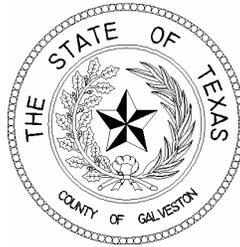


APPENDIX 1

**METES AND BOUNDS DESCRIPTIONS SUPPORTING
DESCRIPTION OF DUNE PROTECTION LINE
ON BOLIVAR PENINSULA**

GALVESTON COUNTY

DUNE PROTECTION AND BEACH ACCESS PLAN



**METES AND BOUNDS DESCRIPTION
OF DUNE PROTECTION LINE
BOLIVAR PENINSULA
GALVESTON COUNTY, TEXAS**

Being the dune protection line near the southwest end of Bolivar Peninsula extending from Magnolia Lane southwesterly and said dune protection line being more particularly described by metes and bounds as follows:

Beginning at the northeast end of the herein described dune, protection line, said beginning point having a State Plane Coordinate of N 13,721,753.72, E 3,336,333.29, NAD'83, Texas South Central Zone in U.S. feet, and said beginning point being on Magnolia Lane and labeled point #1 on the attached drawing;

Thence, S 46° 10' 50" W, 427.94 feet, to a corner of this dune protection line being point #2 and having a coordinate of N 13,721,457.42, E 3,336,024.52;

Thence, N 38° 45' 00" W, 88.21 feet, to a corner of this dune protection line being point #3 and having a coordinate of N 13,721,526.21, E 3,335,969.31;

Thence, S 40° 16' 56" W, 3393.38 feet, to a corner of this dune protection line being point #4 and having a coordinate of N 13,718,937.50, E 3,333,775.31;

Thence, S 35° 35' 03" W, 2414.76 feet, to a corner of this dune protection line being point #5 and having a coordinate of N 13,716,973.67, E 3,332,370.16;

Thence, S 30° 52' 54" W, 879.31 feet, to a turning point on this dune protection line being point #6 and having a coordinate of N 13,716,219.02, E 3,331,918.84;

Thence, S 39° 34' 31" W, 996.97 feet, to a turning point on this dune protection line being point #7 and having a coordinate of N 13,715,450.57, E 3,331,283.68;

Thence, S 0° 07' 47" E, 362.46 feet, to a turning point on this dune protection line being point #8 and having a coordinate of N 13,715,088.11, E 3,331,284.50;

Thence, S 28° 43' 27" W, 232.67 feet, to a turning point on this dune protection line being point #9 and having a coordinate of N 13,714,884.07, E 3,331,172.68;

Thence, S 28° 52' 36" W, 955.24 feet, to a turning point on this dune protection line being point #10 and having a coordinate of N 13,714,047.60, E 3,330,711.39;

Thence, S 24° 34' 26" W, 2077.14 feet, to a turning point on this dune protection line being point #11 and having a coordinate of N 13,712,158.59, E 3,329,847.56;

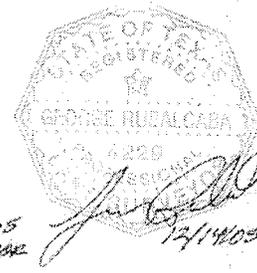
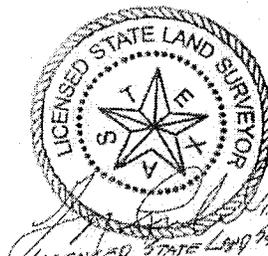
Thence, S 36° 59' 32" W, 457.33 feet, to a turning point on this dune protection line being point #12 and having a coordinate of N 13,711,793.31, E 3,329,572.38;

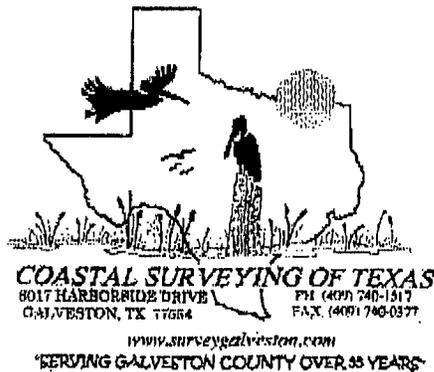
Thence, S 7° 15' 14" W, 279.41 feet, to a turning point on this dune protection line being point #13 and having a coordinate of N 13,711,516.14, E 3,329,537.10;

Thence, S 20° 48' 35" W, 1208.71 feet, to a turning point on this dune protection line being point #14 and having a coordinate of N 13,710,386.28, E 3,329,107.69;

Thence, S 9° 23' 59" W, 1586.57 feet, to the southwest end point of this dune protection line being point #15, said end point having a State Plane Coordinate of N 13,708,821.01, E 3,328,848.57 and the herein described dune protection line measuring 15,360.10 linear feet.

