

BHI Project No. 20100038.001.01 SRVLCS

Control Surveying Report for



**New Mexico State University
Main Campus**

Whitney Smelser, PS

July 10, 2009



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Introduction:

This control has been established for the Engineering Department of New Mexico State University. The purpose of the control is to provide a primary control network encompassing lands of the university main campus.

RTK GPS was used to establish the control points. At least two (2) observations (180 epochs) were performed using NGS point H 245 with PID CX0669 as the base point. Relative accuracy and precision is determined to be 0.10 US Feet horizontal and vertical or better.

It should be noted that when using the parameters established for this ground modified coordinate system, the coordinates are to be scaled about the projection's origin, **NOT** 0, 0 (See Meta Data).

Certification:

I, Whitney Smelser, New Mexico Professional Surveyor No. 15519, do hereby certify this Control Survey Report was prepared by me or under my direct supervision based on an actual survey on the ground as described herein; that I am responsible for this survey; and that the survey and report meets the minimum standards for surveying in New Mexico.



10 July 2009

Whitney Smelser, NMPS No. 15519

Date

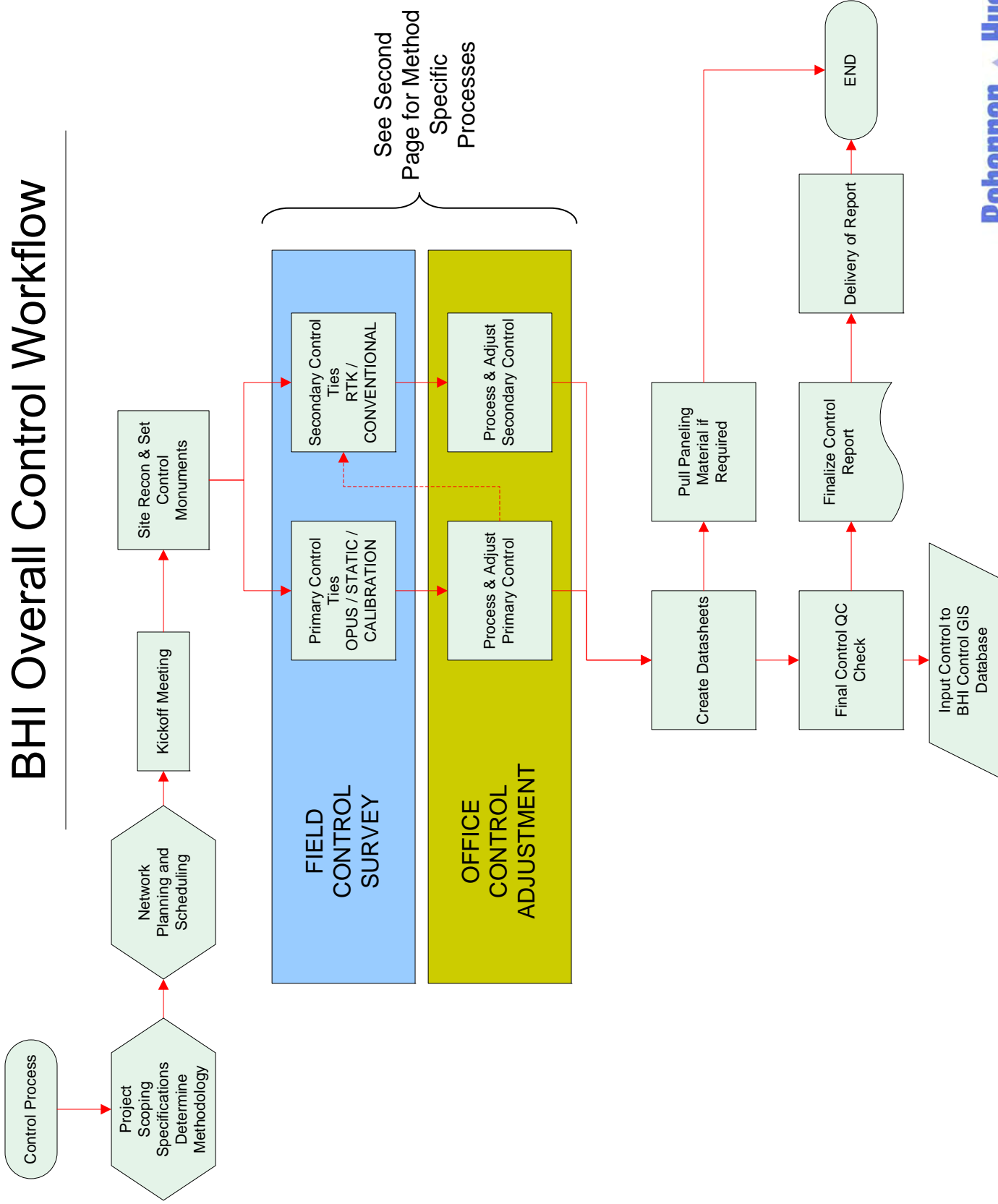


Relative Accuracy Note:

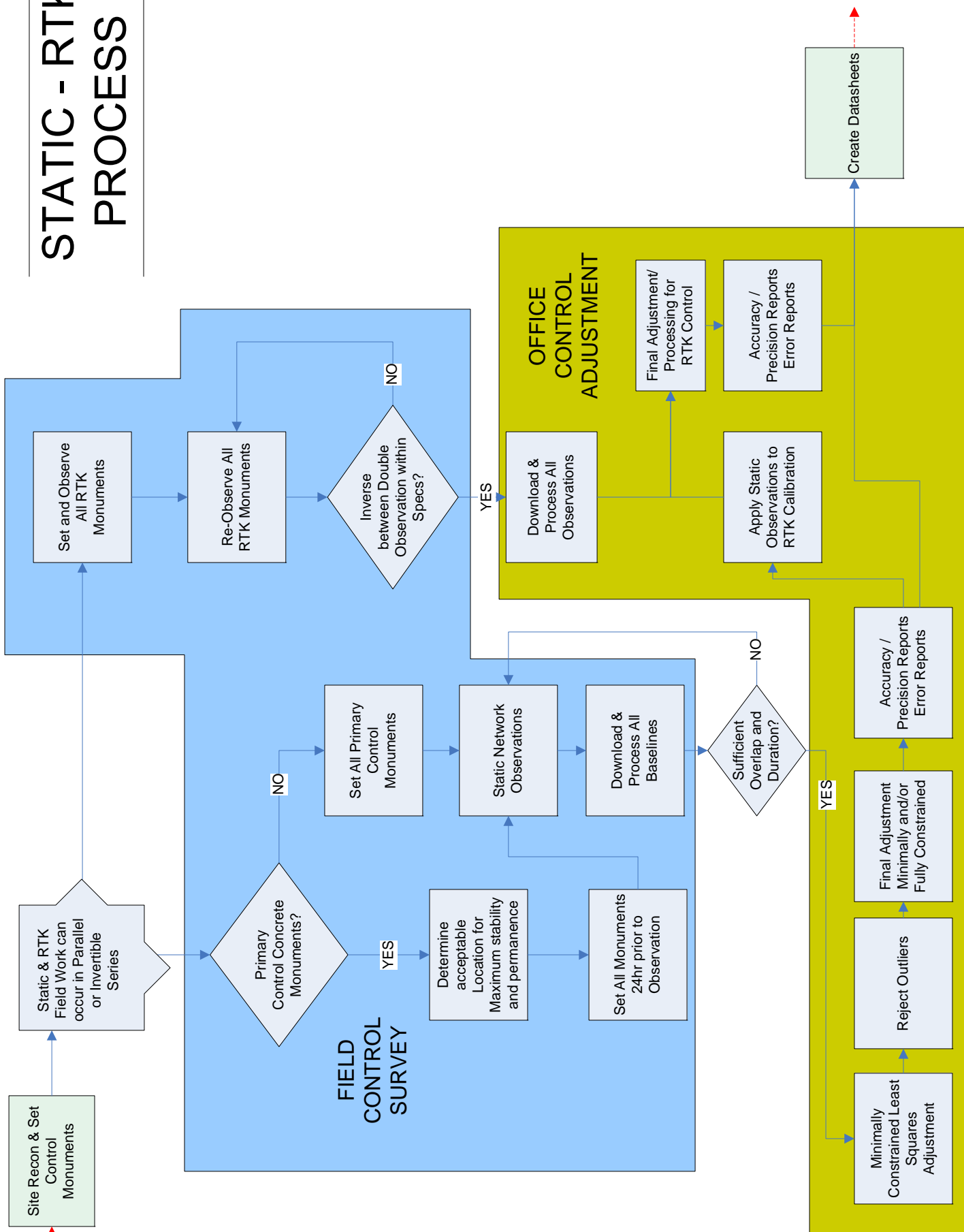
The method for establishing horizontal positions for established control points does not meet the criteria for horizontal positional accuracy classification according to the Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques, August 1, 1989. Network accuracy does not exceed the accuracy of the primary control.

