CR 301 South Canyon

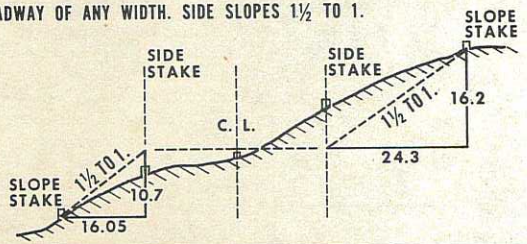
P Line Book #2

CR301 P Line BOOK 2

KEUFFEL & ESSER
FREDERICK POST
FIELD BOOK
No. 8320-100

DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

ROADWAY OF ANY WIDTH. SIDE SLOPES 1½ TO 1.



Cut or Fill	Distance out from Side or Shoulder Stake.										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0 00	0 15	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	0
1	1.50	1.65	1 80	1.95	2.10	2.25	2.40	2.55	2.70	2.85	1
2	3.00	3.15	3.30	3 45	3.60	3 75	3.90	4.05	4.20	4 35	2
3	4.50	4 65	4.80	4.95	5.10	5 25	5 40	5.55	5.70	5.85	3
4	6.00	6 15	6.30	6.45	6.60	6.75	6.90	7.05	7.20	7.35	4
5	7 50	7.65	7.80	7.95	8.10	8.25	8.40	8.55	8.70	8.85	5
6	9 00	9 15	9.30	9.45	9.60	9.75	9.90	10.05	10.20	10.35	6
7	10.50	10 65	10.80	10.95	11.10	11.25	11.40	11.55	11 70	11.85	7
8	12.00	12 15	12.30	12.45	12.60	12.75	12.90	13.05	13.20	13.35	8
9	13 50	13.65	13 80	13 95	14.10	14.25	14.40	14 55	14.70	14.85	9
10	15.00	15 15	15 30	15 45	15.60	15.75	15.90	16.05	16.20	16 35	10
11	16 50	16 65	16 80	16.95	17 10	17.25	17.40	17.55	17.70	17.85	11
12	18 00	18.15	18.30	18 45	18.60	18 75	18.90	19.05	19.20	19 35	12
13	19 50	19 65	19.80	19.95	20.10	20.25	20 40	20.55	20.70	20.85	13
14	21.00	21 15	21.30	21.45	21 60	21.75	21.90	22 05	22 20	22 35	14
15	22 50	22 65	22 80	22 95	23.10	23.25	23.40	23.55	23.70	23.85	15
16	24.00	24 15	24 30	24 45	24.60	24.75	24 90	25 05	25.20	25.35	16
17	25.50	25 65	25.80	25 95	26.10	26 25	26 40	26.55	26.70	26.85	17
18	27.00	27 15	27.30	27 45	27.60	27.75	27.90	28.05	28 20	28.35	18
19	28 50	28 65	28 80	28.95	29.10	29.25	29.40	29.55	29.70	29.85	19
20	30 00	30 15	30.30	30.45	30.60	30.75	30.90	31.05	31.20	31.35	20
21	31 50	31 65	31.80	31.95	32 10	32 25	32.40	32.55	32 70	32 85	21
22	33 00	33 15	33 30	33 45	33.60	33 75	33.90	34.05	34.20	34.35	22
23	34 50	34 65	34.80	34.95	35.10	35 25	35 40	35.55	35.70	35 85	23
24	36.00	36 15	36.30	36 45	36.60	36.75	36.90	37.05	37.20	37.35	24
25	37.50	37.65	37 80	37.95	38.10	38.25	38.40	38.55	38.70	38.85	25
26	39 00	39 15	39.30	39 45	39 60	39.75	39.90	40.05	40.20	40.35	26
27	40 50	40 65	40 80	40.95	41.10	41.25	41 40	41.55	41.70	41.85	27
28	42 00	42 15	42.30	42.45	42.60	42 75	42.90	43.05	43.20	43.35	28
29	43 50	43 65	43.80	43 95	44.10	44 25	44 40	44.55	44.70	44 85	29
30	45 00	45 15	45.30	45 45	45.60	45.75	45.90	46.05	46 20	46.35	30
31	46.50	46.65	46.80	46 95	47.10	47.25	47.40	47.55	47.70	47.85	31
32	48 00	48.15	48.30	48 45	48.60	48 75	48.90	49.05	49 20	49.35	32
33	49.50	49 65	49.80	49.95	50.10	50.25	50.40	50.55	50.70	50.85	33
34	51 00	51.15	51.30	51.45	51.60	51.75	51.90	52.05	52.20	52.35	34
35	52 50	52.65	52.80	52.95	53.10	53.25	53.40	53.55	53.70	53.85	35
36	54 00	54.15	54.30	54 45	54.60	54.75	54.90	55.05	55.20	55.35	36
37	55 50	55 65	55.80	55.95	56.10	56.25	56.40	56.55	56.70	56.85	37
38	57.00	57.15	57.30	57 45	57.60	57.75	57.90	58.05	58.20	58 35	38
39	58 50	58.65	58 80	58.95	59.10	59 25	59.40	59 55	59.70	59.85	39
40	60 00	60.15	60 30	60 45	60 60	60.75	60 90	61.05	61 20	61.35	40

Property of Cache County Engineer

Address 179 North Main Logan, Utah

Telephone 752-8327

This Book is manufactured of a High Grade 50% Rag Paper having a Water Resisting Surface, and is sewed with Nylon Waterproof Thread.

INDEX

Note: some of the early pgs. are worked from Top down. Check for arrow indicating direction of work.

South Canyon
Resurvey Mile #1 Pg. 2

South Canyon
New Survey mile #3 -> South Pg. 30

For Mile #1 + #2 initial P line survey see CR 301 P Line book #1

Began Day by rezeroing micro ranger to insure accurate distance readings.

Began survey check at section corner between Sections 10, 11, 15, 14 T.9.N. R.1.E.

Sighted West along section line taking distance
208.35 @ V∠ of 24°
Hor. distance 190.34'

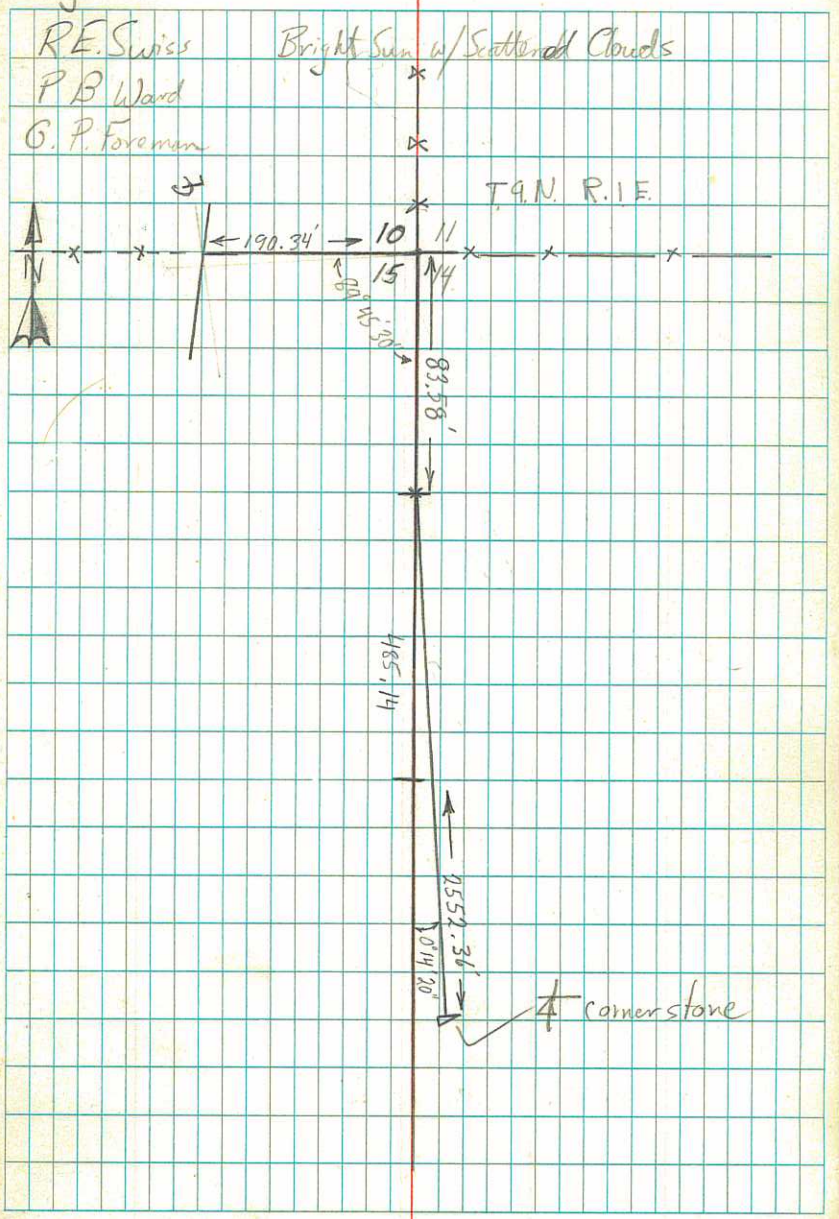
Turned ∠ to Lt. sighted along section line ∠ 89°45'30"
Moved 83.58' S. along section line set guin + moved gun to that point. Now able to sight on ℄ of roadway

Sighted south to old stone assumed 1/4 corner (Sec 14, 15) turning ∠ 0°14'20" E
Took distance reading 2553.07' at a Ver ∠ of 1°21'
Hor. Distance 2552.36'
(Use Kiel X on top of flat 3/4 buried stone)

Set Straddlers along road to south crossing PI & PI line
Measured along PI line from PI 70.73'

R.E. Swiss
P.B. Ward
G.P. Foreman

Bright Sun w/ Scattered Clouds



Measured distance to ℄ 489.27' @ Ver ∠ 7°27'

Set up on ℄. Turned ∠ from section line to ℄ 12°16'50" W

Hor. Dis 485.14

Set on ℄ at pt of section Line 10,15 tie. Turned

∠ from section corner to ℄ of Rd. 98°41'15"

Section tie is @ Sta 23+35.66

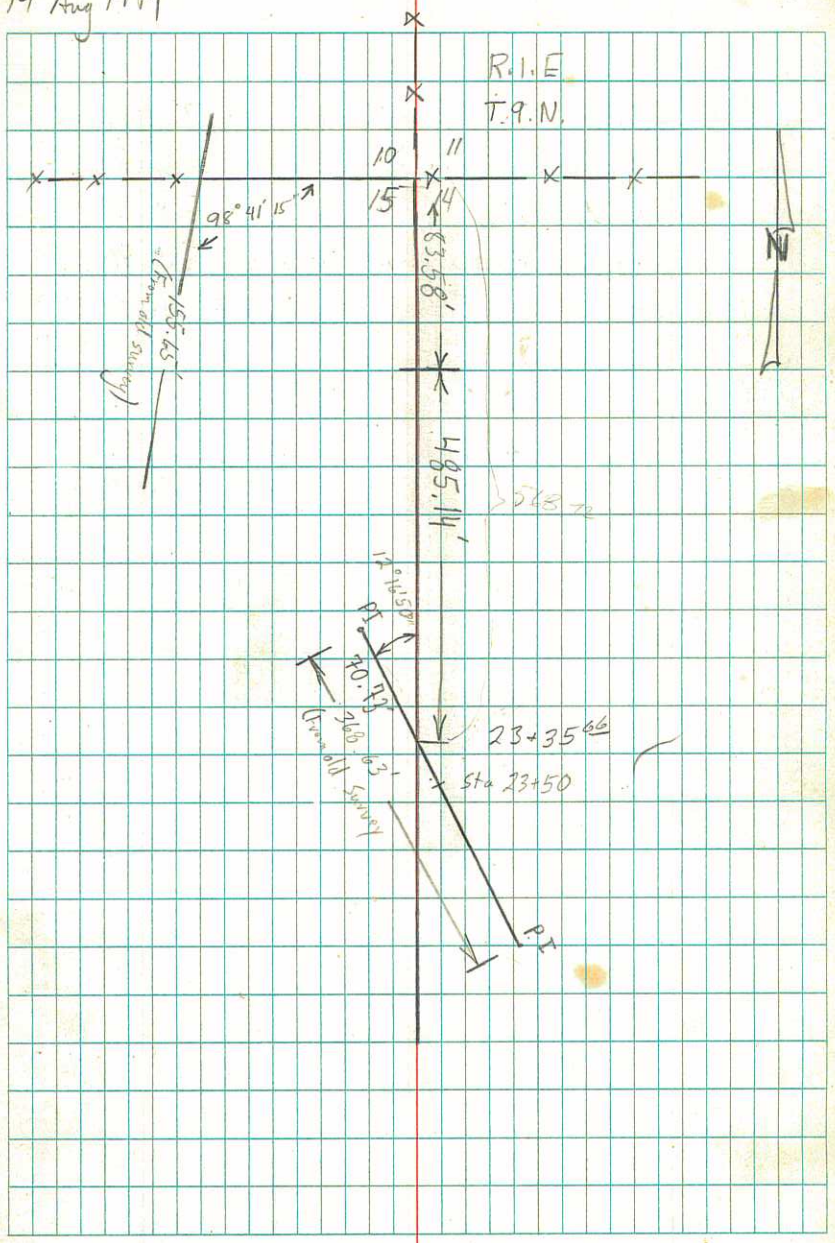
Note: End of Seg #1 check.

0.42' E.

0.60' N

Major error not in this segment.

14 Aug 1974



Moved S. along road to segment 617.87' in Length.
℄ section line crosses ℄ along this segment.

Rechecked crossing point, chained 284.80'
from Northern P.I. to ℄ sec. Line tie point,
Turned ∠ from PI line to ℄ sec line 79°58'00"
℄ Section Tie is at Sta 45+05 75/100
Set up on ℄ stone and turned ∠ from section Line
to ℄ tie Line along ℄ sec line 89°08'50"

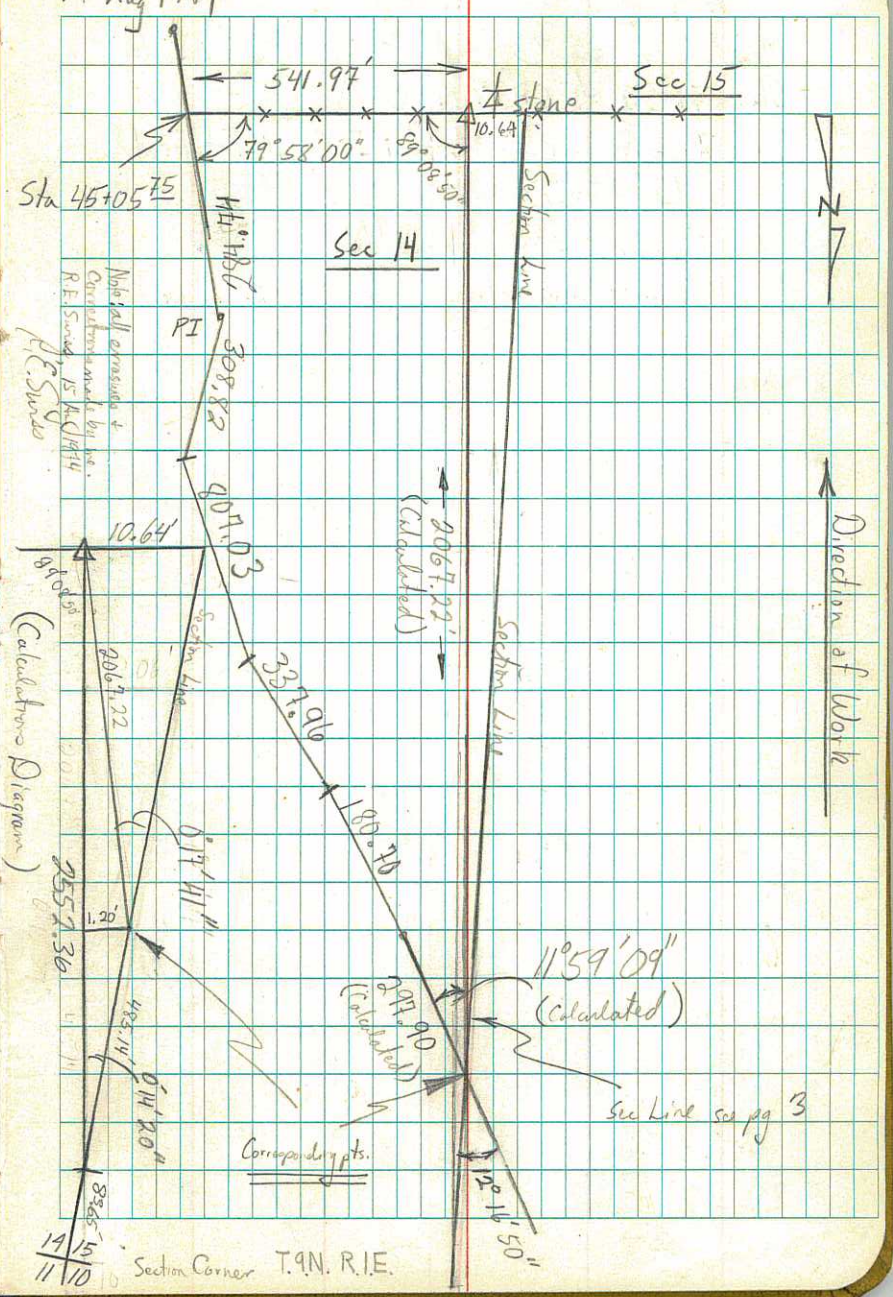
Started back N along center line checking all PI
Distances
Read distances
284.74
308.82
807.03
337.96
180.70

This Segment.

0.49' South
0.18' East

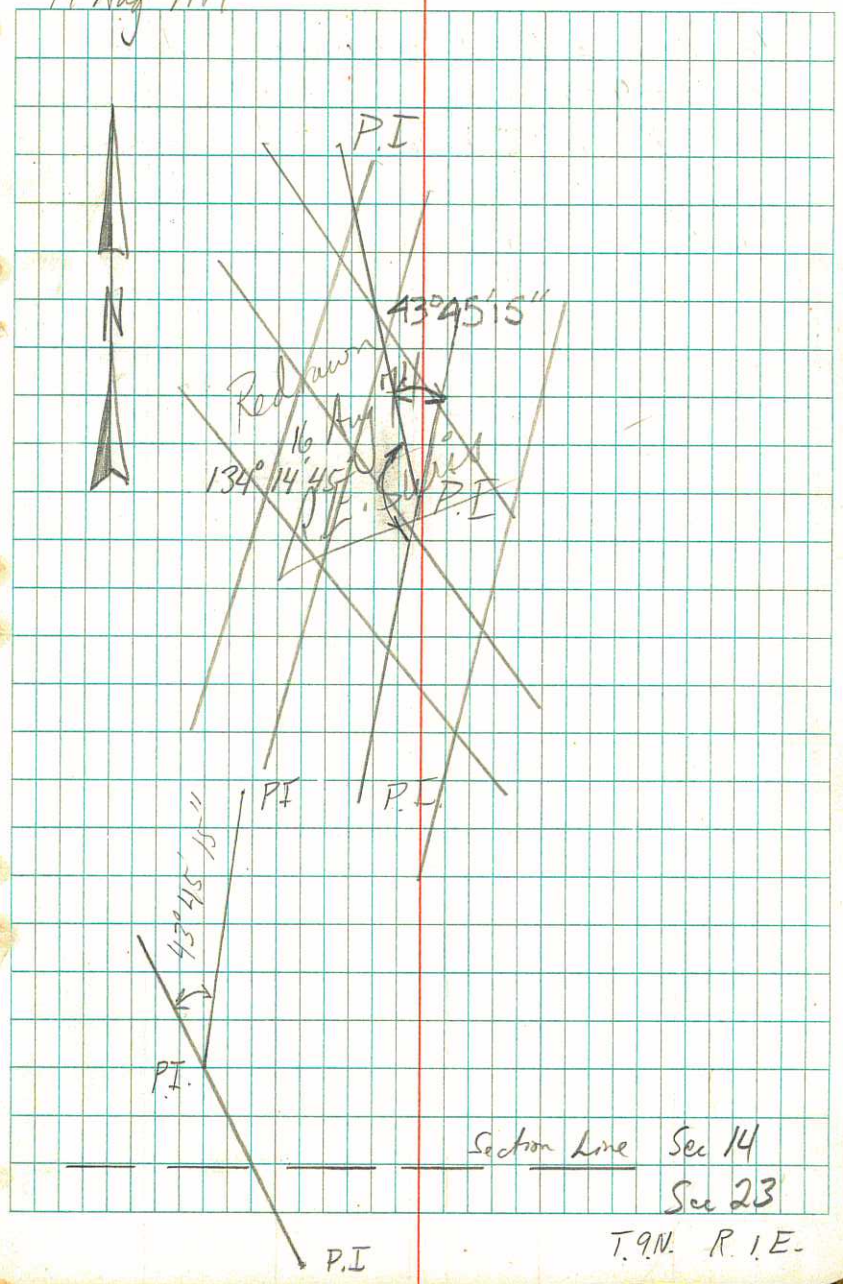
℄ stone between Sec 15, 14 T.9.N. R.I.E. Old stone w/ ℄ chiseled in upright rock / Other stone 3/4 buried. Only top surface exposed.

14 Aug 1974



Moved on to seg #3 Set T4 on PI between
Sta. 71+50 & Sta 72+00
Turned ∠ from P.I N. to P.I S. of T4 location.
43°45' 15"
This is a correction of previous figure
Traverse now closes 2.25' South 8.52' West.

