```
Identification_Information:
        Citation:
                Citation_Information:
                        Originator: Mike J. Bartholomew
                        Publication_Date: Unpublished material
                        Publication_Time: Unknown
                        Title: MIRAMAR WASTEWATER RECLAMATION FACILITY
                        Edition: 1.0
        Description:
                Abstract:
                        Miramar Wastewater Reclamation Facility (South side of
                        Pembroke Rd, West of Flamingo Rd.)
                Purpose:
                        To establish elevations on a disc set adjacent to the well
                        and provide the results in NAVD-88 and NGVD-29
                Supplemental_Information: Access to site is gained via gate
        Time_Period_of_Content:
                Time_Period_Information:
                        Range_of_Dates/Times:
                                Beginning_Date: 20040914
                                Ending_Date: 20041014
                Currentness_Reference: Date and Time Range of Field/Office Work
        Status:
                Progress: Complete
                Maintenance_and_Update_Frequency: Unknown
        Spatial_Domain:
                Bounding_Coordinates:
                        West_Bounding_Coordinate: -080°20'12"
                        East_Bounding_Coordinate: -080°19'52"
                        North_Bounding_Coordinate: +25°59'17"
                        South_Bounding_Coordinate: +25°59'24"
        Keywords:
                Theme:
                        Theme_Keyword_Thesaurus: None
                        Theme_Keyword: Well Site
                        Theme_Keyword: Broward
                        Theme_Keyword: Miramar 1,2
                Place:
                        Place_Keyword_Thesaurus: None
                        Place_Keyword: Well Site
                        Place_Keyword: Broward
                        Place_Keyword: Miramar 1,2
                        Place_Keyword: Miramar Wastewater Reclamation Facility
        Access_Constraints: None
        Use_Constraints: None
        Point_of_Contact:
                Contact_Information:
                        Contact_Person_Primary:
                                Contact_Person: Elvie Ebanks
                                Contact_Organization: South Florida Water Management District
                        Contact_Position: Project Manager
                        Contact_Address:
                                Address_Type: mailing and physical address
                                Address: 3301 Gun Club Road
                                City: West Palm Beach
                                State_or_Province: Fl
                                Postal_Code: 33406
                                Country: USA
                        Contact_Voice_Telephone: (561) 753-2400 x4717
                        Contact_Facsimile_Telephone: (561) 791-4093
Data_Quality_Information:
        Attribute_Accuracy:
                Attribute_Accuracy_Report:
                        This Survey was prepared using GPS and Leveling
                        instruments. The horizontal locations of the well and
                        benchmark were performed using GPS.
                        The vertical data was collected using Topcon AT-G3.
                        Coordinates are based on the Florida State Plane
                        Coordinate System, East Zone, NAD 83/90. Elevations
                        based on NAVD-88 and NGVD-29
        Logical_Consistency_Report:
                Horizontal data was established using NGS control point
```

Mike J. Bartholomew
Biscayne Engineering
Purpose
Survey Date
Elvie Ebanks
SFWMD
Equipment Used

AD7080 (ANNA). Vertical data was established using NGS benchmarks AH2270 (I-75-90-C-18) and AH2272 (I-75-V-29). Coordinates are based on the Florida State Plane Coordinate System, East Zone, NAD 83/90. Elevations are based on NAVD-88 and NGVD-29

Project Results

Completeness_Report:

Horizontal location taken at approximate center of well.

MIRAMAR 1

1. Next to BM Miramar-1
Lat. +25°59'33.548"
Long. -080°20'09.068"
N 603574.18
E 874322.72
2. Next to BM Miramar-2
Lat. +25°59'32.861"
Long. -080°19'56.100"
N 603510.81
E 875506.32
New leveled elevations.
New site benchmarks "Miramar-1" and "Miramar-2" are standard S.F.W.M.D. aluminum disks set on top of concrete slabs for monitoring wells.
Miramar 1 6.07' (NAVD-88) and 7.651' (NGVD-29)
Miramar 2 5.92' (NAVD-88) and 7.50' (NGVD-29).
Based on NGS NAVD-88 adjustment of vertical network.
To reach from intersection of SR-824 (Pembroke Rd.) and SR-823 (Flamingo Rd) in Miramar; Go West along the SR-824 (Pembroke Rd) for 1.3 mile; THENCE go South for 0.01mile to the entrance gate of the Miramar Wastewater Treatment Facility.

MIRAMAR 2

Miramar-2
Continue South to station Miramar-2 on the left. Miramar-2 is a standard South Florida Water Management District Aluminum Disk (stamped "Miramar-2") set near the center of a concrete platform for wellheads. Miramar-2 is 26.40 feet East of and 37.40 feet North of the Southwest corner of said platform.
Miramar-1
From said entrance gate, proceed Westerly and Northerly along service road/asphalt areas for approximately 0.25 mile to a concrete platform for wellheads near the Northwest corner of the facility. Station Miramar-1 is a standard South Florida Water Management District Aluminum Disk (stamped "Miramar-1") set near the center of said platform. Miramar-1 is 36.30 feet West of and 25.10 feet North of Southeast corner of said platform.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal

Horizontal_Positional_Accuracy_Report:
The horizontal positions of the discs Miramar 1 and 2 were established using differential GPS. NGS point AD7080 was used as a source of horizontal control.

Quantitative_Horizontal_Positional_Accuracy_Assessment:
Horizontal_Positional_Accuracy_Value: 1 meter
Horizontal_Positional_Accuracy_Explanation: The intended horizontal positional accuracy for this survey is 1 meter

Vertical_Positional_Accuracy:

Level Line

Vertical_Positional_Accuracy_Report:
A level line was run originating on NGS control point AH2270 (I-75-90-c-18) with NAVD-88 elevation, running through "Miramar-1" and "Miramar-2" and terminated on point AH2272 (I-75-V-29) in accordance with Florida Minimum Technical Standards

Quantitative_Vertical_Positional_Accuracy_Assessment:
Vertical_Positional_Accuracy_Value: 0.04
Vertical_Positional_Accuracy_Explanation: A bench level circuit was performed between AH2270 (i75-90-C18) and AH2272 (i-75-V-29), running through Disks Miramar-1 and Miramar-2 in accordance with Florida Minimum Technical Standards (Chapter 61g17-6, FAC). Allowable error is 0.04 feet.

