CHAMBERS CO. RLD. SK. # 28

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MAP – Galveston Bay Coordinate Survey Detail, middle portion.

Copy of Howe & Wise Map, Triangulative System.

Report by Humble Oil & Ref. Co. – Re State Submerged Area Tracts. May 6, 1949.

Filed for information contained

counter 44097

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HUMBLE OIL & REFINING COMPANY
PRODUCTION DEPARTMENT
CIVIL ENGINEERING DIVISION
POST OFFICE BOX 2180
HOUSTON 1, TEXAS

S. W. OBERG
CHIEF ENGINEER
O. E. YOUNG
H. N. STAMPER
ASST. CHIEF ENGINEERS

May 4, 1949

Mr. Bascom Giles, Commissioner,
General Land Office,
Austin, Texas.

Dear Mr. Giles:

In reply to your letter of March 26, 1949 enclosing a sketch and computations pertaining to the location of state sections in Galveston and Trinity Bays, we attach copy of letter, dated April 20, 1949, from our Gulf Coast Division Civil Engineer and a white print of the Galveston-Trinity Bay area, prepared by Howe and Wise, dated January 21, 1936. We believe the attached letter and map are self-explanatory and answer the question you raised as to the correct location of the state sections in this area.

Please advise if we can be of any further assistance to you.

Yours very truly,

HUMBLE OIL & REFINING COMPANY

O. E. Young

O. E. Young

WHW:ol
Attachments

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MAY 6 1949

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April 20, 1949

State Subdivision in
Trinity and Galveston Bays,
Chambers County, Texas
File 3-1

Mr. S. W. Oberg:

Attention of Mr. O. E. Young

Replying to your letter of request of March 29 and returning your letter and calculation sheets you received from the Commissioner of the General Land Office pertaining to the apparent discrepancies in the position of Point P-2 of the above caption, we find as follows:

On November 19,1940 we recovered and occupied Point P-2, being a 2-inch iron pipe with a mashed top, and referenced in by a 1-1/4 inch iron pipe 5.40 varas due north, both pipes being located on the westerly side of southwest pass of Trinity River. Point P-2 was set by Mr. W. O. Work, County Surveyor of Chambers County for the origin of the Trinity Bay Sections. Mr. Work filed field notes and a sketch covering the location of P-2 with the General Land Office on April 3, 1935. Work tied in P-2 by transit traverse from the triangulation station "Anahuac Eccentric" being a point on the roof of the Court House in Anahuac which was destroyed by fire on May 15, 1935.

We triangulated and computed the location of Point P-2 from the U.S.C.& G. triangulation stations "Barrow" and "Scherer". Plane coordinates were computed for P-2 and also for all U.S.C.& G. triangulation stations around the periphery of Trinity and Galveston Bays, using the formulas as outlined in the U. S. Department of Commerce, Coast & Geodetic Survey, Special Publication No. 71 (Humble File No. 412) titled "Relation between Plane Rectangular Coordinates and Geographic Positions" by Walter F. Reynolds. The degree of accuracy using this method being one part in 100,000 for a distance of 18.6 miles, which is the approximate distance from Red Bluff to Point P-2.

In rechecking the location of Point P-2, we have used Lambert Coordinates computed from triangulation station "Barrow" which is X-3,357,602.56: Y-725,636.02. (South Central Zone).

Mr. Curtis Hale of the General Land Office has computed the Lambert Coordinates of P-2 based on Mr. Work's transit traverse line from triangulation station "Anahuac Eccentric". Mr. Hale's position of P-2 being 3.38 feet north and 9.18 feet east of our position, which, in our opinion is probably due to the difference in the degree of accuracy of the methods used in locating Point P-2.

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T2

Herein we wish to call your attention to the attached copy of Howe & Wise statement dated January 22, 1936 and also to their map also attached, dated January 21, 1936, titled "Triangulation System of Galveston Bay Tidal Areas - Location of Triangulation Points Reduced to Plane Coordinates with Smiths Point as Origin". Both the statement and map are on file in the General Land Office. As indicated by the title of this map, all calculated bearings and distances by Howe and Wise as shown on their map are based on true meridian through Smiths Point.

Our original calculations for the Galveston Bay Subdivisions were based on true meridian through "Red Bluff" and for the Trinity Bay Subdivision on true meridian through Point P-2. Both points being points of origin for the respective subdivisions as was prescribed and set out by the General Land Office.

We find that the true meridians through Smiths Point and Red Bluff converge by 0°06'26.6". Also the true meridians through Point P-2 and through "Red Bluff" converge by 0°07'45".

