6238a

U. S. COAST & GEODETIC SURVEY
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6238a

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

GRAPHIC CONTROL
~~Topographic~~
~~Hydrographic~~ Sheet No. G

State Virginia

LOCALITY
Chincoteague Island
~~Assateague Inlet~~
Assateague Inlet & Vicinity
~~Deep Hole Creek~~
~~Little Bay~~

1934

CHIEF OF PARTY

H. A. Seran

U.S. GOVERNMENT PRINTING OFFICE: 1934

Form 537a
Ed. Nov., 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES
APR 2 1935
Acc. No.
REG. NO.

TOPOGRAPHIC TITLE SHEET

GRAPHIC CONTROL SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. G

REGISTER NO. 6238a

State VIRGINIA

General locality CHINCOTEAGUE ~~INLET AND VICINITY~~ Island

Locality ASSATEAGUE INLET ~~PINEY ISLAND~~ AND VICINITY

Scale 1:10,000 Date of survey Oct. 22-24, 1934

Vessel Sub-party Ship OCEANOGRAPHER

Chief of party H. A. Seran

Surveyed by J. E. Waugh -- C. R. Dodson

Inked by F. J. Kish, J. E. Waugh, C. R. Dodson

~~Heights in feet above xxxxxxxxxx datum ground to tops of trees~~

~~Contour Approximate contour Form line Interval xxxxx feet~~

Instructions dated April 27, 1933 -- June 19, 1934

Remarks: This sheet is for the control of hydrographic survey.

DESCRIPTIVE REPORT

to accompany

GRAPHIC CONTROL SHEET (Field Letter G.)

CHINCOTEAGUE INLET AND VICINITY

Sup-party Ship OCEANOGRAPHER H. A. Seran, Chief of Party

PROJECT NO. H.T. 142

The descriptive report for Topographic Sheet (field letter G) which covers the plane table control for hydrography in Assateague Inlet, Little Bay and Deep Hole Creek.

INSTRUCTIONS:

The topography on Sheet G is a part of Project No. H.T. 142. The instructions for this part of the project are dated June 19, 1934.

LIMITS AND SCALE:

The scale of this sheet is 1:10,000. It covers that area between Latitudes 37°-53.9 and 37°-57.00 and Longitude 75°-18.8 and 75°-24.0.

CONTROL AND SURVEY METHODS:

The control consisted of two triangulation stations of third order accuracy, and three, three point fixes obtained with the theodolite. The location of triangulation station Assateague Light House, 1902,32,33, is Lat 37°-54' +1227.0 m and Long. 75°-21' +561.6 m.

The usual plane table survey methods were used. The plane table positions were obtained by resection and three point problem methods. There were no traverses.

This sheet was for the location of signals for hydrographic purposes only. The shore line and detail topography was furnished the party by the office.

MARSHES: The marshes in this area are large and are covered at high water. The soil is soft and boggy and is covered by marsh grass.

MAGNETIC MERIDANS:

The magnetic meridan as indicated on the sheet was determined at three point fix No. Four. The declinatoire was not checked in the field because the magnetic declination was not known and no instruments were on hand to make the necessary observations.

AIDS TO NAVIGATION:

None.

RECOVERABLE TOPOGRAPHIC STATIONS:

The description of three recoverable topographic stations on this sheet are being submitted on form 524.

LANDMARKS: There is one object on this sheet that can be used as a landmark. Form No. 567 is attached.

Respectfully submitted,

J. E. Waugh,
Ensign, C. & G. S.

Approved and forwarded:

H. A. Seran, Comdr., C. & G. S.

PLANE TABLE POSITION:

1. Gable, east, Derrickson-Hill Oyster House (⊙ Whit)
2. Gable, southwest, small house on Myers Flat (⊙ Sup)
3. Gable, east, Reid's Clam House (⊙ Set)

Duplicate

Form 567
Rev. Jan., 1933

DIVISION OF CHARTS, FILE NO._____

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Norfolk, Virginia

_____, 193

DIRECTOR, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted.

H. A. Seran.

H. A. Seran — Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE		DATUM		
	° ′	D. M. METERS	° ′	D. P. METERS			
* TANK (ELEVATED), steel							
(Δ Chincoteague Water							
Tower) verified	37 - 55	1789.6 ✓	75 - 22	984.3 ✓	NA 1927	Old Tri angulation	1109 No. 1220 ✓ 1224 ✓

This portion was copied
Checked against original.
J E Waugh

A list of objects carefully selected because of their value as landmarks as determined from seaward together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive indentification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

U. S. GOVERNMENT PRINTING OFFICE: 1933

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 24A
Rev. Oct., 1932

6238a Fourth Order LIST OF DIRECTIONS

6238a

APR 2 1935

Station Temp. Banner No. Two State Virginia Acc. No.

Chief of party H. A. Seron Date 10/22/34 Computed by J.C.H.

Observer J. E. Waugh, jr. Instrument 7" Berger No. 255 Checked by F.S.T.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ′ ″	′ ″	″	° ′ ″	′ ″
Inlet, 1934	0 00 00.00			0 00 00.00	
Chin, 1933	63-11-17.2 ✓				
Assateague Light House	245-07-42.3 ✓				

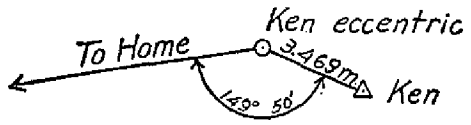
* These columns are for office use and should be left blank in the field.

Station: Ken | *State:* Maryland

Chief of party: C. V. H. | *Date:* 1917 | *Computed by:* O. P. S.

Observer: C. V. H. | *Instrument:* No. 168 | *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	″	° ′ ″	′ ″
Chevy	0 00 00.00	− 7.31		0 00 00.00	
Tank west of △ Dulce	29 03 37.0	−1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	− 1.16		357 28 54.78	
Reference mark, 16.32 m	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

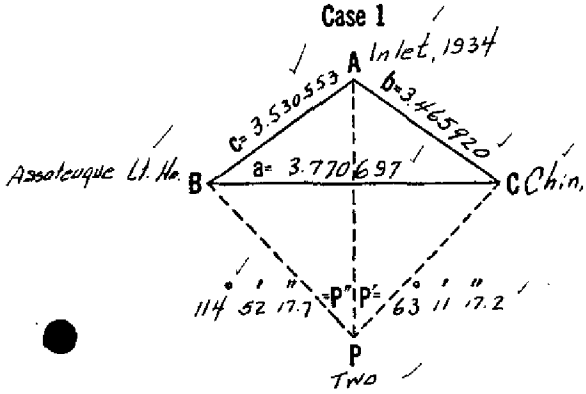
It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

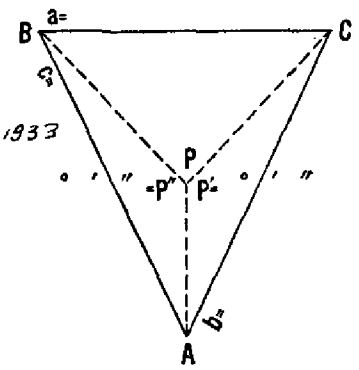
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