Lineage:

Process_Step:

Process_Description:

```
                        The horizontal work was performed using Ashtech GPS
                        recievers. The vertical work was performed using
                        Topcon AT-G3
                Process_Date: 20040914
                Process_Time: 09000000
Metadata_Reference_Information:
        Metadata_Date: 20041012
        Metadata_Contact:
                Contact_Information:
                        Contact_Person_Primary:
                                Contact_Person: Mike J. Bartholomew
                                Contact_Organization: Biscayne Engineering Company, Inc.
                        Contact_Position: Project Surveyor
                        Contact_Address:
                                Address_Type: mailing and physical address
                                Address: 529 W. Flagler Street
                                City: Miami
                                State_or_Province: Fl
                                Postal_Code: 33130
                                Country: USA
                        Contact_Voice_Telephone: (305) 324-7671
                        Contact_Facsimile_Telephone: (305) 324-0809
                        Contact_Electronic_Mail_Address: mikeb@biscayneengineering.com
                        Hours_of_Service: 8:00 AM to 5:00 PM EST
        Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
        Metadata_Standard_Version: 1.0
        Metadata_Time_Convention: Local time
```

The NGS Data Sheet

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

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.10
1        National Geodetic Survey,   Retrieval Date = DECEMBER 28, 2004
 AH2270 ***********************************************************************
 AH2270  DESIGNATION -  I75 90 C18
 AH2270  PID         -  AH2270
 AH2270  STATE/COUNTY-  FL/BROWARD
 AH2270  USGS QUAD   -  OPA-LOCKA (1988)
 AH2270
 AH2270                         *CURRENT SURVEY CONTROL
 AH2270  ______________________________________________________________________
 AH2270* NAD 83(1986)-  25 59 19.     (N)    080 20 36.     (W)     SCALED
 AH2270* NAVD 88     -          3.597  (meters)      11.80   (feet)  ADJUSTED
 AH2270  ______________________________________________________________________
 AH2270  GEOID HEIGHT-         -25.02  (meters)                      GEOID03
 AH2270  DYNAMIC HT  -           3.591 (meters)      11.78  (feet)  COMP
 AH2270  MODELED GRAV-     979,052.2   (mgal)                        NAVD 88
 AH2270
 AH2270  VERT ORDER  -  SECOND    CLASS II
 AH2270
 AH2270.The horizontal coordinates were scaled from a topographic map and have
 AH2270.an estimated accuracy of +/- 6 seconds.
 AH2270
 AH2270.The orthometric height was determined by differential leveling
 AH2270.and adjusted by the National Geodetic Survey in December 2001.
 AH2270.No vertical observational check was made to the station.
 AH2270
 AH2270.The geoid height was determined by GEOID03.
 AH2270
 AH2270.The dynamic height is computed by dividing the NAVD 88
 AH2270.geopotential number by the normal gravity value computed on the
 AH2270.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AH2270.degrees latitude (g = 980.6199 gals.).
 AH2270
 AH2270.The modeled gravity was interpolated from observed gravity values.
 AH2270
 AH2270;                    North         East     Units  Estimated Accuracy
 AH2270;SPC FL E     -   183,520.      265,750.      MT  (+/- 180 meters Scaled)
 AH2270
 AH2270                          SUPERSEDED SURVEY CONTROL
 AH2270
 AH2270.No superseded survey control is available for this station.
 AH2270
 AH2270_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ657745(NAD 83)
 AH2270_MARKER: DD = SURVEY DISK
 AH2270_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AH2270_STAMPING: I75 90 C18
 AH2270_MARK LOGO: FLDT
 AH2270_MAGNETIC: N = NO MAGNETIC MATERIAL
 AH2270_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AH2270+STABILITY: SURFACE MOTION
 AH2270
 AH2270  HISTORY     - Date     Condition        Report By
 AH2270  HISTORY     - 1990     MONUMENTED       FLDT
```

AH2270
AH2270 STATION DESCRIPTION
AH2270
AH2270'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1990 (CDM)
AH2270'THE STATION IS LOCATED APPROXIMATELY 15.75 MILES (25.35 KM) SOUTHWEST
AH2270'OF FORT LAUDERDALE AND 2 MILES (3.2 KM) NORTH OF THE BROWARD-DADE
AH2270'COUNTY LINE, ALONG INTERSTATE HIGHWAY 75, AT THE NORTHBOUND BRIDGE
AH2270'OVER A CANAL. TO REACH THE STATION FROM THE INTERSECTION OF U.S.
AH2270'HIGHWAY 27 AND INTERSTATE HIGHWAY 75 (ALLIGATOR ALLEY), GO EAST ON
AH2270'INTERSTATE HIGHWAY 75 FOR 6.05 MILES (9.74 KM) TO THE POINT WHERE
AH2270'INTERSTATE HIGHWAY 75 TURNS SOUTH AND INTERSTATE HIGHWAY 595 CONTINUES
AH2270'EAST, CONTINUE SOUTH ON INTERSTATE HIGHWAY 75 FOR 4.25 MILES (6.84 KM)
AH2270'TO THE GRIFFIN ROAD (STATE ROAD 818) OVERPASS, CONTINUE SOUTH ON
AH2270'INTERSTATE HIGHWAY 75 FOR 5.35 MILES (8.61 KM) TO THE NORTHBOUND
AH2270'BRIDGE OVER A CANAL AND THE STATION. IT IS LOCATED 27.3 FEET (8.3 M)
AH2270'NORTHEAST OF THE NORTHEAST CORNER OF THE SOUTHEAST CORNER OF THE NORTH
AH2270'CONCRETE ABUTMENT, 8.5 FEET (2.6 M) NORTHEAST OF A METAL WITNESS POST
AH2270'AND 7.0 FEET (2.1 M) SOUTHEAST OF THE SOUTHEAST EDGE OF THE NORTHBOUND
AH2270'ASPHALT PULLOFF APRON.

*** retrieval complete.
Elapsed Time = 00:00:01

The NGS Data Sheet

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

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.10
1        National Geodetic Survey,   Retrieval Date = DECEMBER 28, 2004
 AH2272 ***********************************************************************
 AH2272  DESIGNATION -  I75 V 29
 AH2272  PID         -  AH2272
 AH2272  STATE/COUNTY-  FL/BROWARD
 AH2272  USGS QUAD   -  OPA-LOCKA (1988)
 AH2272
 AH2272                         *CURRENT SURVEY CONTROL
 AH2272  ______________________________________________________________________
 AH2272* NAD 83(1986)-  25 59 19.     (N)    080 20 36.     (W)     SCALED
 AH2272* NAVD 88     -         4.716  (meters)      15.47   (feet)  ADJUSTED
 AH2272  ______________________________________________________________________
 AH2272  GEOID HEIGHT-         -25.02  (meters)                     GEOID03
 AH2272  DYNAMIC HT  -           4.708 (meters)      15.45  (feet)  COMP
 AH2272  MODELED GRAV-     979,052.2   (mgal)                       NAVD 88
 AH2272
 AH2272  VERT ORDER  -  SECOND    CLASS II
 AH2272
 AH2272.The horizontal coordinates were scaled from a topographic map and have
 AH2272.an estimated accuracy of +/- 6 seconds.
 AH2272
 AH2272.The orthometric height was determined by differential leveling
 AH2272.and adjusted by the National Geodetic Survey in December 2001.
 AH2272.No vertical observational check was made to the station.
 AH2272
 AH2272.The geoid height was determined by GEOID03.
 AH2272
 AH2272.The dynamic height is computed by dividing the NAVD 88
 AH2272.geopotential number by the normal gravity value computed on the
 AH2272.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AH2272.degrees latitude (g = 980.6199 gals.).
 AH2272
 AH2272.The modeled gravity was interpolated from observed gravity values.
 AH2272
 AH2272;                    North         East     Units  Estimated Accuracy
 AH2272;SPC FL E     -   183,520.      265,750.      MT  (+/- 180 meters Scaled)
 AH2272
 AH2272                           SUPERSEDED SURVEY CONTROL
 AH2272
 AH2272.No superseded survey control is available for this station.
 AH2272
 AH2272_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ657745(NAD 83)
 AH2272_MARKER: DD = SURVEY DISK
 AH2272_SETTING: 36 = BRIDGE GUARDRAIL
 AH2272_STAMPING: BM I75 V29
 AH2272_MARK LOGO: FLDT
 AH2272_MAGNETIC: N = NO MAGNETIC MATERIAL
 AH2272_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL
 AH2272
 AH2272  HISTORY     - Date     Condition        Report By
 AH2272  HISTORY     - 1990     MONUMENTED       FLDT
 AH2272
```