The method for establishing vertical positions for established control points does not meet the criteria for vertical positional accuracy classification according to the Standards and Specifications for Geodetic Control Network, September 1984. Network accuracy does not exceed the accuracy of the primary control.

BHI Overall Control Workflow



STATIC - RTK PROCESS



Project Meta Data:

Bohannon Huston Project: **20100038.001.01**

Units: **US Feet**

Horizontal Datum: **NAD 83 (2007)**

Vertical Datum: **NAVD 88**

Projection: **Transverse Mercator**

State Plane Zone: **New Mexico Central (3002)**

Basis of Bearing: **Grid North**

Project Combined Factor: **0.9997478479
(Computed at H 245)**

Project Origin: **N: 0.00, E: 1640416.67 US FT (N: 0.00, E: 500000.00 M)**

Modification Method Used: **None; State Plane Coordinates scaled about the
project origin**

Field Methodology: **RTK GPS: averaged 2 observations @ 180 epochs**

Equipment Used: **Trimble 4700 base, R8 Rover (Dual Frequency)**

Control Set Date: **April 17, 2009**

Observation Date: **April 18, 2009 & May 20, 2009**

Adjustment/Publication Date: **May 22, 2009**

Primary Control Used: **H 245 with PID CX0669 (Fixed)
Reilly with PID AI5445
See attached NGS Data Sheets**

The NGS Data Sheet

DATABASE = ,PROGRAM = datasheet, VERSION = 7.66
 1 National Geodetic Survey, Retrieval Date = APRIL 7, 2009
 CX0669 *****

CX0669 DESIGNATION - H 245

CX0669 PID - CX0669
 CX0669 STATE/COUNTY- NM/DONA ANA
 CX0669 USGS QUAD - LAS CRUCES (1978)
 CX0669
 CX0669 *CURRENT SURVEY CONTROL
 CX0669
 CX0669* NAD 83(2007)- 32 16 38.78198(N) 106 46 05.09859(W) ADJUSTED
 CX0669* NAVD 88 - 1183.102 (meters) 3881.56 (feet) ADJUSTED
 CX0669
 CX0669 EPOCH DATE - 2002.00
 CX0669 X - -1,557,508.648 (meters) COMP
 CX0669 Y - -5,169,122.511 (meters) COMP
 CX0669 Z - 3,387,101.093 (meters) COMP
 CX0669 LAPLACE CORR- 3.69 (seconds) DEFLEC99
 CX0669 ELLIP HEIGHT- 1159.118 (meters) (02/10/07) ADJUSTED
 CX0669 GEOID HEIGHT- -23.95 (meters) GEOID03
 CX0669 DYNAMIC HT - 1181.347 (meters) 3875.80 (feet) COMP
 CX0669
 CX0669 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
 CX0669 Type PID Designation North East Ellip
 CX0669 -----
 CX0669 NETWORK CX0669 H 245 0.51 0.47 1.63
 CX0669 -----
 CX0669 MODELED GRAV- 979,115.3 (mgal) NAVD 88
 CX0669
 CX0669 VERT ORDER - FIRST CLASS II
 CX0669