Note: Bearings are Grid Bearings.





Being part of the dune protection line near the southwest end of Bolivar Peninsula, Galveston County, Texas, and being more particularly described by metes and bounds as follows:

BEGINNING at Pt. #15 of the previously described dune protection line as described by George Rubalcaba, RPLS LSLs of Shiner Moseley and Associates, File No. J200.50034, said beginning point having State Plane Coordinates of N 13,708,821.01, E 3,328,848.57, NAD'83, Texas South Central Zone in U.S. feet;

THENCE S 40°35'37" W, a distance of 3621.67 feet to the end of the sand covered beach without vegetation, and a set ½" I. Rod with (TXSC Coordinates) of N 13,706,070.91, E 3,326,491.99;

THENCE N 53°00'22" W, a distance of 3823.12 feet to a set ½ " I. Rod 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico with (TXSC Coordinates) of N 13,708,371.39, E 3,323,438.46;

THENCE S 54°14' 32" W, along the said line 200 feet landward of the Southerly extent of Vegetation in the Gulf of Mexico, a distance of 2274.65 feet to a point in the Northerly extension of the centerline of the North Jetty with (TXSC Coordinates) of N 13,707,042.17, E 3,321,592.59 and being N 45°20'43" W, a distance of 129.39 feet from a brass monument in the North end of the North Jetty and S 43°56'18" W, a distance of 11,152.42 feet from NGS Monument "Peter".

Sidney Bouse, RPLS 5287 LSLs

GALVESTON COUNTY DUNE PROTECTION LINE.dwg

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 6.82

1 National Geodetic Survey, Retrieval Date = SEPTEMBER 5, 2003

AW5786 *****

AW5786 DESIGNATION - PETER
 AW5786 PID - AW5786
 AW5786 STATE/COUNTY- TX/GALVESTON
 AW5786 USGS QUAD - FLAKE (1994)

AW5786
 AW5786 *CURRENT SURVEY CONTROL

AW5786*	NAD 83(1993)-	29 23 32.64072(N)	094 43 31.54213(W)	ADJUSTED
AW5786*	NAVD 88	- 2.2 (meters)	7. (feet)	VERTCON
AW5786	LAPLACE CORR-	0.42 (seconds)		DEFLEC99
AW5786	GEOID HEIGHT-	-26.60 (meters)		GEOID99

AW5786
 AW5786 HORZ ORDER - SECOND
 AW5786

AW5786.The horizontal coordinates were established by classical geodetic methods and adjusted by the National Geodetic Survey in February 1996.

AW5786.The NAVD 88 height was computed by applying the VERTCON shift value to the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)

AW5786.The Laplace correction was computed from DEFLEC99 derived deflections.

AW5786.The geoid height was determined by GEOID99.

AW5786;	North	East	Units	Scale	Converg.
AW5786;SPC TXSC	- 4,180,366.692	1,014,777.861	MT	0.99986375	+2 05 39.0
AW5786;UTM 15	- 3,252,699.006	332,568.834	MT	0.99994591	-0 50 49.3

AW5786:	Primary Azimuth Mark	Grid Az
AW5786:SPC TXSC	- TRAVIS 1933 1974	224 13 03.7
AW5786:UTM 15	- TRAVIS 1933 1974	227 09 32.0