AH2272 STATION DESCRIPTION
AH2272
AH2272'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1990 (CDM)
AH2272'THE STATION IS LOCATED APPROXIMATELY 15.75 MILES (25.35 KM) SOUTHWEST
AH2272'OF FORT LAUDERDALE AND 2 MILES (3.2 KM) NORTH OF THE BROWARD-DADE
AH2272'COUNTY LINE, ALONG INTERSTATE HIGHWAY 75, AT THE NORTHBOUND BRIDGE
AH2272'OVER A CANAL. TO REACH THE STATION FROM THE INTERSECTION OF U.S.
AH2272'HIGHWAY 27 AND INTERSTATE HIGHWAY 75 (ALLIGATOR ALLEY), GO EAST ON
AH2272'INTERSTATE HIGHWAY 75 FOR 6.05 MILES (9.74 KM) TO THE POINT WHERE
AH2272'INTERSTATE HIGHWAY 75 TURNS SOUTH AND INTERSTATE HIGHWAY 595 CONTINUES
AH2272'EAST, CONTINUE SOUTH ON INTERSTATE HIGHWAY 75 FOR 4.25 MILES (6.84 KM)
AH2272'TO THE GRIFFIN ROAD (STATE ROAD 818) OVERPASS, CONTINUE SOUTH ON
AH2272'INTERSTATE HIGHWAY 75 FOR 5.35 MILES (8.61 KM) TO THE SOUTH END OF THE
AH2272'NORTHBOUND BRIDGE OVER A CANAL AND THE MARK. IT IS LOCATED 16.6 FEET
AH2272'(5.1 M) NORTH OF THE SOUTHEAST END OF THE EAST CONCRETE GUARDRAIL,
AH2272'12.0 FEET (3.7 M) EAST OF THE EASTERNMOST EDGE OF THE NORTHBOUND LANES
AH2272'AND 0.5 FEET (15.2 CM) SOUTH OF THE POINT WHERE THE ROAD SURFACE MEETS
AH2272'THE BRIDGE SURFACE.

*** retrieval complete.
Elapsed Time = 00:00:00

The NGS Data Sheet

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

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 7.07
1        National Geodetic Survey,   Retrieval Date = OCTOBER 29, 2004
 AD7080
***********************************************************************
 AD7080  DESIGNATION -  ANNA
 AD7080  PID         -  AD7080
 AD7080  STATE/COUNTY-  FL/BROWARD
 AD7080  USGS QUAD   -  FORT LAUDERDALE SOUT (1994)
 AD7080
 AD7080                        *CURRENT SURVEY CONTROL
 AD7080  ______________________________________________________________________
 AD7080* NAD 83(1990)-  26 05 45.87863(N)    080 12 31.92137(W)     ADJUSTED
 AD7080* NAVD 88     -         5.2    (meters)      17.     (feet)  VERTCON
 AD7080  ______________________________________________________________________
 AD7080  LAPLACE CORR-          -3.09  (seconds)                    DEFLEC99
 AD7080  GEOID HEIGHT-         -25.43  (meters)                     GEOID03
 AD7080
 AD7080  HORZ ORDER  -  SECOND
 AD7080
 AD7080.The horizontal coordinates were established by classical geodetic
methods
 AD7080.and adjusted by the National Geodetic Survey in May 1991.
 AD7080
 AD7080.The NAVD 88 height was computed by applying the VERTCON shift value to
 AD7080.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
 AD7080
 AD7080.The Laplace correction was computed from DEFLEC99 derived deflections.
 AD7080
 AD7080.The geoid height was determined by GEOID03.
 AD7080
 AD7080;                  North         East     Units Scale Factor Converg.
 AD7080;SPC FL E     -   195,498.859   279,138.780   MT  1.00001848   +0 20
52.9
 AD7080;UTM  17      - 2,886,564.137   579,111.778   MT  0.99967727   +0 20
52.9
 AD7080
 AD7080!             -  Elev Factor  x  Scale Factor =   Combined Factor
```