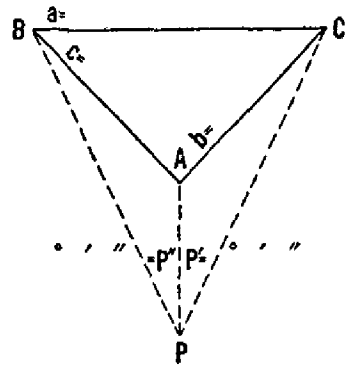
Case 1



Case 2



Case 3



Cases 1 and 2		Case 3	
P'	63°-11'-17".2	P'	
P''	114-52-17.7	P''	
A	137-55-27.3		
		Sum A	
Sum	315-59-02.2		
½ Sum	157-59-31.1		
		A−sum	
S=180°−½ sum=	22-00-28.9	S=½ (A−sum)=	
Log c =	3.530553		
Log sin P' =	9.950604		
Colog b =	6.534080		
Colog sin P'' =	0.042272		
Sum=log tan Z=	0.057509		
Z=	48°-46'-57".0		
Z+45°=	93-46-57.0		
Log cot (Z+45°) =	8.820288 n		
Log tan S=	9.606585		
Sum=log tan ϵ=	8.426873	(sign n)	
ϵ	1°-31'-50.6		
S	22-00-28.9		

(Tan ϵ+)		(Tan ϵ−)	
S+ϵ=angle ABP		20°-28'-38.3	S−ϵ=angle ABP
S−ϵ=angle ACP		23°-32'-19.5	S+ϵ=angle ACP

BPA	114°-52'-17.7	APC	63°-11'-17".2	PCB	00°-51'-55.1
ABP	20-28-38.3	PCA	23-32-19.5	CBP	01-04-30.0
PAB	44-39-04.0	CAP	93-16-23.3	BPC	178-03-34.9

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1930
11—9012

Comp JEM 7.57.
Copy JEM 7.57.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

11—9121

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.465920
	1 No. Two	63°-11'-17.2"					0.049396
	2 Inlet, 1934	93-16-23.3					9.999291
	3 Chin, 1933	23-32-19.5					9.601375
	1-3						3.514607
	1-2						3.116691
	2-3						3.530553
	1 No. Two	114°-52'-17.7"					0.042272
	2 Assateague Lt. Ho.	20-28-38.3					9.543865
	3 Inlet, 1934	44-39-04.0					9.846824
	1-3						3.116690
	1-2						3.419649
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						Comp by JEW
	1-3						✓ by FSJ
	1-2						Copy by JEW
							" ✓ FSJ

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

Fourth Order

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 Inlet, 1934 to 3 Chin, 1933	99	04	27.8
2d ∠	Chin, 1933 & No. Two	+ 93	16	23.3
α	2 Inlet, 1934 to 1 No Two	192	20	51.1
Δα		+	00	07.0
		180	00	00.0
α′	1 No. Two to 2 Inlet, 1934	12	20	58.1
		63	11	17.2

		°	′	″
α	3 Chin, 1933 to 2 Inlet, 1934	279	03	15.2
3d ∠	Inlet, 1934 ← & → No. Two	− 23	32	19.5
α	3 Chin, 1933 to 1 No. Two	255	30	55.7
Δα		+	01	19.6
		180	00	00.0
α′	1 No. Two to 3 Chin, 1933	75	32	15.3

First Angle of Triangle

	°	′	″			°	′	″
φ	37	53	39.88	2 Inlet, 1934	λ	75	23	19.47
Δφ	+	00	41.45		Δλ	−	00	11.45
φ′	37	54	21.33	1 No. Two	λ′	75	23	08.02

	Logarithms	Values in seconds
s	3.116691	657.62 (1192.23)
Cos α	9.989836 n	
B	8.511011	
h	1.617538	1st term − 41.45
s²	6.2334	
Sin² α	8.6602	
C	1.2959	
	6.1895	2d term + —
h³		
D		
	—	3d term + —
		−Δφ − 41.45

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	54	00.6		
s				3.116691	195.90 (1269.98)
Sin α				9.330091 n	
A′				8.509171	
Sec φ′				0.102912	
Δλ				1.058865	− 11.45
Sin ½(φ+φ′)				9.788372	
−Δα				0.847237	− 07.0

	Logarithms	Values in seconds
s	3.514607	
Cos α	9.398146 n	
B	8.511010	
h	1.423763	1st term − 26.53
s²	7.0292	
Sin² α	9.9719	
C	1.2960	
	8.2971	2d term + 0.02
h³	—	
D	—	
	—	3d term + —
		−Δφ − 26.51

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	54	08.1		
s				3.514607	
Sin α				9.985972 n	
A′				8.509171	
Sec φ′				0.102912	
Δλ				2.112662	− 129.62
Sin ½(φ+φ′)				9.788392	
−Δα				1.901054	− 79.6

Comp by JEW
Copy by JEW

11—9362 U. S. GOVERNMENT PRINTING OFFICE, 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 24A
Rev. Oct., 1932

Fourth Order
LIST OF DIRECTIONS

6238 (G)
6238a

Station Temp. Banner No. Three State Virginia
Chief of party H.A. Seran Date 10/22/34 Computed by J.E.W.
Observer J.E. Waugh, jr. Instrument 7" Berger No. 255 Checked by F.S.T.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ′ ″	′ ″	″	° ′ ″	′ ″
Inlet, 1934	0 00 00.00			0 00 00.00	
Chin, 1933	35 18 36.5 ✓				
Assateague Light House	204 17 09.0 ✓				

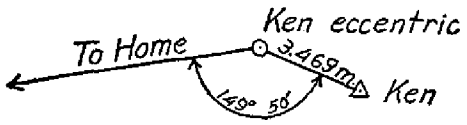
* These columns are for office use and should be left blank in the field.

Station: Ken | *State:* Maryland

Chief of party: C. V. H. | *Date:* 1917 | *Computed by:* O. P. S.

Observer: C. V. H. | *Instrument:* No. 168 | *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	″	° ′ ″	′ ″
Chevy	0 00 00.00	− 7.31		0 00 00.00	
Tank west of △ Dulce	29 03 37.0	−1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	− 1.16		357 28 54.78	
Reference mark, 16.32 m	358 31 20				



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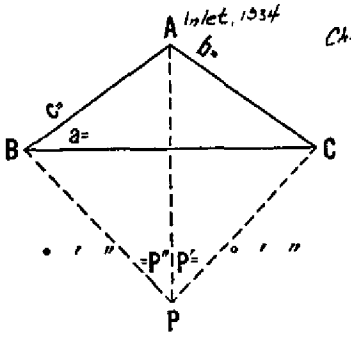
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

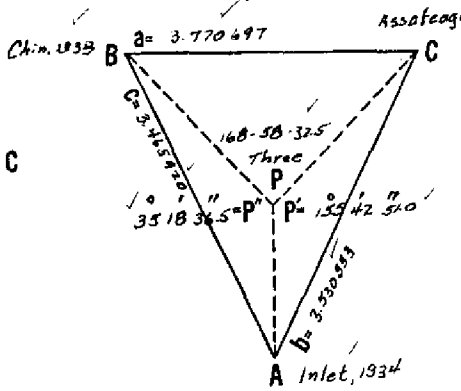
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