Your attention is called to Mr. Hale's calculation sheet, wherein he sets up the calculated course and distance from Red Bluff to Point P-2, using Howe & Wise's true bearing between both points as shown on their map of N. 55° 21' 52" E. This bearing is based on the meridian at Smiths Point, whose θ is 2°04'29". Mr. Hale subtracted the "Red Bluff" θ of 1°58'05" from the above bearing instead of the Smiths Point θ. This difference in grid bearing and applying the distance to the "Red Bluff" Lambert Coordinates, results in a difference in the Lambert Coordinates at Point P-2 of 109.4 feet in the X and 145.9 feet in the Y Coordinates when compared to the Coordinates he obtained by using Work's meander tie line from "Anahuac Eccentric".

We have shown in red on the copy of Howe & Wise map, the connected lines of the Galveston Bay Sections with that of the Trinity Bay Sections, together with the true relation between the limits of both subdivisions.

We also show in red on this map the true bearing and distances between various U.S.C.& G.S. Triangulation Stations based on true meridian at "Red Bluff" Howe & Wise bearings and distances as shown are based on true meridian through "Smith Point".

In conclusion, we wish to point out that the true bearing and distance as was originally computed by Humble's triangulation as set out by Special Publication No. 71, between "Red Bluff" and Point P-2, using the true meridian at Red Bluff, being N. 55°15'26" E. 101,429.34 feet is the same bearing as computed by using the Lambert Coordinate differences between both points. The distance as computed by Lambert is 28.40 feet shorter, which is due to the variance in the degree of accuracy between the two methods of computation. The Lambert projection being 1 part in 10,000 and the triangulation 1 part in 100,000.

We also wish to point out that our original calculations of both the Galveston

Bay and Trinity Bay Subdivisions, together with the computed connections between the sections of each as is shown in the lower corner of Howe and Wise map, are correct.

C. W. DeLancey

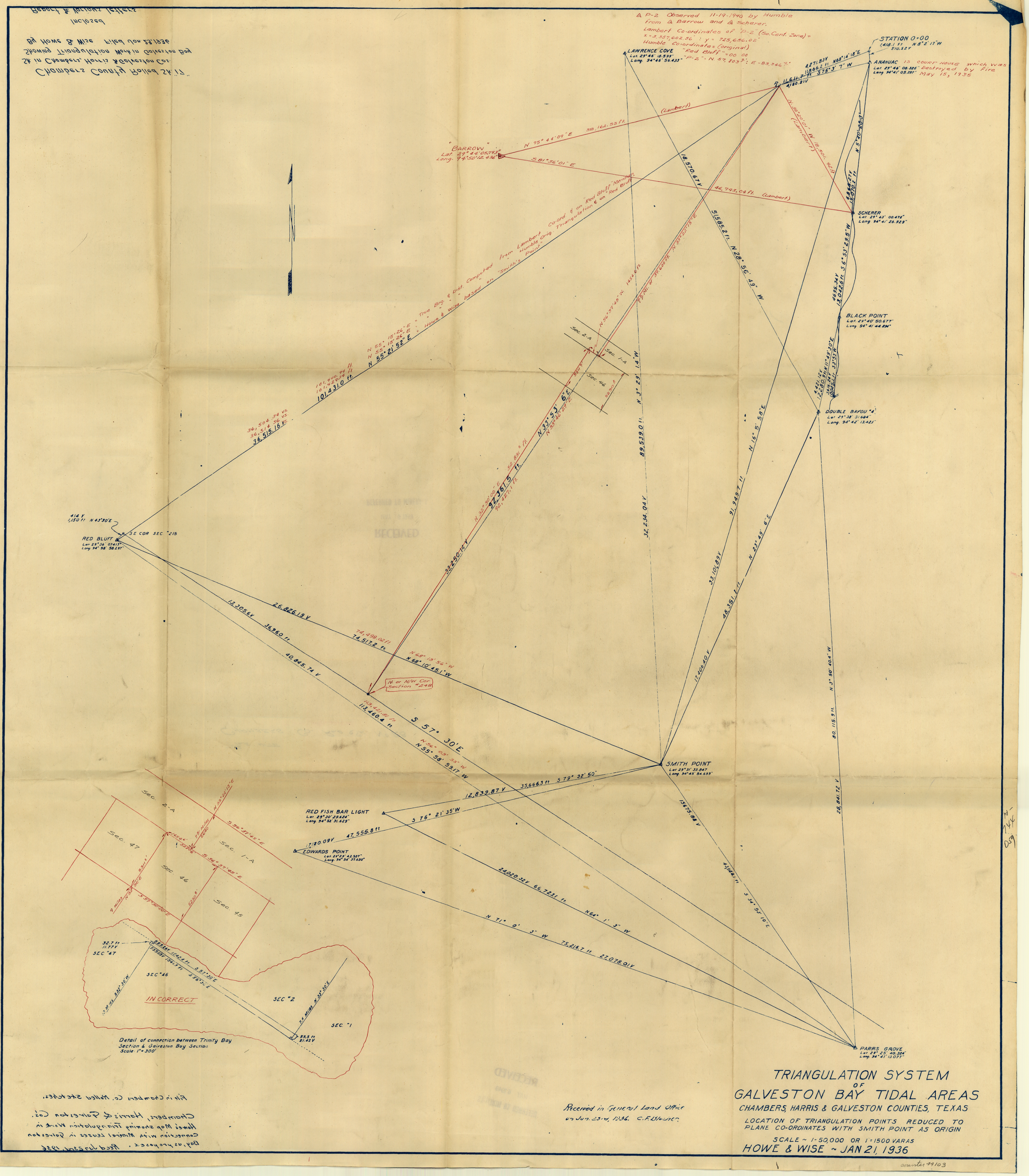
By J. E. O.

