

9.0

762.98

758.96

757.17

5.81

1.79

18+00

4.00

9.1

763.96

758.86

757.27

6.69

1.59

19+00

3.73

9.0

764.23

758.96

757.37

6.86

1.59

Brown Arm:
All cuts to
be amended
to conform
to change in
grade from
+0.10% to
+0.07%.

Sta	B.S.	H.T.	Stake	Ditch	EL. Stk.
20+00			3.92	9.0	764.04
21+00	T.P.		4.18	8.9	763.78
	3.32	767.10			
22+00			3.52	8.3	763.58
23+00			3.69	8.2	763.41
24+00			4.56	8.2	762.84
25+00			4.65	8.1	762.45
26+00			4.38	8.1	762.72
27+00			4.27	7.7	762.83
28+00	T.P.		3.99	7.5	763.11
	6.17	769.28			
29+00			5.84	9.9	763.44
30+00			5.66	9.7	763.62
31+00			—	9.7	—
32+00			5.14	9.7	764.14
33+00			—	9.7	—
34+00			5.55	9.7	763.73
35+00			—	9.4	—
35+30			5.54	9.3	763.74
36+00			5.47	8.7	763.81
36+80			5.65	8.4	763.63
T.P.			3.45		765.83
BM. 51+00 start Richardson Ditch	2.03	767.86	4.30		

EL. Ditch	Prop. EL.	Stk. cut	Ditch cut
758.96	757.47	6.57	1.49
759.06	757.57	6.21	1.49
758.80	757.67	5.91	1.13
758.90	757.77	5.64	1.13
758.90	757.87	4.67	1.03
759.00	757.97	4.48	1.03
759.00	758.07	4.65	0.93
759.40	758.17	4.66	1.23
759.60	758.27	4.84	1.33
759.38	758.37	5.07	1.01
759.58	758.47	5.15	1.11
759.58	758.57	—	1.01
759.58	758.67	5.47	0.91
759.58	758.77	—	0.81
759.58	758.87	4.86	0.71
759.88	758.97	—	0.91
759.98	759.00	4.74	0.98
760.58	759.07	3.23	1.51
760.88	759.15	4.48	1.73

763.56
763.59
— .03 error

125

Richard Mynatt Drain
Survey of share No. 15 From
35+50 to 39+72 allotted to
Wm. R. & Essie P. Hubbard.
Shartle 3/21/53
Watson

See Field book 162/12

0+00 Hend-Morgan County line.

33+25 $\frac{1}{2}$ Bayliss land W.

35+50 set allotment stake on W. bank

36+21 $\frac{1}{2}$ Bayliss land E.

39+73 Upper terminus - set stake.
= Sta. 168 on Bayliss dredge
of 1928±.

Orig. specs. from Wib.
Smith, Surv. Morgan Co.:

Bayliss Dr.:

103 to 130 6' bottom

130 to 168 3' "

Grade = +0.20%

126

Sta.	B.S.	H.I.	F.S.	FIN.
B.M.#1	4.70	134.23		129.53'
⊙	5.30	133.33	6.20	128.03'
B.M.#2	4.85	134.33	3.85	129.48'
35+50			3.48	130.85' Top stk.
35+50			14.50	119.83' Bottom
36+50			10.80	123.53' "
39+73			5.00	129.33' Top stk.
39+73			8.90	125.43' Bottom

B.M.#1 - Orig. Bayliss Drain B.M. elev. 129.53'
on top W. end S. bridge rail at Sta.
130. about 10R N. of County line. 1+70±
of Mynatt ditch stationing.

B.M.#2 - New B.M. - a R.R. spk. in 28" Elm about
75' W. of Sta. 33+30 (Mynatt) =
161+60 (Bayliss). Elev. 129.48'.

Bayliss	Mynatt	Pres. bot.	Orig. bot.	Cut.
130+00	1+79	114.40'	114.51'	O.K. \neq Rd.
163+77	35+50	119.85'	121.25'	O.K.
164+77	36+50	123.54'	121.45'	2.09'
168+00	39+73	125.43'	122.10'	3.33'

0129

Ferree Road - W. side ditch
from N¹ NE⁴ SE⁴ 27-16-1E South.