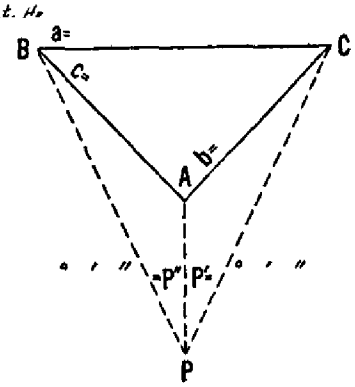
Case 1



Case 2



Case 3



Cases 1 and 2		Case 3	
P'	155-42-51.0 ✓	P'	
P"	35-18-36.5 ✓	P"	
A	137-55-27.3 ✓		
		Sum A	
Sum	328-56-54.8 ✓		
½ Sum	164-28-27.4 ✓		
		A − sum	
S = 180° − ½ sum =	15-31-32.6 ✓	S = ½ (A − sum) =	

Log c =	3.465920 ✓
Log sin P' =	9.614147 ✓
Colog b =	6.469447 ✓
Colog sin P" =	0.238071 ✓
Sum = log tan Z =	9.787585 ✓
Z =	31° 30' 56.2 ✓
Z + 45° =	76-30-56.2 ✓
Log cot (Z+45°) =	9.379832 ✓
Log tan S =	9.443745 ✓
Sum = log tan ε =	8.823577 ✓ (sign + ✓)
ε	3°-48'-40.2" ✓
S	15°-31'-32.6" ✓

(Tan ε +)		(Tan ε −)
S + ε = angle ABP	19°-20'-12.8 ✓	S − ε = angle ABP
S − ε = angle ACP	11-42-52.4 ✓	S + ε = angle ACP

BPA	35°-18'-36.5 ✓	APC	155°-42'-51.0" ✓	PCB	7° 41'-15.9 ✓
ABP	19-20-12.8 ✓	PCA	11-42-52.4 ✓	CBP	3-20-11.6 ✓
PAB	125-21-10.7 ✓	CAP	12-34-16.6 ✓	BPC	168-58-32.5 ✓

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
31—9012

Comp by JSer ✓ Ref Z.S.T.
Copy by JSer Z.S.T.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

11—9121

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.530553
	1 No. Three	155°-12'-51.0"					0.385853
	2 Assateague Lt. Ho	11-42-52.4					9.307573
	3 Inlet, 1934	12-34-16.6					9.337767
	1-3						3.223979
	1-2						3.254173
	2-3						3.465920
	1 No. Three	35°-18'-36.5"					0.238071
	2 Inlet, 1934	125-21-10.7					9.911479
	3 Chin, 1933	19-20-12.8					9.519988
	1-3						3.615470
	1-2						3.223979
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						Comp. by MBM
	1-3						" by JST
	1-2						Copy by JSW
							" " JSJ.

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

Fourth Order

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 Inlet, 1934 to 3 Chin, 1933	99	04	27.8
2d ∠	Chin, 1933 & No. Three	+ 125	21	10.7
α	2 Inlet, 1934 to 1 No. Three	224	25	38.5
Δα		+	00	29.5
		180	00	00.0
α′	1 No. Three to 2 Inlet, 1934	44	26	08.0
	First Angle of Triangle	35	18	36.5

		°	′	″			°	′	″
φ	37	53	39.88	2 Inlet, 1934	λ	75	23	19.47
Δφ	+	00	38.80		Δλ	−	00	47.99
φ′	37	53	18.68	1 No. Three	λ′	75	22	31.48

	Logarithms
s	3.223979
Cos α	9.853782
B	8.511011
h	1.588772
s²	6.4480
Sin² α	9.6902
C	1.2959
	7.4341
h²	
D	

Values in seconds		
1st term	−	38.80″
2d term	+	—
3d term	+	
−Δφ	−	38.80

	°	′	″
½(φ+φ′)	37	53	59.3

	Logarithms	Values in seconds
s	3.223979	
Sin α	9.845101	
A′	8.509171	
Sec φ′	0.102907	
Δλ	1.681159	− 47.99″
Sin ½(φ+φ′)	9.788368	
−Δα	1.469527	− 29.5

		°	′	″
α	3 Chin, 1933 to 2 Inlet, 1934	279	03	15.2
3d ∠	Inlet, 1934 & No. Three	− 19	20	12.8
α	3 Chin, 1933 to 1 No. Three	259	43	02.4
Δα		+	01	42.1
		180	00	00.0
α′	1 No. Three to 3 Chin, 1933	79	44	44.5

		°	′	″			°	′	″
φ	37	53	54.82	3 Chin, 1933	λ	75	25	17.64
Δφ	+	00	23.86		Δλ	−	00	46.16
φ′	37	54	18.68	1 No. Three	λ′	75	22	31.48

	Logarithms
s	3.615470
Cos α	9.251649
B	8.511011
h	1.378130
s²	7.2310
Sin² α	9.9859
C	1.2960
	8.5129
h²	
D	

Values in seconds		
1st term	−	23.89″
2d term	+	0.03
3d term	+	
−Δφ	−	23.86

	°	′	″
½(φ+φ′)	37	54	06.74

	Logarithms	Values in seconds
s	3.615470	
Sin α	9.992968	
A′	8.509171	
Sec φ′	0.102907	
Δλ	2.220517	− 166.16″
Sin ½(φ+φ′)	9.788388	
−Δα	2.008905	− 102.1

Comp by JEW

11—0362 U. S. GOVERNMENT PRINTING OFFICE, 1929

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62381

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES
APR 2 1935
Acc. No.

Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

GRAPHIC CONTROL
~~Topographic~~
~~Hydrographic~~ } Sheet No. H

State VIRGINIA

LOCALITY

CHINCOTEAGUE ~~Inlet~~ Island

ASSATEAGUE BAY & Vicinity

~~BIG BAY~~

1934

CHIEF OF PARTY

H. A. Seran

U.S. GOVERNMENT PRINTING OFFICE: 1934

62381

Form 537a
Ed. Nov., 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES
APR 2 1935
Acc. No.
REG. NO.

TOPOGRAPHIC TITLE SHEET

GRAPHIC CONTROL SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. H

REGISTER NO. 6238b

State VIRGINIA

General locality CHINCOTEAGUE ~~INLET AND VICINITY~~ Island

Locality ~~NORTH END OF CHINCOTEAGUE ISLAND~~ Assateague Bay & Vicinity

Scale 1:10,000 Date of survey 10/18 - 11/22, 1934

Vessel Sub-party Ship OCEANOGRAPHER

Chief of party H. A. Seran

Surveyed by F. S. Trantham -- C. R. Dodson

Inked by F. J. Kish - F. S. Trantham - C. R. Dodson

~~Heights in feet above XXXXXXXXXXXXX ground XX tops of trees~~

~~Contour Approximate Contour Form Line Intermediate XXXXXXXXX~~

Instructions dated April 27, 1933 - June 19, 1934

Remarks: This sheet is for the control of hydrographic survey.

DESCRIPTIVE REPORT

to accompany

GRAPHIC CONTROL SHEET (Field letter H)

CHINCOTEAGUE INLET AND VICINITY

Subparty Ship OCEANOGRAPHER H. A. Seran, Chief of Party

PROJECT NO. H.T. 142

The descriptive report for Topographic Sheet (field letter H) which covers the plane table control for hydrography in Assateague Bay, Big Bay and Chincoteague Bay is herewith submitted.

INSTRUCTIONS:

The topography on Sheet H is part of Project No. H.T. 142. The instructions for this part of the project are dated June 19, 1934.

LIMITS AND SCALE:

The scale of this sheet is 1: 10,000. It covers that area between Latitudes 37°-56'.8 and 37°-59'.8 and Longitudes 75°-17'.6 and 75°-22'.7.