AW5786	PID	Reference Object	Distance	Geod. Az
AW5786				ddmmss.s
AW5786	CV9269	PETER RM 1	22.150 METERS	09328
AW5786	AW5766	SOUTH JETTY LIGHT	APPROX. 7.8 KM	1560211.8
AW5786	AW5787	P USE 1933	23.418 METERS	15944
AW5786	AW5777	GALVESTON BAY ENT CHAN FR LT	APPROX. 4.3 KM	1672924.6
AW5786	AW5770	GALVESTON BAY ENT CHAN RG R LT	APPROX. 3.6 KM	1812341.5
AW5786	AW5769	BOLIVAR ROADS OUTER RNG F LT	APPROX. 3.8 KM	1880735.5
AW5786	AW5893	GALVESTON MUNICIPAL TANK	APPROX. 9.9 KM	2081115.1
AW5786	AW5768	GALVESTON ENT N SIDE RNG R BCN	APPROX. 3.3 KM	2244326.8
AW5786	AW1339	TRAVIS 1933 1974	APPROX. 4.2 KM	2261842.7
AW5786	AW5901	BOLIVAR POINT LIGHTHOUSE USE	APPROX. 4.9 KM	2345043.7

AW5786
 AW5786
 AW5786 SUPERSEDED SURVEY CONTROL

APPENDIX 1

DATASHEETS

AW5786 NAD 83(1986)- 29 23 32.65645(N) 094 43 31.52272(W) AD() 2
 AW5786 NAD 27 - 29 23 31.81076(N) 094 43 30.82353(W) AD() 2
 AW5786 NGVD 29 - 2.2 (m) 7. (f) VERT ANG
 AW5786

AW5786.Superseded values are not recommended for survey control.
 AW5786.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AW5786.See file dsdata.txt to determine how the superseded data were derived.
 AW5786

AW5786 U.S. NATIONAL GRID SPATIAL ADDRESS: 15RUN3256952699(NAD 83)

AW5786_MARKER: DS = TRIANGULATION STATION DISK

AW5786_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AW5786

AW5786	HISTORY	- Date	Condition	Report By
AW5786	HISTORY	- 1963	MONUMENTED	CGS
AW5786	HISTORY	- 1964	GOOD	CGS
AW5786	HISTORY	- 1966	GOOD	LOCENG
AW5786	HISTORY	- 1976	GOOD	NGS
AW5786	HISTORY	- 1979	GOOD	NGS
AW5786	HISTORY	- 20010430	GOOD	USPSQD
AW5786	HISTORY	- 20020708	GOOD	USPSQD

AW5786

AW5786

STATION DESCRIPTION

AW5786

AW5786'DESCRIBED BY COAST AND GEODETIC SURVEY 1963 (RWT)

AW5786'THE STATION IS LOCATED ON BOLIVAR PENINSULA, ABOUT 3-1/2
 AW5786'MILES NORTHEAST OF THE BOLIVAR POINT FERRY SLIP, ABOUT 0.2
 AW5786'MILE SOUTH OF STATE HIGHWAY 87 AND APPROXIMATELY 0.2 MILE
 AW5786'NORTH OF THE GULF OF MEXICO, AT A HYDRO TOWER CONSTRUCTED
 AW5786'OVER P (USE) 1900.

AW5786'

AW5786'TO REACH THE STATION FROM THE FERRY SLIP AT PORT BOLIVAR,
 AW5786'GO NORTHEAST ON STATE HIGHWAY 87 FOR 3.5 MILES TO A CROSSROAD
 AW5786'(AT BOLIVAR GARBAGE DUMP), TURN RIGHT AND GO SOUTH FOR 0.2
 AW5786'MILE TO A LOW RIDGE ON THE LEFT WHICH RUNS NORTHEAST THROUGH
 AW5786'A PASTURE TO A STEEL HYDRO TOWER, TURN LEFT ACROSS A SHALLOW
 AW5786'DITCH AND GO ABOUT 0.2 MILE TO THE STATION AND HYDRO TOWER
 AW5786'AS DESCRIBED.

AW5786'

AW5786'THE STATION IS ON PROPERTY OWNED BY MR. JOHNSON WHO LIVES
 AW5786'NORTHEAST ALONG STATE HIGHWAY 87, IN THE FIRST HOUSE ON THE
 AW5786'SOUTH SIDE OF THE ROAD.

AW5786'

AW5786'THE STATION MARK IS A STANDARD DISK SET IN A 12X12 INCH SQUARE
 AW5786'CONCRETE MONUMENT WHICH PROJECTS ABOUT 1 INCH AND STAMPED
 AW5786'PETER 1963. THE MARK IS 5.7 FEET NORTHEAST OF THE WITNESS
 AW5786'POST. 76 FEET NORTH OF THE HYDRO TOWER.