Division Civil Engineer

CJF/eg
Attach.

cc: Mr. M. C. Rowold
Mr. A. D. Hunter

counter 44101 T4



TRIANGULATION SYSTEM
OF
GALVESTON BAY TIDAL AREAS

CHAMBERS, HARRIS & GALVESTON COUNTIES, TEXAS

LOCATION OF TRIANGULATION POINTS REDUCED TO
PLANE CO-ORDINATES WITH SMITH POINT AS ORIGIN

SCALE ~ 1-50,000 OR 1" = 1500 VARAS

HOWE & WISE ~ JAN 21, 1936

Received in General Land Office
on Jun. 23rd, 1936. C. F. Blucher.

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5280 101,200

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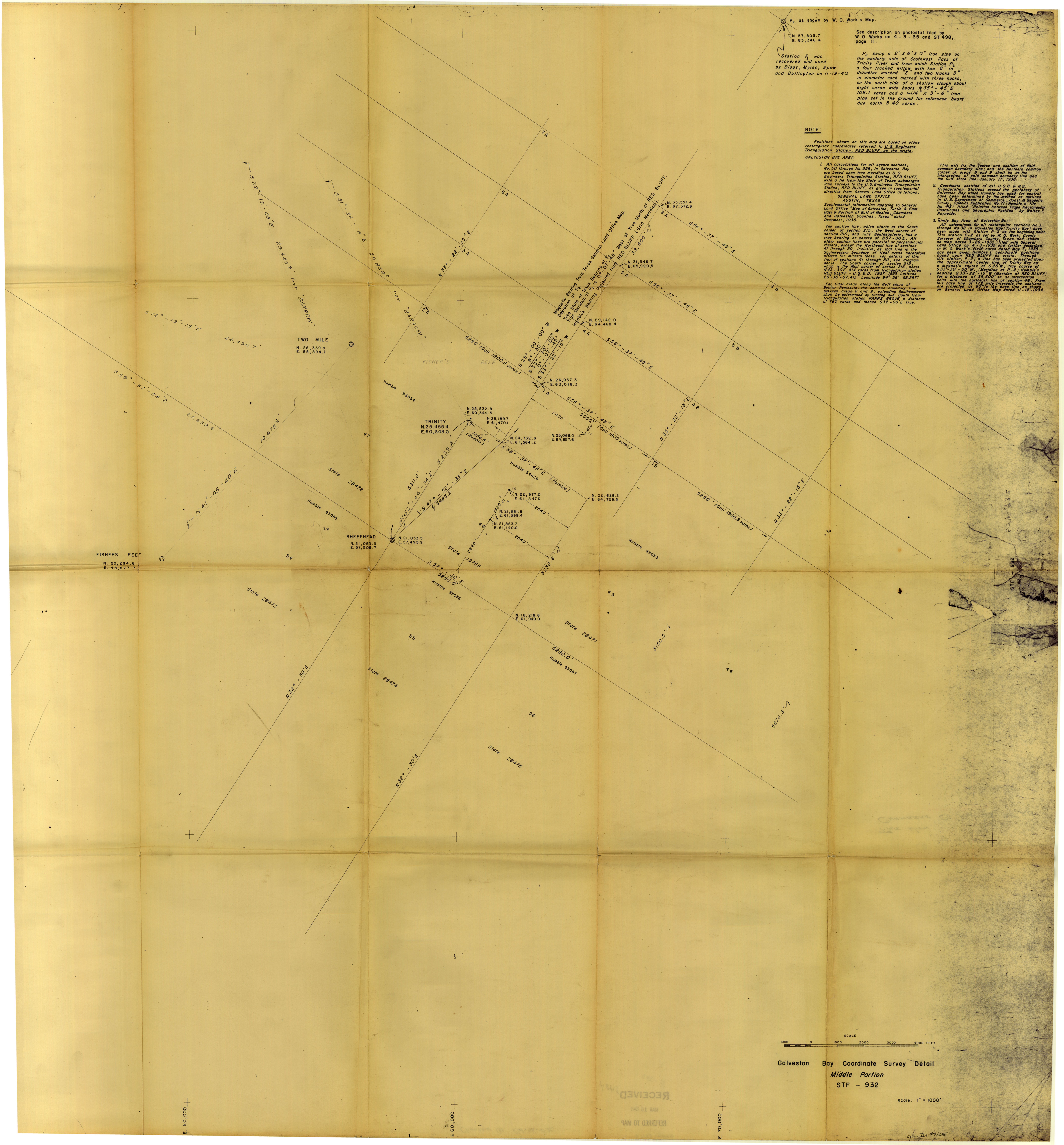
Chambers County Rolled Sk. 17
Sk in Chambers, Harris & Galveston Cos.
Showing Triangulation Work in Galveston Bay
By Howe & Wise Filed Jan. 28 1936