CONTROL AND SURVEY METHODS:

The control consisted of five triangulation stations of third order accuracy and three, three point fixes obtained with the theodolite. The location of triangulation station Blake is Latitude 37°-57'+260.2 m, Longitude 75°-21'+623.0 m.

The usual plane table survey methods were used. The plane table positions were obtained by resection and three point problem methods. There were no traverses. The signals in Big Bay and Assateague Bay were located from triangulation station Wildcat and three point fixes Nos. Four, Five and Six before the triangulation on the west side of Chincoteague Island was executed. After this triangulation was completed it was used for control in locating the signals on the west side of Chincoteague Island. The location of the signals on the east side of the Island were checked at the same time and the positions were found to check satisfactorily.

This sheet was for the location of signals for hydrographic purposes only. The shore line and detail topography was furnished the party by the office.

MARSHES:

The marshes in this area are large and are covered at high water. The soil is soft and boggy and is covered by marsh grass.

MAGNETIC MERIDANS:

The magnetic meridan as indicated on the sheet was determined at triangulation station Blake, 1934. The declinatoire was not checked in the field because the magnetic declination was not known and no instruments were on hand to make the necessary observations.

AIDS TO NAVIGATION:

Form No. 567 is attached for the aids to navigation on this sheet. This beacon marks the best water between Franklin City and Chincoteague Island.

RECOVERABLE TOPOGRAPHIC STATIONS:

The description of two recoverable topographic stations on this sheet are being submitted on form 524.

LANDMARKS: There are no land marks on this sheet.

Respectfully submitted,

J. E. Waugh

J. E. Waugh,
Ensign, C. & G. S.

Approved and forwarded:

H. A. Seran.

H. A. Seran, Comdr. C. & G. S.,
Commanding Ship OCEANOGRAPHER.

PLANE TABLE POSITIONS:

1. Gable, south, Lone House, east side Assateague Bay. (⊙Tess)
2. Chimney, Dr. Lekite's Hunting Lodge. (⊙Fill)

Duplicate

Form 567
Rev. Jan., 1933

DIVISION OF CHARTS, FILE NO._____

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Norfolk, Virginia

_____, 193

DIRECTOR, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted.

H. A. Seran.

AIDS TO NAVIGATION — H. A. Seran — Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE		DATUM		
	° ′	D. M. METERS	° ′	D. P. METERS			
BEACON; FLR. red no. four (△ Red Beacon No. Four, 1934)	37 - 58	1125.1 ✓	75 -22	1380.0 ✓	NA 1927	New Triangulation	1109 No. 1220 ✓

This position was copied checked against original.
J. E. Vaughn

A list of objects carefully selected because of their value as landmarks as determined from seaward together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive indentification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

U. S. GOVERNMENT PRINTING OFFICE: 1933

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 24-A
Rev. Oct., 1932

Fourth Order

LIST OF DIRECTIONS

6238b

APR 2 1935

6238b

Station Temp. Banner No. Four State Virginia Acc. No.

Chief of party H. A. Seran Date 10/9/34 Computed by JFT

Observer J. E. Waugh, jr. Instrument 7" Berger No. 255 Checked by F.S.T.

U. S. GOVERNMENT PRINTING OFFICE: 1933 11—9503

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ′ ″	′ ″	″	° ′ ″	′ ″
Wildcat, 1909	0 00 00.00			0 00 00.00	
Assateague Light House,	180-25-22.2				
Chincoteague Water Tower, 1933	221-22-40.7				

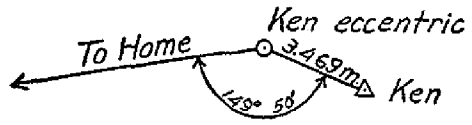
*These columns are for office use and should be left blank in the field.

Station: Ken *State:* Maryland

Chief of party: C. V. H. *Date:* 1917 *Computed by:* O. P. S.

Observer: C. V. H. *Instrument:* No. 168 *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	″	° ′ ″	′ ″
Chevy	0 00 00.00	− 7.31		0 00 00.00	
Tank west of △ Dulce	29 03 37.0	−1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	− 1.16		357 28 54.78	
Reference mark, 16.32 m	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24a some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

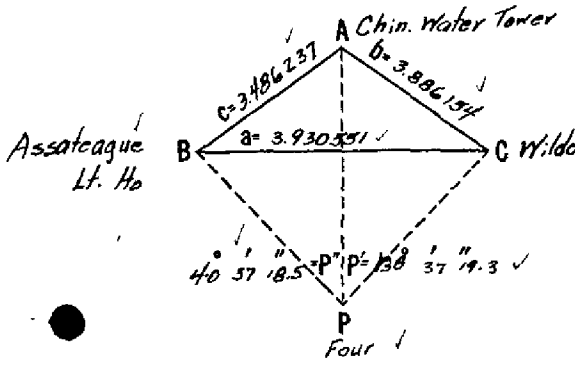
It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 555
Ed. Sept., 1929

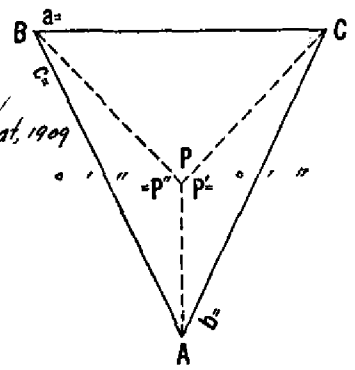
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

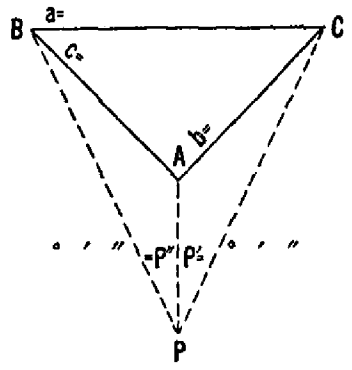
Case 1



Case 2



Case 3



Cases 1 and 2		Case 3	
P'	138° - 37' - 19.3" ✓	P'	
P"	40 - 57 - 18.5 ✓	P"	
A	94 - 55 - 27.3 ✓		
Sum	274 - 30 - 05.1 ✓	Sum A	
½ Sum	137 - 15 - 02.6 ✓		
S = 180° − ½ sum =	42 - 44 - 57.4 ✓	S = ½ (A − sum) =	A − sum
Log c =	3.486 237 ✓		
Log sin P' =	9.820 217 ✓		
Colog b =	0.183 449 ✓		
Colog sin P" =	6.113 846 ✓		
Sum = log tan Z =	9.603 749 ✓		
Z =	21° 52' - 42.1" ✓		
Z + 45° =	66 - 52 - 42.1 ✓		
Log cot (Z + 45°) =	9.630 410 ✓		
Log tan S =	9.965 844 ✓		
Sum = log tan ε =	9.596 254 ✓	(sign + ✓)	
ε	21° - 32' - 18.8" ✓		
S	42 - 44 - 57.4 ✓		

(Tan ε+)		(Tan ε−)
S + ε = angle ABP	64° - 17' - 16.2" ✓	S − ε = angle ABP
S − ε = angle ACP	21 - 12 - 38.6 ✓	S + ε = angle ACP

BPA	40° - 57' - 18.5" ✓	APC	138° - 37' - 19.3" ✓	PCB	00° - 13' - 23.8" ✓
ABP	64 - 17 - 16.2 ✓	PCA	21 - 12 - 38.6 ✓	CBP	00 - 11 - 58.3 ✓
PAB	74 - 45 - 25.3 ✓	CAP	20 - 10 - 02.1 ✓	BPC	179 - 34 - 37.8 ✓

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—9012

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✓ by J.S.T.
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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

11—9121

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.486237 /
	1 No. Four	40° 57' 18".5 /					0.183449 /
	2 Assateague Lt. Ho.	64-17-16.2 /					9.954718 /
	3 Chin. Water Tower	74-45-25.3 /					9.984446 /
	1-3						3.624404 /
	1-2						3.654132 /
	2-3						3.886154 /
	1 No. Four	138° 37' 19".3 /					0.179783 /
	2 Chin. Water Tower	20-10-02.1 /					9.337519 /
	3 Wildcat, 1909	21-12-38.6 /					9.558468 /
	1-3						3.603456 /
	1-2						3.624405 /
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						Comp by MBM
	3						✓ by J.S.T.
	1-3						Copy by JSW
	1-2						" ✓ " JSJ.