```
 AD7080!SPC FL E     -   1.00000318  x   1.00001848  =   1.00002166
 AD7080!UTM  17      -   1.00000318  x   0.99967727  =   0.99968044
 AD7080
 AD7080:                Primary Azimuth Mark                     Grid Az
 AD7080:SPC FL E     -  ANNA AZ MK 1                           020 30 00.2
 AD7080:UTM  17      -  ANNA AZ MK 1                           020 30 00.2
 AD7080
 AD7080|-----------------------------------------------------------------|
 AD7080| PID    Reference Object                  Distance      Geod. Az  |
 AD7080|                                                        dddmmss.s |
 AD7080| AD7099 FT LAUDERDALE S BROWARD CO TK    APPROX. 3.3 KM 0170934.8 |
 AD7080| CW8407 ANNA AZ MK 1                                    0205053.1 |
 AD7080| AD7078 ANNA A PT                         29.804 METERS 09354     |
 AD7080| CW8408 ANNA AZ MK 2                                    1015511.4 |
 AD7080| AD7068 FT LAUDERDALE BROWARD ITV MAST   APPROX. 2.9 KM 2480731.2 |
 AD7080|-----------------------------------------------------------------|
 AD7080
 AD7080                         SUPERSEDED SURVEY CONTROL
 AD7080
 AD7080  NAD 83(1986)-  26 05 45.88165(N)    080 12 31.92715(W) AD(       ) 2
 AD7080  NAD 27      -  26 05 44.56795(N)    080 12 32.75578(W) AD(       ) 2
 AD7080  NGVD 29 (07/19/86)    5.7    (m)           19.     (f) VERT
ANG
 AD7080
 AD7080.Superseded values are not recommended for survey control.
 AD7080.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AD7080.See file dsdata.txt to determine how the superseded data were derived.
 AD7080
 AD7080_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RNJ7911286564(NAD 83)
 AD7080_MARKER: DD = SURVEY DISK
 AD7080_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AD7080
 AD7080  HISTORY     - Date     Condition        Report By
 AD7080  HISTORY     - 1971     MONUMENTED       FL-011
 AD7080  HISTORY     - 1987     GOOD             LOCENG
 AD7080
 AD7080                         STATION DESCRIPTION
 AD7080
 AD7080'DESCRIBED BY BROWARD COUNTY FLORIDA 1971 (NCA)
 AD7080'THE STATION IS ABOUT 4 MILES NORTHWEST OF THE FORT
 AD7080'LAUDERDALE-HOLLYWOOD INTERNATIONAL AIRPORT, 1 MILE SOUTHWEST OF
 AD7080'THE JUNCTION OF U.S. HIGHWAY 441 AND STATE HIGHWAY 82, 3/4 MILE
 AD7080'EAST OF THE SUNSHINE STATE PARKWAY, AND 0.1 MILE EAST OF THE
 AD7080'MEADOWBROOK ELEMENTARY SCHOOL.
 AD7080'
 AD7080'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 441 AND
 AD7080'STATE HIGHWAY 82 (DAVIE BOULEVARD), IN THE WEST EDGE OF FORT
 AD7080'LAUDERDALE, GO SOUTH ON HIGHWAY 441 FOR 0.35 MILE TO A SIDE ROAD
```

AD7080'RIGHT. (SW18 ST.) TURN RIGHT AND GO WEST ON SW 18 STREET FOR
AD7080'0.45 MILE TO A LARGE TRANSFORMER ON THE RIGHT AND A CROSSROAD.
AD7080'(SW 43 WAY) TURN LEFT AND GO SOUTH ON SW 43 WAY FOR 0.05 MILE