14 Aug 1974



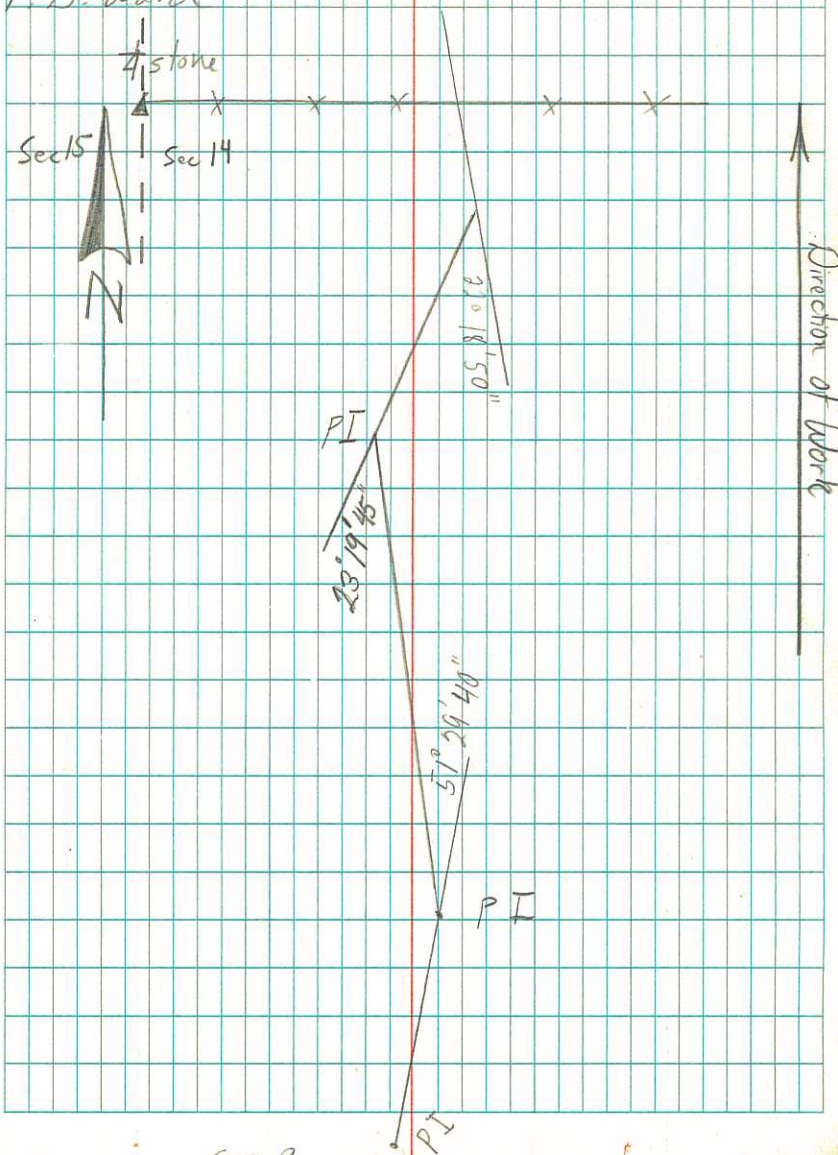
9340-100

Began day at last P.I. checked on 14 Aug 1974
see pg 9. Work north from that P.I. checking the P.I. to P.I. angles along ½ mile section to the ¼ section Line shown on pg 7

Turned Lt ∠ 51°29'40"

Turned Rt ∠ 53°19'45"

16 Aug 1974 Clear sky
R.E. Swiss Bright sun.
P.B. Ward



See pg 9

Notes Read Top ↓

Began P.I. to P.I. survey check of mile #3.
Original survey done 1972

Beginning at last PI of Mile #2
Measure distance to 1st PI of 3rd mile section
411.52'

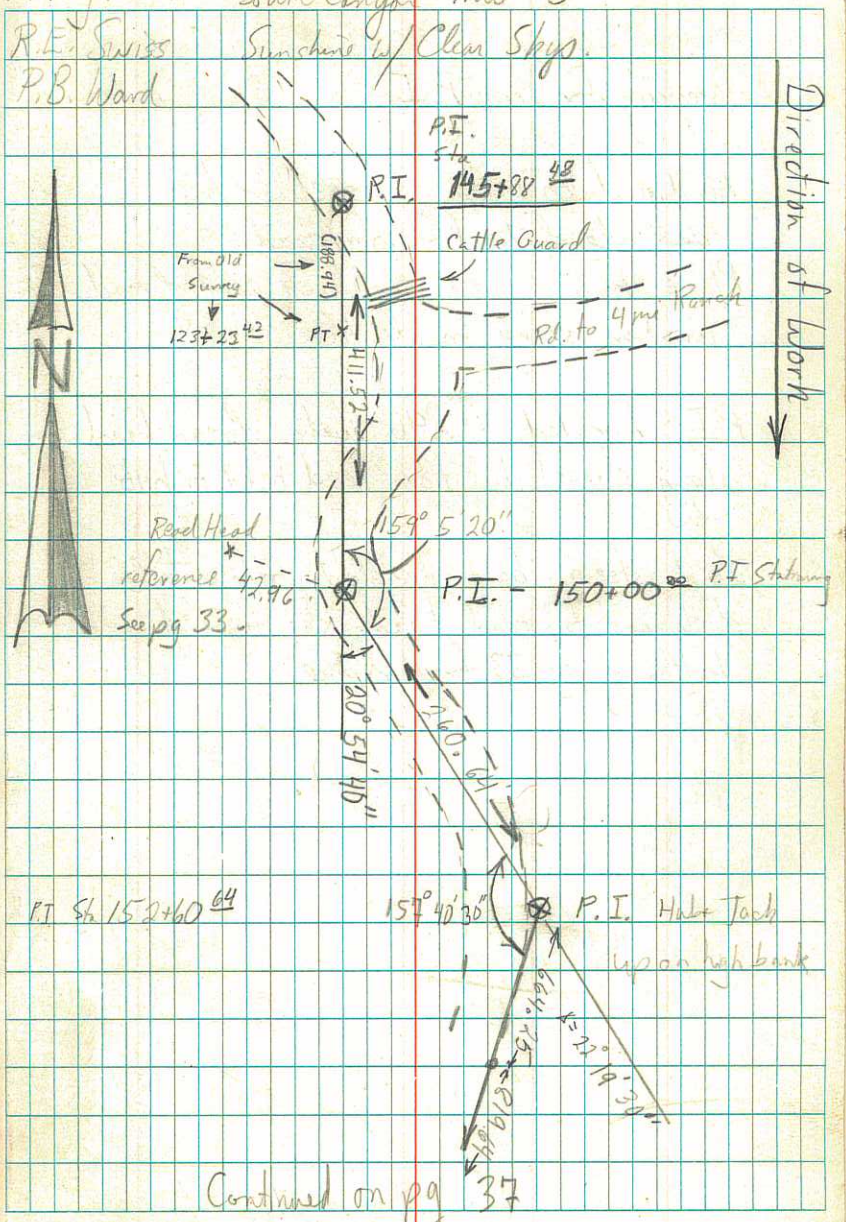
Note: old P.I. not to be found due to recent road grading
established new P.I.
Interior ∠ 159° 5' 20" to next PI (from old survey)
distance to PI from new P.I. 260.64'

Found P.I. from old survey upon east bank.
15± ft from E edge of present roadway
Used P.I. for distance & ∠ from new P.I.
Referenced old P.I. see pg 35

Interior ∠ for old PI 157°40'30"
Rt ∠ Δ = 22° 19' 30"
Note: discovered from old notes that assumed old P.I.
is a reference Rebar to the P.I. Have also found 2nd
reference hub to the south of 1st hub. Will continue
to use northern hub as a P.I.

14 Aug 1974 South Canyon Mile # 3

R.E. Swiss Sunshine w/ Clear Skys.
P.B. Ward



32

Referencing for new P.I.
Located

Readhead in side of boxelder tree over side of bank from road

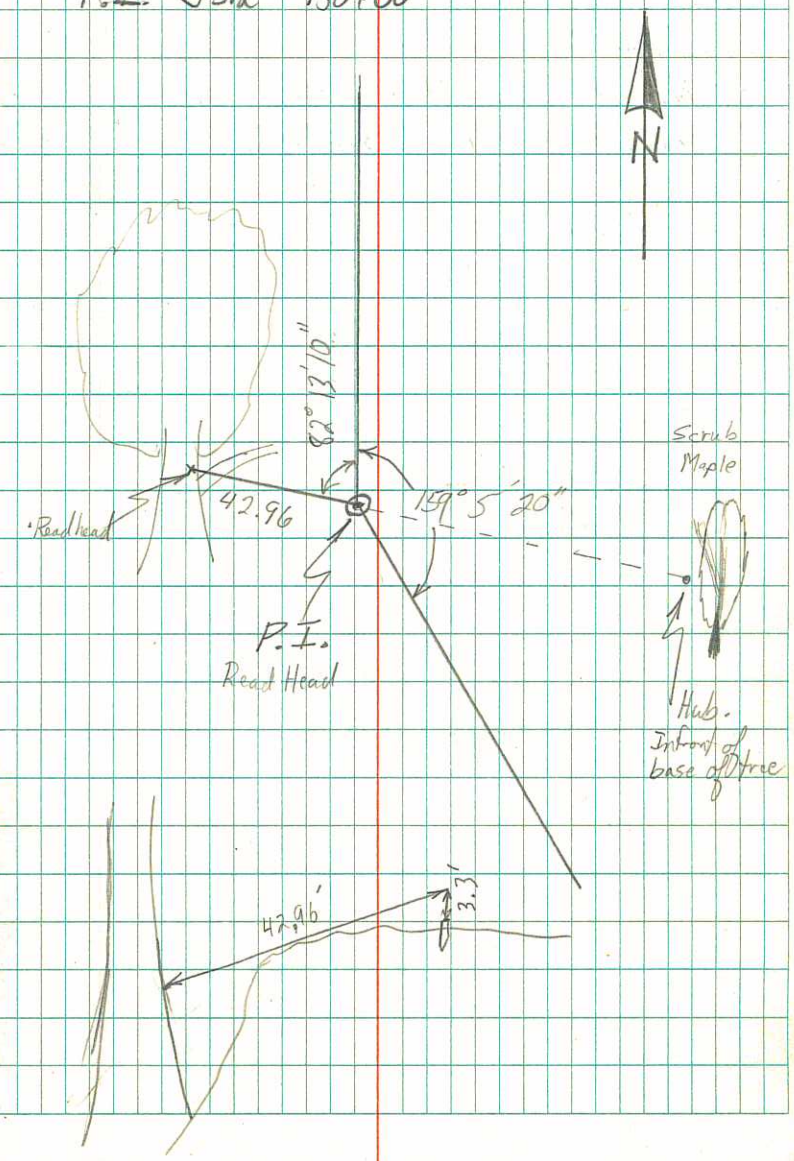
Place hub up on high bach east of road under scrub maple tree.

P.I Located 42.96' east of read head along direct line from read head to hub.

Due to steep bank, unable to take vertical distance to read head. see figure at bottom of pg 33 for reference

Referencing for new P.I. $\Delta = 20° 54' 40"$

R.I. Sta 150+60



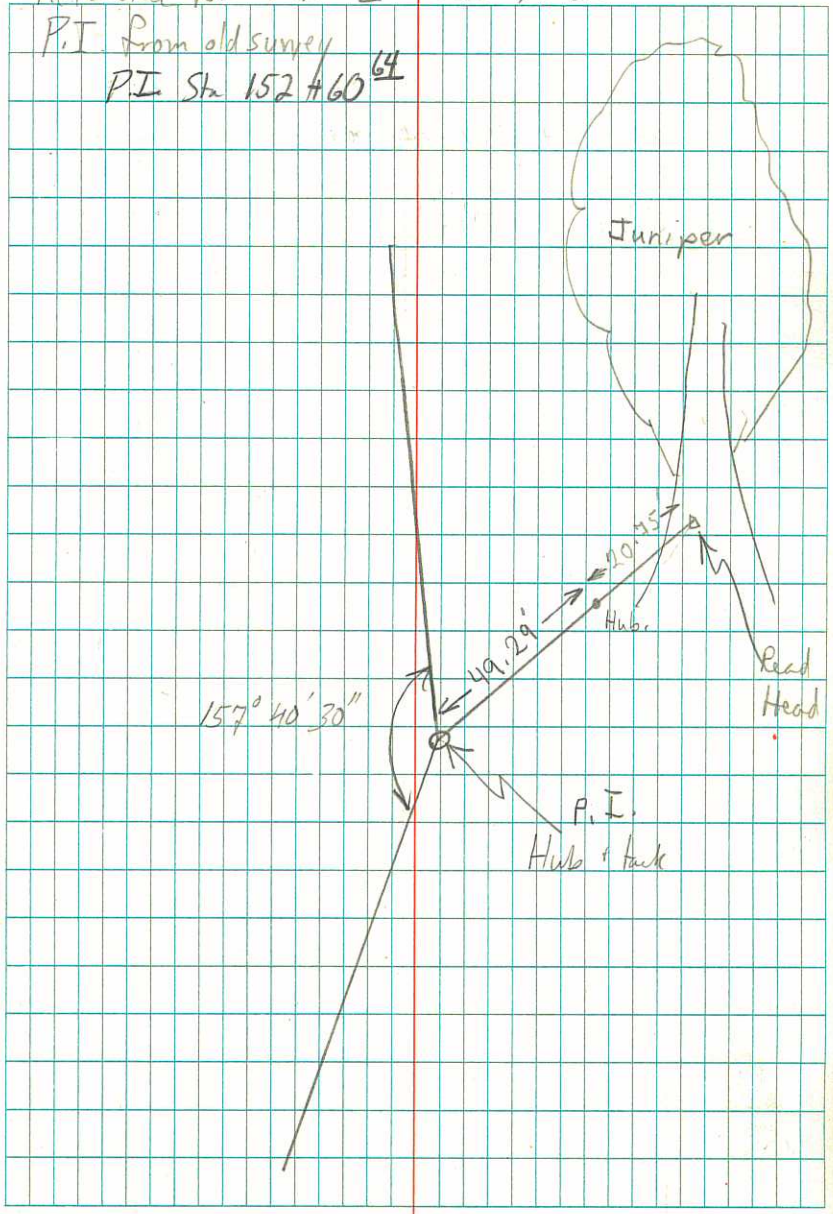
Drove Read Head into base of old Juniper tree NE of P.I. . Place Hub directly along line from P.I. to read head. ✓

15 Aug 1974

Reference for P.I. $\Delta = 22° 19' 30''$

P.I. from old survey

P.I. Sta. 152 + 60.64



Notes Read Top ↓

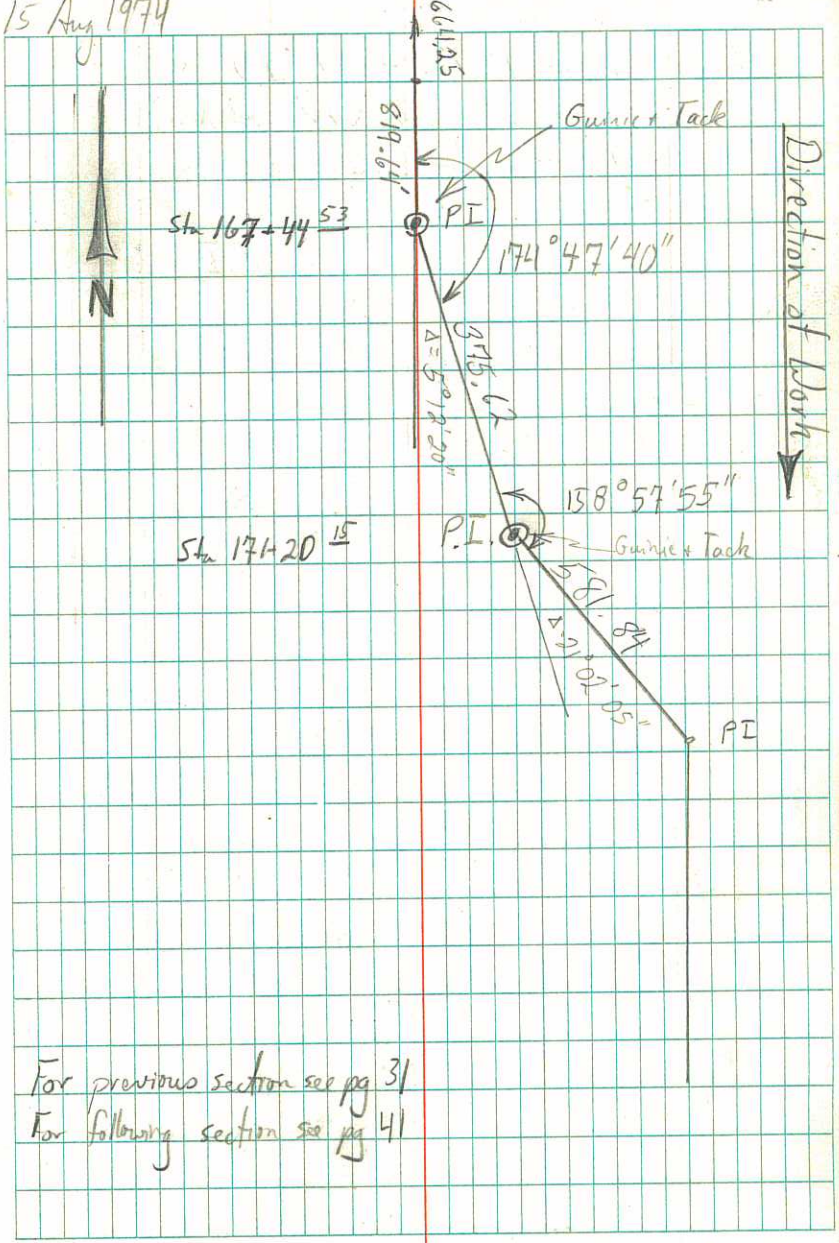
Had trouble w/ Range Finder · Required two segment shots to obtain total P.I. to P.I. distance.
6 64.25' + 819.64' = 1483.89'

See pg 39 for P.I. Referencing

Set two new P.I.'s with guinie + tack
Lt ∠ Δ = 5° 12' 20"
Distance 375.62'

Lt ∠ Δ 21° 02' 05"
Distance 581.84'

15 Aug 1974



For previous section see pg 31
For following section see pg 41

Referencing for P.I. $\Delta = 5^\circ 12' 20''$

went over west bank + put red head in trunck of box elder tree near fence

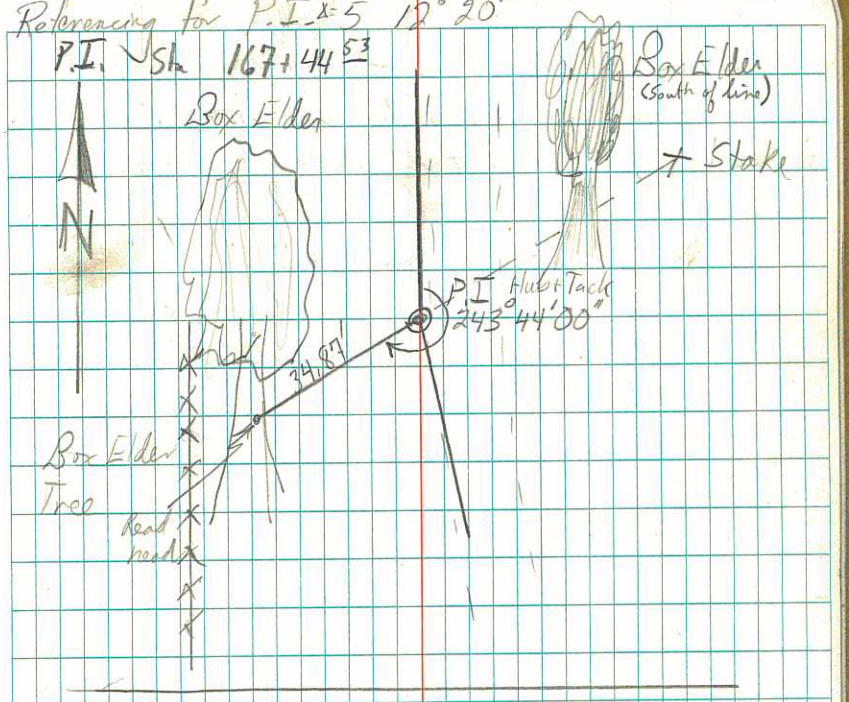
Measure 34.87' from tree to P.I.

Moved on direct line across road and up east bank.

Reference for P.I. $\Delta = 21^\circ 02' 05''$

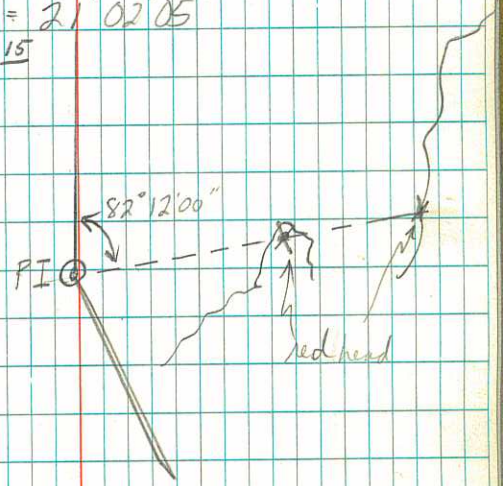
Went up east bank to first large rock. Placed red head.
Followed line further up bank to large rock formation + placed 2nd red head.

Referencing for P.I. $\Delta = 5^\circ 12' 20''$



PI $\Delta = 21^\circ 02' 05''$

P.I. Sta 171+20 15



Notes Read Top ↓

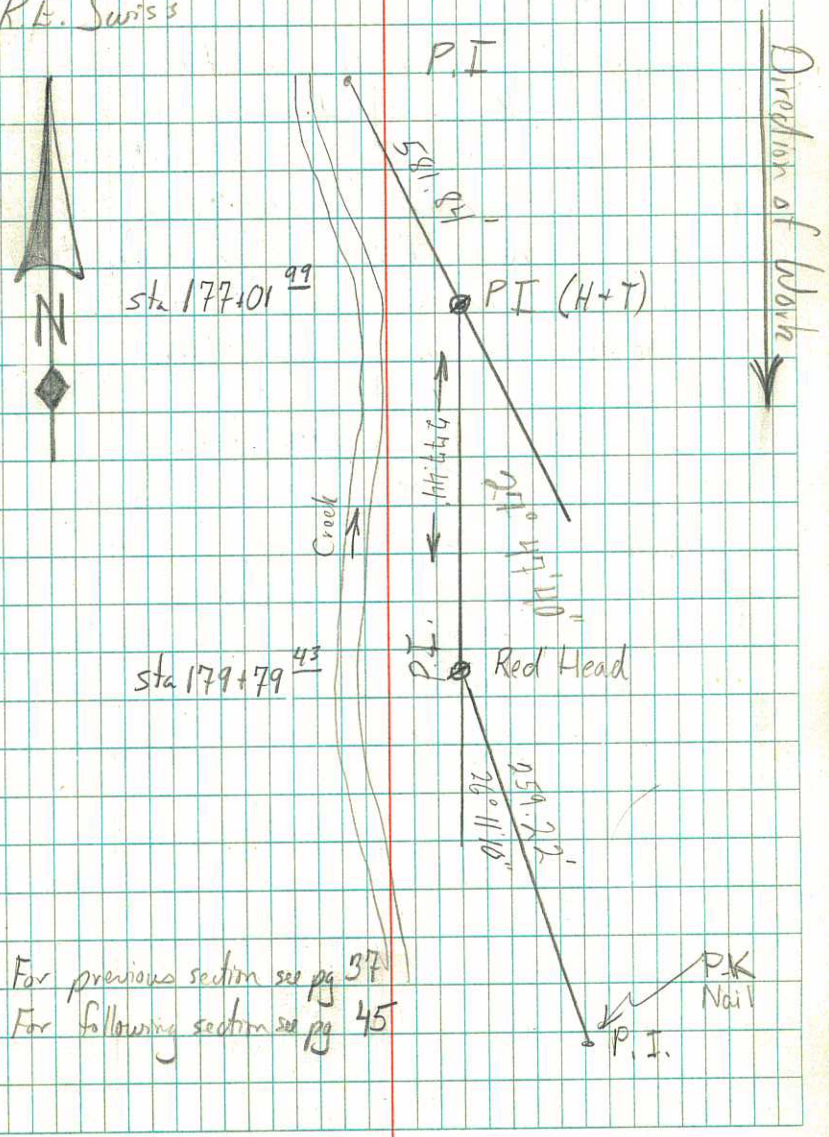
Began at Last P.I. of yesterdays (15 Aug 74) work
Continued South along road establishing P.I.'s
and looking for old survey markings
Took traffic count along road.

Found two refence markers in trees west of road.
Unable to find reference notes for this P.I. or
any sign of P.I. due to recent grading
on roadway Established new P.I.

Turned Rt ∠ 27° 47' 40"
Read Distance of 277.44'
For PI reference see pg 43

Turned Lt ∠ 26° 11' 10"
Read Distance 259.23'
For PI reference see pg 43

16 Aug 1974 Bright Sun
P.B. Ward Clear Skies
R.E. Swiss



For previous section see pg 37
For following section see pg 45

42

Referencing for PI $\Delta = 27^\circ 47' 40''$

Went up east bank to old Juniper tree north east of P.I. . Set Red head in base branch of tree facing roadway P.I. Turned ∠ from P.I. just south up to line w/ red head ∠ $132^\circ 08' 00''$
Set Stake on line from P.I. to red head in tree
Measure distance from stake to P.I 47.87'
note chain was parallel to incline of bank



Reference for PI $\Delta = 26^\circ 11' 10''$

Used old reference points from previous survey. Bottle Caps in large cotton wood tree over down west bank of road

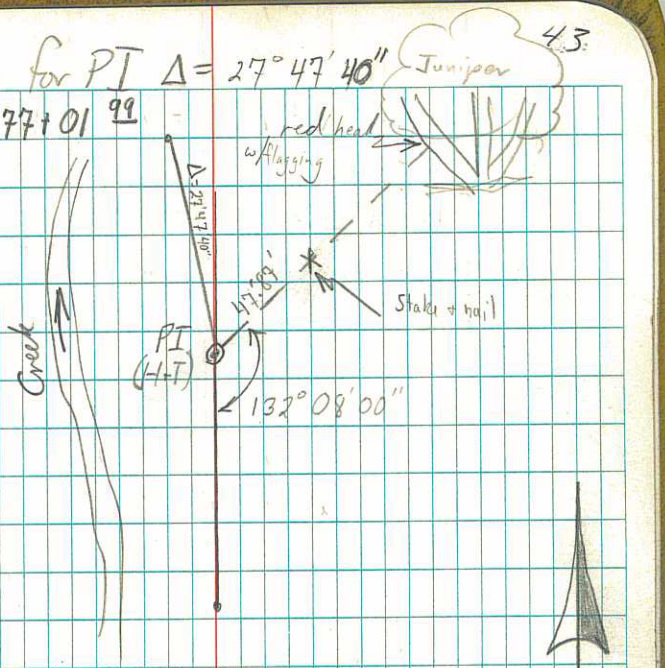
Measured 36.60' from north Cottonwood
49.82' " south " "

16 Aug 74

43

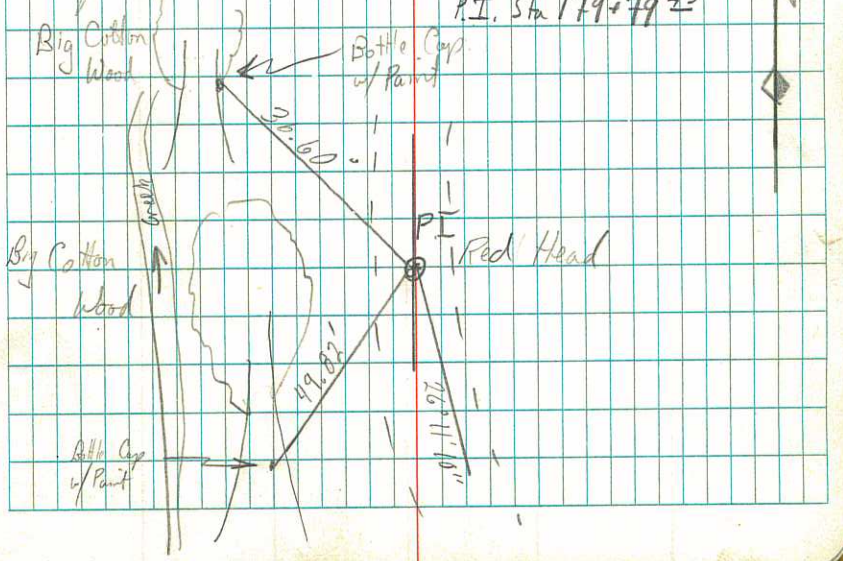
Reference for PI $\Delta = 27^\circ 47' 40''$