Shartle
Mullis

4/17/53

Sta.	B.S.	H.I.	Ditch		Crown rd.	
			F.S.	EL.	F.S.	EL.
0	6.90	100.00	6.90	93.10	4.95	95.05
0+23			6.65	93.35		
1			6.03	93.97	4.70	95.30
1+59	} 6" Vit. tile		6.12	93.88	4.65	95.35
1+89		6.02	93.98	4.64	95.36	
2			6.05	93.95	4.67	95.33
2+47	} 10" CMP.		6.20	93.80	4.62	95.38
2+70		6.11	93.89	4.65	95.35	
3			6.33	93.67	4.65	95.35
4			6.11	93.89	4.47	95.53
5			4.63	95.37	4.28	95.72

0130

hump 6 $\frac{1}{2}$ " high
lower tile 4 $\frac{1}{2}$ "
" " 5 $\frac{1}{2}$ "

lower pipe 3"
" " 4"

Geo. Mercer Ditch Repair

14 }
23 } 15-1E

Shartle
Watson

May 21, 1953.

Reconstruct:

From	To	Size	Length	
5+00	8+32	14"	332'	
10+37	10+43	14"	6'	
12+90	15+36	14"	246'	
15+36	22+38	12"	702'	200' to be located as directed.

-ESTIMATE-

Clearing & grubbing	1.15 acres @ \$400	\$460.00
Tile Drains 12"	200' Lft. @ \$2.10	420.00
" " "	14" 584 Lft. @ \$2.30	\$1343.32
Waterway Excavation	100 Lft. @ \$0.40	\$40.00
		\$2263.32

Notes on clearing & grubbing:

7+61 to 7+81 2" brush

~~8+00 to 11+00 10± 8" trees~~

12+90 to 16+00 2"-4" Willows 2-6" Cottonwoods

16+00 to 21+70: Trees over:

10" 16" 21" 26" 31" 36"

||||| ||| | 1 |

|||||

34 7 2 1 0 1

16+15 ± E+W fence

22+28 N+S fence

Clearing & grubbing - 1.15 acres

4.23 from top hdwl to invert existing tile.

1.85

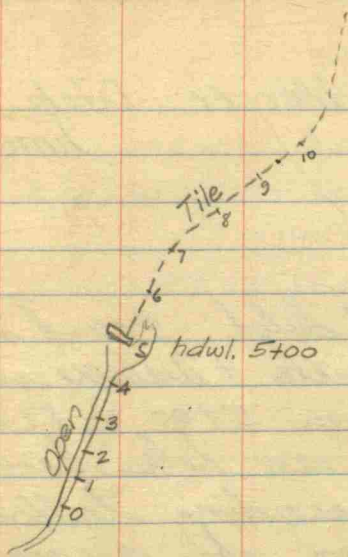
6.08 H.I. above invert.

~~-1.00 lower tile~~

~~-1.00 proposed drop~~

8.08 H.I. above proposed open ditch @ tile outlet

Sta.	B.S.	H.I.	Stk. F.S.	El. Stk.	Ditch F.S.	El. Ditch
B.M.#1	1.85	100.00				98.15
0			5.38		8.80	91.20
1			4.87		8.30	91.70
2			3.93		7.50	92.50
3			3.27		6.60	93.40
4			3.47	96.53	6.25	93.75
4+80					4.90	95.10
5					5.65	94.35
						93.92
B.M.#1	2.91					
5					4.80	
6			3.87			
7			3.79		5.13	
8+32			1.69		4.50	



On top hdwl. over tile @ 5+00

at hdwl.

FL tile 5+00.