CX0669.The horizontal coordinates were established by GPS observations
 CX0669.and adjusted by the National Geodetic Survey in February 2007.
 CX0669
 CX0669.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 CX0669.See [National Readjustment](#) for more information.
 CX0669.The horizontal coordinates are valid at the epoch date displayed above.
 CX0669.The epoch date for horizontal control is a decimal equivalence
 CX0669.of Year/Month/Day.
 CX0669
 CX0669.The orthometric height was determined by differential leveling
 CX0669.and adjusted in June 1991.
 CX0669
 CX0669.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 CX0669
 CX0669.The Laplace correction was computed from DEFLEC99 derived deflections.
 CX0669
 CX0669.The ellipsoidal height was determined by GPS observations
 CX0669.and is referenced to NAD 83.
 CX0669 CX0669.The geoid height was determined by GEOID03.
 CX0669
 CX0669.The dynamic height is computed by dividing the NAVD 88
 CX0669.geopotential number by the normal gravity value computed on the

CX0669.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
CX0669.degrees latitude (g = 980.6199 gals.).
CX0669
CX0669.The modeled gravity was interpolated from observed gravity values.
CX0669
CX0669;
CX0669;SPC NM C - North East Units Scale Factor Converg.
CX0669;SPC NM C - 141,746.825 451,197.294 MT 0.99992936 -0 16 36.0
CX0669;UTM 13 - 465,047.71 1,480,303.12 sFT 0.99992936 -0 16 36.0
CX0669;UTM 13 - 3,572,560.694 333,488.510 MT 0.99994192 -0 56 39.9
CX0669
CX0669! - Elev Factor x Scale Factor = Combined Factor
CX0669!SPC NM C - 0.99981804 x 0.99992936 = 0.99974741
CX0669!UTM 13 - 0.99981804 x 0.99994192 = 0.99975997
CX0669
CX0669 SUPERSEDED SURVEY CONTROL
CX0669
CX0669 ELLIP H (09/28/01) 1159.150 (m) GP() 4 1
CX0669 NAD 83(1992)- 32 16 38.78102(N) 106 46 05.09806(W) AD() 1
CX0669 ELLIP H (12/21/93) 1159.098 (m) GP() 4 1
CX0669 NAD 83(1986)- 32 16 38.78912(N) 106 46 05.09786(W) AD() 1
CX0669 NAVD 88 (02/25/92) 1183.10 (m) 3881.6 (f) LEVELING 3
CX0669 NGVD 29 (??/??/92) 1182.550 (m) 3879.75 (f) ADJ UNCH 1 2
CX0669
CX0669.Superseded values are not recommended for survey control.
CX0669.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
CX0669.[See file dsdata.txt](#) to determine how the superseded data were derived.
CX0669
CX0669_U.S. NATIONAL GRID SPATIAL ADDRESS: 13SCR3348972561(NAD 83)
CX0669_MARKER: DB = BENCH MARK DISK
CX0669_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
CX0669_SP_SET: CONCRETE POST
CX0669_STAMPING: H 245 1952
CX0669_MARK LOGO: CGS
CX0669_PROJECTION: PROJECTING 5 CENTIMETERS
CX0669_MAGNETIC: N = NO MAGNETIC MATERIAL
CX0669_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
CX0669+STABILITY: SURFACE MOTION
CX0669_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
CX0669+SATELLITE: SATELLITE OBSERVATIONS - January 13, 2005
CX0669
CX0669 HISTORY - Date Condition Report By
CX0669 HISTORY - 1952 MONUMENTED CGS
CX0669 HISTORY - 1981 GOOD NGS
CX0669 HISTORY - 19910510 GOOD NM0470
CX0669 HISTORY - 20050113 GOOD NMHD
CX0669 HISTORY - 20080414 GOOD IBWC
CX0669
CX0669 STATION DESCRIPTION
CX0669
CX0669'DESCRIBED BY COAST AND GEODETIC SURVEY 1952
CX0669'IN MESILLA PARK.
CX0669'AT MESILLA PARK, 297 FEET NORTHWEST OF THE WEST CORNER OF THE
CX0669'ATCHISON, TOPEKA AND SANTA FE RAILROAD STATION, 2 POLES NORTHWEST OF
CX0669'MILEPOST 1115, 53 FEET SOUTHWEST OF THE CENTER LINE OF U.S. HIGHWAYS
CX0669'80 AND 85, 54 FEET SOUTHEAST OF THE CENTER LINE OF WEST SIXTH AVENUE,
CX0669'24.5 FEET EAST OF A SWITCH BOX, 35 FEET NORTHEAST OF THE NORTHEAST
CX0669'RAIL OF THE MAIN TRACK, 2.3 FEET NORTHWEST OF A WITNESS POST, SET IN