P.I. Sta 177+01 99



Reference for P.I $\Delta = 26^\circ 11' 10''$

P.I. Sta 179+79 43



Notes Read Top ↓

Set up on P.K. nail P.I. and completed P.I. referencing. see pg. 47

Turned LT ∠ 6° 20' 00"

Read Distance 824.65'

19 Aug 1974 Began on last P.I. of work from 16 Aug 74

Turned ~~RT~~ ∠ 0° 35' 25"

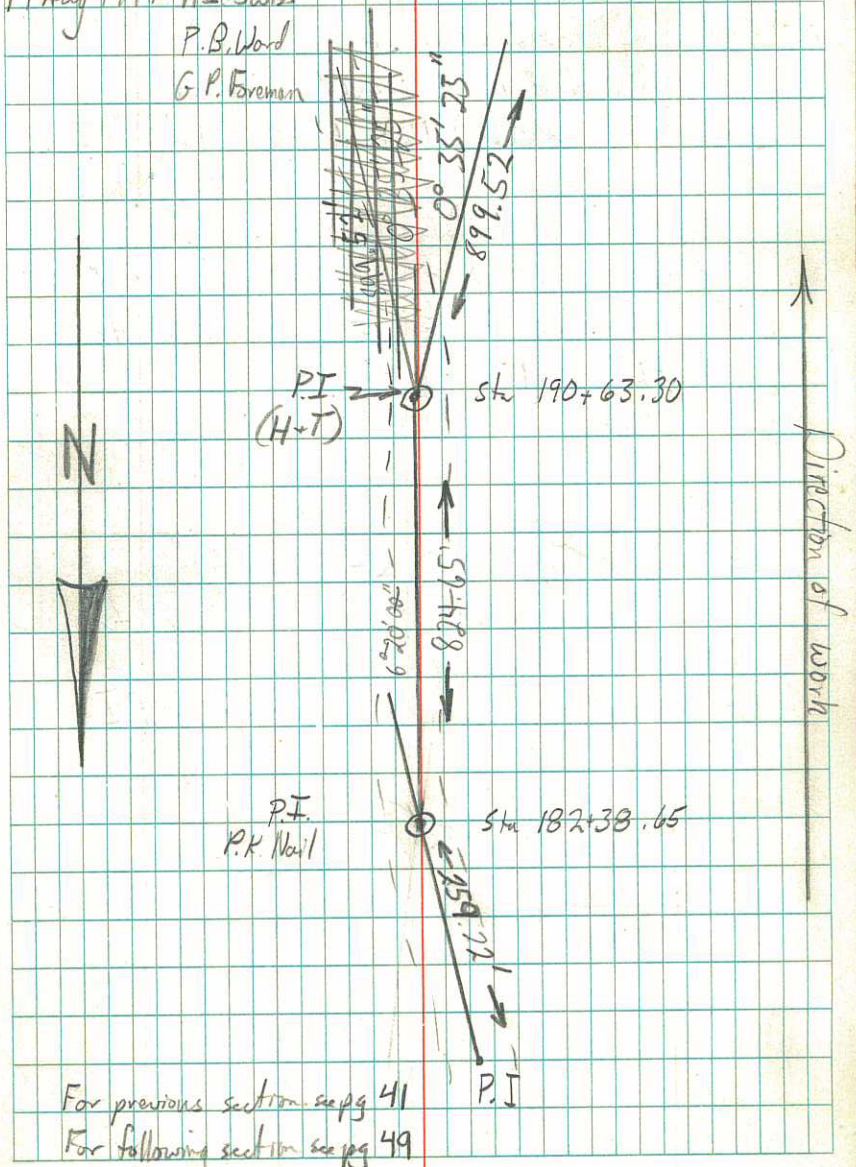
Read Distance 899.52'

For P.I. Reference see pg 47

Final Vehicle Total 25 for the day

16 Aug 1974 R.E. Swiss P.B. Ward.

19 Aug 1974 R.E. Swiss P.B. Ward G.P. Foreman



For previous section see pg 41
For following section see pg 49

46

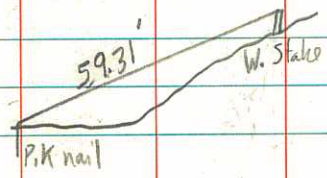
Reference for PI $\Delta = 0^\circ 35' 25''$

Used old fence line to west of roadway for referencing. Found old reference mark on top of northern end of wood brace (two verticle on Horizontal pieces). Measured 42.12 (Hor) to P.I.

Went south along fence to first metal post south of brace. Used crossing of post on top for reference. Painted red + measured 46.76' (Hor.) to P.I.

Reference for P.I. $\Delta = 6^\circ 20' 00''$

Moved up steep east bank. Place two Stake + Tack markers in Line + measure distance from western most stake to P.I.

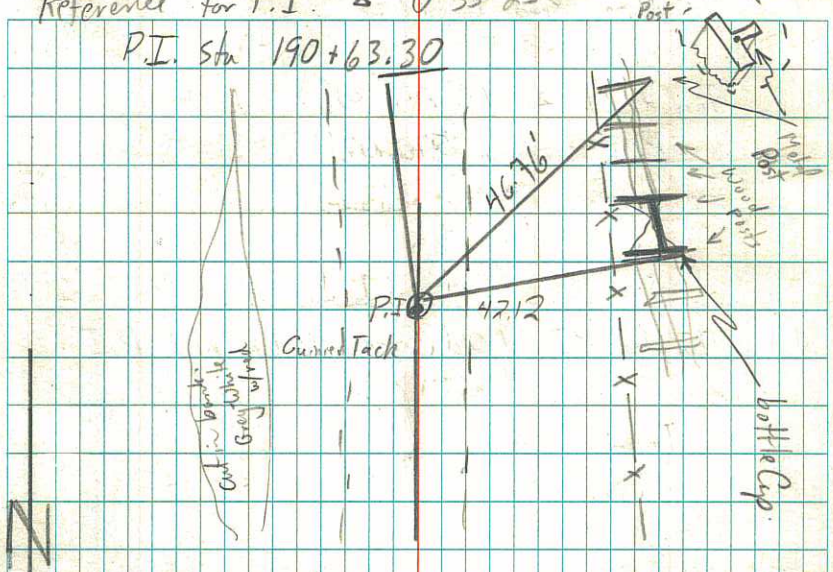


16 Aug 74

47

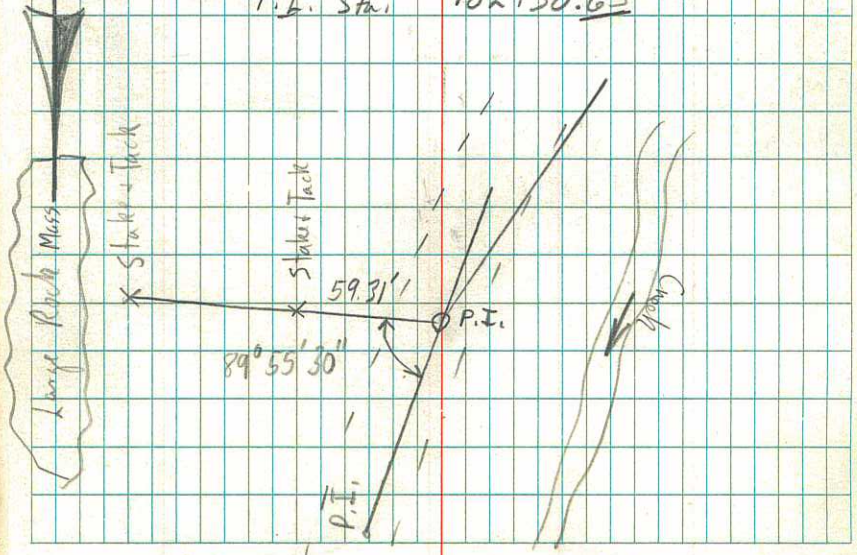
Reference for P.I. Δ $0^\circ 35' 25''$

P.I. sta 190+63.30



Reference for P.I. $\Delta = 6^\circ 20' 00''$

P.I. sta. 182+38.65



Notes Read Top ↑

Turned Lt ∡ 18° 05' 30"
Read Distance 570.07'

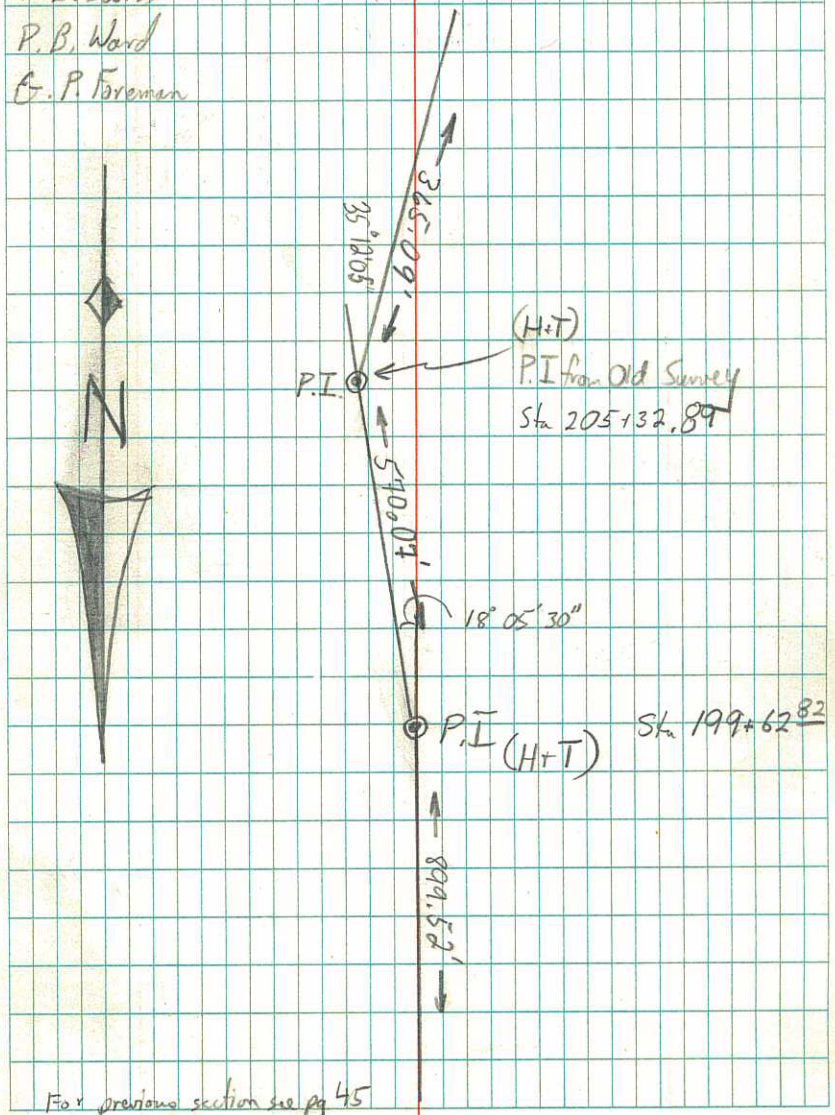
Located P.I. of Old Survey. Used as next P.I.

Turned Rt ∡ 35° 12' 05"
Distance 365.09'

For P.I. Reference see pg 50

19 Aug 1974 Scattered High Clouds
Hot Sun 90°

R.E. Swiss
P.B. Ward
G.P. Foreman



For previous section see pg 45

For Further section See pg 53

50

See Pg 48 for these P.I.'s

Reference for P.I. Δ =

Used P.I. ~~fold~~ old survey. Found no old references set two new stake-nail-inline markers ~~upon~~ ~~point~~ east of P.I.

Measured ∠ from previous P.I. to stake/nail 104°32'00"

Measured distance to western most stake 44.87'

Reference for PI Δ = 18°05'30"

Set Red head in large wood upright on north end of southern fence brace located northwest of P.I. Measured 42.66'

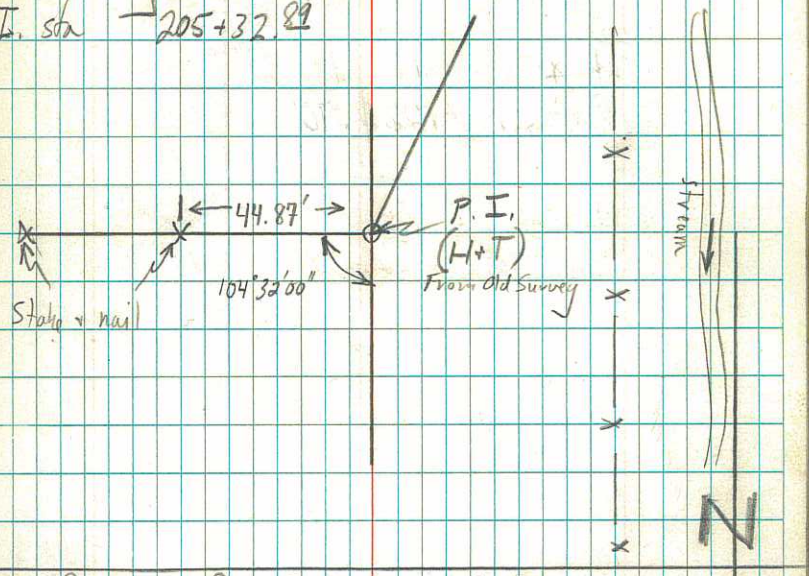
Placed Red Head in base of large box Elder Tree South West of P.I.

19 Aug 1974

51

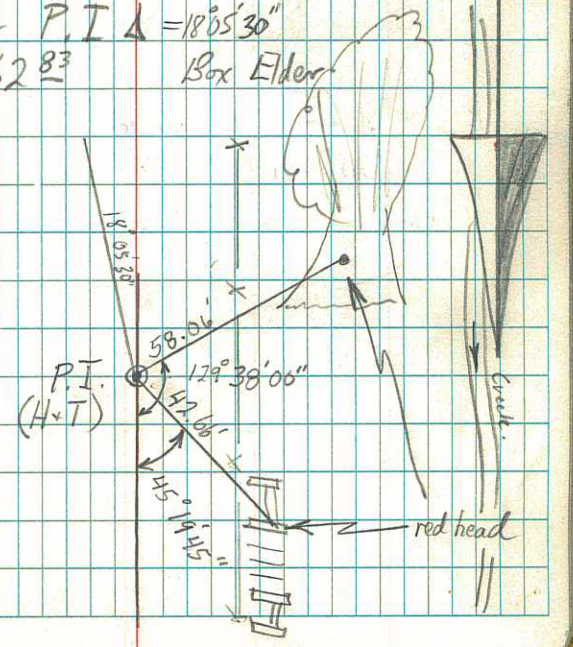
Referencing for P.I. Δ = 35°12'05"

P.I. sta 205+32.89



Referencing for P.I. Δ = 18°05'30"

P.I. sta 199+62.83

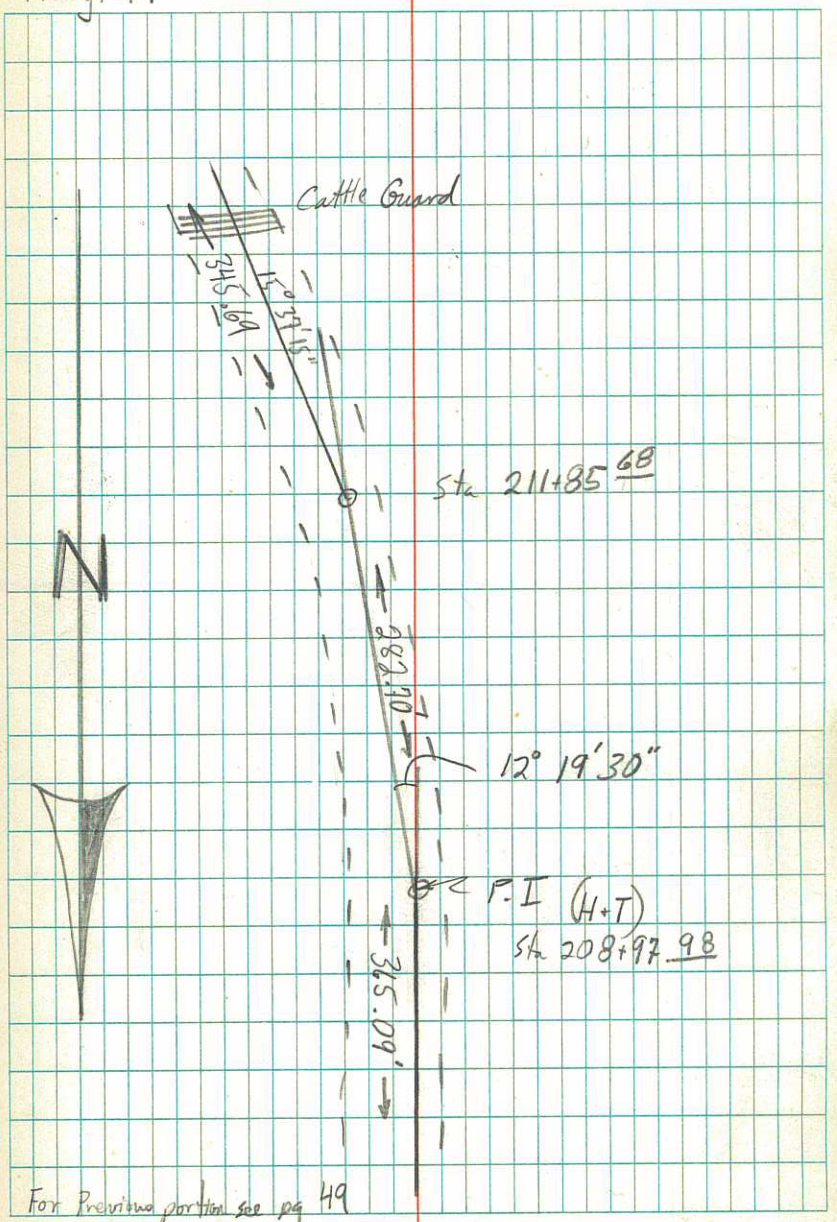


Notes Read Top ↑

Lt ∠ 12° 19' 30"
Distance 282.70'

Lt ∠ 15° 37' 15"
Distance 345.69'

For P.I. Ref. see pg 55



For Previous portion see pg 49
For further section see pg 57

Reference for P.I $\Delta = 15^\circ 37' 15''$

Placed red head in base of box Elder tree North West of P.I. Placed stake + nail in line with red head, measured distance from stake to P.I. 69.43'

Turned $\angle$ from previous P.I. Line to reference line $44^\circ 28' 30''$

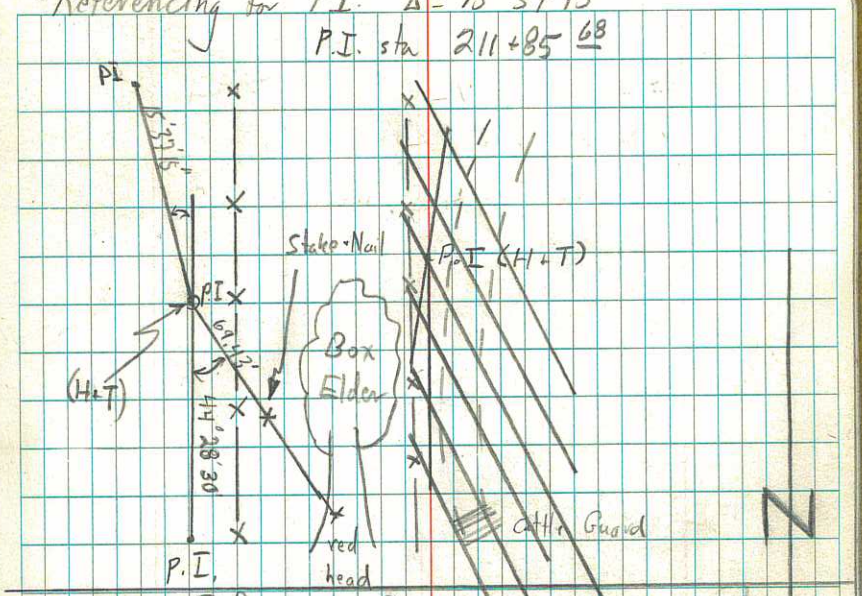
Reference for P.I $\Delta = 12^\circ 19' 30''$

Placed red head in base of large Cotton Wood tree west of P.I. Placed Stake + nail in line with red head + East of fence line. Measured distance to P.I. from stake. 33.64'

Turned $\angle$ from reference line to Previous P.I. line. $\angle 105^\circ 52' 00''$

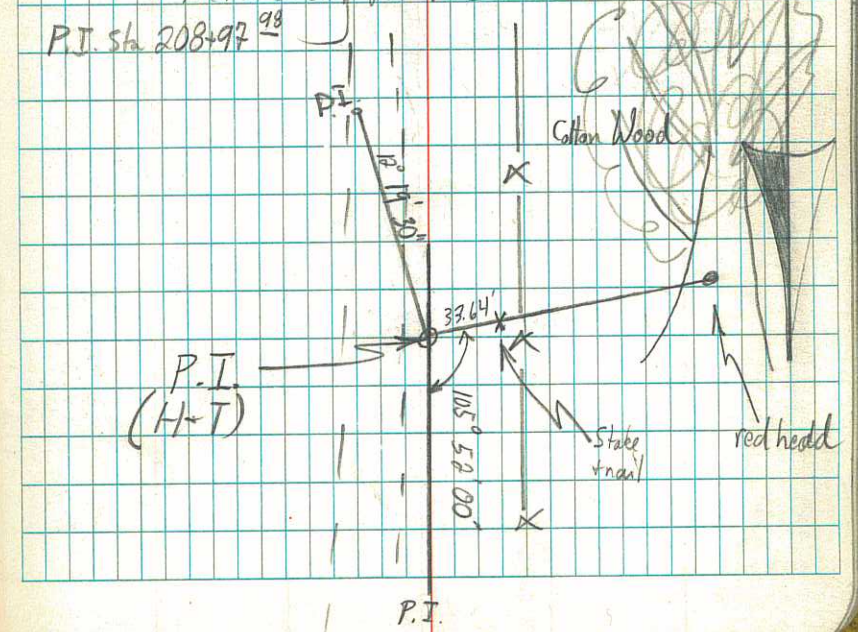
Referencing for P.I. $\Delta = 15^\circ 37' 15''$

P.I. sta 211+85 68



Referencing for P.I. $\Delta = 12^\circ 19' 30''$

P.I. sta 208+97 98



Notes Read Top ↓

Lt ∠ 25° 14' 15"
Distance 188.70'

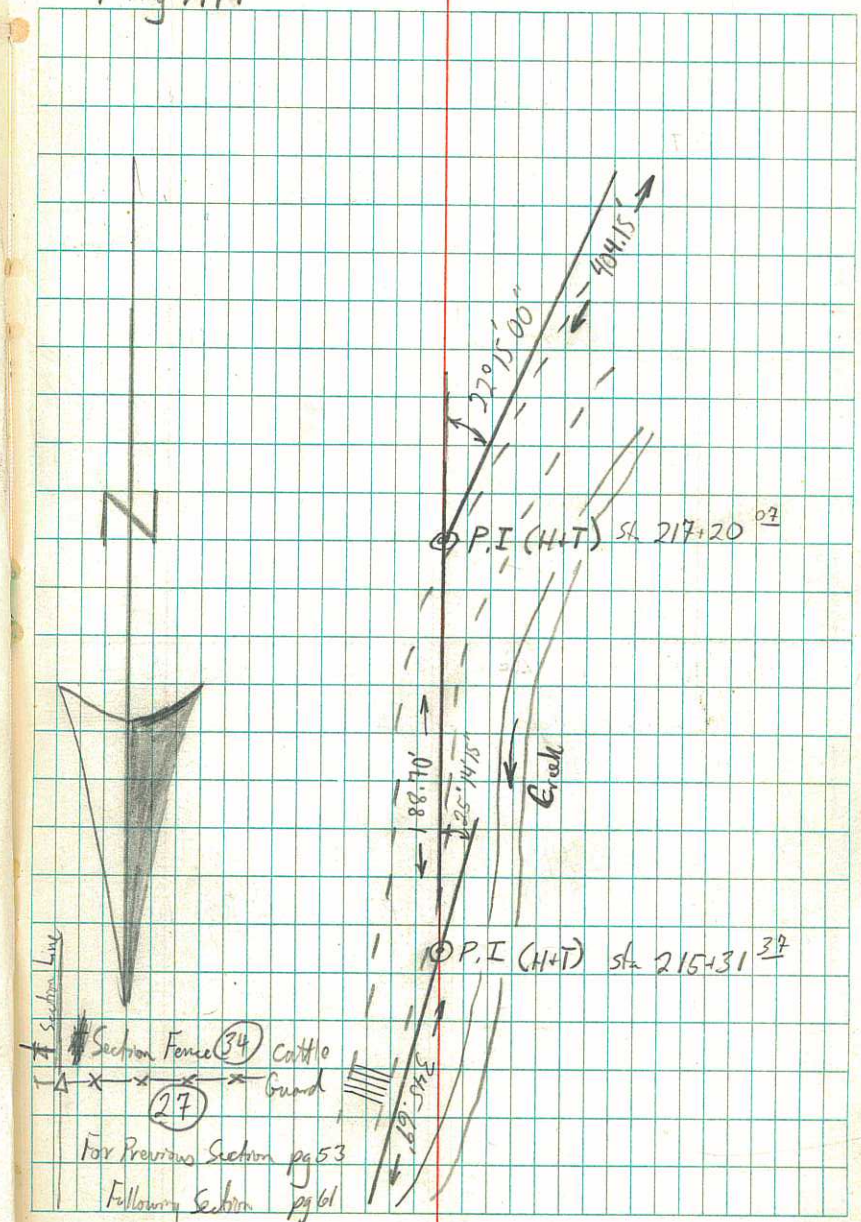
Rt ∠ 22° 15' 00"
Distance 404.15'

For P.I Ref see pg. 59

Continued South along Road establishing new P.I.s crossed section line west of ∠ mark.