Do not write in this margin

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

Fourth Order

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 Assateague Lt. Ho. to 3 Chin. Water Tower	141	57	14.6
2d ∠	Chin. Water Tower & No. Four	+ 64	17	16.2
α	2 Assateague Lt. Ho to 1 No. Four	206	14	30.8
Δα		+	00	50.2
		180	00	00.0
α′	1 No. Four to 2 Assateague Lt. Ho	26	15	21.0
		40	57	18.5

		°	′	″
α	3 Chin. Water Tower to 2 Assateague Lt. Ho.	321	56	27.1
3d ∠	Assateague Lt. Ho & No. Four	− 74	45	25.3
α	3 Chin. Water Tower to 1 No. Four	247	11	01.8
Δα		+	01	37.7
		180	00	00.0
α′	1 No. Four to 3 Chin. Water Tower	67	12	39.5

First Angle of Triangle

	°	′	″			°	′	″
φ	37	54	39.80	2 Assateague Lt. Ho.	λ	75	21	22.99
Δφ	+	02	11.18		Δλ	−	01	21.67
φ′	37	56	50.98	1 No. Four	λ′	75	20	01.32

	°	′	″			°	′	″
φ	37	53	58.04	3 Chin. Water Tower	λ	75	22	40.31
Δφ	+	00	52.94		Δλ	−	02	38.98
φ′	37	56	50.98	1 No. Four	λ′	75	20	01.33

	Logarithms	Values in seconds
s	3.654132	1571.8 (278.2)
Cos α	9.952761	
B	8.511009	
h	2.117902	1st term − 131.19
s^2	7.3083	
$\sin^2\alpha$	9.2912	
C	1.2961	
	7.8956	2d term + 0.01
h^2		
D		
	—	3d term + —
		−Δφ − 131.18

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	55	45.4		
s				3.654132	32.2 (1432.7)
Sin α				9.645581	
A′				8.509171	
Sec φ′				0.103157	
Δλ				1.912041	− 81.67
Sin ½(φ+φ′)				9.788655	
−Δα				1.700696	− 50.2

	Logarithms	Values in seconds
s	3.624404	
Cos α	9.588578	
B	8.511008	
h	1.723990	1st term − 52.97
s^2	7.2488	
$\sin^2\alpha$	9.9292	
C	1.2965	
	8.4745	2d term + 0.03
h^2		
D		
		3d term +
		−Δφ − 52.94

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	56	24.5		
s				3.624404	
Sin α				9.964619	
A′				8.509171	
Sec φ′				0.103157	
Δλ				2.201351	− 158.98
Sin ½(φ+φ′)				9.788761	
−Δα				1.990112	− 97.7

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11—9362 U. S. GOVERNMENT PRINTING OFFICE, 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 24A
Rev. Oct., 1932

Fourth Order

LIST OF DIRECTIONS

6238b

APR 2 1935

6238b

Station Temp. Banner No. Five State Virginia Acc. No.

Chief of party H. A. Seran Date 10/9/34 Computed by J.E.W.

Observer J.E. Waugh jr Instrument 7"-Berger No. 255 Checked by F.S.T.

11—8503

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ′ ″	′ ″	″	° ′ ″	′ ″
Wildcat, 1909	0 00 00.00			0 00 00.00	
Boathouse on Beach, East Gable, 1902	162 06 04.7 ✓				
Assateague Light House	201 31 49.8 ✓				
Chincoteague Water Tower, 1933	231 22 25.3 ✓				

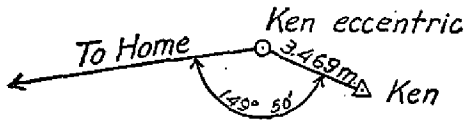
* These columns are for office use and should be left blank in the field.

Station: Ken *State:* Maryland

Chief of party: C. V. H. *Date:* 1917 *Computed by:* O. P. S.

Observer: C. V. H. *Instrument:* No. 168 *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	″	° ′ ″	′ ″
Chevy	0 00 00.00	− 7.31		0 00 00.00	
Tank west of △ Dulce	29 03 37.0	−1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	− 1.16		357 28 54.78	
Reference mark, 16.32 m.	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

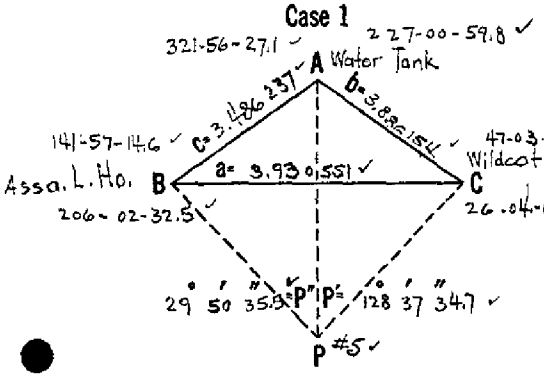
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

#5

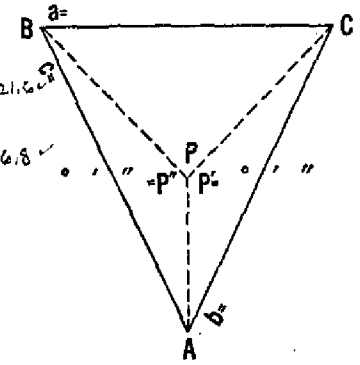
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

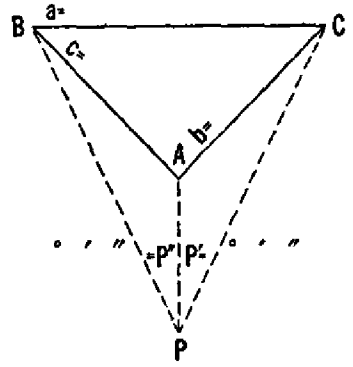
Case 1



Case 2



Case 3



Cases 1 and 2

P′	128 37 34.7 ✓
P″	29 50 35.5 ✓
A	94 55 27.3 ✓
Sum	253 23 37.5 ✓
½ Sum	126 41 48.8 ✓
S=180°−½ sum =	53 18 11.2 ✓