CX0669'THE TOP OF A CONCRETE POST WHICH PROJECTS 0.5 FOOT ABOVE THE GROUND.
 CX0669
 CX0669 STATION RECOVERY (1981)
 CX0669
 CX0669'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
 CX0669'0.3 KM (0.2 MI) NORTHWEST ALONG STATE HIGHWAY 478 (SOUTH MAIN STREET)
 CX0669'FROM THE POST OFFICE IN MESILLA PARK, 1-1/2 POLES NORTHWEST OF
 CX0669'RAILROAD MILE POST 1115, AT THE INTERSECTION OF CONWAY AVENUE,
 CX0669'90.5 METERS (297.0 FT) NORTHWEST OF THE WEST CORNER OF THE OLD
 CX0669'RAILROAD STATION, 22.2 METERS (73.0 FT) SOUTHWEST OF THE CENTERLINE
 CX0669'OF THE HIGHWAY, 16.5 METERS (54.2 FT) SOUTHEAST OF THE CENTER OF
 CX0669'THE AVENUE, 12.6 METERS (41.2 FT) WEST-NORTHWEST OF A UTILITY POLE
 CX0669'WITH STREET LAMP, 7.5 METERS (24.5 FT) EAST OF A RAILROAD SWITCH
 CX0669'BOX AND 0.3 METER (1.0 FT) SOUTHEAST OF A RAIL BARRIER.
 CX0669'THE MARK IS 0.5 METERS NW FROM A WITNESS POST.
 CX0669'THE MARK IS ABOVE LEVEL WITH THE AVENUE.
 CX0669
 CX0669 STATION RECOVERY (1991)
 CX0669
 CX0669'RECOVERY NOTE BY CITY OF LAS CRUCES NEW MEXICO 1991
 CX0669'THE STATION IS LOCATED 0.3 KM (0.2 MI) NORTHWEST OF MESILLA PARK AT
 CX0669'THE INTERSECTION OF STATE HIGHWAY 478 (SOUTH MAIN ST) AND CONWAY AVE.
 CX0669'IT IS 0.3 KM (0.2 MI) NORTHWEST FROM THE POST OFFICE IN MESILLA PARK,
 CX0669'1-1/2 POLES NORTHWEST OF RAILROAD MILE POST 1115, 90.5 M (296.9 FT)
 CX0669'NORTHWEST OF THE WEST CORNER OF THE OLD RAILROAD STATION, 22.9 M
 CX0669'(75.1 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY, 16.5 M
 CX0669'(54.1 FT) SOUTHEAST OF THE CENTER OF THE AVENUE, 12.6 M (41.3 FT)
 CX0669'WEST-NORTHWEST OF A UTILITY POLE WITH STREET LAMP, 7.5 M (24.6 FT)
 CX0669'EAST OF A RAILROAD SWITCH BOX AND 0.3 M (1.0 FT) SOUTHEAST OF A RAIL
 CX0669'BARRIER.
 CX0669'STATION IS A STANDARD CGS BENCHMARK DISK STAMPED ---H 245 1952--- SET
 CX0669'INTO THE TOP OF A CONCRETE POST PROJECTING 5 CM, ABOUT LEVEL WITH THE
 CX0669'AVENUE, 0.5 M (1.6 FT) NORTHWEST FROM A WITNESS POST.
 CX0669
 CX0669 STATION RECOVERY (2005)
 CX0669
 CX0669'RECOVERY NOTE BY NM HIGHWAY DEPT 2005 (WAB)
 CX0669'
 CX0669'DESCRIPTION IS ADEQUATE
 CX0669
 CX0669 STATION RECOVERY (2008)
 CX0669
 CX0669'RECOVERY NOTE BY INT BDRY WTR COMM 2008 (JBB)
 CX0669'A METAL SHED MAY INTERFERE WITH GPS OBSERVATIONS.