T. 9 N. R. 1 E. Sec 34/27

19 Aug 1974



58

Reference for P.I. $\Delta = 22° 15' 00"$

Went up east bank + placed two stakes in line to P.I.

Measured 55.95' to West stake

Turned 94° 23' 50" from previous P.I to Ref Line

Note: Distance measured along incline of bank. see fig. 1.

Ref. For P.I. $\Delta =$ 25° 14' 15"

Went up east bank + placed red head in base of juniper. placed stake in line with red head. Measured distance to stake from P.I.

62.74'

Turned ∠ from Previous P.I. Line to Ref. line

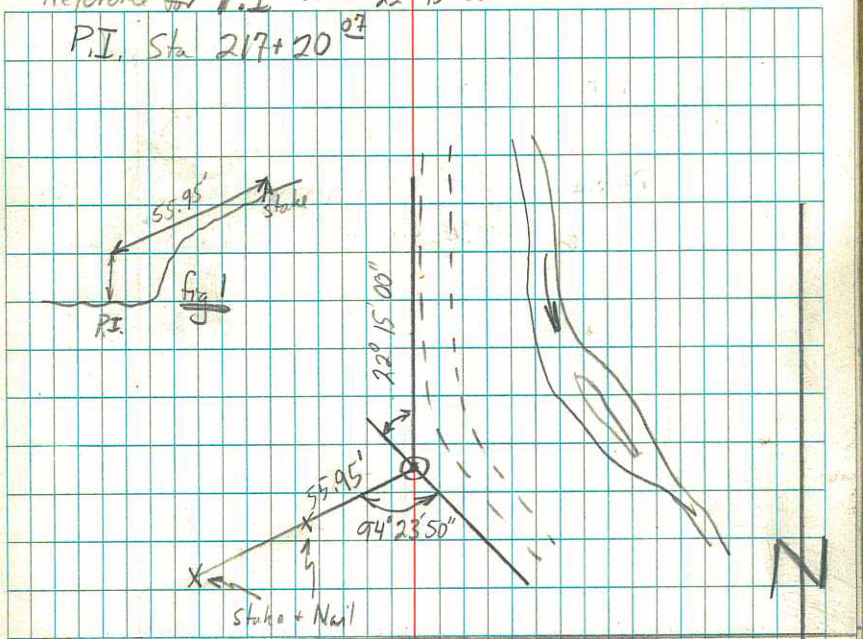
∠ 109° 36' 00"

19 Aug 1974

59

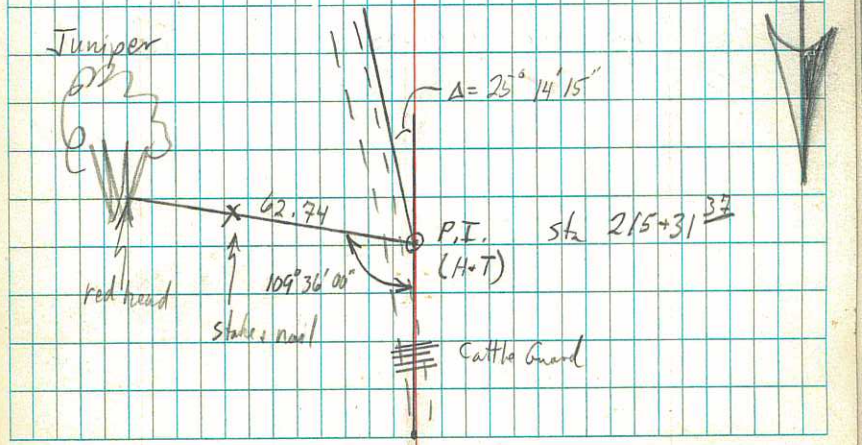
Reference for P.I. $\Delta = 22° 15' 00"$

P.I. Sta 217+20 07



Ref. for P.I. $\Delta = 25° 14' 15"$

P.I. sta 215+31 37



Notes Read Top ↓

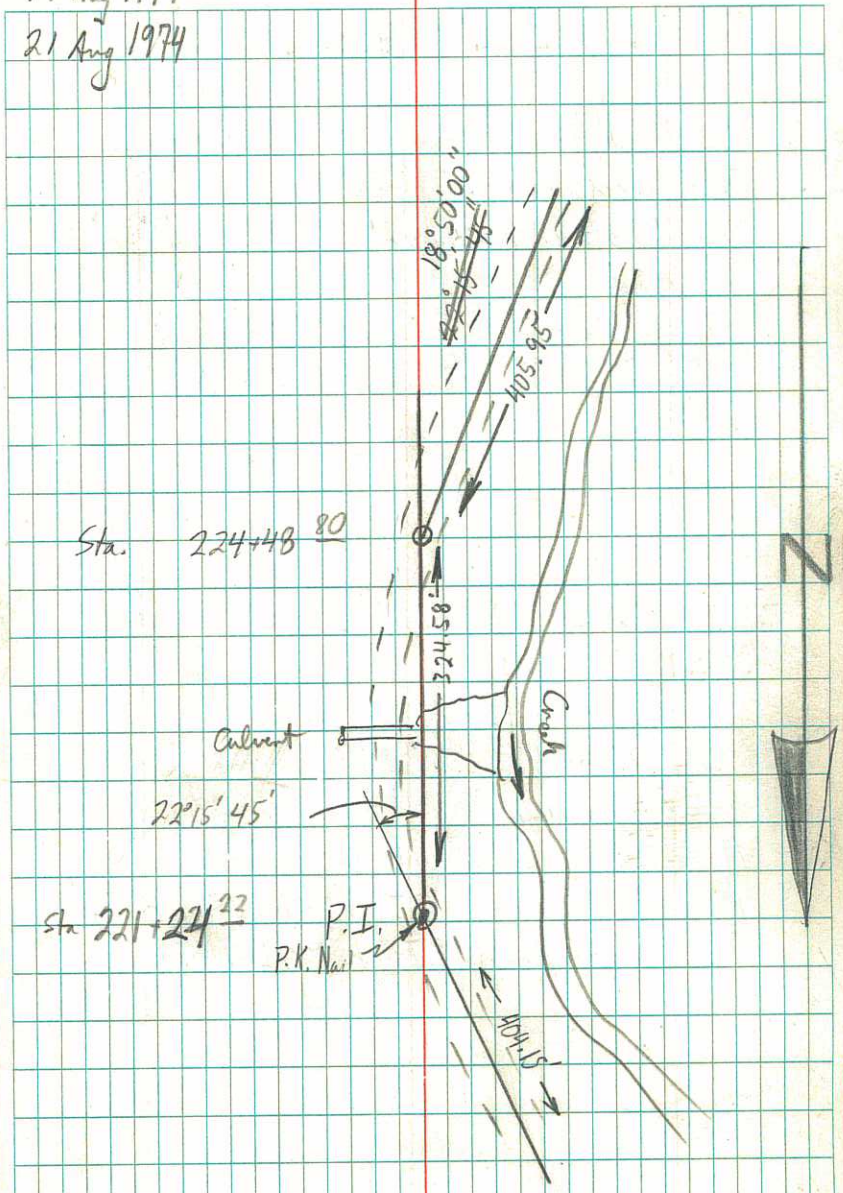
Found lots of old flagging but old P.I was not to be found
Set new P.I.

Rt ∠ 22° 15' 45"
Distance 324.58'

Found old reference flagging but no marker
Set new P.I.

RT ∠ 18° 50' 00"
Distance 405.95'

19 Aug 1974
21 Aug 1974



Ref. for P.I. Δ = 18° 50' 00"

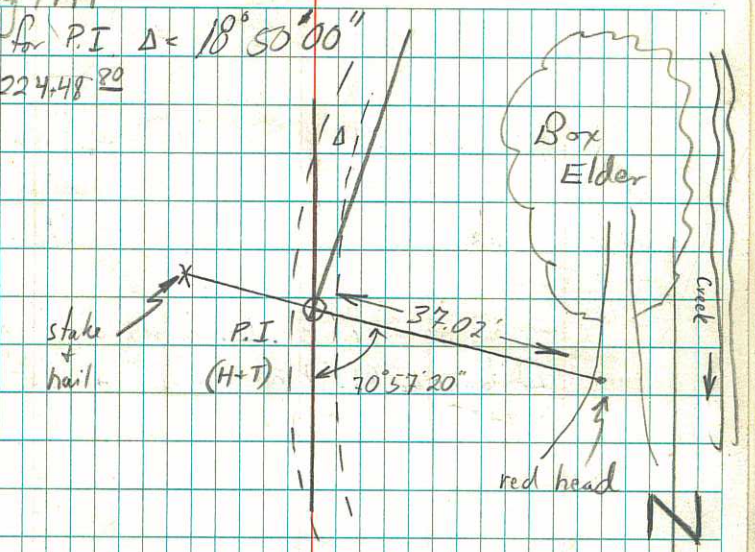
Placed red head in box Elder to west of road.
On direct line w/ Box Elder - Red Head.
placed stake and nail up on bank east of road.
Turned ~~Δ~~ from previous P.I. to Ref. line 70° 57' 20"
Measured distance from P.I. to red head 37.02'

Ref. For P.I Δ = 22° 15' 45"

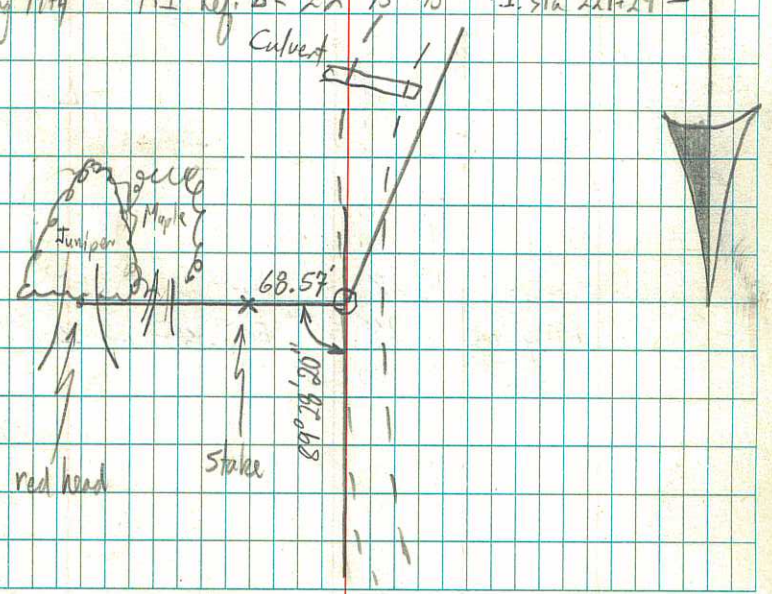
Went off to east side of Road Way.
Placed red head in base of Juniper tree just north of maple tree.
Placed stake in line with red head.
Measured distance from P.I. to stake. 68.57'
Turned ∠ from previous P.I. to Ref. Line. 89° 28' 20"

21 Aug 1974

Ref. for P.I Δ = 18° 50' 00"
P.I. Sta 224+48.80



19 Aug 1974 P.I Ref. Δ = 22° 15' 45" P.I. Sta 221+24.22



281.58 Hor distance

Distance 281.80 @ 2° 15' Ver ℄

Lt 11° 31' 30"

528.04' Hor Dis.

Distance 528.65' @ 2°45' ver. ℄

RT ∠ 16° 20' 10"

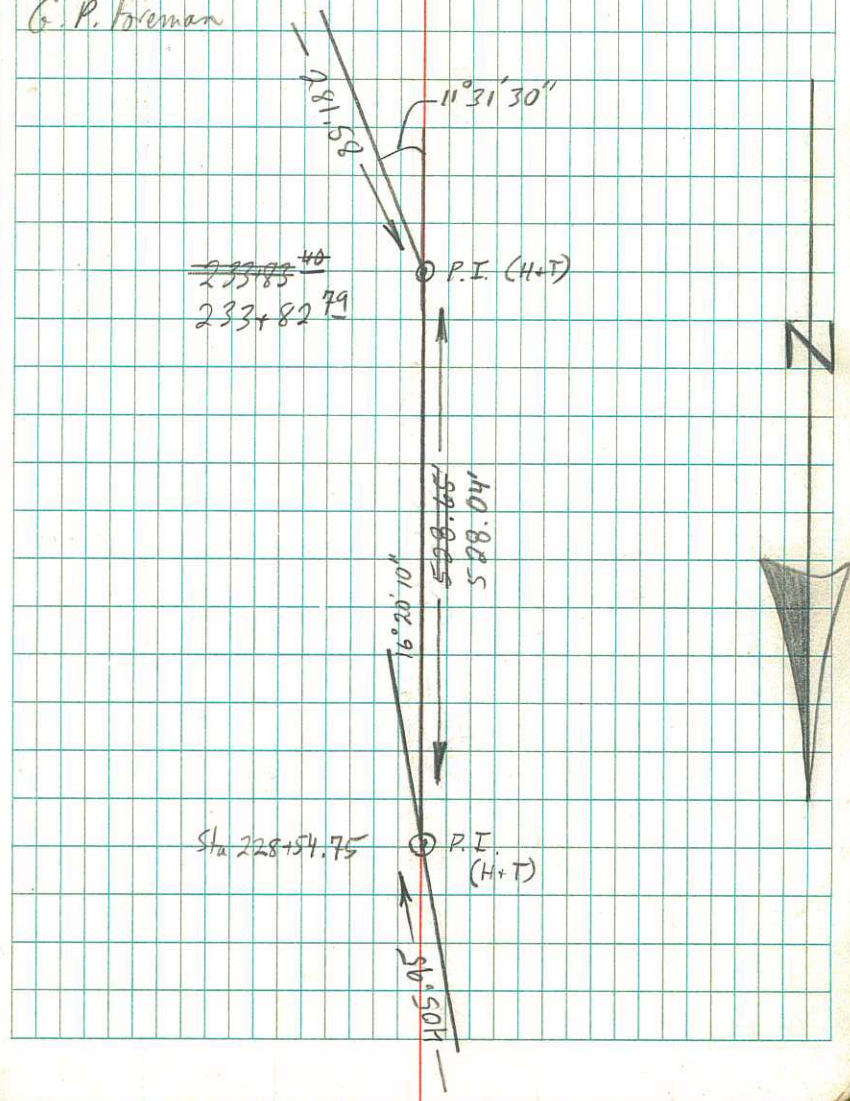
21 Aug 1974 Clear Sky

R.E. Sutts Bright Sun

G.L. Richardson

P.B. Ward

G.P. Foreman

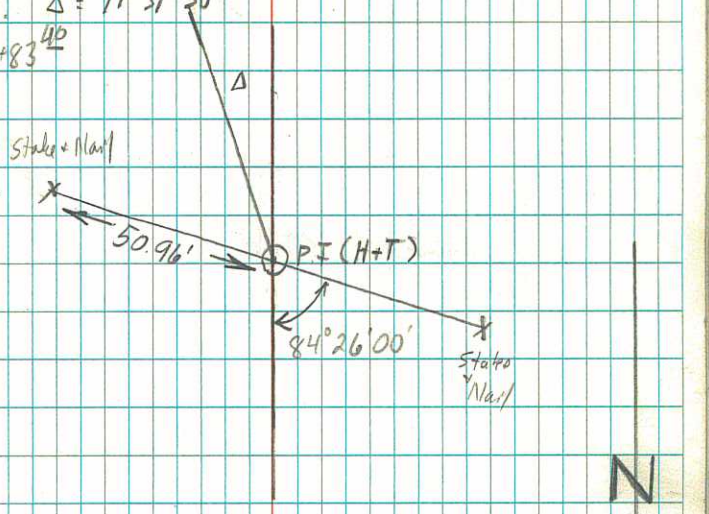


Ref for P.I. Δ = 11° 31' 30"
Place stake on east + west side of road.
Turned ∠ from ref line to previous P.I. ∠ 84° 26' 00"
Measured distance from P.I. to east stake 50.96'

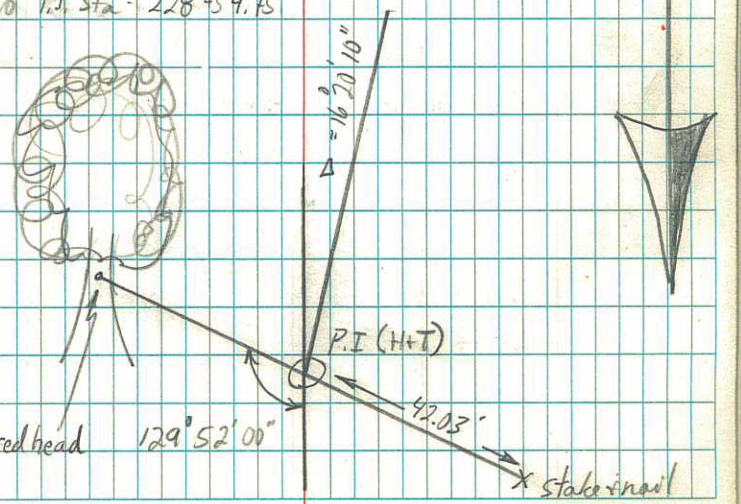
Ref for P.I. Δ = 16° 20' 10"
Set red head in scrub oak upon east bank
turned ∠ to previous P.I. line 129° 52' 00"
Place stake + nail off to west of road along
P.I. – red head line. Measured distance to
stake from P.I. 42.03'

21 Aug 1974

Ref. for P.I. Δ = 11° 31' 30"
P.I. Sta 233+83.40



Ref for P.I Δ = 16° 20' 10"
Scrub P.I. Sta = 228+54.75
Oak



Distance 430.10'
Lt ∠ 30° 01' 30'

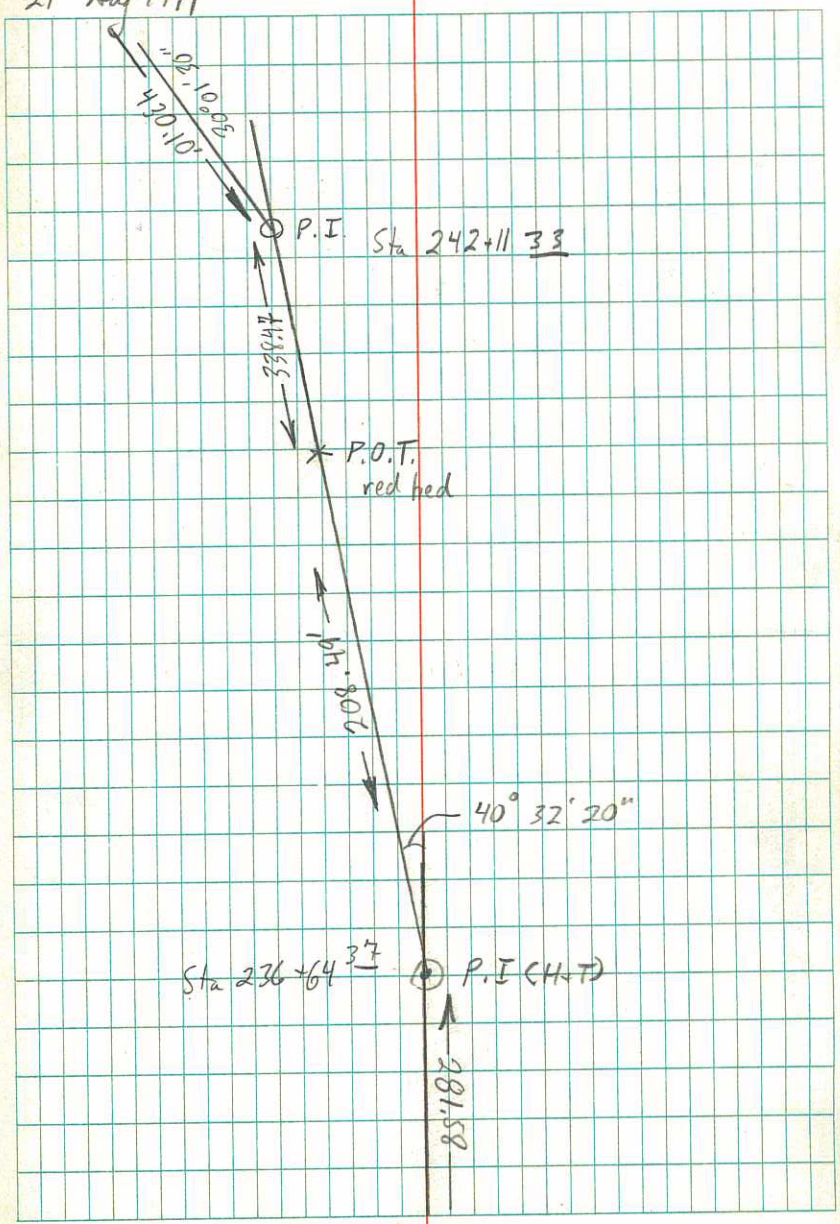
Total P.I. ∠ P.I 546.96'

338.47'
338.59' @ ver ∠ 1°30'

Due to steep change in road grade set P.O.T.
and prolonged line to next P.I.