On ground

on top tile

7+61 E+W fence

on top tile

1371

Geo. Mercer Ditch

June 2, 1954

Burrows

Watson

Reinspected Ditch. Found stakes set by Shurtle & Watson in May 1953. Between 5+00 & 8+32 one or two new holes have been developed according to Watson who was on the previous survey, although the tile is washed away in spots, and the waterway is partly choked with debris, the water is still flowing fairly rapidly. This is partly due to a fairly heavy rain last night. With the exception of a small pond of water between ¹²⁺⁰⁰ 7+00± and ¹⁵⁺⁰⁰ 17+00±, there are no places where water is seen above ground. The open part of the ditch below the leadwall needs cleaning before it can give efficient service.

1381

139

Frank E. Hays Drain
1953 repair
SE 1/4 29-16-2N

Shurtle 5/27/53
Watson

0+00 Repair = 0+00 Orig.

140

From Sta.	To Sta.	Remarks
0+00	0+16	16' of 15" C.M.P. req'd.
0+55	1+15	60' of 15" D.T. req'd.
1+40	1+74	34' of 15" " "
2+05	2+15	10' of 15" " "
2+47	2+75	28' of 15" " "
4+42	4+48	6' of 15" " "
5+03	5+15	12' of 15" " "
5+26	5+28	2' of 15" " "
6+35	6+39	4' of 15" " "
6+60	6+64	4' of 15" " "

Totals { 16' of 15" C.M.P.
160' of 15" D.T.

Special Barrow = 20 cu. yds.

143

Private drain for Thos. Maloney
25-17-1E

Shartle

Burrows

Graham

Watson

6/4/53

5.67

0.09

1.18

6.94

3.77

10.71

Sta.	B.S.	H.I.	F.S.	EL.
0	10.70	110.70		100.00
1			4.30	106.40
2			3.90	106.80
3			4.00	106.70
4			4.70	106.00
5			4.80	105.90
6			4.30	106.40
7			4.00	106.70
8			3.50	107.20
①	6.93	114.04	3.59	107.11
9			6.50	107.54
10			6.60	107.44
11			6.30	107.74
12			6.30	107.74
13			6.60	107.44

144

F.L. tile @ upper end Maloney Arm of Batz Dr.

Defl. left.