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

The NGS Data Sheet

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DATABASE = ,PROGRAM = datasheet, VERSION = 7.66
1      National Geodetic Survey, Retrieval Date = APRIL 7, 2009
AI5445 *****
AI5445 CBN - This is a Cooperative Base Network Control Station.
AI5445 DESIGNATION - REILLY
AI5445 PID - AI5445
AI5445 STATE/COUNTY- NM/DONA ANA
AI5445 USGS QUAD - LAS CRUCES (1978)
AI5445
AI5445 *CURRENT SURVEY CONTROL
AI5445
AI5445* NAD 83(2007)- 32 16 55.92956(N) 106 45 15.16114(W) ADJUSTED
AI5445* NAVD 88 - 1190.5 (meters) 3906. (feet) GPS OBS
AI5445
AI5445 EPOCH DATE - 2002.00
AI5445 X - -1,556,177.621 (meters) COMP
AI5445 Y - -5,169,235.299 (meters) COMP
AI5445 Z - 3,387,551.717 (meters) COMP
AI5445 LAPLACE CORR- 4.10 (seconds) DEFLEC99
AI5445 ELLIP HEIGHT- 1166.560 (meters) (02/10/07) ADJUSTED
AI5445 GEOID HEIGHT- -23.91 (meters) GEOID03
AI5445
AI5445 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AI5445 Type PID Designation North East Ellip
AI5445 -----
AI5445 NETWORK AI5445 REILLY 0.45 0.41 1.65
AI5445 -----
AI5445
AI5445.The horizontal coordinates were established by GPS observations
AI5445.and adjusted by the National Geodetic Survey in February 2007.
AI5445
AI5445.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
AI5445.See National Readjustment for more information.
AI5445.The horizontal coordinates are valid at the epoch date displayed above.
AI5445.The epoch date for horizontal control is a decimal equivalence
AI5445.of Year/Month/Day.
AI5445
AI5445.The orthometric height was determined by GPS observations and a
AI5445.high-resolution geoid model.
AI5445
AI5445.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AI5445
AI5445.The Laplace correction was computed from DEFLEC99 derived deflections.
AI5445
AI5445.The ellipsoidal height was determined by GPS observations
AI5445.and is referenced to NAD 83.
AI5445
AI5445.The geoid height was determined by GEOID03.
AI5445
AI5445; North East Units Scale Factor Converg.
AI5445;SPC NM C - 142,268.757 452,506.469 MT 0.99992781 -0 16 09.5
AI5445;SPC NM C - 466,760.08 1,484,598.31 sFT 0.99992781 -0 16 09.5
AI5445;UTM 13 - 3,573,067.338 334,803.693 MT 0.99993654 -0 56 13.6

```

AI5445
AI5445! - Elev Factor x Scale Factor = Combined Factor
AI5445!SPC NM C - 0.99981687 x 0.99992781 = 0.99974469
AI5445!UTM 13 - 0.99981687 x 0.99993654 = 0.99975342
AI5445
AI5445 SUPERSEDED SURVEY CONTROL
AI5445
AI5445 NAD 83(1992)- 32 16 55.92906(N) 106 45 15.16070(W) AD() A
AI5445 ELLIP H (05/26/00) 1166.572 (m) GP() 2 1
AI5445
AI5445.Superseded values are not recommended for survey control.
AI5445.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
AI5445.[See file dsdata.txt](#) to determine how the superseded data were derived.
AI5445
AI5445_U.S. NATIONAL GRID SPATIAL ADDRESS: 13SCR3480473067(NAD 83)
AI5445_MARKER: DD = SURVEY DISK
AI5445_SETTING: 34 = SET IN THE FOOTINGS OF SMALL/MEDIUM STRUCTURES
AI5445_SP_SET: CONCRETE VAULT
AI5445_STAMPING: NMSU GPS REILLY 1992