Case 3

P′	
P″	
Sum A	
A − sum	
S=½ (A−sum) =	

Log c =	3,486 237 ✓
Log sin P′ =	9.892 781 ✓
Colog b =	6,113 846 ✓
Colog sin P″ =	0.303 095 ✓
Sum=log tan Z =	9.795 959 ✓
Z =	32 00 36.2 ✓
Z+45° =	77 00 36.2 ✓
Log cot (Z+45°) =	9.363 016 ✓
Log tan S =	0.127 673 ✓
Sum=log tan ϵ =	9.490 689 ✓ (sign +)
ϵ	17 11 54.1 ✓
S	53 18 11.2 ✓

(Tan ϵ+)		(Tan ϵ−)
S+ϵ=angle ABP	70 30 05.3 ✓	S−ϵ=angle ABP
S−ϵ=angle ACP	36 06 17.1 ✓	S+ϵ=angle ACP

BPA	29-50-35.5 ✓	APC	128-37-34.7 ✓	PCB	15-07-02.3 ✓
ABP	70-30-05.3 ✓	PCA	36-06-17.1 ✓	CBP	06-24-47.4 ✓
PAB	79-39-19.2 ✓	CAP	15-16-08.2 ✓	BPC	158-28-10.2 ✓
	180-00-00.0 ✓		180-00-00.0 ✓		179-59-59.9

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—9912

Comp. F.S.T. ✓

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

11—9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	From Sig: Assa, Light Ho., Water Tank, Wildcat						
	2-3						3.486237
	1 No. Five	29°-50'-35.5"					0.303095
	2 Assateague Lt. Ho.	70-30-05.3					9.974350
	3 Chin. Water Tower	79-39-19.2					9.992883
	1-3						3.763682
	1-2						3.782215
	2-3						3.886154
	1 No. Five	128°-37'-34.7"					0.107219
	2 Chin. Water Tower	15-16-08.2					9.420534
	3 Wildcat, 1909	36-06-17.1					9.770309
	1-3						3.413907
	1-2						3.763682
	2-3						3.930551
	1 No. Five	158°-28'-10.3"					0.435339
	2 Assateague Lt. Ho.	06-24-47.4					9.048043
	3 Wildcat, 1909	15-07-02.3					9.416301
	1-3						3.413933
	1-2						3.782191
	Adjusted	+0.1"					
	2-3						Comp by JSW
	1						✓ by F.S.T.
	2						Copy by JSW
	3						✓ " F.S.T.
	1-3						
	1-2						

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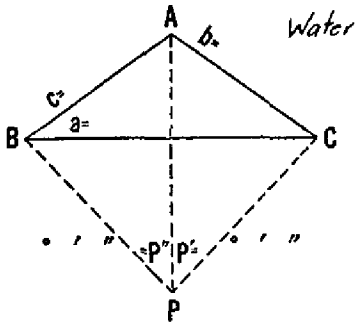
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

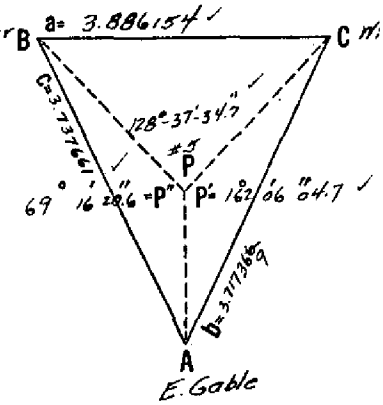
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

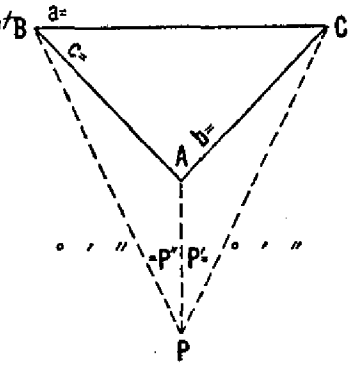
Case 1



Case 2



Case 3



Cases 1 and 2		Case 3	
P'	162° 06' 04.7" ✓	P'	
P"	69° 16' 20.6 ✓	P"	
A	92 -07- 20.2 ✓		
Sum	323- 29- 45.5 ✓	Sum A	
½ Sum	161 - 44- 52.8 ✓		
S=180°−½ sum=	18°-15'-07.2 ✓	A−sum S=½ (A−sum)=	

Log c =	3.737661 ✓
Log sin P' =	9487612 ✓
Colog b =	6.282634 ✓
Colog sin P" =	0.029061 ✓
Sum=log tan Z=	9.536968 5
Z=	18°-59'-59.7" .0
Z+45°=	63-59-59.7" .0
Log cot (Z+45°)=	9.688185 7
Log tan S=	9.518236 ✓
Sum=log tan ε=	9.206421 3
ε	9°-08'-15.9" 16.0
S	18°-15-07.2 ✓

This is computed as a check on 3 pt. Prob. Assateague L. H., Chincoteague Water Tower, Wildcat

(sign +)

(Tan ε+)		(Tan ε−)
S+ε=angle ABP	27°-23'-23.1" 2	S−ε=angle ABP
S−ε=angle ACP	09-06-51.3 2	S+ε=angle ACP

BPA	69°-16'-20.6 ✓	APC	162°-06'-04.7 ✓	PCB	36°-06'-50.3 4
ABP	27-23-23.1 2	PCA	09-06-51.3 2	CBP	15-15-35.7 0
PAB	83-20-16.3 2	CAP	08-47-04.8 1	BPC	128-37-34.7 ✓

180-00-00.1

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—0912

Comp by JDJ
✓ " JDJ

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

11--9121

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
	2-3						3.7[3]47661 ✓
	1 No. Five	69° 16' 20.6" ✓					0.029061 ✓
	2 East Gable	83 - 20 - 16.8 ✓					9.997057 ✓
	3 Chin. Water Tower	27 - 23 - 23.X ✓					9.662796[7]
	1-3						3.7[6]83779 ✓
	1-2						3.429518[9]
	2-3						3.886154 ✓
	1 No. Five	128° 37' 34.7" ✓					0.107219 ✓
	2 Water Tower	15 - 15 - 35.X ✓					9.420278 ✓
	3 Wildcat 1909	36 - 06 - 50.3 ✓					9.770405 ✓
	1-3						3.413651 ✓
	1-2						3.763778 ✓
	2-3						Comp by JCM ✓ J.S.J.
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

Fourth Order

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 Assateague Lt. Ho. to 3 Chin. Water Tower	141	57	14.6
2d ∠	Chin. Water Tower & No. Five	+ 70	30	05.3
α	2 Assateague Lt. Ho to 1 No. Five	212	27	19.9
Δα		+	01	21.8
		180	00	00.0
α′	1 No. Five to 2 Assateague Lt. Ho.	32	28	41.7 +0.1
	First Angle of Triangle	29	50	35.5

		°	′	″
α	3 Chin. Water Tower to 2 Assateague Lt. Ho	321	56	27.1
3d ∠	Assateague Lt Ho & No Five	− 79	39	19.2
α	3 Chin. Water Tower to 1 No. Five	242	17	07.9
Δα		+	02	09.4
		180	00	00.0
α′	1 No. Five to 3 Chin. Water Tower	62	19	17.3

	°	′	″			°	′	″
φ	37	54	39.80	2 Assateague Lt. Ho.	λ	75	21	22.99
Δφ	+	02	45.73		Δλ	−	02	13.13
φ′	37	57	25.53	1 No. Five	λ′	75	19	09.86

	°	′	″			°	′	″
φ	37	55	58.04	3 Chin. Water Tower	λ	75	22	40.31
Δφ	+	01	27.49		Δλ	−	03	30.45
φ′	37	57	25.53	1 No. Five	λ′	75	19	09.86