208.49' hor distance
Distance 208.68 @ 2° 27' ver ∠
Lt ∠ 40° 32' 20"

21 Aug 1974



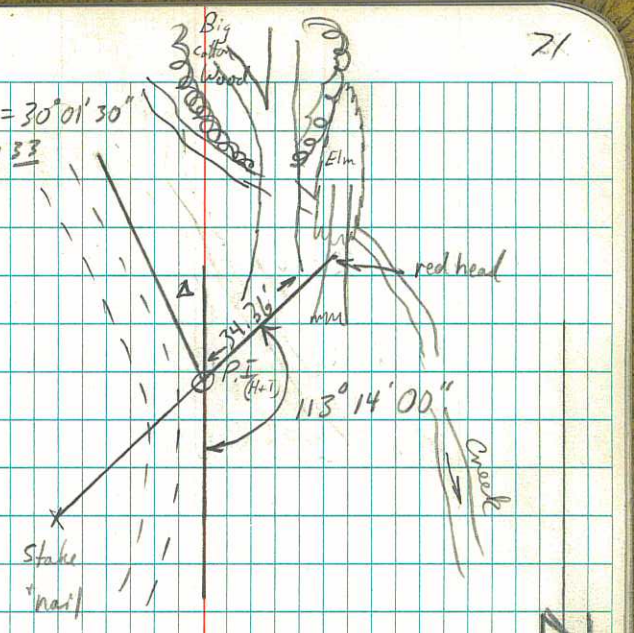
Ref for P.I. Δ = 30° 01' 30"
Sta 242+11 33

Used old ref. mark is small tree to the north of large cotton woods measured 34.36' from P.I. to red head in tree.
Followed r.h. line east of road & place stake + nail measured ∠ from previous P.I. to ref. line ∠ 113° 14' 00"

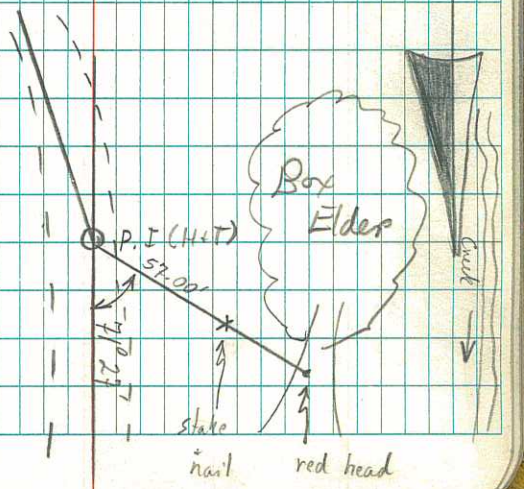
Ref for P.I Δ = 40° 32' 20"

Went down bank west of road
Placed red head in Box Elder tree
Placed stake in line w/ red head.
Measured P.I. to stake distance 57.00'
Turned ref line to previous pI. line ∠ 71° 27'

Ref. for P.I. Δ = 30° 01' 30"
P.I. Sta 242+11 33



Ref. for P.I. Δ = 40° 32' 20"
P.I. Sta 236+64 37



Hor D = 262.58'

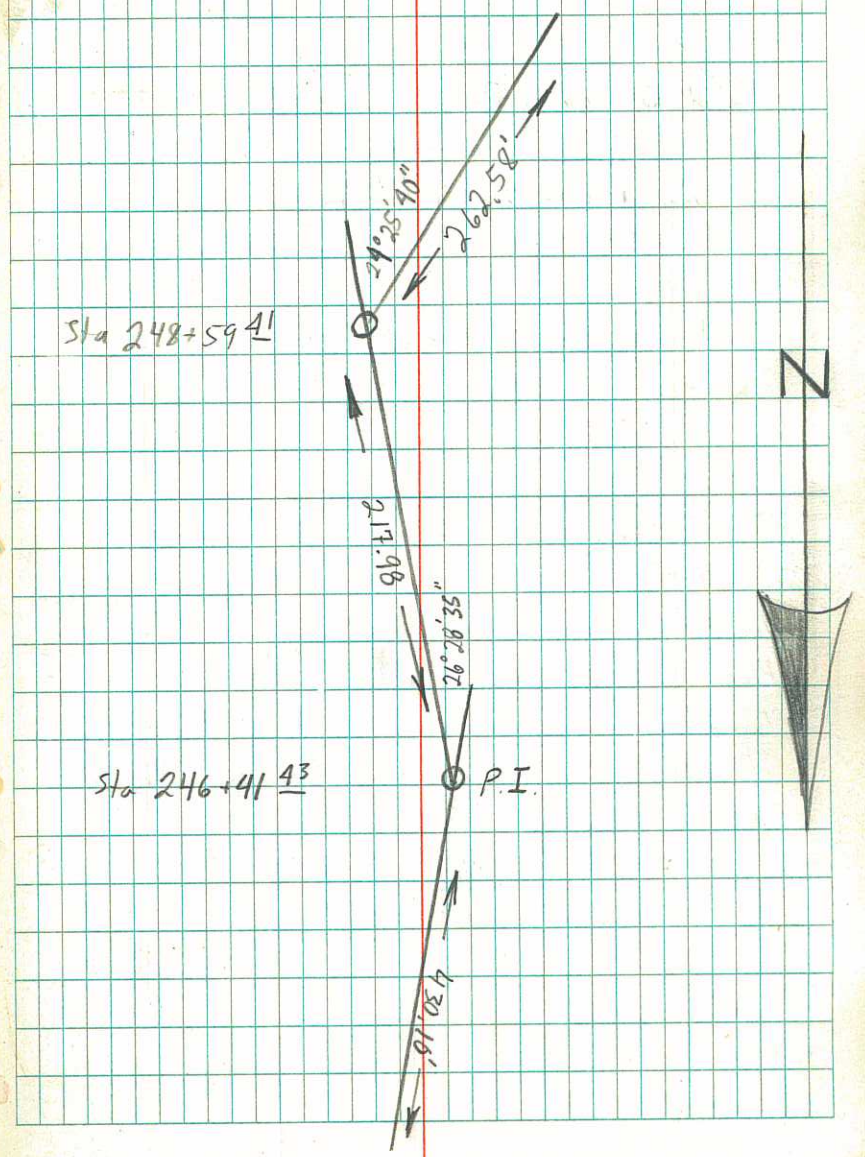
Distance 262.87' @ 2° 42' ver ✗

Rt ✗ 24° 25' 40"

Hor 217.98

Distance 217.98 @ 20' 00" ver ✗

Lt 26° 38' 35"



Rf. for P.I. Δ = 24° 25' 40"
Sta. 248+59 41

Placed Red head in Box Elder tree west of creek - Place stake on high east bank. Measured distance to stake from P.I.
Turned $\measuredangle$ from previous P.I Line to Ref Line 80° 23' 00"

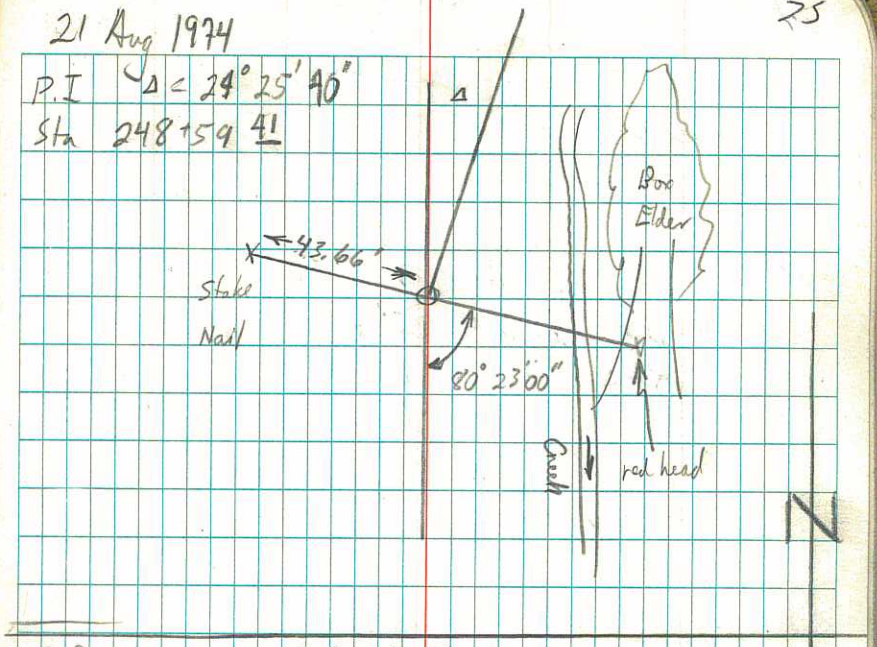
46.87' @ $\measuredangle$ 20° 8'
Hor. Distance 43.66'

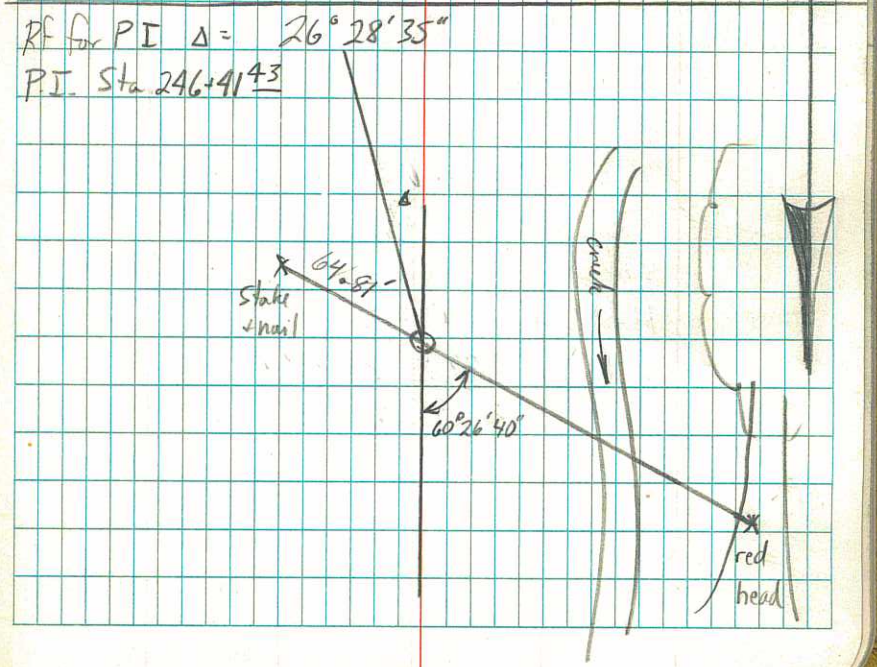
Rf for P.I. Δ = 26° 28' 35"
Sta 246+41 43

Went across creek to west of roadway
Placed red head in Cotton Wood.
Turned $\measuredangle$ from previous P.I. line to ref. line = 60° 26' 40"
Placed stake on east bank along ref line. Measured distance to Stake from P.I.

65.71' @ 9° 40'
hor = 64.81'

21 Aug 1974



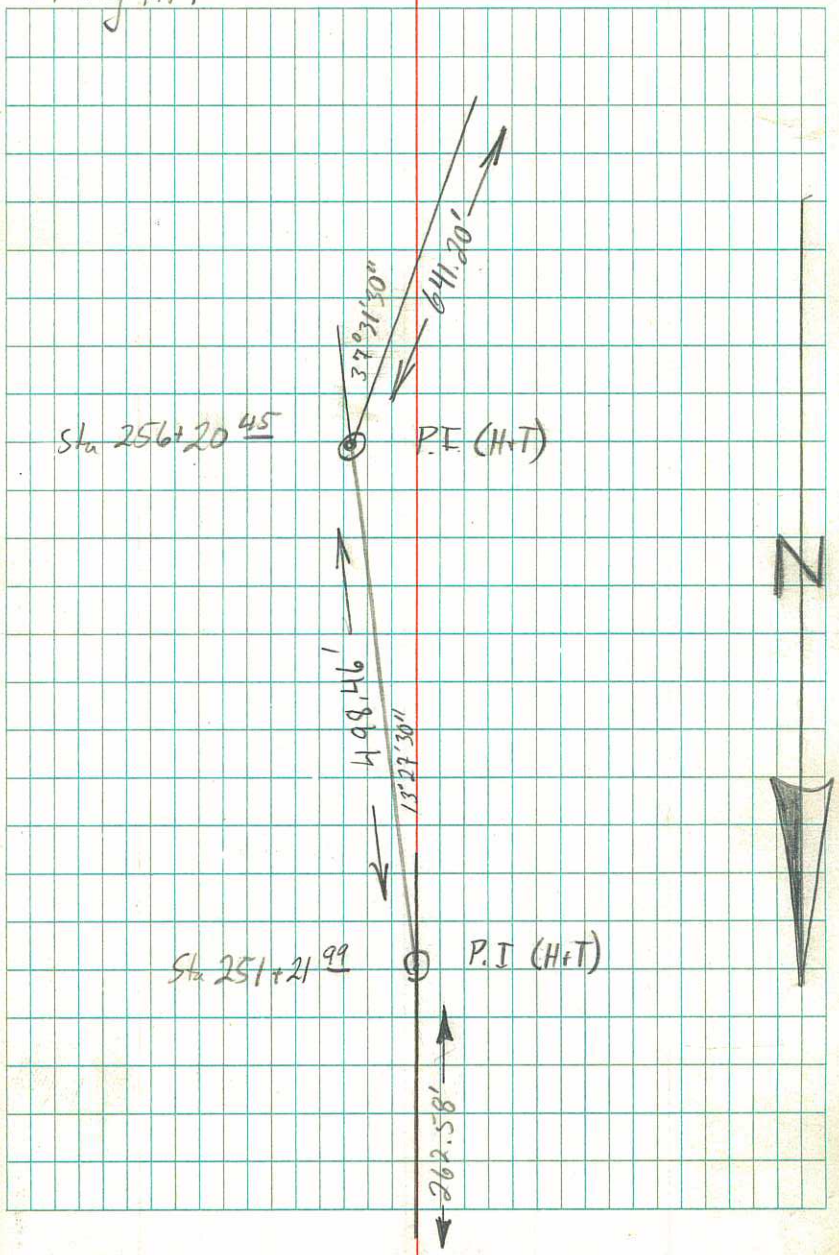


Hor Dist. 641.20'
Distance, 641.65' @ 2.09' ± ver.
Rt ∠ 37° 31' 30"

Found P.I + ~~RP's~~ from previous survey.
Used P.I. for this survey.

Hor Distance 498.46'
Distance 499.11' @ 2° 55'
Lt ∠ 13° 27' 30"

21 Aug 1974



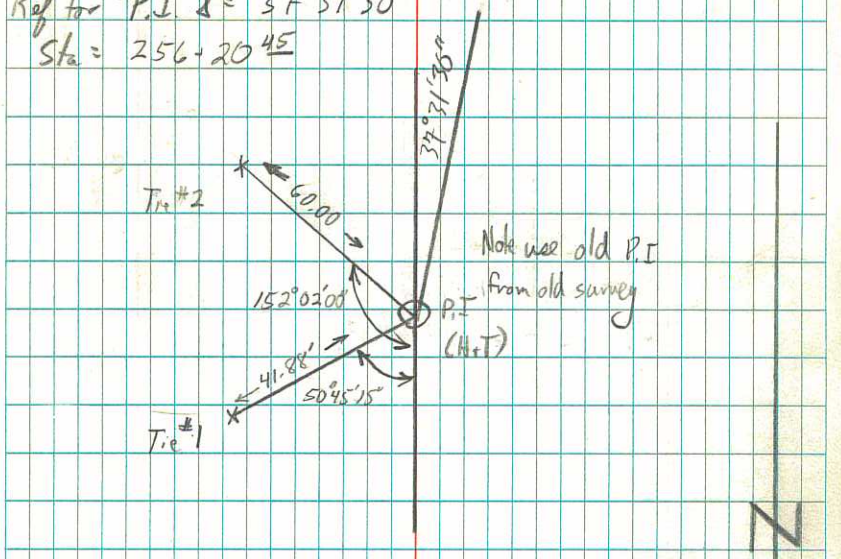
Ref for P.I Δ = 37° 31' 30"
Sta 256+20 45
Used old tree found to east of road way

Tie #1 41.93' @ 2°41' ver ∠
Hor Distance = 41.88'
Tie #2 63.41 @ 6°30' ver ∠
Hor Distance = 60.00

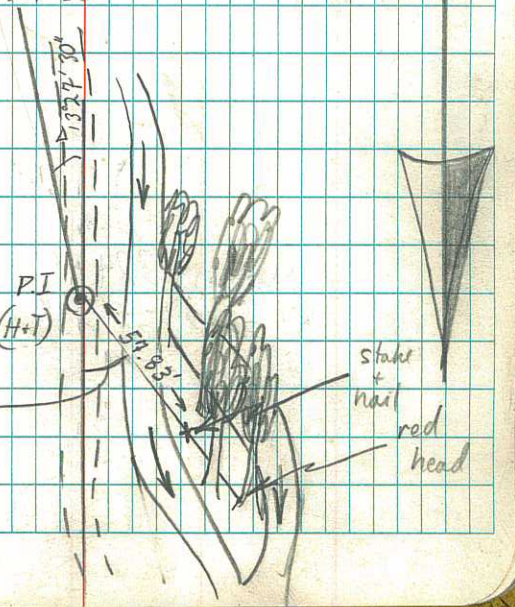
Ref for P.I Δ = 13° 27' 30"
Sta 251+21 99
Went West of roadway onto small island in creek. placed red head in base of NW most Willow tree. Place stake & nail in line w/ red head.
Turned ∠ from P.I line to ref. line ∠ 61°37'20"
Measured 59.46 @ ver ∠ 13°27' from P.I. to Stake
Hor Distance 57.83'

21 Aug 1974

Ref for P.I Δ = 37° 31' 30"
Sta = 256+20 45



Ref for P.I. Δ = 13° 27' 30"
Sta 251+21 99



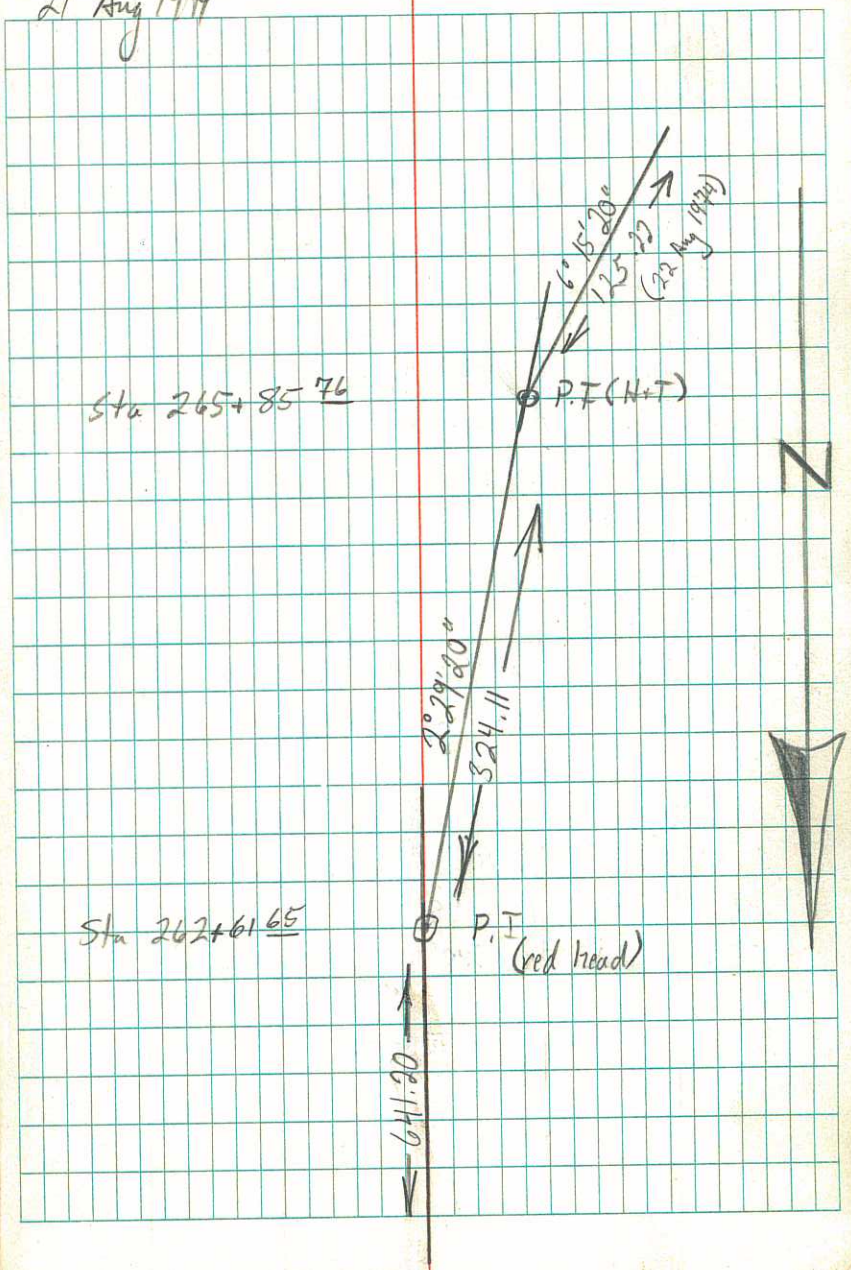
Chained 125.22'
Rt ∠ 6° 15' 20"

Found P.I from previous survey.
Red Head in road w/ RP's.

22 Aug 1974 Sky Clear. Working in shade all morning Temp. 62°

Distance 324.11'
Rt ∠ 2° 29' 20"

21 Aug 1974



Ref for P.I. $\Delta = 6° 15' 20''$
Sta. $265+85\frac{76}{}$

Placed red head in Box elder west of road
Placed stake + nail on ref. line east of road
P. Line to Ref line @ $47° 20'$

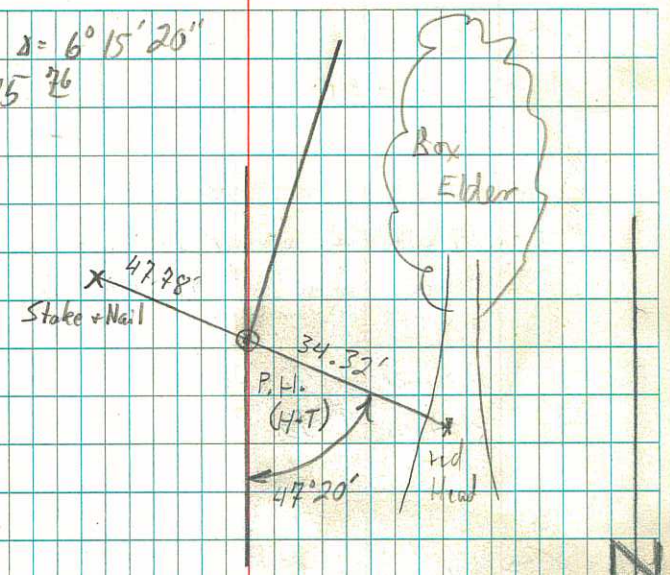
P.I. Stake $47.78'$
P.I. red head $34.32'$

Ref for P.I. $\Delta = 2° 29' 20''$
Sta: $262+61\frac{65}{}$

Placed red head in box elder west of road.
Placed stake + nail on line up on east bank.
P. Line to reference line $92° 27'$
P.I to stake $35.89'$ @ ver & $7° 40'$
Hor. 35.57
P.I to red head in tree $16.94'$

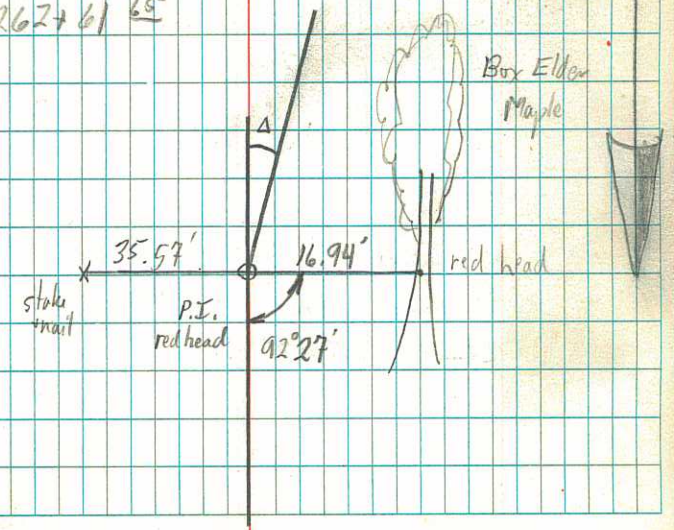
22 Aug 1974

Ref for P.I. $\Delta = 6° 15' 20''$
Sta $265+85\frac{76}{}$



Ref for P.I. $\Delta = 2° 29' 20''$
Sta: $262+61\frac{65}{}$

22 Aug 74



Distance & ∠ are turned to a P.I. of
Previous survey that was found.

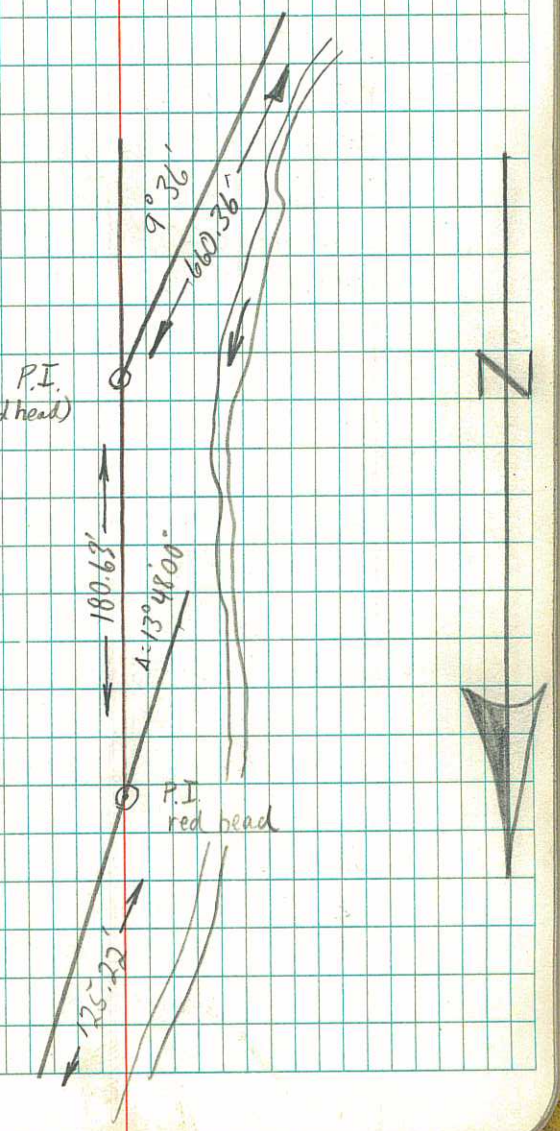
Distance 660.40 @ 40'00" Hor. = 660.36
Rt ∠ 9°36'

(22 Aug 24) → Went around slight bank on left.
When doing design the P.I line from
P.I. sta 256+20.45 to 262+61.65 will be
extended to an intersection of the P.I line
from P.I.'s 268+91.61 and P.I. 275+51.97

Distance 180.91 @ 3°10' ⇒ hor. 180.63'
Lt ∠ 13°48'00"

22 Aug 1974 Clear Sky.

R.E. Swiss
G.L. Richardson
P.B. Ward
G.P. Foreman



Ref for P.I Δ = 9° 36' 00"
Sta = 268+91 61

Went down west bank, place red head in side of box elder.
Crossed creek & placed stake & nail.
Turned $\measuredangle$ to Ref line from P.I line 115° 38'
Measured distance from P.I to Redhead
42.93' @ ver $\measuredangle$ of 14° 17'
hor distance. = 41.60'

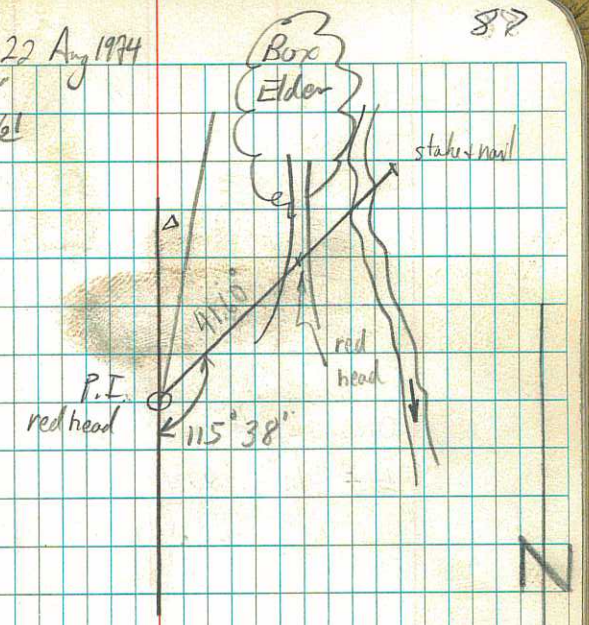
Ref for P.I. Δ = 13° 48' 00"
Sta 267+10 98