AD7080'TO A TRACK ROAD LEFT LEADING TO FORT LAUDERDALE WELL NUMBER
AD7080'16 AND AZIMUTH 1 AS DESCRIBED. CONTINUE SOUTH ON SW 43 WAY
AD7080'FOR 0.25 MILE TO A GRAVEL ROAD LEFT AND STATION AS DESCRIBED.
AD7080'
AD7080'ALL MARKS, WITH THE EXCEPTION OF THE A-POINT, ARE 2-1/2 INCH
AD7080'BROWARD COUNTY ENGINEER DEPARTMENT SURVEY DISKS SET IN ROUND
AD7080'CONCRETE POSTS FLUSH WITH THE GROUND SURFACE.
AD7080'
AD7080'STATION MARK, STAMPED ANNA 1971, IS 142 FEET NORTHWEST OF THE
AD7080'NORTHWEST CORNER OF WELL NUMBER 18, 56 FEET SOUTH OF CENTER OF
AD7080'THE GRAVEL ROAD, 40 FEET EAST OF CENTER OF SW 43 WAY, 18 FEET EAST
AD7080'OF A POWER POLE AND 1.5 FEET WEST OF A BROWARD COUNTY SURVEY
AD7080'WITNESS POST.
AD7080'
AD7080'AZIMUTH 1, STAMPED ANNA AZIMUTH 1 1971, IS 164 FEET EAST OF CENTER
AD7080'OF SW 43 WAY, 11.5 FEET SOUTHWEST OF THE SOUTHEAST CORNER OF WELL
AD7080'NUMBER 16, 11 FEET SOUTHEAST OF THE SOUTHWEST CORNER OF THE WELL
AD7080'AND 1.5 FEET WEST OF A WITNESS POST.
AD7080'
AD7080'AZIMUTH 2, STAMPED ANNA AZIMUTH 2 1971, IS 9 FEET SOUTH OF CENTER
AD7080'OF THE GRAVEL ROAD, 4 FEET WEST OF THE NORTHWEST CORNER OF WELL
AD7080'NUMBER 19 AND 2.5 FEET NORTH OF A WITNESS POST.
AD7080'
AD7080'A-POINT, IS A TACK IN THE TOP OF AN IRON PIPE FILLED WITH
AD7080'CONCRETE SET IN THE TOP OF A ROUND CONCRETE POST FLUSH WITH THE
AD7080'GROUND. IT IS 76.5 FEET NORTHWEST OF WELL NUMBER 18, 53 FEET WEST
AD7080'OF CENTER OF A 4 X 6 FEET CONCRETE FOUNDATION PAINTED RED, MARKED
AD7080'HIGH VOLTAGE, AND 37 FEET SOUTH OF CENTER OF THE GRAVEL ROAD.
AD7080'
AD7080'TO REACH AZIMUTH 2 FROM THE STATION, GO WEST ON THE GRAVEL ROAD
AD7080'FOR 0.15 MILE TO THE END OF GRAVEL, WELL NUMBER 19 AND THE MARK
AD7080'AS DESCRIBED.
AD7080'
AD7080'SEC 13 T 50 S R 41 E
AD7080'
AD7080'HEIGHT OF LIGHT ABOVE STATION MARK 1 METER.
AD7080
AD7080   STATION RECOVERY (1987)
AD7080
AD7080'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1987 (MLM)
AD7080'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:00

ESTABLISH ELEVATIONS

DATE	STA	BS	MEAN	HI	FS	MEAN	ELEV	BM ELEV. NAVD88	NOTES
	NGS BM	7.590							
10/02/04	i-75-90-C18	6.060	*6.06*	17.86				*11.80*	*NAVD88*
	AH2270	4.520							
					6.57				
(FB 2525,	TP#1				4.81	*4.81*	**13.05**		
PG 02-07)					3.05				
		5.930							
	SHAKE	4.405	*4.41*	17.45					
		2.880							
					7.41				
	TP#2				5.79	*5.79*	**11.66**		
					4.17				
		6.370							
	SHAKE	4.215	*4.22*	15.88					
		2.060							
					7.67				
	TP#3				5.26	*5.26*	**10.62**		
					2.84				
		0.502							
	SHAKE	0.311	*0.31*	10.93					
		0.120							
					7.66				
	TP#4				7.37	*7.37*	**3.56**		
					7.08				
		5.860							
	SHAKE	4.870	*4.87*	8.43					
		3.880							
					5.77				
	TP#5				4.26	*4.26*	**4.17**		
					2.75				
		4.540							
	SHAKE	2.685	*2.69*	6.86					
		0.830							