8400 N&S fence

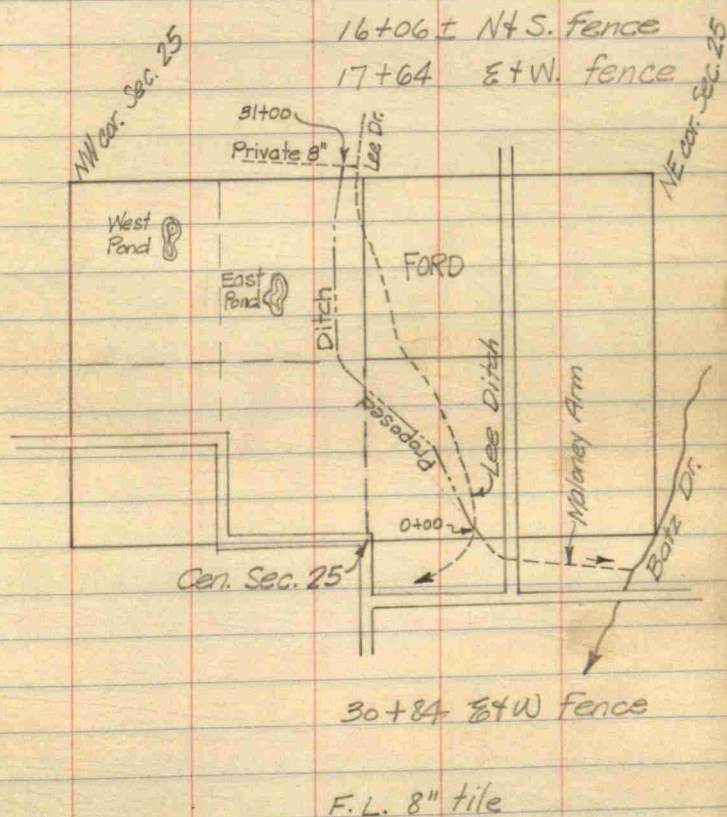
145

Sta.	B.S.	H.I.	Ground F.S.	EL.
14			6.60	107.44
15			6.40	107.64
16			6.10	107.94
⊙	4.40	112.64	5.80	108.24
17			5.10	107.54
18			4.70	107.94
19			5.00	107.64
20			5.10	107.54
21			5.00	107.64
22			5.10	107.54
23			4.70	107.94
24			4.50	108.14
25			4.70	107.94
26			4.30	108.34
⊙	4.70	113.11	4.23	108.41
27			4.80	108.31
28			4.50	108.61
29			4.50	108.61
30			4.50	108.61
31+00			4.25	108.86
31+00			8.13	104.98
⊙	7.30	116.41	4.00	109.11
E. Pond			8.60	107.81
W. Pond			4.80	111.61

146

3.89
3.50
.07
.67

8.13



149

Hend. Co. Hwy. Dept. for road
side ditch 32-15-2E

Shartle

6/12/53

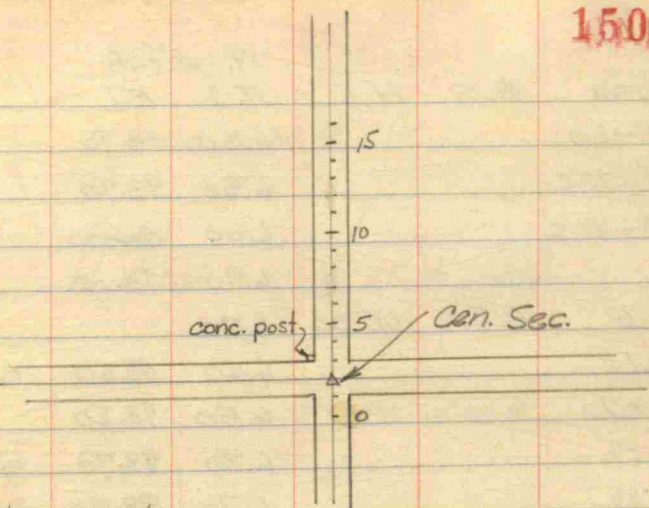
Burrows

Graham

Watson

Sta.	B.S.	H.I.	W. ditch F.S.	W. ditch E.L.	E. ditch F.S.	E. ditch E.L.
2+00		100.00	6.50	93.50		
0					8.00	92.00
1					6.00	94.00
1+80					5.40	94.60
2					4.60	95.40
2+20			5.90	94.10	5.30	94.70
3			6.30	93.70	6.60	93.40
4			6.50	93.50	6.60	93.40
5			6.10	93.90	6.20	93.80
6			6.00	94.00	5.90	94.10
7			6.10	93.90	6.40	93.60
8			6.30	93.70	6.50	93.50
9			6.30	93.70	6.80	93.20
10			6.50	93.50	7.20	92.80

150



20' W. of conc. post.

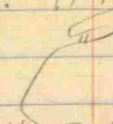
151

Sta.	B.S.	H.I.	W. ditch	
			F.S.	EL.
8+60±			6.30	93.70
8+75±			6.30	93.70
8+80±			6.00	94.00
			6.90	93.10
0	6.30	100.00	6.30	
11			6.40	93.60
11+70			6.50	93.50
12			6.30	93.70
13			6.70	93.30
13+50			6.20	93.80
14			6.20	93.80
13+50			6.00	94.00

~~(3-2)~~ 1100' 93.30 93.30
~~(2-2)~~ 0' 93.10 $\frac{1.20}{92.10}$

100' W of X marks should be lowered 1.0'
 grade upstream +0.10'

152

Send C.M.P. (F.L.)
 N " " 
 Pond
 N. ditch 100' W of + roads

7.20 92.80

F.L. C.M.P.

6.90 93.10

7.10 92.90

F.L. C.M.P.

7.50 92.50

Pond