	Logarithms	Values in seconds
s	3.782215	
Cos α	9.926227 n	
B	8.511009	
h	2.219436	1st term − 165.75
s²	7.5644	
Sin² α	9.4595	
C	1.2961	
	8.3200	2d term + 0.02
h³		
D		
		3d term + −
		−Δφ − 165.73

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	56	02.7		
s				3.782215	
Sin α				9.729687 n	
A′				8.509171	
Sec φ′				0.103214	
Δλ				2.124287	− 133.13
Sin ½(φ+φ′)				9.788701	
−Δα				1.912988	− 81.84

	Logarithms	Values in seconds
s	3.763682	
Cos α	9.667514 n	
B	8.511008	
h	1.942204	1st term − 87.54
s²	7.5274	
Sin² α	9.8942	
C	1.2965	
	8.7181	2d term + 0.05
h³		
D		
		3d term + −
		−Δφ − 87.49

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	56	41.8		
s				3.763682	
Sin α				9.947079 n	
A′				8.509171	
Sec φ′				0.103214	
Δλ				2.323146	− 210.45
Sin ½(φ+φ′)				9.788807	
−Δα				2.111952	− 129.41

Comp by MBM

11—9362 U. S. GOVERNMENT PRINTING OFFICE, 1929

Chkd by JEW

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 24-A
Rev. Oct., 1932

Fourth Order

LIST OF DIRECTIONS

6238b

APR 2 1935

62386

Station Temp. Banner No. Six State Virginia Acc. No.

Chief of party H. A. Seran Date 10/9/34 Computed by JEW

Observer J. E. Waugh, jr. Instrument 7" Berger No. 255 Checked by F.S.T.

11—9503

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction*	Corrected direction with zero initial	Adjusted direction*
	° ′ ″	″	″	° ′ ″	″
Wildcat, 1909	0 00 00.00			0 00 00.00	
Boathouse on Beach, East Gable, 1902	134 15 39.3 ✓				
Assateague Light House	178 05 35.0 ✓				
Chincoteague Water Tower, 1933	208 38 24.3 ✓				

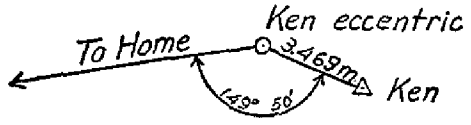
* These columns are for office use and should be left blank in the field.

Station: Ken | *State:* Maryland

Chief of party: C. V. H. | *Date:* 1917 | *Computed by:* O. P. S.

Observer: C. V. H. | *Instrument:* No. 168 | *Checked by:* W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ′ ″	′ ″	″	° ′ ″	′ ″
Chevy	0 00 00.00	− 7.31		0 00 00.00	
Tank west of △ Dulce	29 03 37.0	−1 09.8		29 02 34.5	
Ken (center), 3.469 meters	176 42				
Forest Glen standpipe	313 24 53.0	+3 01.2		313 28 01.5	
Home	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole	352 17 20.8	+ 5.7		352 17 33.8	
Reno	357 28 48.63	− 1.16		357 28 54.78	
Reference mark, 16.32 m	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial 0° 00′ 00.″ 00, and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

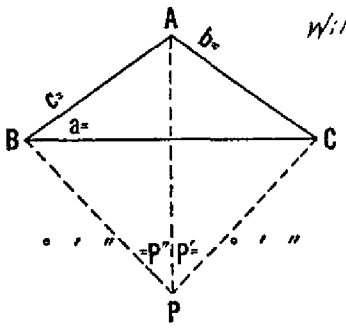
It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

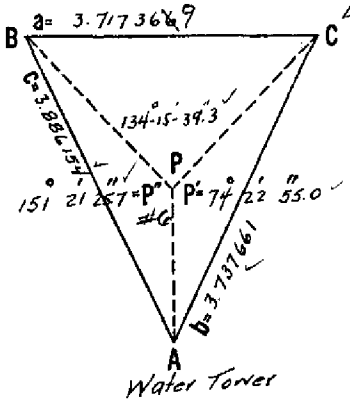
Fourth Order

COMPUTATION OF THREE-POINT PROBLEM

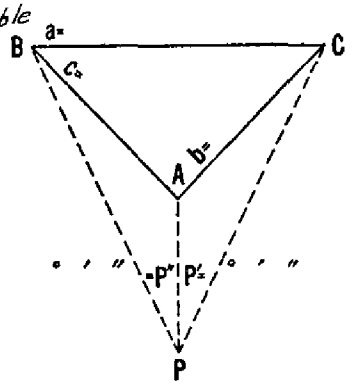
Case 1



Case 2



Case 3



Cases 1 and 2		Case 3	
P'	74°-22'-55.0" ✓	P'	
P"	151-21-25.7 ✓	P"	
A	42-38-58.2 ✓		
		Sum	
Sum	268-21-18.9 ✓	A	
½ Sum	134-11-39.4 ✓		
		A − sum	
S = 180° − ½ sum =	45-48-20.6 ✓	S = ½ (A − sum) =	

Log c =	3.886154 ✓
Log sin P' =	9.983661 ✓
Colog b =	6.262339 ✓
Colog sin P" =	0.319349 ✓
Sum = log tan Z =	0.771503 ✓

This is computed as a check on fix: Water Tank, Wildcat, Light House.

Z =	70°-31'-37.3 ✓
Z + 45° =	115-31-37.3 ✓
Log cot (Z + 45°) =	9.679 023 ✓
Log tan S =	0.012 216 ✓
Sum = log tan ε =	9.691 239 ✓ (sign ✓)
ε	26°-09'-33.3 ✓
S	45-48-20.6 ✓

(Tan ε +)		(Tan ε −)	
S + ε = angle ABP		19°-38'-47.3 ✓	S − ε = angle ABP
S − ε = angle ACP		71-57-53.9 ✓	S + ε = angle ACP

BPA	151°-21'-25.7 ✓	APC	74°-22'-55.0 ✓	PCB	20°-09'-26.3 ✓
ABP	19-38-47.3 ✓	PCA	71-57-53.9 ✓	CBP	25-34-54.3 ✓
PAB	08-59-47.0 ✓	CAP	33-39-11.1 ✓	BPC	134°-15'-39.3 ✓
					59.9

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—9912

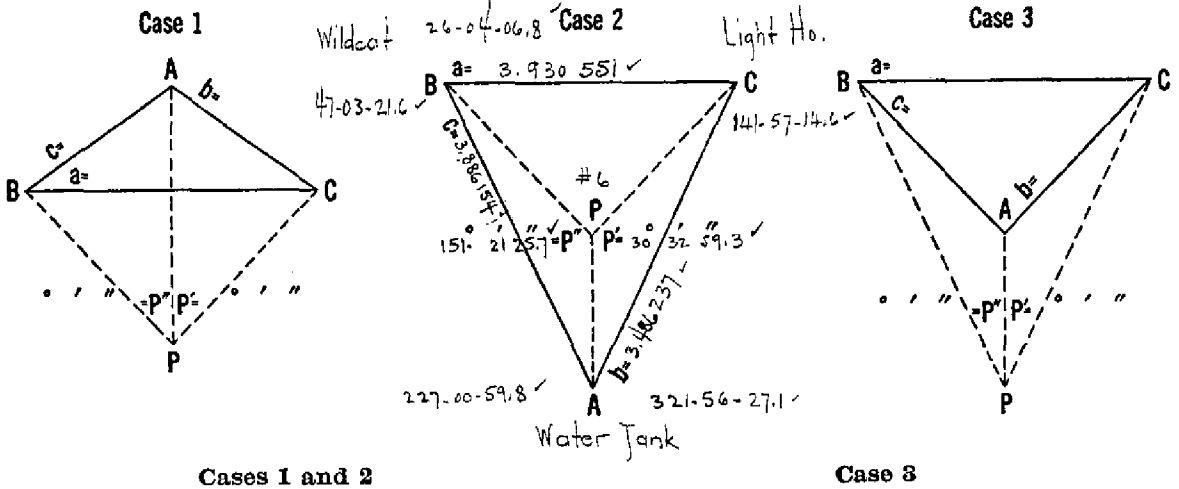
Comp by JSJ
✓ J.S.J.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 655
Ed. Sept., 1929