					3.79				
	TP#6				2.26	*2.26*	**4.60**		
					0.73				
		7.840							
	SHAKE	6.733	*6.73*	11.33					
		5.627							
	SET BM				6.32				
	MIRAMAR-1				5.26	*5.26*	***6.07***		*NAVD88*
					4.20				
		5.080							
	SHAKE	4.195	*4.20*	10.27					
		3.310							
					6.59				
	TP#7				4.88	*4.88*	**5.39**		
					3.16				

ESTABLISH ELEVATIONS

DATE	STA	BS	MEAN	HI	FS	MEAN	ELEV	BM ELEV. NAVD88	NOTES
		7.070							
	SHAKE	5.140	*5.14*	10.53					
		3.210							
					6.18				
	TP#8				4.99	*4.99*	**5.55**		
					3.79				
		5.250							
	SHAKE	4.735	*4.74*	10.28					
		4.220							
	SET BM				4.71				
	MIRAMAR-2				4.36	*4.36*	***5.92***		***NAVD88***
					4.01				
		5.915							
	SHAKE	4.680	*4.68*	10.60					
		3.445							
					5.64				
	TP#9				4.10	*4.10*	**6.50**		
					2.56				
		5.750							
	SHAKE	3.930	*3.93*	10.43					
		2.110							
					5.77				
	TP#10				3.82	*3.82*	**6.61**		
					1.87				
		6.050							
	SHAKE	4.560	*4.56*	11.17					
		3.073							
					7.32				
	TP#11				5.69	*5.69*	**5.48**		
					4.06				
		7.280							
	SHAKE	5.255	*5.26*	10.74					
		3.230							
					6.95				
	TP#12				4.88	*4.88*	**5.86**		
					2.80				
		5.070							
	SHAKE	3.895	*3.90*	9.76					
		2.720							
					6.71				
	TP#13				5.12	*5.12*	**4.64**		
					3.53				
		6.875							
	SHAKE	5.240	*5.24*	9.88					
		3.605							
					6.60				
	TP#14				5.05	*5.05*	**4.83**		
					3.50				

ESTABLISH ELEVATIONS

DATE	STA	BS	MEAN	HI	FS	MEAN	ELEV	BM ELEV. NAVD88	NOTES
		6.250							
	SHAKE	4.690	*4.69*	9.52					
		3.130							
					5.86				
	TP#15				4.44	*4.44*	**5.08**		
					3.02				
		12.240							
	SHAKE	11.680	*11.68*	16.76					
		11.120							
					4.58				
	TP#16				3.81	*3.81*	**12.95**		
					3.04				
		6.630							
	SHAKE	4.990	*4.99*	17.94					
		3.350							
10/02/04	NGS BM				4.15				*ERROR*
(FB 2525,	i-75-V-29				2.47	*2.47*	**15.46**	***15.47***	*-0.01*
PG 02-07)	AH2272				0.80			***NAVD88***	

MIRAMAR-1

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking West

MIRAMAR-1

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking North

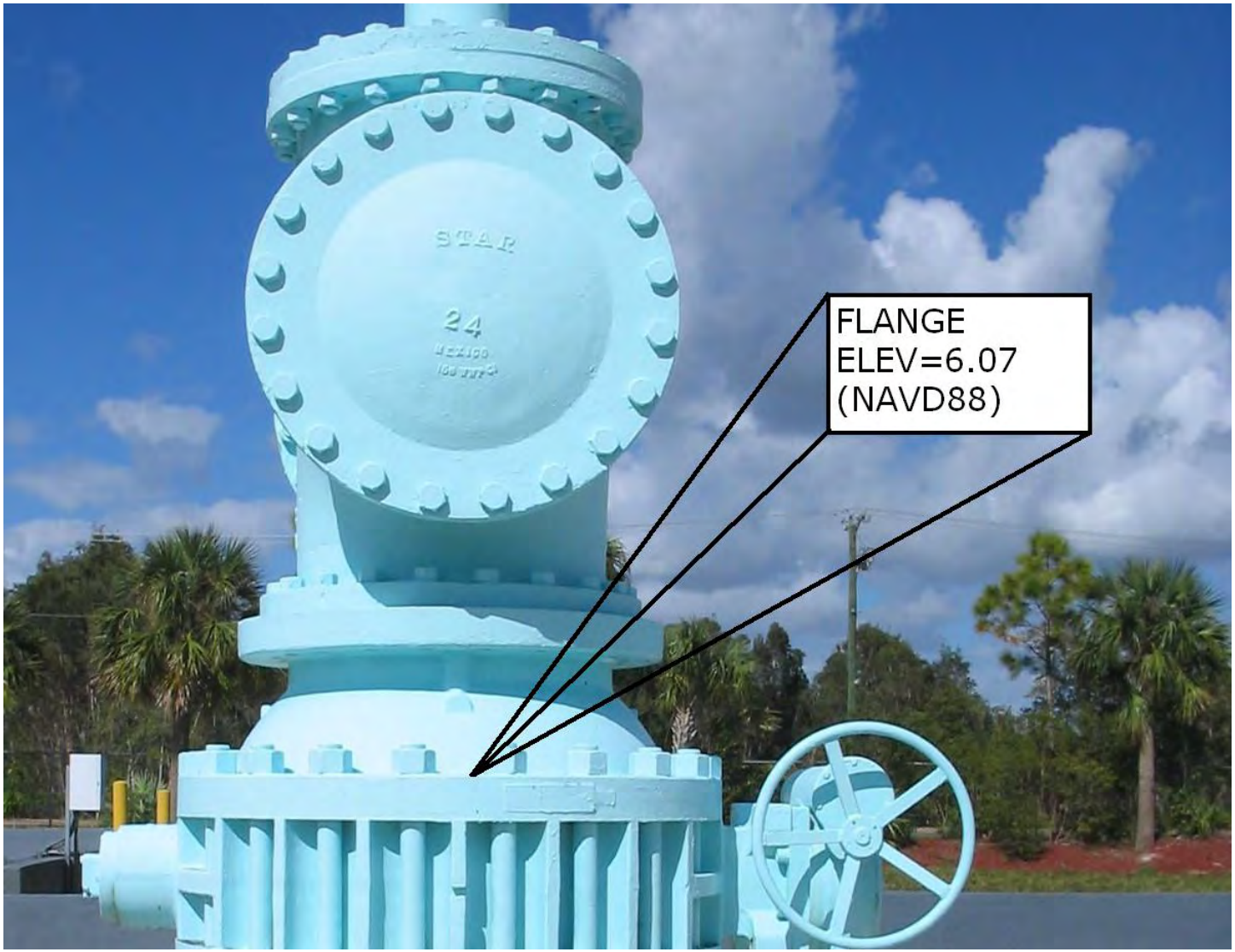
MIRAMAR-1

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: MIRAMAR 1*2004* MARKER

MIRAMAR-1

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking West

MIRAMAR-1



Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Flange Elevation

MIRAMAR-2

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking Northeast

MIRAMAR-2

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking East

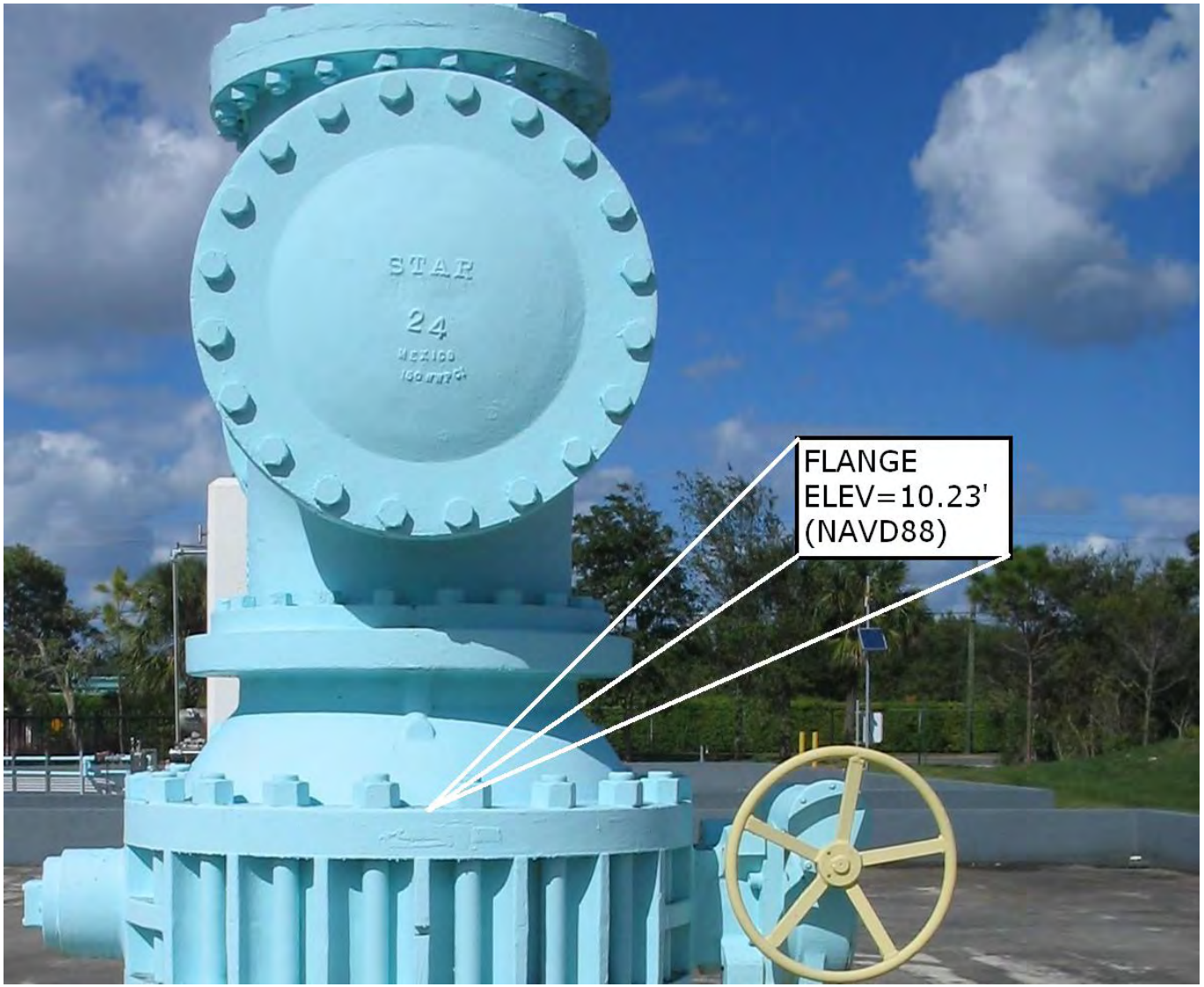
MIRAMAR-2

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Looking North

MIRAMAR-2

Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: MIARAMAR 2*2004* MARKER

MIRAMAR-2



Biscayne Engineering Company, Inc.
Date of Photo: 11-03-04