Used P.I of old survey and previous R.P's

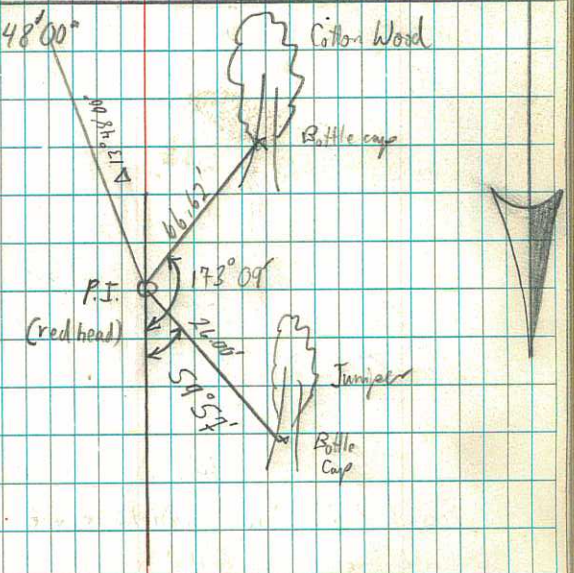
Rechecked distances and $\measuredangle$'s

To Juniper
$\measuredangle$ 59° 57'
Distance 26.18 @ 6° 40' = hor 26.00'
To Cotton Wood 67.00' @ 6° 6' = hor 66.62'
$\measuredangle$ 173° 09'
Distance

Ref. for P.I. 22 Aug 1974
Δ = 9° 36' 06"
Sta 268+91 61



Ref for P.I. Δ = 13° 48' 00"
Sta 267+10 98



Distance = 239.38'

Δ = 19° 35' 00"

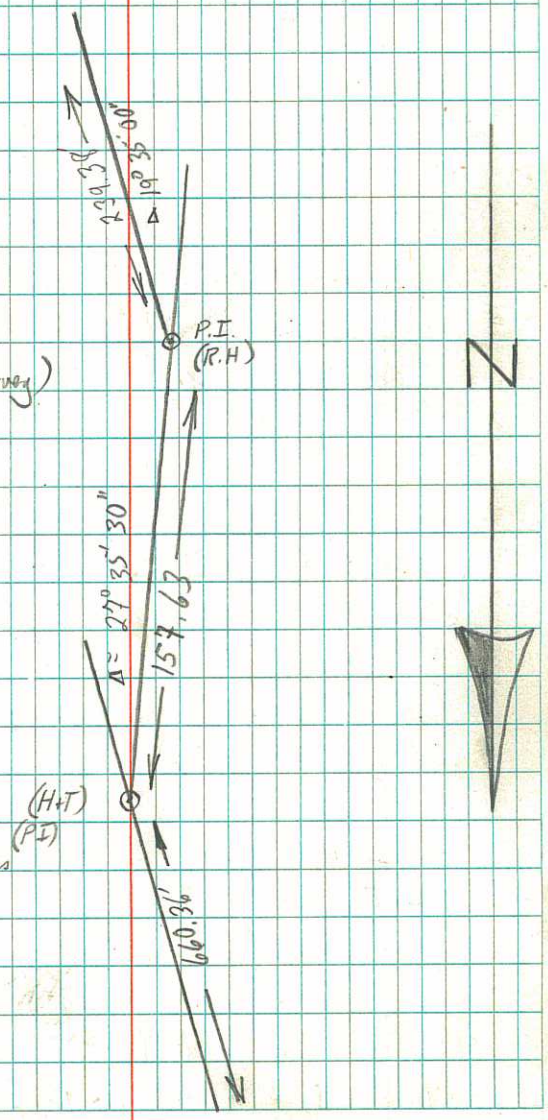
Hor. 157.63'

Chained 157.96' @ 3° 42' per Δ

Rt Δ = 27° 35' 30"

Found P.I's from previous survey and used such for present survey

22 Aug 1974



Ref for P.I Δ = 19° 35' 00"
Sta. 277+09 93

Used old ref. to locate previous P.I.
RH. in road. Used for survey.

P.I. was referenced w/ Bottle caps
in two box elder trees west of roadway
Turned ∠s from P.I line to
reference lines:

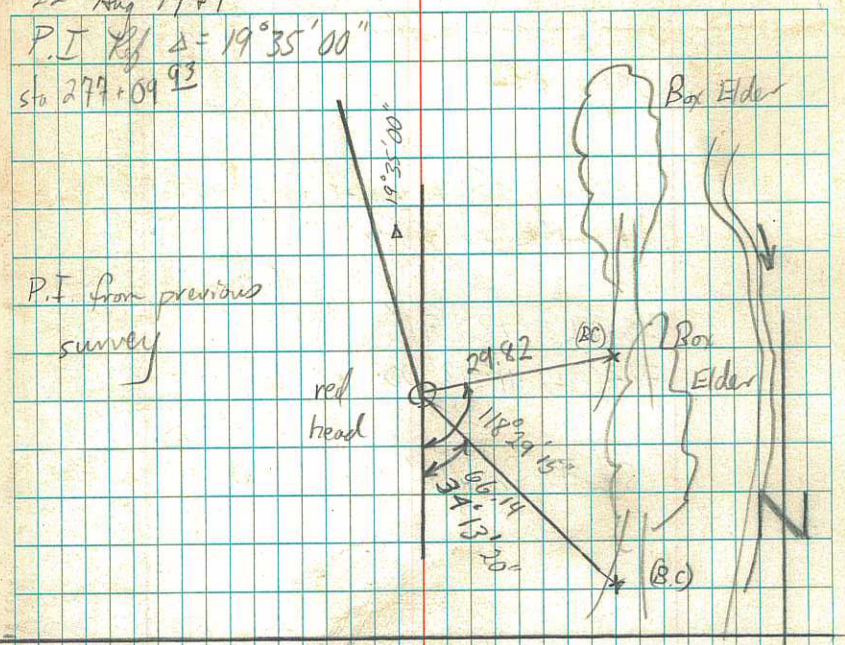
34° 13' 20" To Norther Tree
118° 29' 15" " Southern "

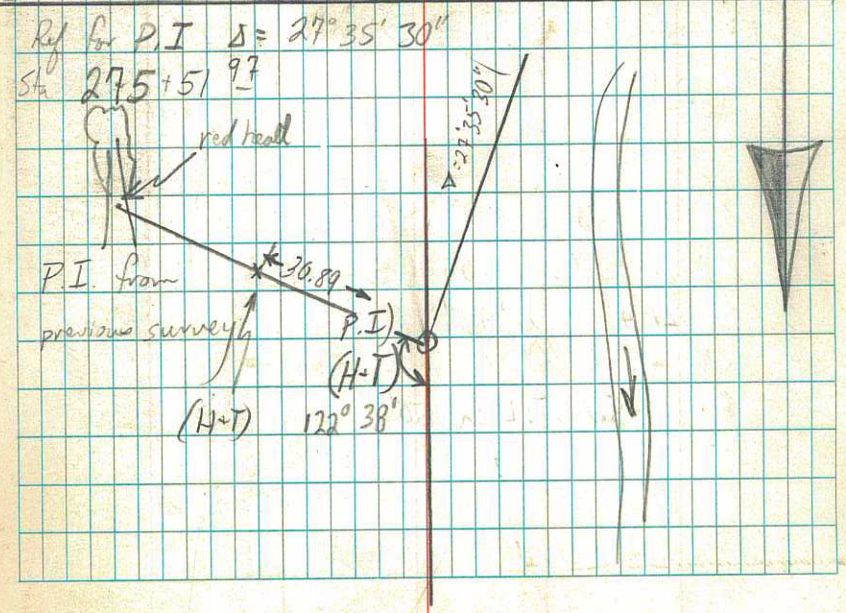
Ref for P.I Δ = 27° 35' 30"
sta 275+51 97

Used old P.I. from previous survey.
Difficult set up.

Went up east bank. Placed RH in scrub maple
+ H+T on line.
Distance from P.I. to stake.
33.47' @ 22° 39' ver ∠
Hor. 30.89'
Measure P.I. + Ref line ∠ 122° 38'

22 Aug 1974





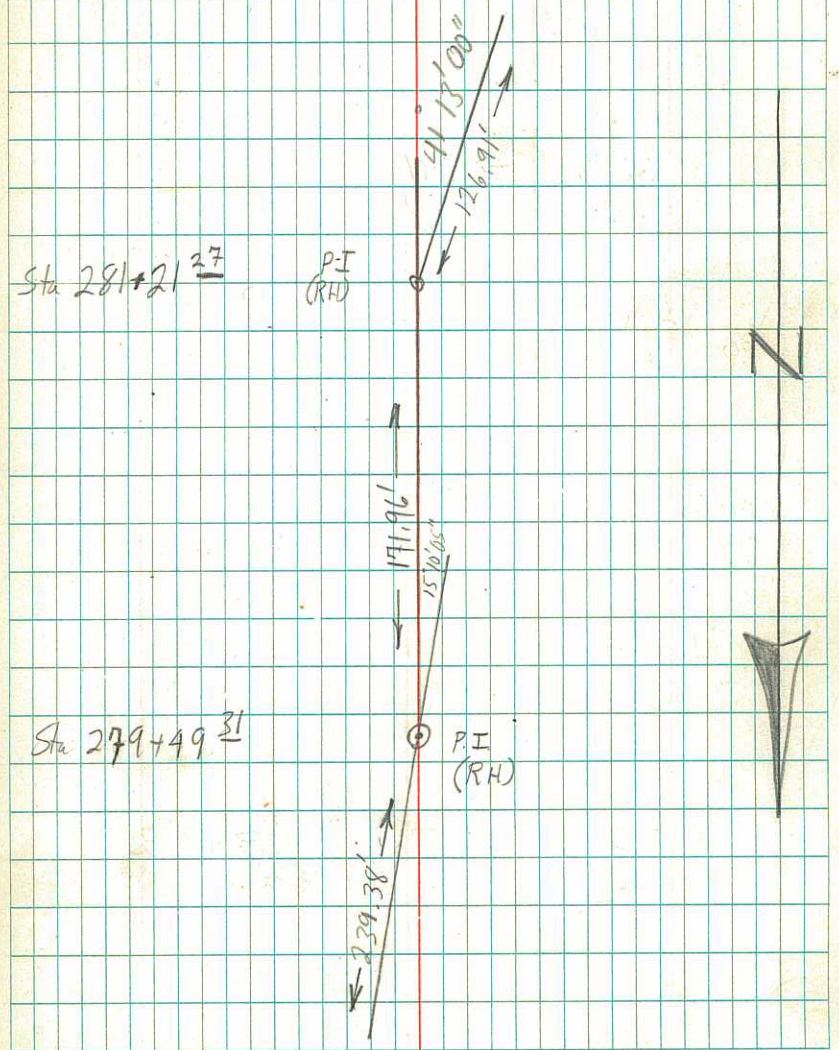
Chained 126.91'
Rt 41° 13' 00"

Set T for ~ 50'

Distance 172.03 @ 1° 40' ⇒ 171.96'
Lt 15° 10' 05"

Set T for ~ 50'

22 Aug 1974



Ref for P.I. Δ=
Sta. 281+21 27

Placed red head in Maple (Box Elder) west of Road w/ stake in line w/ red head.
Measured
30.64' PI → Stake
35.83' PI → Red Head.

P Line → Ref. line 74°17'00"

Ref for P.I. Δ = 15°10'05"
Sta. 279+49 31

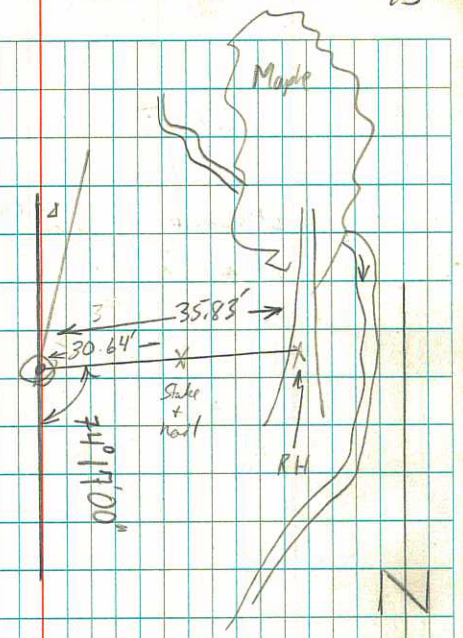
Crossed creek west of road, placed red heads in Box Elder north of PI. & Cotton wood south of P.I.

Measured
PI → Box Elder 56.37' @ 7°44' = 55.86'
PI → Line ∠ 30°16'45"

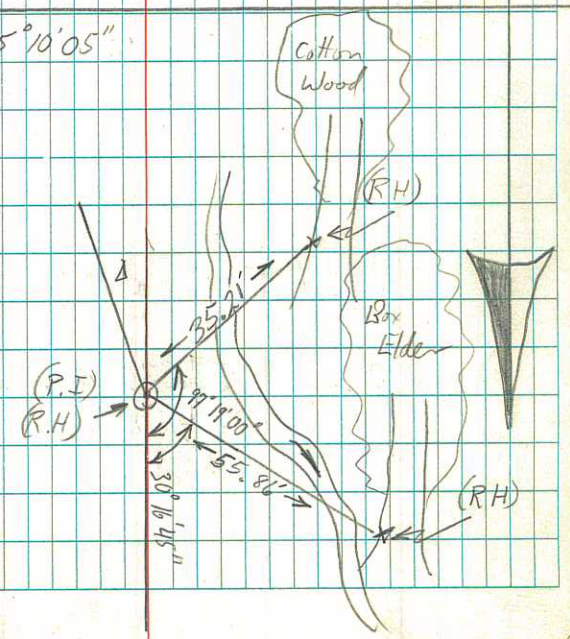
PI → Cotton wood 35.25' @ 2°45' ⇒ 35.21'
PI → Line ∠ 97°19'00"

22 Aug 1974

Ref for P.I Δ=
Sta 281+21 27



Ref for P.I Δ = 15°10'05"
sta 279+49 31



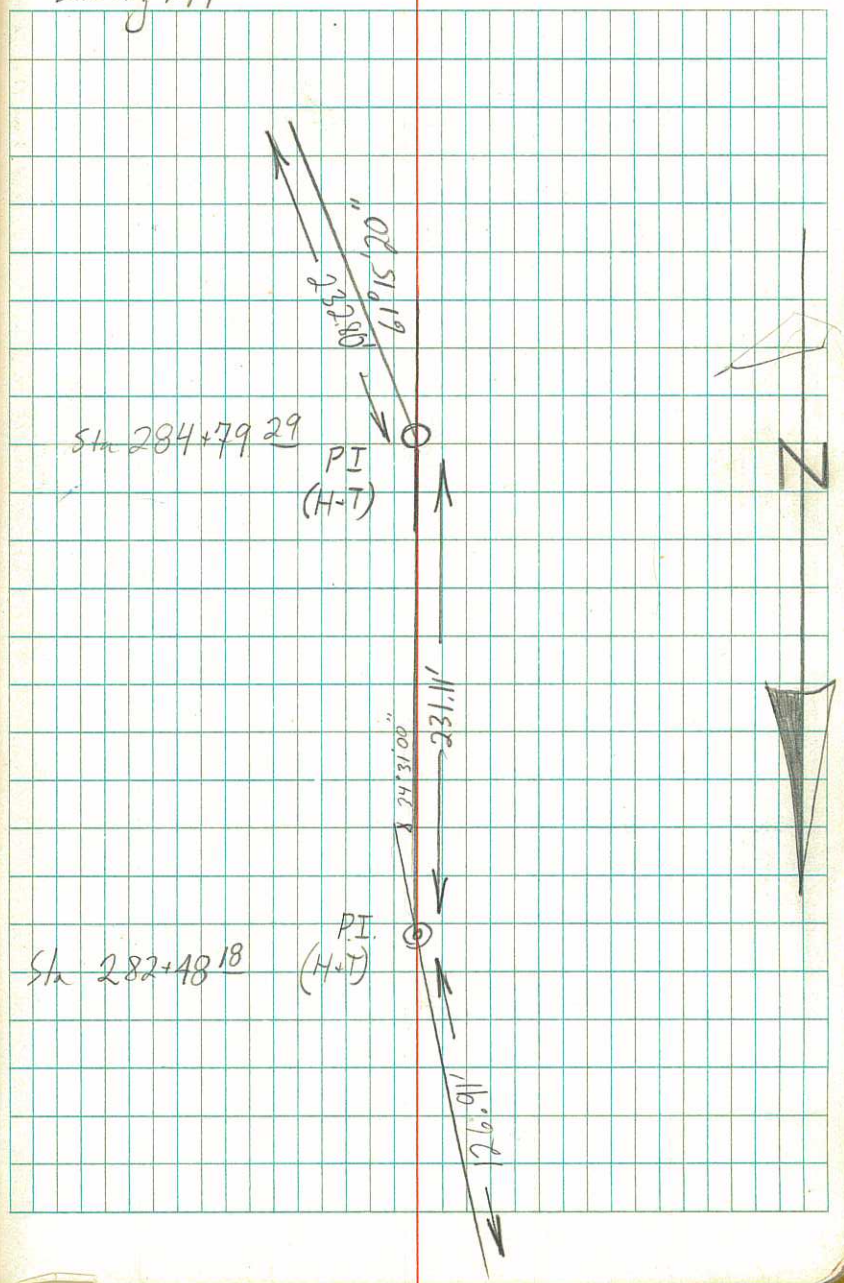
Set T for ~ 50'

Distance 232.84 @ 1°7' ⇒ 232.80'
Lt ∠ 61°15'20"

Set T for ~50'

Distance 231.30' @ 2°20' ⇒ 231.11'
Rt ∠ 34°31'00

22 Aug 1974



Ref for P.I Δ = 61° 15' 20"
Sta 284+79 29

Placed RH's in two Box Elder trees on West edge of road.
Measured

PI → South tree 16.56'
PT → North tree 11.68'

Ref for PI Δ = 34° 31' 00"
Sta 282+48 18

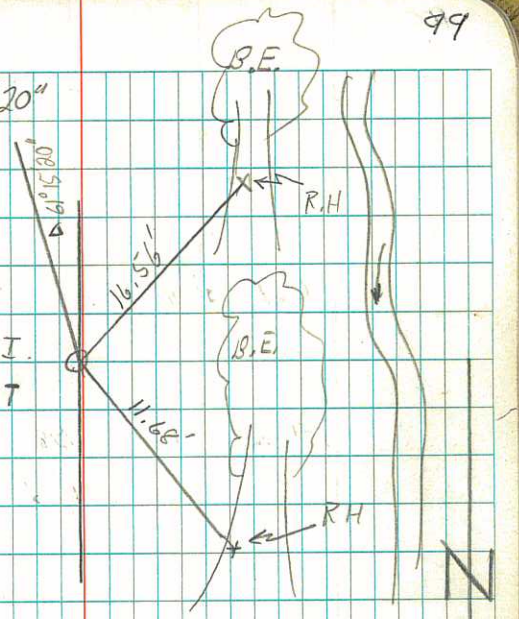
Went across creek to west. Placed Red Head in Big Cotton Wood. Placed stake on line on small island in creek.

Measured:

PI → Cotton wood	61.70'
PI → Stake	42.38'
P line → Ref line	81° 30' 45'

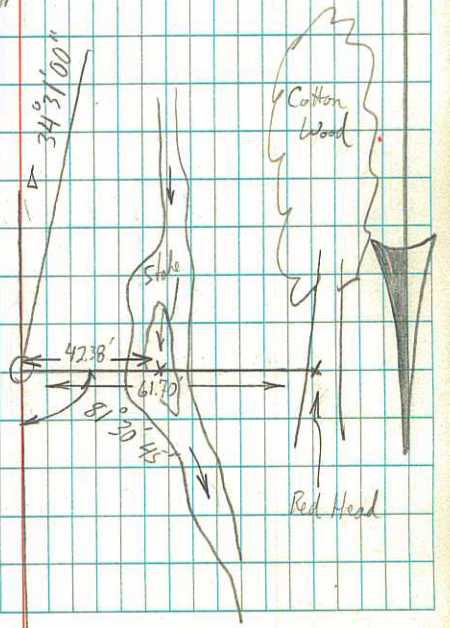
22 Aug 1974

P.I. of Δ = 61° 15' 20"
Sta 284+79 29



Ref for PI Δ = 34° 31' 00"
Sta 282+48 18

Note: old P.I. of Previous survey for 290' south of new P.I.



Set T @ ~75'

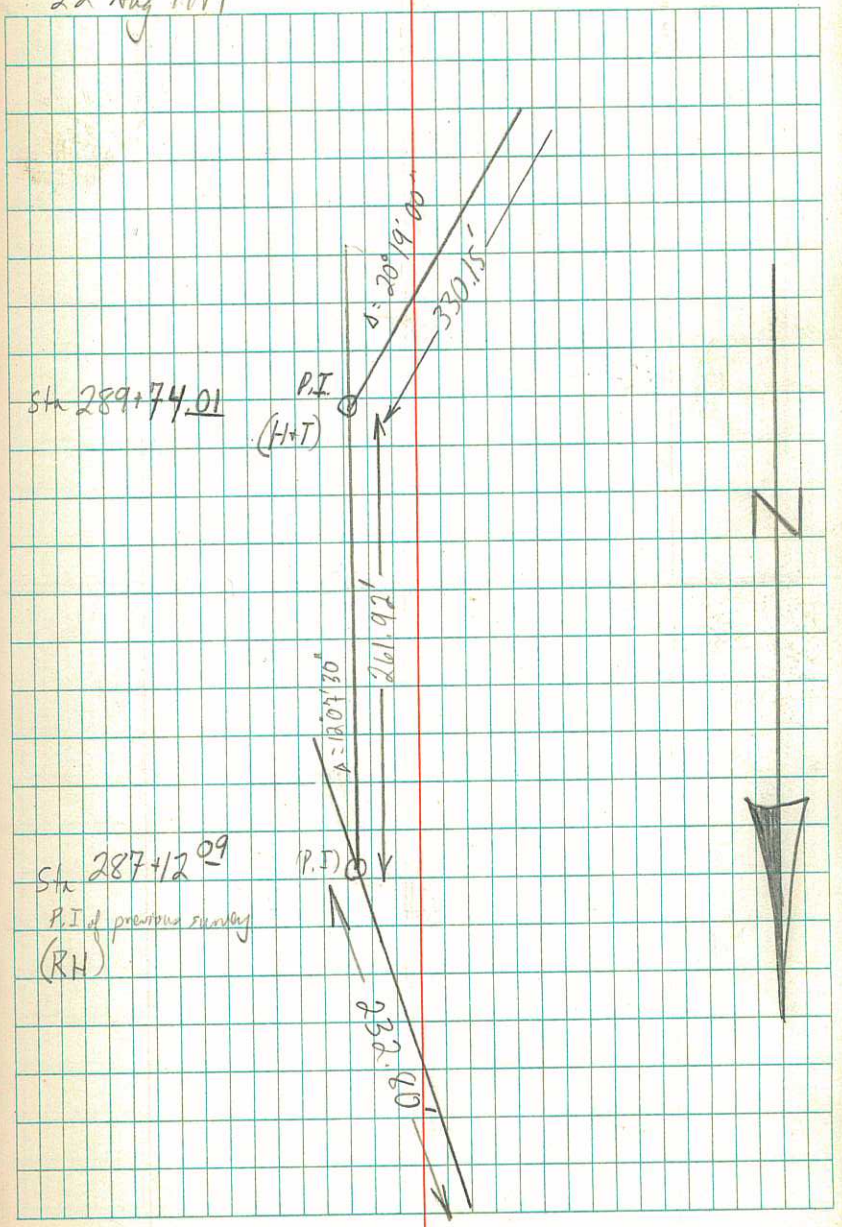
Hor
Distance 330.34 @ 1.57'
Rt ∠ 20° 19' 00"

Set T at ~75'

Distance 261.94 @ 38'
RT ∠ 12°07' 30"

Found P.I. from Previous Survey RH in Roadway

22 Aug 1974



Ref for P.I. Δ = 20° 19' 00"
Sta. 289+74.01

West east of road.

Placed two Hubs + Tacks

P.I. → West Hub 24.15'
West H.B. → East Hub 11.67'

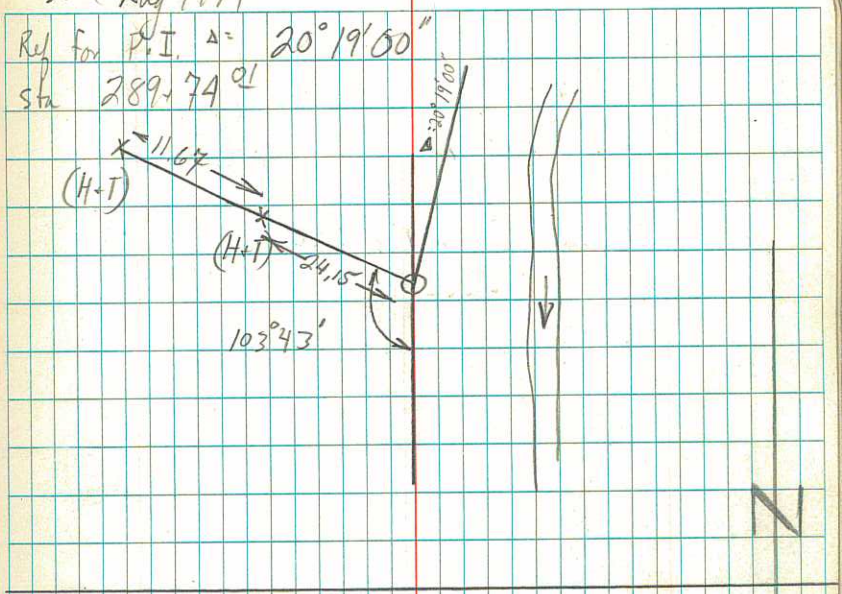
Ref for P.I. Δ = 12° 07' 30"
Sta 287+12.09

Used 2 Box Elder trees west of road.