Inclosed
Report & Various letters



Station P₂ was recovered and used by Biggs, Myres, Spaw and Bullington on 11-19-40.

See description on photostat filed by W. O. Works on 4 - 3 - 35 and ST 498, page 11.

P_2 being a 2" X 6' X 0" iron pipe on the westerly side of Southwest Pass of Trinity River and from which Station P_2 a four trunked willow with two 6" in diameter marked "Z" and two trunks 3" in diameter each marked with three hacks, on the north side of a shallow slough about eight varas wide bears N 35° - 45'E 109.1 varas and a 1-1/4" X 3'-6" iron pipe set in the ground for reference bears due north 5.40 varas.

NOTE:

Positions shown on this map are based on plane rectangular coordinates referred to U. S. Engineers Triangulation Station, RED BLUFF, as the origin.

GALVESTON BAY AREA

1. *All calculations for all square sections, No. 50 through No. 358, in Galveston Bay are based upon true meridian at U. S. Engineers Triangulation Station, RED BLUFF, with a tie from the State of Texas submerged land surveys to the U. S. Engineers Triangulation Station, RED BLUFF, as given in supplemental directive from General Land Office as follows:*

   GENERAL LAND OFFICE
   AUSTIN, TEXAS

   Supplemental information applying to General Land Office "Map of Galveston, Turtle & East Bays & Portion of Gulf of Mexico, Chambers and Galveston Counties, Texas" dated December, 1935.

   The section line, which starts at the South corner of section 215, the West corner of section 216, and runs Southeasterly, has a true bearing or course of S57-30E. All other section lines are parallel or perpendicular thereto, except the Northeast line of sections 41 through 50, inclusive, as that line is the Southwestern boundary of tidal areas heretofore offered for mineral lease. For details of this tier of sections 41 through 50, see diagram above. The South corner of section 215, which is the West corner of section 216, bears N43-30E 414 varas from triangulation station RED BLUFF - U. S. E. D. 1927-1933 Latitude 29°-36'-07.413" Longitude 94°-58'-58.297".

   For tidal areas along the Gulf shore of Bolivar Peninsula, the common boundary line between areas 8 and 9, extending Southeastward shall be determined by running due South from triangulation station PARRS GROVE a distance of 780 varas and thence S32-00'E true.

   This will fix the course and position of said common boundary line; and the Northern common corner of areas 8 and 9 shall be at the intersection of said common boundary line and the Gulf shore line. January 17, 1936.

2. *Coordinate position of all U.S.C. & G.S. Triangulation Stations around the periphery of Galveston Bay which Humble has used for control have been determined by the method as outlined in U. S. Department of Commerce, Coast & Geodetic Survey, Special Publication No. 71 (Humble's file No. 412) titled "Relation between Plane Rectangular Coordinates and Geographic Position" by Walter F. Reynolds.*

3. *Trinity Bay Area of Galveston Bay:*

   All calculations for all rectangular sections No. 1 through No. 32 in Galveston Bay (Trinity Bay) have been made with Station P-2 as the beginning point. This station P-2 as set by W. O. Work, County Surveyor of Chambers County, Texas and shown on map dated 3-26-1935, filed with General Land Office on 4-3-1935 and further described in W. O. Work's field notes dated May 7, 1935 has been given Humble's coordinate positions based upon RED BLUFF as origin. Through this station, P-2, a line has been projected down the approximate center line of Trinity Bay on a magnetic course of S 25 W, true course of S 33°-30'-00" W. (Meridian at P-2) Humble's bearing S 33°-22'-15" W (Meridan at RED BLUFF) for a distance of 39,600' to an intersection point with the northeast line of section 46. From this base line at 1/2 mile intervals the sections are projected at 90° to the base line as shown on General Land Office Map dated 11-12-1934.

Galveston Bay Coordinate Survey Detail

Middle Portion

STF - 932

Scale: 1" = 1000'

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