AW5786'

AW5786'REFERENCE MARK 1 IS A STANDARD DISK SET IN A 12X12 INCH SQUARE
 AW5786'CONCRETE MONUMENT WHICH IS FLUSH WITH THE GROUND AND STAMPED
 AW5786'PETER NO 1 1963. THE MARK IS 75 FEET SOUTHEAST OF THE WITNESS
 AW5786'POST. 68.6 FEET EAST OF THE EAST LEG OF THE HYDRO TOWER.

AW5786'

AW5786'P (USE) 1900 (REFERENCE MARK 2) IS A SECTION OF RAILROAD
 AW5786'TRACK IMBEDDED IN THE GROUND WHICH HAS A CROSS CHISELED IN
 AW5786'THE TOP. PROJECTS ABOUT 12 INCHES ABOVE THE GROUND AND HAS
 AW5786'A 35 FOOT STEEL TRIPOD IN PLACE OVER THE STATION

AW5786'

AW5786'DISTANCE BETWEEN REFERENCE MARKS 1 AND 2 IS 81.82 FEET. 24.940
 AW5786'METERS. STATION TRAVIS 1933 CAN BE USED AS AN AZIMUTH.

AW5786'

DATASHEETS

AW5786'HEIGHT OF LIGHT ABOVE STATION MARK 1 METERS.

AW5786

AW5786

STATION RECOVERY (1964)

AW5786

AW5786'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1964 (EKM)

AW5786'STATION RECOVERED IN GOOD CONDITION. STATION FITS DESCRIPTION

AW5786'OF P (USE), 1900 EXCEPT MARK IS LOCATED APPROXIMATELY EIGHTY

AW5786'FEET (80 FT 0) NORTHEAST OF THIRTY FIVE (35 FT) FOOT HIGH

AW5786'TRIPOD. SLATTED SIGNAL NO LONGER ON TRIPOD.

AW5786

AW5786

STATION RECOVERY (1966)

AW5786

AW5786'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1966

AW5786'RECOVERED BY J.E. CHANCE AND ASSOC.

AW5786'

AW5786'STATION RECOVERED.

AW5786

AW5786

STATION RECOVERY (1976)

AW5786

AW5786

AW5786'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1976 (WOM)

AW5786'STATION AND BOTH REFERENCE MARKS RECOVERED IN GOOD CONDITION. THE

AW5786'STEEL TOWER MENTIONED IS NOW LYING DOWN.

AW5786'

AW5786'TO REACH THE STATION FROM THE FERRY SLIP AT POINT BOLIVAR, GO

AW5786'NORTHEAST ON STATE HIGHWAY 87 FOR 3.5 MILES TO A CROSSROAD. TURN

AW5786'RIGHT AND GO SOUTH FOR 0.2 MILE TO A WIRE GATE AND DIM TRACK ROAD

AW5786'ON THE LEFT. TURN LEFT THROUGH GATE AND FOLLOW DIM TRACK ROAD NE

AW5786'ALONG SLIGHT RIDGE FOR 0.2 MILE TO THE OLD TOWER AND STATION.

AW5786'

AW5786'STATION MARK IS FLUSH WITH THE GROUND.

AW5786'

AW5786'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--8 MILES NE OF

AW5786'DOWNTOWN GALVESTON.

AW5786

AW5786

STATION RECOVERY (1979)

AW5786

AW5786'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1979 (PBW)

AW5786'STATION MARK, REFERENCE MARK 1 AND REFERENCE MARK 2 (P (USE) 1900)

AW5786'WERE RECOVERED IN GOOD CONDITION.

AW5786'

AW5786'DESCRIPTION BY RWT IN 1963 IS ADEQUATE.

AW5786'

AW5786'DESCRIBED--RAH

AW5786'

AW5786'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--8 MILES NE OF

AW5786'GALVESTON.

AW5786

AW5786

STATION RECOVERY (2001)

AW5786

AW5786'RECOVERY NOTE BY US POWER SQUADRON 2001 (DM)

AW5786'RECOVERED IN GOOD CONDITION.

AW5786

AW5786

STATION RECOVERY (2002)

AW5786

AW5786'RECOVERY NOTE BY US POWER SQUADRON 2002 (DM)

AW5786'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:02

APPENDIX 1