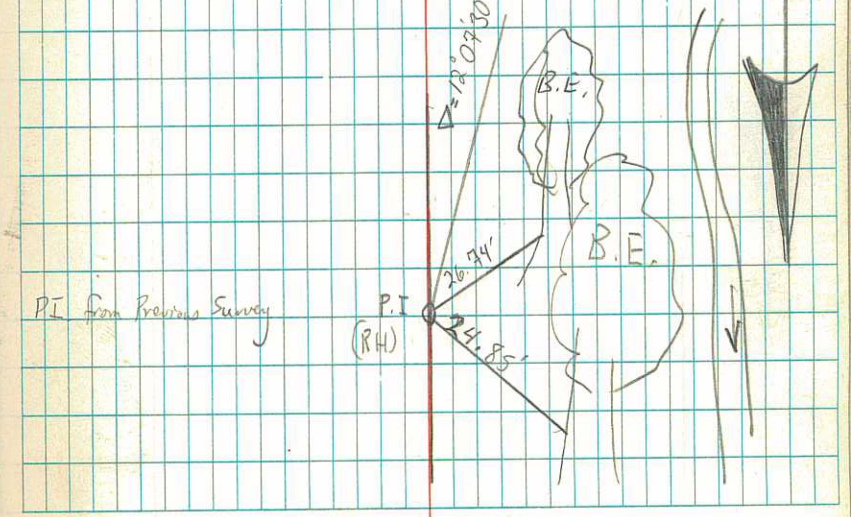
P.I. North BE tree. 24.85'
P.I. South BE tree. 26.74'

22 Aug 1974

Ref for P.I. Δ = 20° 19' 00"
Sta 289+74.01



Ref for P.I. Δ = 12° 07' 30"
Sta 287+12.09



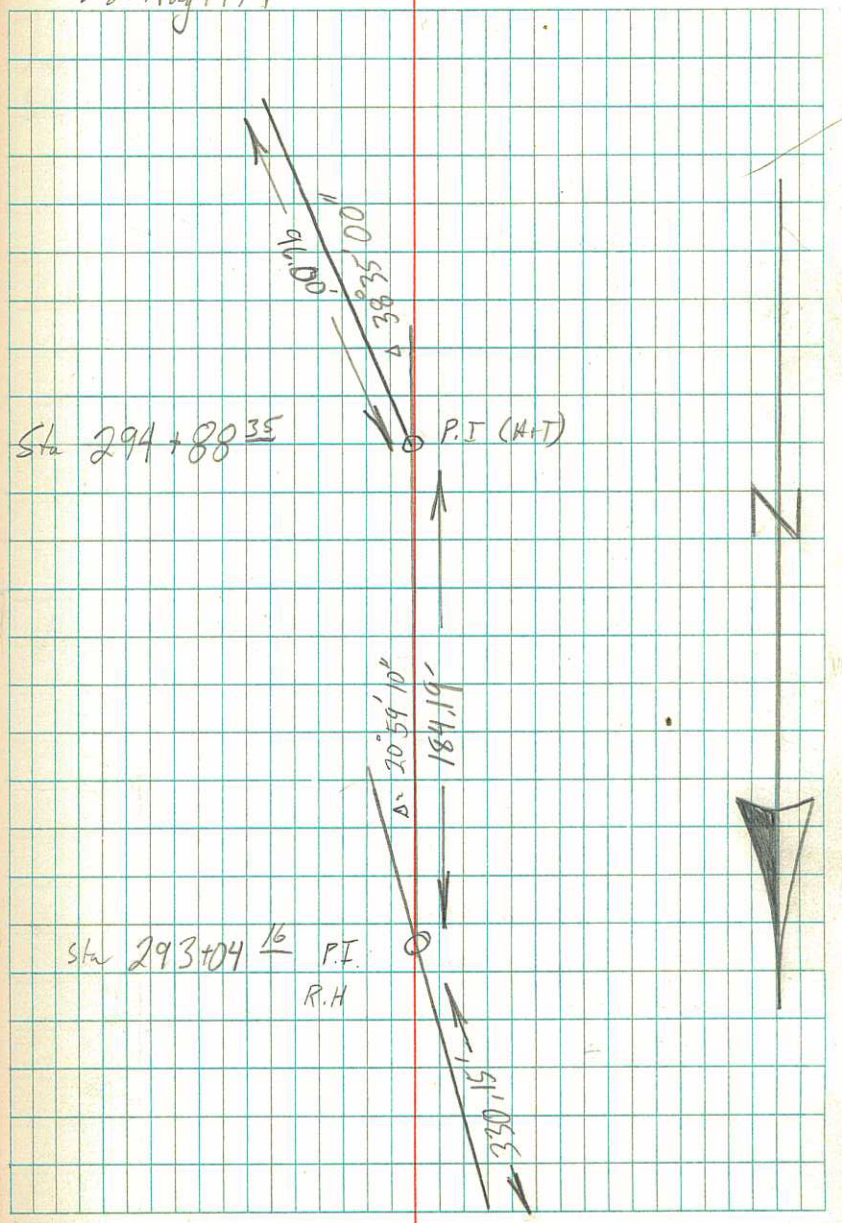
Set T @ ~40'

Distance Chained 96.00'
Δ+ 38° 35' 00"

Set T @ ~50'

Distance 184.32 @ 2° 7' ⇒ 184.19'
R.T. Δ+ 20° 59' 10"

22 Aug 1974



106

Ref for P.I. $\Delta = 38^\circ 35' 00''$
Sta 294+88 35

Went west of road. place red heads in two Box Elder trees.

Measured

P.I. South Tree 34.50'
P.I. → West Tree 9.58'

Ref for P.I. $\Delta = 20^\circ 59' 10''$
Sta: 293+04.16

East of Road.

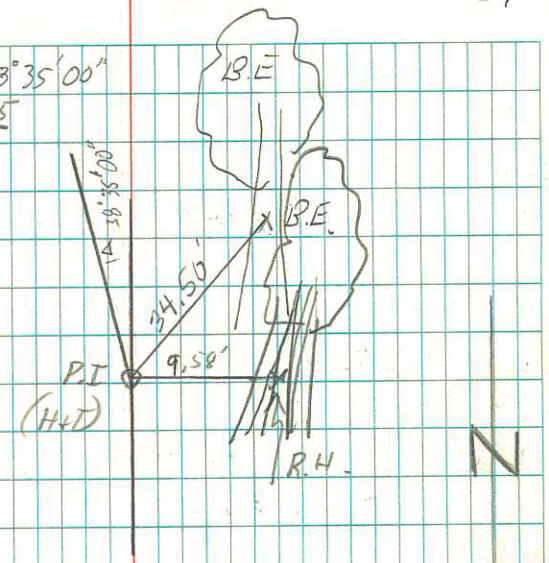
Box Elder w/ Red Head set Hub + Tack on line

Measured
P.I. → Hub ; 17.96'
Hub → Tree (R.H) 14.03'

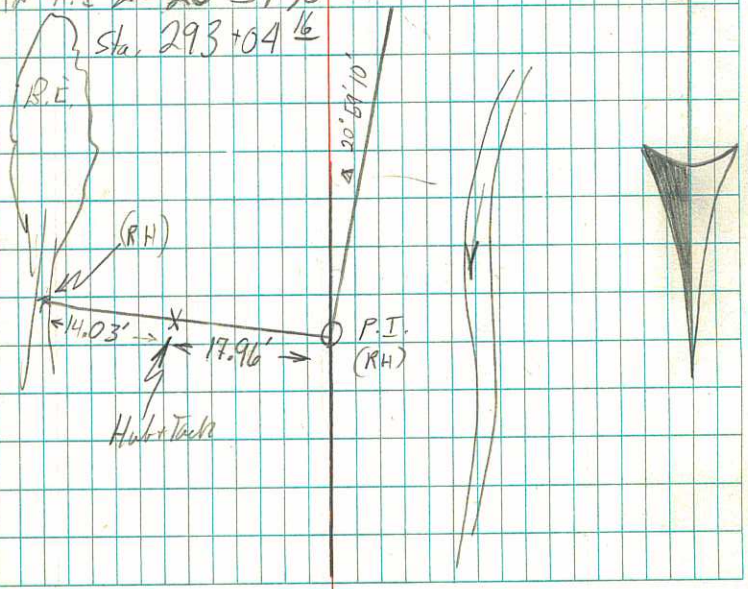
107

22 Aug 1974

Ref for P.I $\Delta = 38^\circ 35' 00''$
Sta 294+88 35



Ref for P.I $\Delta = 20^\circ 59' 10''$
Sta. 293+04 16



Set T @ 75'

Distance 284.84 @ 1°17' ⇒ 284.77'
Rt ∠ 9° 56' 00"

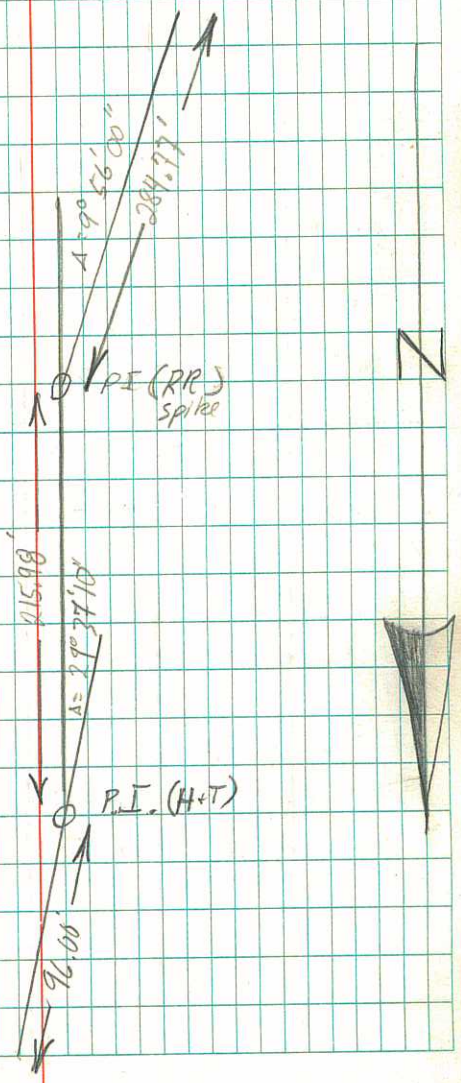
Design Note:

Extend line from sta 295+84 35 to 298+00 33
to its intersection with the line from
301+73 43 to 306+52 10. Extention will eliminate
several P.I.'s + cause removal of small hill side

Set T @ ~40'

Distance = 216.22' @ 2°41' ⇒ 215.98'
Lt ∠ 29° 37' 10"

22 Aug 1974
23 Aug 1974



Ref for PI Δ = 9°56'00"
Sta. 298+00 33

PI → Cotton Wood 51.49' @ 6° 49'
PI → H+T 52.49' @ 11°52'

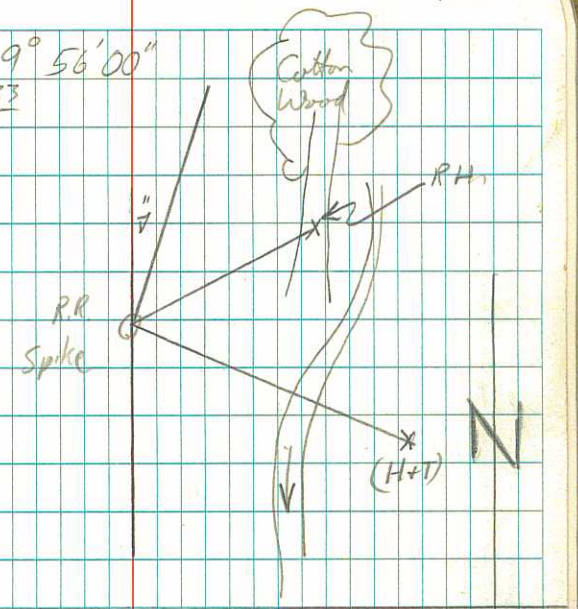
Ref for P.I. Δ = 29° 37' 10"
Sta 295+84 35

Set Red head in Box Elder Maple
Placed (H+T) in line w/ red head.

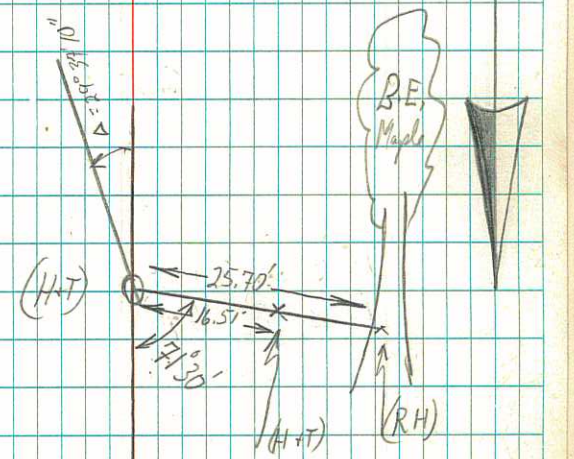
Measured
P.I. → Red Head 25.70'
P.I. → H+T 16.51'

23 Aug 1974

Ref for P.I. Δ = 9° 56' 00"
Sta 298+00 33



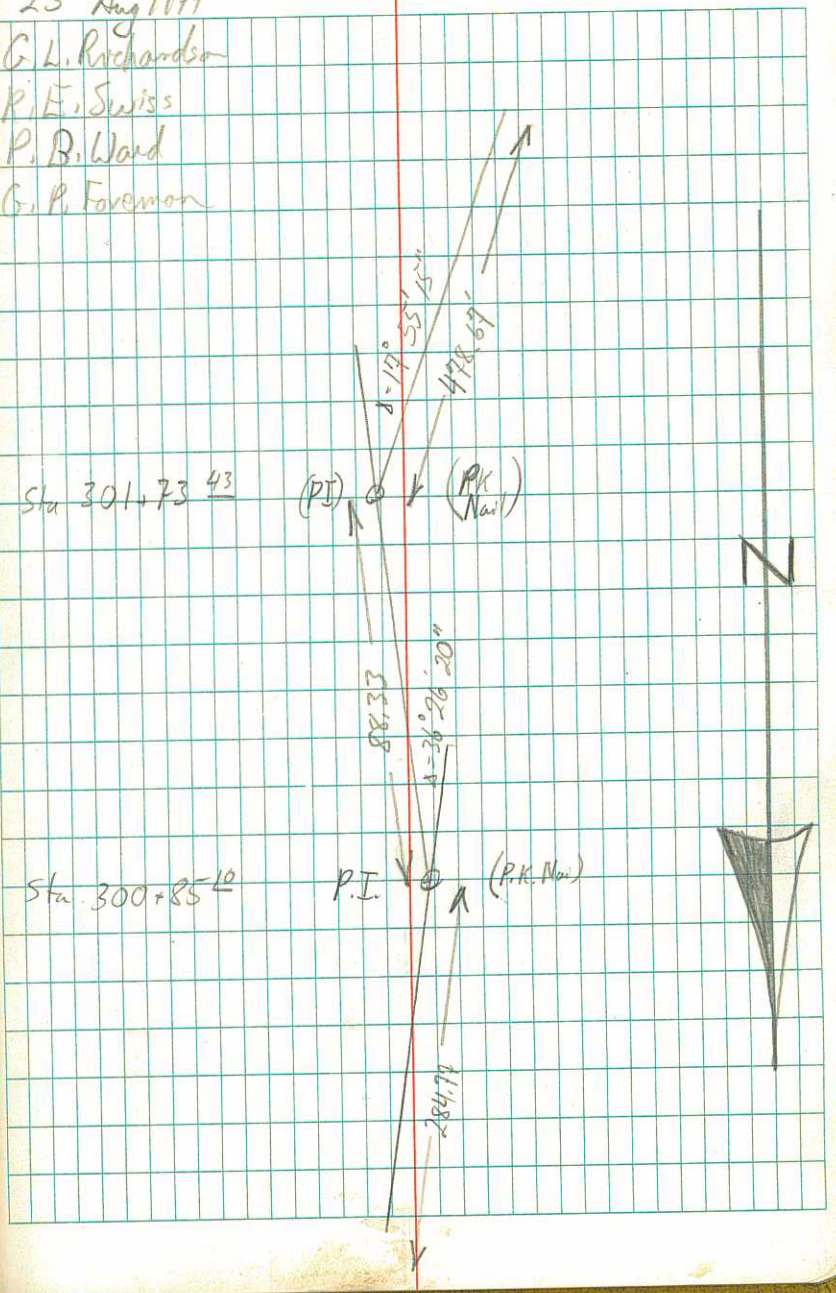
Ref for P.I. Δ = 29° 37' 10"
Sta 295+84 35



Distance 478.80' @ 1°20' ⇒ 478.67'
Rt ∠ 17° 55' 15"

Distance 88.33' @ 0°31'00" ⇒ 88.33'
Lt ∠ 36° 26' 20"

23 Aug 1974
C. L. Richardson
P. E. Swiss
P. B. Ward
G. P. Foremon



P.I Ref Δ = 17° 55' 15"
Sta = 301 + 73 43

Set Red Head in tree west of road
w/ Hub + Tack on line

Measured.

Red Head → H+T 14.78'
PI → Red Head 53.65' @ 11° 27' ⇒ 52.58'

Ref for P.I Δ = 36° 26' 20"
Sta 300 + 85 10

Set red heads in 2 Box Elder trees
west of road way

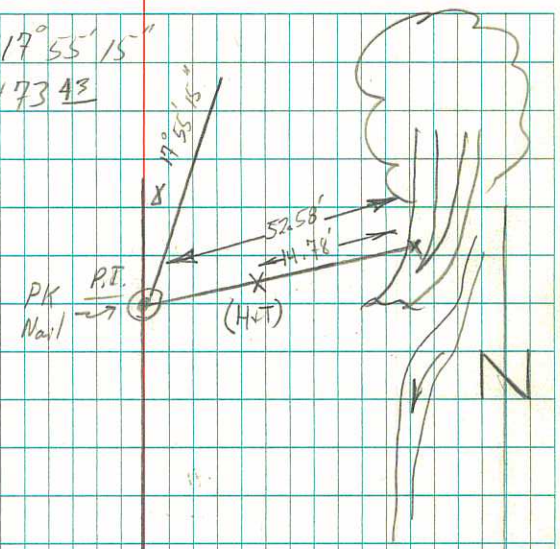
Measured

PT → South Box Elder 24.12' @ 2° 16' ⇒ 24.10'

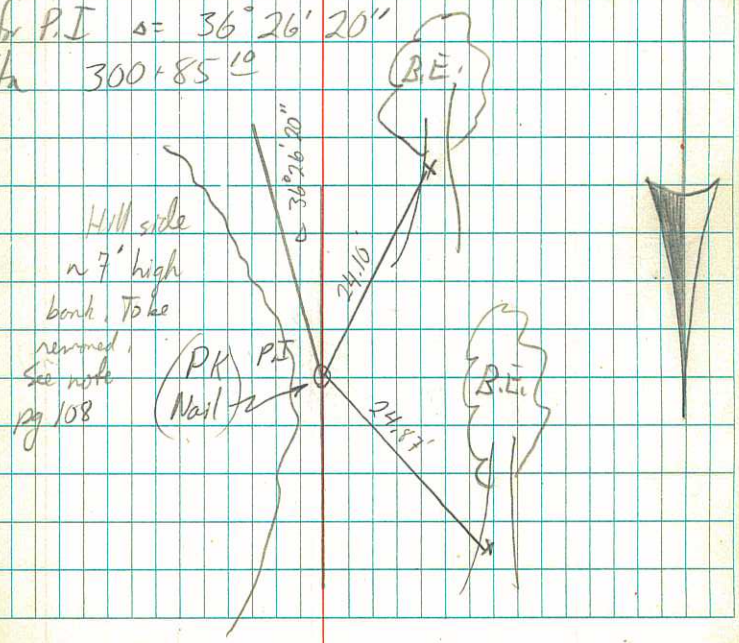
PI → North Box Elder 24.87'

23 Aug 1974

P.I Ref Δ = 17° 55' 15"
Sta 301 + 73 43



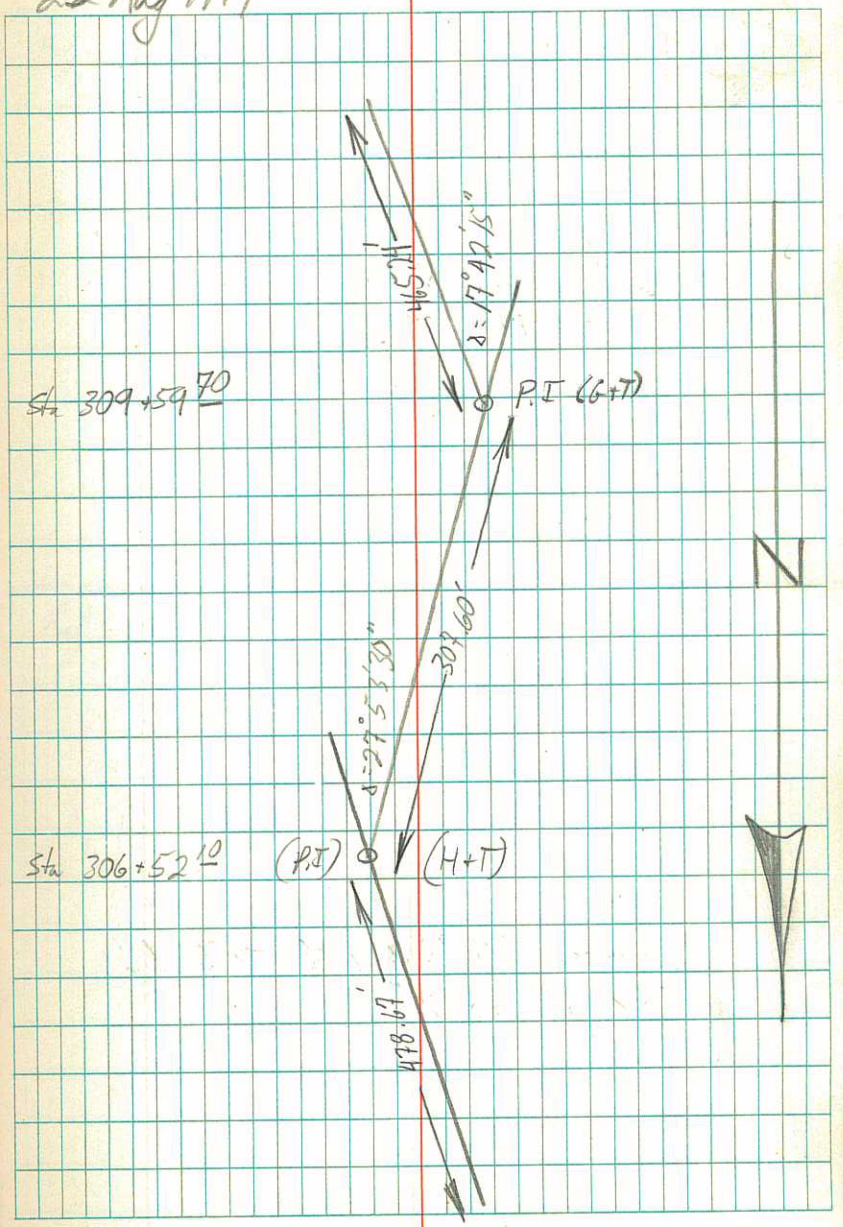
Ref for P.I Δ = 36° 26' 20"
Sta 300 + 85 10



Distance 465.25 @ 0°25' ⇒465.24'
Lt ∠ 17°42'15"

Distance 307.73 @ 1°38' ⇒307.60'
Rt ∠ 27°53'30"

23 Aug 1974



Ref for P.I. Δ = 17° 42' 15"
Sta. 309+59.70

Set Red head in Box Elder tree west of road w/ hub and tack on line.
Measured

P.I. → B.E. 59.13'
P.I. → H+T 35.41'

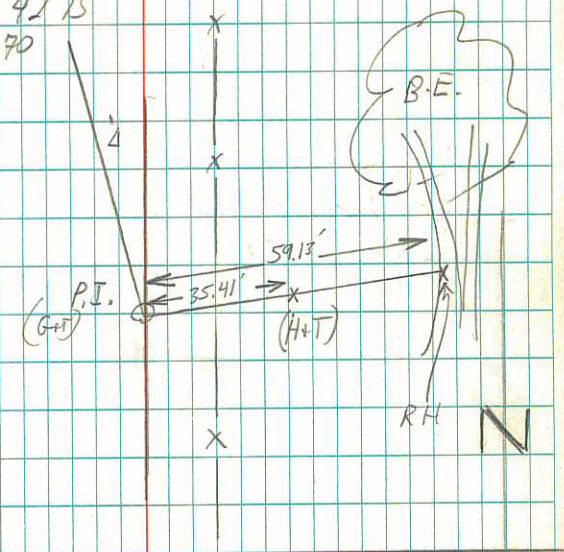
Ref for P.I Δ = 27° 53' 30"
Sta 306+52.10

Set Red head in Box Elder Maple east of road w/ Hub+Tack on line
Measured

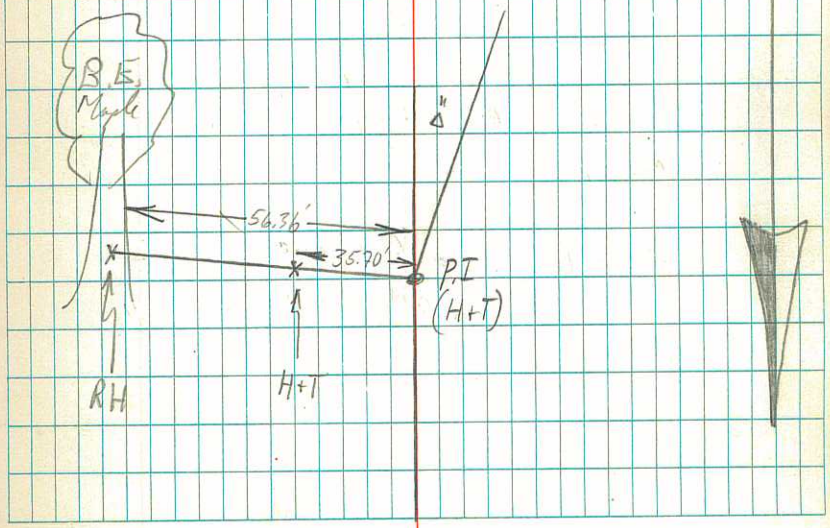
PI → B.E. 59.33' @ 18°13' ⇒ 56.36'
PT → H+T 36.15' @ 9°4' ⇒ 35.70'

23 Aug 1974

Ref for PI Δ = 17° 42' 15"
Sta 309+59.70



Ref for P.I Δ = 27° 53' 30"
Sta 306+52.10



241.50' @ 2°48' ⇒ 241.21

Lt ∠ 41°00'00"

Set on P.I. sta. 317+71 39

Measured 45.69 @ 9°16' ⇒ 45.09 to west Hub

Measured 53.70 @ 5°13' ⇒ 53.48 to East Hub

53.70

Lt ∠ 79°52'30" to POT Ref Line

Set on POT sta. 316+06 54

From P.I. 317+71 39 north to P.O.T.