View: Flange Elevation

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 01/24/05

COUNTY **BROWARD**	**PROJECT** **MIRAMAR WASTEWATER RECLAMATION FACILITY**	**DESIGNATION** **MIRAMAR 1**
SECTION **22**	**TOWNSHIP** **51S**	**RANGE** **40E**
GEOGRAPHIC INDEX OF QUAD **Florida**		
Established by Biscayne Engineering Company, Inc.	**NAME OF QUADRANGLE** **1603**	
SURVEYOR **Mike J. Bartholomew** **DATE** 10 / 02 / 2004	**FIELD BOOK** 2516 **PAGE** 62 2525 **PAGE** 2-7	
HORIZONTAL DATUM: **1927** **1983** **Other**_____ (circle one)	ZONE 0901 (EAST)	
VERTICAL DATUM: MSL **1929** **1988** **Other** _____ (circle one)		
CONTROL ACCURACY: **HORIZONTAL** **1** **2** **3** **SUB-METER** (circle one) **VERTICAL** **1** **2** **3**		
STATE PLANE COORDINATES **MIRAMAR-1** (U.S. Survey feet)	**X=** 874325.885	**Y=** 603570.305
EL.= 6.07' (NAVD-88) **EL=** 7.651' (NGVD-29)		

6.072

LATITUDE **MIRAMAR-1** 25º59'33.51"N LONGITUDE 080º20'09.03"W

CORPSCON 6.0.1 CONVERSION FACTOR (NAVD88 TO NGVD29): +1.578

DESCRIPTION

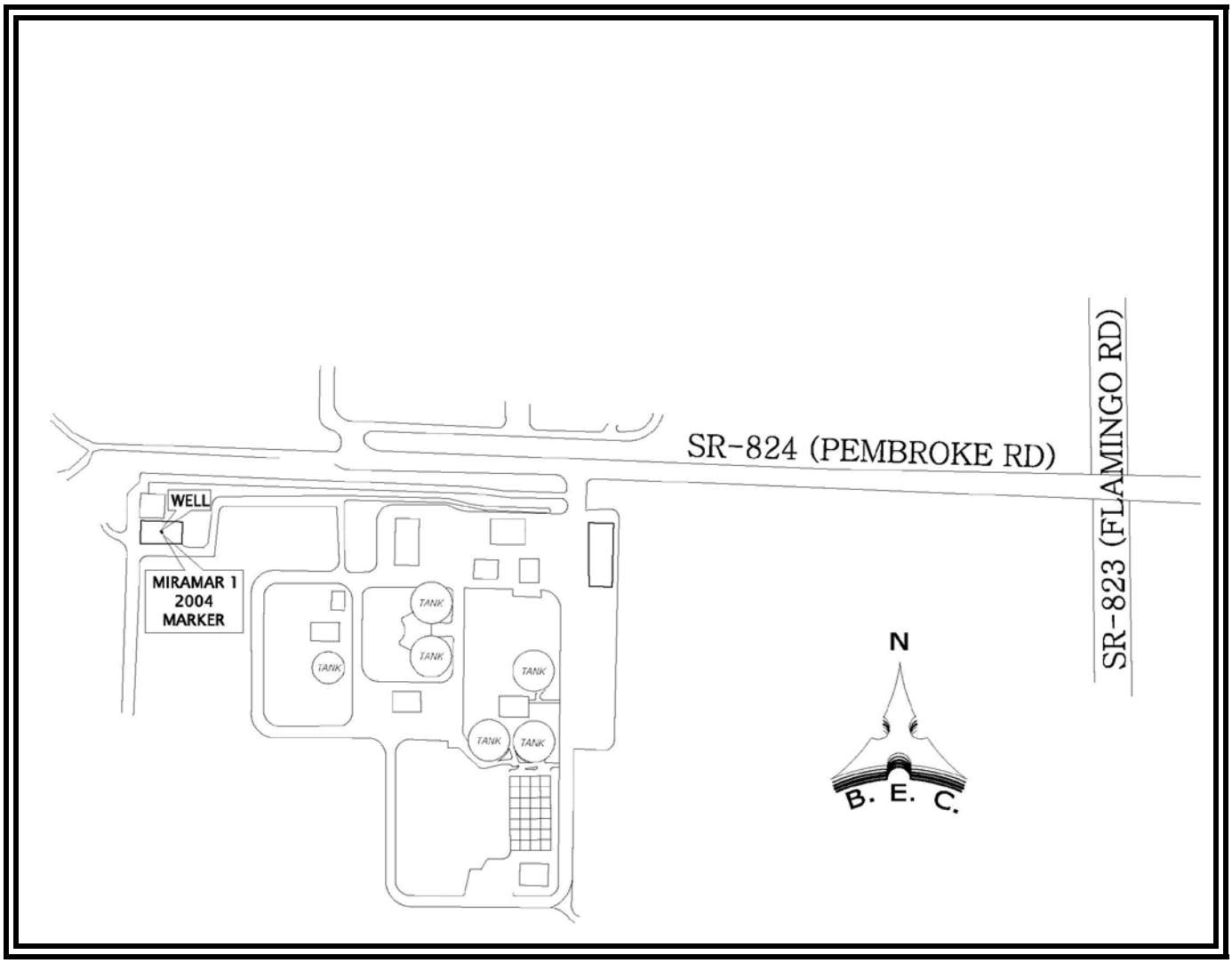
To Reach: From intersection of SR-824 (Pembroke Rd.) and SR-823 (Flamingo Rd) in Miramar; Go West along the SR-824 (Pembroke Rd) for 1.3 mile; THENCE go South for 0.01mile to the entrance gate of the Miramar Wastewater Treatment Facility.

From said entrance gate, proceed Westerly and Northerly along service road/asphalt areas for approximately 0.25 mile to a concrete platform for wellheads near the Northwest corner of the facility. Station Miramar-1 is a standard South Florida Water Management District Aluminum Disk (stamped "Miramar-1") set near the center of said platform. Miramar-1 is 36.30 feet West of and 25.10 feet North of Southeast corner of said platform.

Note: Origin of NAVD-88 elevation for BM Miramar-1 is closed bench level circuit through NGS benchmarks AH2270 and AH2272 using published NAVD-88 values. Origin of NGVD-29 elevation for BM Miramar-1 is conversion of NAVD-88 value using NGS Vertcon (on NGS web site)

SKETCH: SEE PAGE 2

NAVD88 - North American Vertical Datum of 1988
NGVD29- National Geodetic Vertical Datum of 1929
Corpscon 6.0.1 - A U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville Fl.


SR-824 (PEMBROKE RD)
SR-823 (FLAMINGO RD)
WELL
MIRAMAR 1
2004
MARKER
TANK
TANK
TANK
TANK
TANK
TANK
N
B. E. C.


MIRAMAR1
2004
MARKER


SURVEY
MIRAMAR 1
2004
MARKER

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 01/24/05

COUNTY **BROWARD**	**PROJECT** **MIRAMAR WASTEWATER RECLAMATION FACILITY**	**DESIGNATION** **MIRAMAR 2**
SECTION **22**	**TOWNSHIP** **51S**	**RANGE** **40E**
GEOGRAPHIC INDEX OF QUAD **Florida**		
Established by Biscayne Engineering Company, Inc.	**NAME OF QUADRANGLE** **1603**	
SURVEYOR **Mike J. Bartholomew** **DATE** 10 / 02 / 2004	**FIELD BOOK** 2516 **PAGE** 62 2525 **PAGE** 2-7	