AI5445_MARK LOGO: NONE
AI5445_MAGNETIC: N = NO MAGNETIC MATERIAL
AI5445_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
AI5445+STABILITY: SURFACE MOTION
AI5445_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AI5445+SATELLITE: SATELLITE OBSERVATIONS - February 14, 2009
AI5445
AI5445 HISTORY - Date Condition Report By
AI5445 HISTORY - 1992 MONUMENTED NMSU
AI5445 HISTORY - 19990402 GOOD NMSU
AI5445 HISTORY - 20040407 GOOD INDIV
AI5445 HISTORY - 20090214 GOOD INDIV
AI5445
AI5445 STATION DESCRIPTION
AI5445
AI5445'DESCRIBED BY NEW MEXICO STATE UNIVERSITY 1999 (EFB)
AI5445'THE STATION IS LOCATED ON THE HORSESHOE OF THE CAMPUS OF NEW MEXICO
AI5445'STATE UNIVERSITY. OWNERSHIP--NEW MEXICO STATE UNIVERSITY, CONTACT
AI5445'SURVEYING ENGINEERING DEPARTMENT, TELEPHONE 505-646-5375, LAS CRUCES
AI5445'NM 88003. THE STATION IS LOCATED IN THE CENTRALLY-LOCATED AND
AI5445'WELL-KNOWN FEATURE CALLED THE HORSESHOE ON THE NEW MEXICO STATE
AI5445'UNIVERSITY CAMPUS. THE HORSESHOE IS BOUNDED BY ESPINA STREET, NORTH
AI5445'HORSESHOE DRIVE, SOUTH HORSESHOE DRIVE AND WENDELL STREET. THE ENTIRE
AI5445'BLOCK IS LANDSCAPED AND CONTAINS NO ABOVE GRADE STRUCTURES OTHER THAN
AI5445'A SUNDIAL AND A FLAGPOLE NEAR THE MIDDLE OF THE BLOCK. THE MAIN NEW
AI5445'MEXICO STATE UNIVERSITY ADMINISTRATION BUILDING, HADLEY HALL, SITS AT
AI5445'THE EAST END OF THE HORSESHOE. THE STATION IS NEAR THE CENTER OF THE
AI5445'HORSESHOE. THE STATION IS CEMENTED INTO THE TOP CENTER OF A 2.0 M
AI5445'(6.6 FT) BY 2.5 M (8.2 FT) CONCRETE VAULT THAT IS FLUSH WITH THE
AI5445'GROUND AND EXTENDS TO A DEPTH OF ABOUT 2.5 M (8.2 FT). LOCATED ABOUT
AI5445'120 M (393.7 FT) WEST OF THE MAIN ENTRANCE TO HADLEY HALL AND ABOUT 20
AI5445'M (65.6 FT) EAST OF THE FLAGPOLE.
AI5445
AI5445 STATION RECOVERY (2004)
AI5445
AI5445'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2004 (WTM)
AI5445'RECOVERED AS DESCRIBED BY THE POINT'S NAMESAKE, DR. JAMES P. REILLY,
AI5445'

AI5445'AND HIS FORMER PUPIL THOMAS MOORE. THE DESCRIPTION IS ADEQUATE.
AI5445'REGARDING EQUIPMENT SETUP CONDITIONS, WATCH OUT FOR FRISBEES AND BAND
AI5445'PRACTICE IN THE HORSESHOE AREA.

AI5445

AI5445

STATION RECOVERY (2009)

AI5445

AI5445'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2009 (ER)

AI5445'RECOVERED IN GOOD CONDITION.

*** retrieval complete.

Elapsed Time = 00:00:00

NMSU MAIN CAMPUS CONTROL
Adjusted Coordinate Listing

Control Point	Northing (GND)	Easting (GND)	Elev. (NAVD 88)	Latitude (WGS 84)	Longitude (WGS 84)	Height (GRS 80)	Monument Description
NMSU-BH-01	469887.33	1487748.47	4005.55	32°17'25.85012"N	106°44'38.17836"W	3927.27	SET ALUMINUM CAP
NMSU-BH-02	468528.01	1489534.36	4031.90	32°17'12.48303"N	106°44'17.30616"W	3953.65	SET ALUMINUM CAP
NMSU-BH-03	467552.88	1491328.32	4033.82	32°17'02.91620"N	106°43'56.36171"W	3955.62	SET ALUMINUM CAP
NMSU-BH-04	465009.14	1492174.81	4046.80	32°16'37.78792"N	106°43'46.37089"W	3968.60	SET ALUMINUM CAP
NMSU-BH-05	466224.21	1490382.73	3999.75	32°16'49.72915"N	106°44'07.30414"W	3921.51	SET ALUMINUM CAP