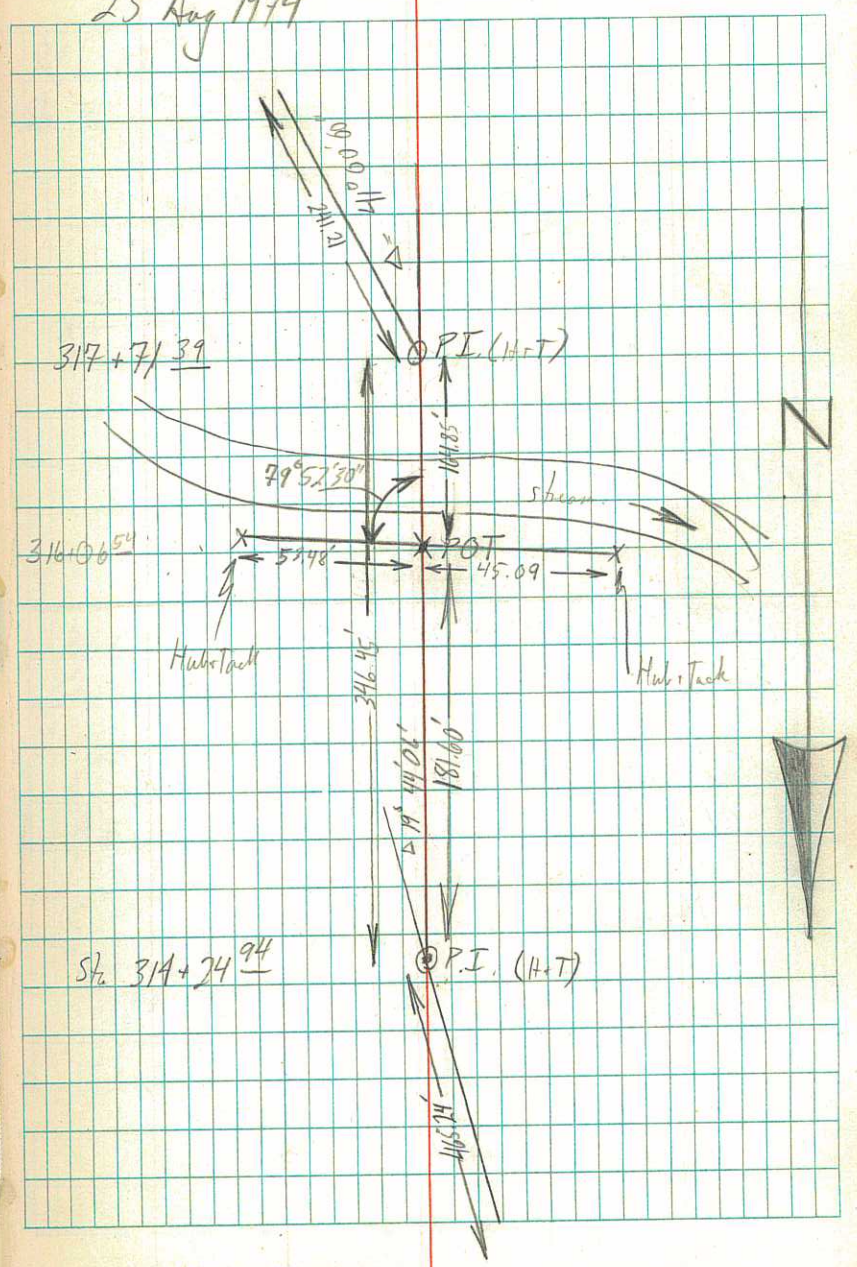
Measured 165.19' @ 3°35' ⇒ 164.85'

Distance to next PI. (317+71 39)

346.60 @ 1°41' ⇒ 346.45'

Rt ∠ 19°44'06"

23 Aug 1974



Ref for PI Δ = 41°00'00"
Sta 317+71 39

Went east across creek to flat bank land
set two H+T's

Measured
PI → West Hub 74.26'
PI → East Hub. 143.12'

Ref for PI Δ = 19°44'06"
Sta 314+24 94

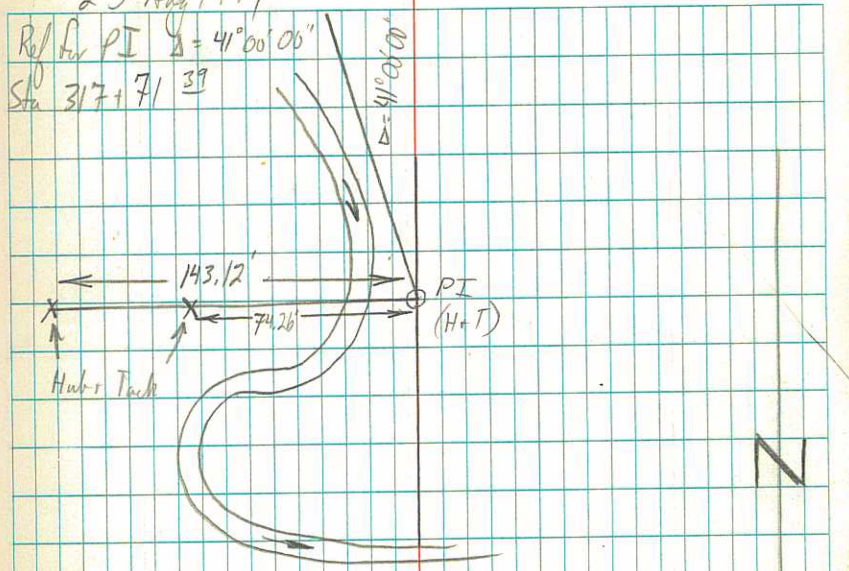
Set red head in Box Elder east of road
w/ Hub + Tack on line

Measured

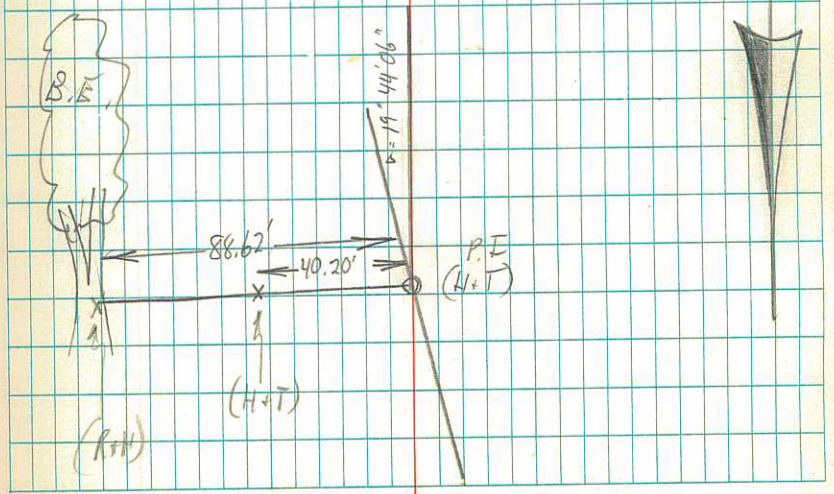
PI → (H+T) 40.25' @ 2°48' ⇒ 40.20'
PI → RH 88.86' @ 4°15' ⇒ 88.62'

23 Aug 1974

Ref for PI Δ = 41°00'06"
Sta 317+71 39



Ref for PI Δ = 19°44'06"
Sta 314+24 94



Distance 472.43 @ 1°44' ⇒ 472.21'

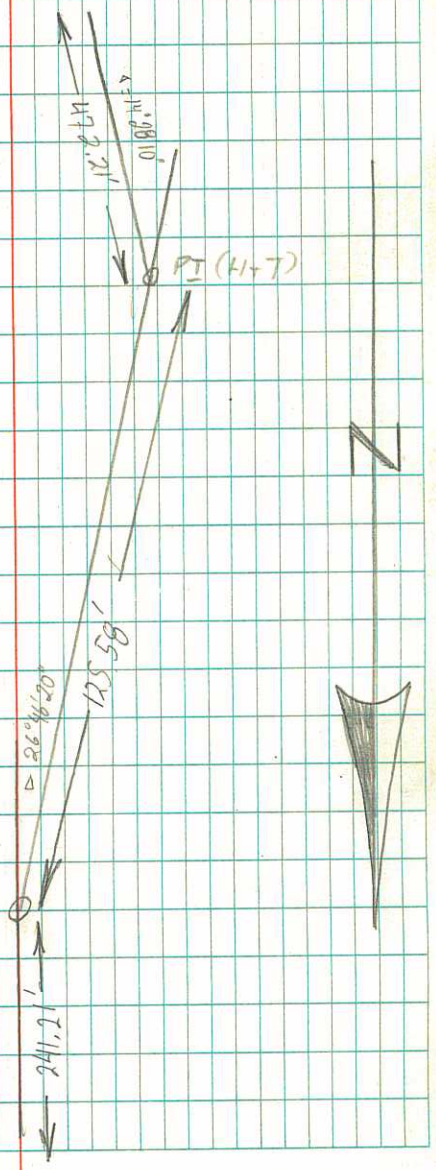
Δ = 14° 28' 10"

Distance 125.60' @ 1° 4' ⇒ 125.58'

RL Δ 26° 46' 20"

23 Aug 1974

Sta 321+38.18



Sta 320+12.60

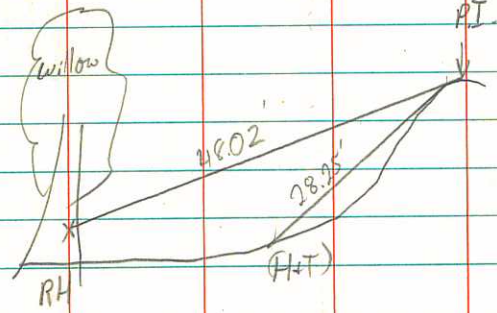
Ref for P.I. Δ =
Sta 321+38 18

Placed red head in small willow east of road and ~20' south of large willows.
Placed H+T on line

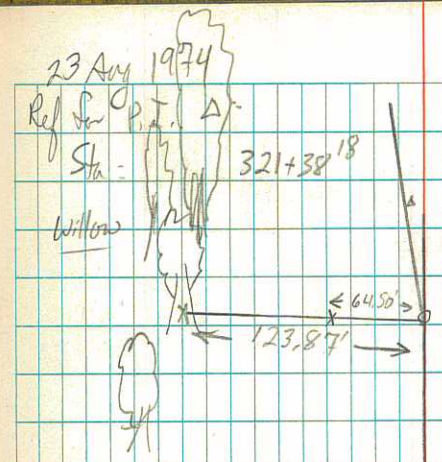
Measured
P.I. → Willow 123.87'
P.I. → H+T 65.68 @ 16°53' ⇒ 64.50

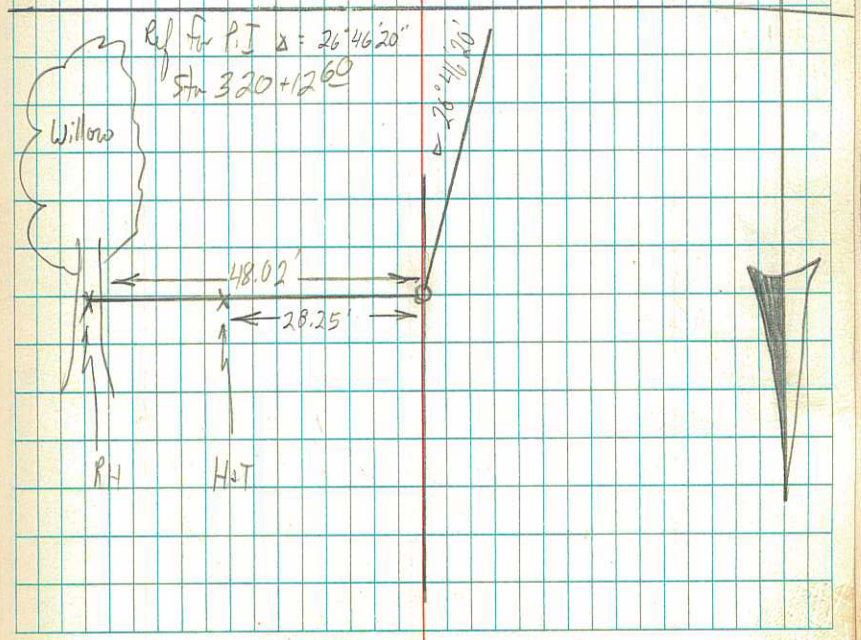
Ref for P.I. Δ 26°46'20"
Sta 320+12 60

Went down east bank + out on to meadow
Placed red head in Willow + stake on line.
Measured as indicated



23 Aug 1974





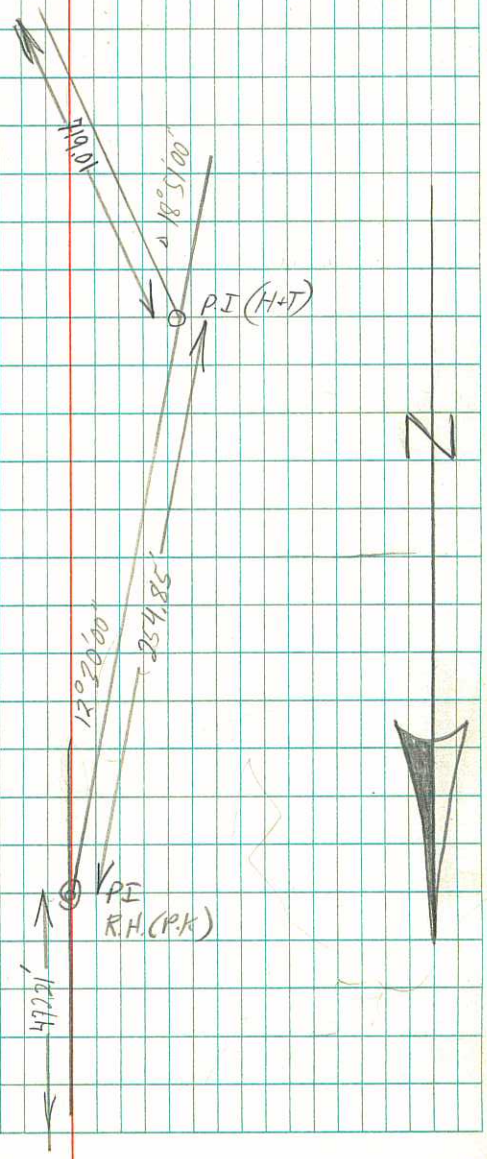
Distance	719.31' @ 1°40' ⇒ 719.01'
Lt ∠	18° 51' 00"

Distance	254.93 @ 1°25' ⇒ 254.85'
Rt ∠	12° 30' 00"

23 Aug 1974

Sta 328+65.24

Sta 326+10.39



PI ref for Δ 18° 51' 00"
Sta 328+65 24

Went east of road, placed
2 Hub + Tacks on line

Measured

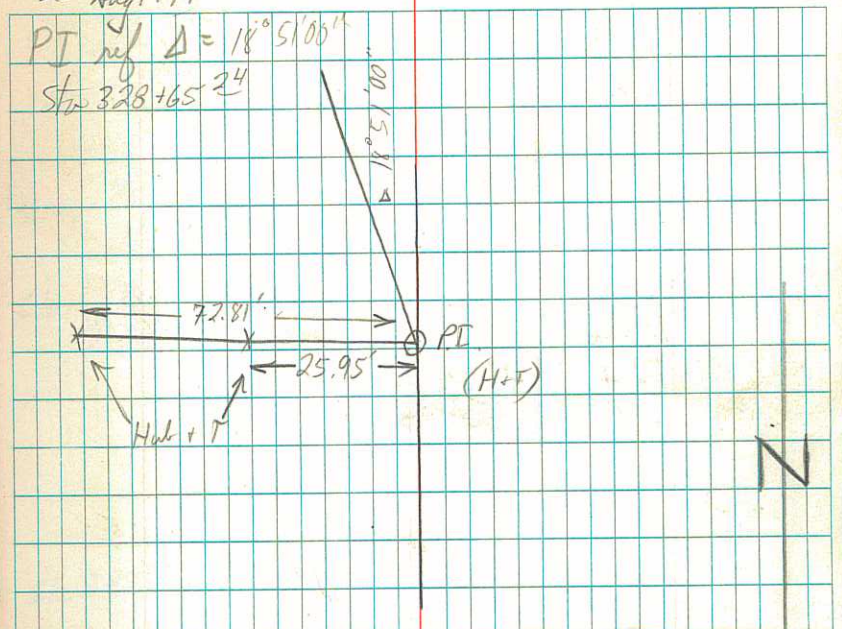
PT → East Hub 75.58' @ 15° 34" = 72.81'

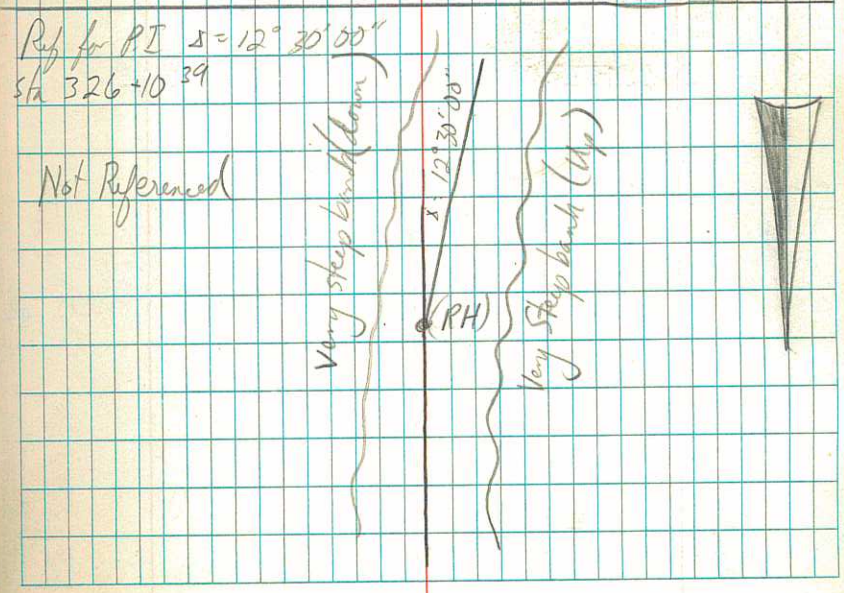
East Hub to West Hub. 25.95'

P.I ref for Δ 12° 30' 00"
Sta 326+10 39

Not Referenced due to
steep banks on both sides.

23 Aug 1974





Distance 247.14' 1° 53' ⇒ 247.01
Rt ∠ 3° 34' 00"

Changed plan and turned ∠ at intended POT.

~~POT → PI 188.13' @ 6° 56' = 186.75~~

Distance to POT 188.13' @ 6° 56' ⇒ 186.75'
Rt ∠ 40° 20' 46"

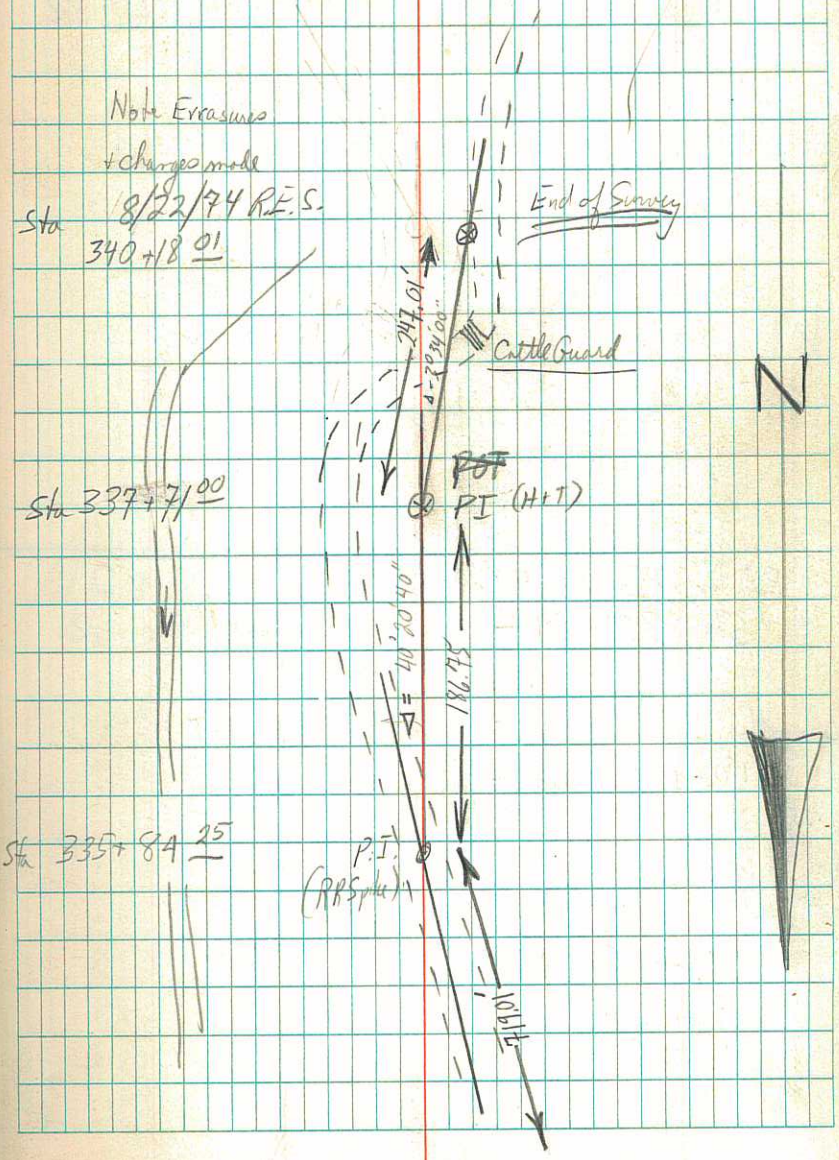
23 Aug 1974

Note Erasures + changes made 8/22/74 R.E.S.

Sta 340+18.01

Sta 337+71.00

Sta 335+84.25



Ref for Sta — PI Δ = 3° 34' 00"
Sta 337 + 71.00

Ref for Sta — PI Δ = 40° 20' 40"
Sta 335 + 84.25

Went west of road to fence line. Set H+T
1' east of fence. Put second H+T on line.

Measured

P.I. → West Hub	86.24'
P.I. → East Hub	52.62'
West Hub → East Hub	33.65'

23 Aug 1974

Ref for Sta — P.I. Δ = 3° 34' 00"
Sta 337 + 71.00

Ref for Sta — P.I. Δ = 40° 20' 40"
Sta 335 + 84.25