#6

Fourth Order

COMPUTATION OF THREE-POINT PROBLEM



Cases 1 and 2				Case 3			
P'	30	32	59.3 ✓	P'			
P"	151	21	25.7 ✓	P"			
A	94	55	27.3 ✓				
				Sum			
Sum	276	49	52.3 ✓	A			
½ Sum	138	24	56.2 ✓				
				A − sum			
S = 180° − ½ sum =	41	35	03.8 ✓	S = ½ (A − sum) =			

Log c =	3.886	154	✓
Log sin P' =	9.706	109	✓
Colog b =	6.513	763	✓
Colog sin P" =	0.319	349	✓
Sum = log tan Z =	10.425	375	✓
Z =	69	25	05.5 ✓
Z + 45° =	114	25	05.5 ✓
Log cot (Z + 45°) =	9.657	059	✓ n
Log tan S =	9.948	097	✓
Sum = log tan ε =	9.605	156	✓ (sign − ✓)
ε	21	56	33.4 ✓
S	41	35	03.8 ✓

(Tan ε +)		(Tan ε −)
S + ε = angle ABP	19-38-30.4 ✓	S − ε = angle ABP
S − ε = angle ACP	63-31-37.2 ✓	S + ε = angle ACP

BPA	151-21-25.7 ✓	APC	30-32-59.3 ✓	PCB	00-33-40.7 ✓
ABP	19-38-30.4 ✓	PCA	63-31-37.2 ✓	CBP	01-20-44.4 ✓
PAB	09-00-03.9 ✓	CAP	85-55-23.5 ✓	BPC	178-05-35.0 ✓
	180-00-00.0		180-00-00.0		180-00-00.1

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98–100)

U. S. GOVERNMENT PRINTING OFFICE: 1929
11—0912

Comp by J.S.T.
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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

Fourth Order

COMPUTATION OF TRIANGLES

State: VIRGINIA

11—9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
		From 3-pt. fix: Water Tank, Wildcat, & Light House					
	2-3						3.486 237 /
	1 No. Six	30° 32' 59.3 /					0.293 891 /
	2 Assateague Lt. Ho.	63 - 31 - 37.2 /					9.951 893 /
	3 Chin. Water Tower	85 - 55 - 23.5 /					9.998 900 /
	1-3						3.732 021 /
	1-2						3.779 028 /
	2-3						3.886 154 /
	1 No. Six	151° 21' 25.7 /					0.319 349 /
	2 Chin. Water Tower	09 - 00 - 03.9 /					9.194 384 /
	3 Wildcat, 1909	19 - 38 - 30.4 /					9.526 518 /
	1-3						3.999 887 /
	1-2						3.732 021 /
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						Comp by JEW / by F.S.J.
	2-3						Copy by JEW " " F.S.J.
	1						
	2						
	3						
	1-3						
	1-2						

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 25
Ed. Jan., 1929

Fourth Order **COMPUTATION OF TRIANGLES**

State: VIRGINIA

11—9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
		From 3-pt. fix: Water Tank, Wildcat, E. Gable					
	2-3						3.737661
	1 No. Six Boathouse on Beach	74° 22' 35.0"					0.016339
	2 E. Gable, 1902	71- 57-53.9					9.978120
	3 Chin. Water Tower	33- 39 - 11.1					9.743638
	1-3						3.732120
	1-2						3.497638
	2-3						3.717366
	1 No. Six	134° 15' 39.3"					0.144985
	2 Wildcat, 1909 Boathouse on Beach	25- 34-54.3					9.635281
	3 E. Gable, 1902	20- 09- 26.3					9.537371
	1-3						3.497635
	1-2						3.399668
	2-3						
	1						
	2						
	3						
	1-3						
	1-2						
	2-3						
	1						
	2						
	3						
	1-3						Comp by JEM
	1-2						✓ J.S.J.

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

Fourth Order

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

		°	′	″
α	2 Assateague Lt. Ho. to 3 Chin. Water Tower	141	57	14.6
2d ∠	Chin. Water Tower & No. Six	+ 63	31	37.2
α	2 Assateague Lt. Ho to 1 No. Six	205	28	51.8
Δα		+	01	05.1
		180	00	00.0
α′	1 No. Six to 2 Assateague Lt. Ho.	25	29	56.9
		30	32	59.3

FIRST ANGLE OF TRIANGLE

	°	′	″			°	′	″
φ	37	54	39.80	2 Assateague Lt. Ho	λ	75	21	22.99
Δφ	+	02	56.02		Δλ	-	01	45.95
φ′	37	57	35.82	1 No. Six	λ′	75	19	37.04

	Logarithms	Values in seconds
s	3.779028	
Cos α	9.955557	
B	8.511009	
h	2.245594	1st term - 176.03
s²	7.5580	
Sin²α	9.2674	
C	1.2961	
	8.1215	2d term + 0.01
h³		
D		3d term +
		−Δφ - 176.02

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	56	07.8		
s				3.779028	
Sin α				9.633683	
A′				8.509170	
Sec φ′				0.103231	
Δλ				2.025112	- 105.95
Sin½(φ+φ′)				9.788716	
−Δα				1.813828	- 65.14

		°	′	″
α	3 Chin. Water Tower to 2 Assateague Lt. Ho.	321	56	27.1
3d ∠	Assateague Lt. Ho. & No. Six	- 85	55	23.5
α	3 Chin. Water Tower to 1 No. Six	236	01	03.6
Δα		+	01	52.7
		180	00	00.0
α′	1 No. Six to 3 Chin. Water Tower	56	02	56.3

	°	′	″			°	′	″
φ	37	55	58.04	3 Chin. Water Tower	λ	75	22	40.31
Δφ	+	01	37.77		Δλ	-	03	03.27
φ′	37	57	35.81	1 No. Six	λ′	75	19	37.04

	Logarithms	Values in seconds
s	3.732021	
Cos α	9.747363	
B	8.511008	
h	1.990392	1st term - 97.81
s²	7.4640	
Sin²α	9.8373	
C	1.2965	
	8.5978	2d term + 0.04
h³		
D		3d term +
		−Δφ - 97.77

	°	′	″	Logarithms	Values in seconds
½(φ+φ′)	37	56	46.9		
s				3.732021	
Sin α				9.918665	
A′				8.509170	
Sec φ′				0.103231	
Δλ				2.263087	- 183.27
Sin½(φ+φ′)				9.788821	
−Δα				2.051908	- 112.70

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