HORIZONTAL DATUM: **1927** **1983** **Other**_____ (circle one) ZONE 0901 (EAST)		
VERTICAL DATUM: MSL **1929** **1988** **Other** _____ (circle one)		
CONTROL ACCURACY: **HORIZONTAL** **1 2 3** **SUB-METER** (circle one) **VERTICAL** **1 2 3**		
STATE PLANE COORDINATES **MIRAMAR-2** (U.S. Survey feet)	**X=** 875502.204	**Y=** 603507.929
		EL= 5.92' (NAVD-88) **EL=** 7.50' (NGVD-29)

5.922

MIRAMAR-2 LATITUDE 25º59'32.83"N LONGITUDE 080º19'56.15""W

CORPSCON 6.0.1 CONVERSION FACTOR (NAVD88 TO NGVD29): +1.581

DESCRIPTION

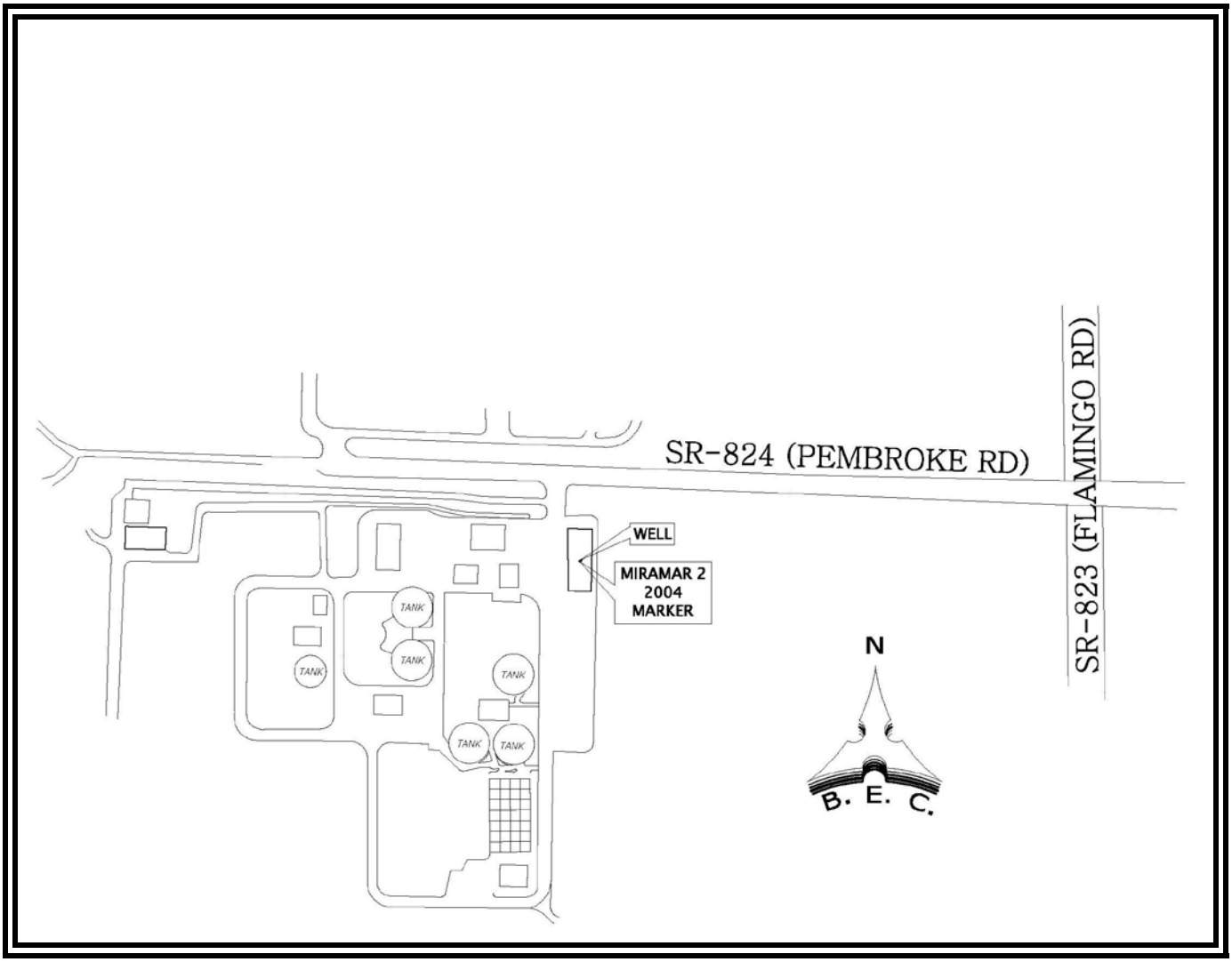
To Reach: From intersection of SR-824 (Pembroke Rd.) and SR-823 (Flamingo Rd) in Miramar; Go West along the SR-824 (Pembroke Rd) for 1.3 mile; THENCE go South for 0.01mile to the entrance gate of the Miramar Wastewater Treatment Facility.

Continue South to station Miramar-2 on the left. Miramar-2 is a standard South Florida Water Management District Aluminum Disk (stamped "Miramar-2") set near the center of a concrete platform for wellheads. Miramar-2 is 26.40 feet East of and 37.40 feet North of the Southwest corner of said platform.

Note: Origin of NAVD-88 elevation for BM Miramar-2 is closed bench level circuit through NGS benchmarks AH2270 and AH2272 using published NAVD-88 values. Origin of NGVD-29 elevation for BM Miramar-2 is conversion of NAVD-88 value using NGS Vertcon (on NGS web site)

SKETCH: SEE PAGE 2

NAVD88 - North American Vertical Datum of 1988
NGVD29- National Geodetic Vertical Datum of 1929
Corpscon 6.0.1 - A U.S. Army Corps of Engineers Engineering Research and Development Center Topographic Engineering Center Alexandria, Virginia Windows-based program to convert coordinates and elevations between datum's using vertcon05.txt and vertcon05.05 files supplied by the U.S. Army Corps of Engineers South Atlantic Division, Jacksonville Fl.


SR-824 (PEMBROKE RD)
SR-823 (FLAMINGO RD)
WELL
MIRAMAR 2
2004
MARKER
TANK
TANK
TANK
TANK
TANK
TANK
N
B. E. C.


MIRAMAR 2
2004
MARKER


FLA. WATER MANAGEMENT DIST.
SURVEY
MIRAMAR 2
2004
MARKER

Office

Project

7 March 2017

INPUT	OUTPUT
Geographic, flhpgn - Florida HPGN	State Plane, flhpgn - Florida HPGN
Vertical - NAVD88, U.S. Feet	0901 - Florida East, U.S. Feet
	Vertical - NGVD29 (Custom), U.S. Feet

MIRAMAR 1

1/2

Latitude:	25 59 33.51	**Northing/Y:**	603570.276
Longitude:	80 20 09.03	**Easting/X:**	874326.232
Elevation/Z:	0	**Elevation/Z:**	1.578
		Convergence:	0 17 27.89481
		Scale Factor:	0.999995751
		Combined Factor:	0.999999605

MIRAMAR 2

2/2

Latitude:	25 59 32.83	**Northing/Y:**	603507.607
Longitude:	80 19 56.15	**Easting/X:**	875501.827
Elevation/Z:	0	**Elevation/Z:**	1.581
		Convergence:	0 17 33.53304
		Scale Factor:	0.999996341
		Combined Factor:	1.000000196

Remark:

Corpscon v6.0.1, U.S. Army Corps of Engineers