NMSU-BH-06	467556.48	1488478.32	4002.89	32°17'02.82383"N	106°44'29.55345"W	3924.60	SET ALUMINUM CAP
NMSU-BH-07	468852.48	1486858.39	3973.00	32°17'15.57157"N	106°44'48.48927"W	3894.67	SET ALUMINUM CAP
NMSU-BH-08	469783.33	1484983.50	3928.87	32°17'24.69419"N	106°45'10.37625"W	3850.49	SET PK NAIL
NMSU-BH-09	468815.59	1483220.61	3887.29	32°17'15.03793"N	106°45'30.85491"W	3808.85	SET ALUMINUM CAP
NMSU-BH-10	467661.93	1484712.47	3909.39	32°17'03.69421"N	106°45'13.41680"W	3830.98	SET ALUMINUM CAP
NMSU-BH-11	466352.68	1486535.19	3938.15	32°16'50.82568"N	106°44'52.11830"W	3859.78	SET ALUMINUM CAP
NMSU-BH-12	465350.85	1488399.61	3978.23	32°16'40.99942"N	106°44'30.35240"W	3899.91	SET ALUMINUM CAP
NMSU-BH-13	463980.25	1490201.07	3993.69	32°16'27.52098"N	106°44'09.30138"W	3915.42	SET ALUMINUM CAP
NMSU-BH-14	462012.99	1491569.33	3992.34	32°16'08.11951"N	106°43'53.26533"W	3914.09	SET ALUMINUM CAP
NMSU-BH-15	467810.69	1481142.31	3882.48	32°17'04.99809"N	106°45'55.00371"W	3803.95	SET PK NAIL
NMSU-BH-16	466858.61	1482774.09	3881.07	32°16'55.65622"N	106°45'35.94699"W	3802.59	SET ALUMINUM CAP
NMSU-BH-17	465187.58	1484622.89	3908.56	32°16'39.21082"N	106°45'14.32470"W	3830.12	SET ALUMINUM CAP
NMSU-BH-18	464450.20	1486450.78	3944.61	32°16'32.00022"N	106°44'52.99851"W	3866.21	SET ALUMINUM CAP
NMSU-BH-19	463004.18	1488309.55	3950.41	32°16'17.77930"N	106°44'31.27578"W	3872.05	SET ALUMINUM CAP
NMSU-BH-20	461782.14	1490176.52	3966.77	32°16'05.77350"N	106°44'09.47130"W	3888.47	SET ALUMINUM CAP
NMSU-BH-21	460455.64	1491824.49	3979.42	32°15'52.72355"N	106°43'50.21293"W	3901.17	SET ALUMINUM CAP
NMSU-BH-22	458704.70	1491698.88	3965.97	32°15'35.39553"N	106°43'51.58410"W	3887.69	SET ALUMINUM CAP
NMSU-BH-23	460003.66	1490189.91	3949.17	32°15'48.17924"N	106°44'09.22164"W	3870.85	SET ALUMINUM CAP
NMSU-BH-24	461125.38	1488284.51	3917.74	32°15'59.19075"N	106°44'31.46709"W	3839.36	SET ALUMINUM CAP
NMSU-BH-25	462328.37	1486500.12	3925.91	32°16'11.01081"N	106°44'52.30928"W	3847.48	SET ALUMINUM CAP
NMSU-BH-26	463424.24	1484673.19	3912.86	32°16'21.76804"N	106°45'13.64258"W	3834.38	SET ALUMINUM CAP
NMSU-BH-27	464551.44	1482808.99	3883.77	32°16'32.83256"N	106°45'35.41291"W	3805.26	SET ALUMINUM CAP
NMSU-BH-28	466506.96	1480188.53	3879.54	32°16'52.05463"N	106°46'06.03826"W	3801.02	SET ALUMINUM CAP
H 245	465165.00	1480262.74	3881.56	32°16'38.78198"N	106°46'05.09859"W	3802.87	FOUND NGS BRASS CAP
REILLY	466877.80	1484559.01	3905.72	32°16'55.92956"N	106°45'15.16114"W	3827.29	FOUND BRASS CAP

Control Station Data



Name of Station: **NMSU-BH-01**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-01**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'25.85012"N**
 Longitude: **106°44'38.17836"W**
 GRID Northing: **469768.84 USFT**
 GRID Easting: **1487786.97 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **469887.33 USFT**
 Easting: **1487748.47 USFT**
 Elevation: **4005.55 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'50"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

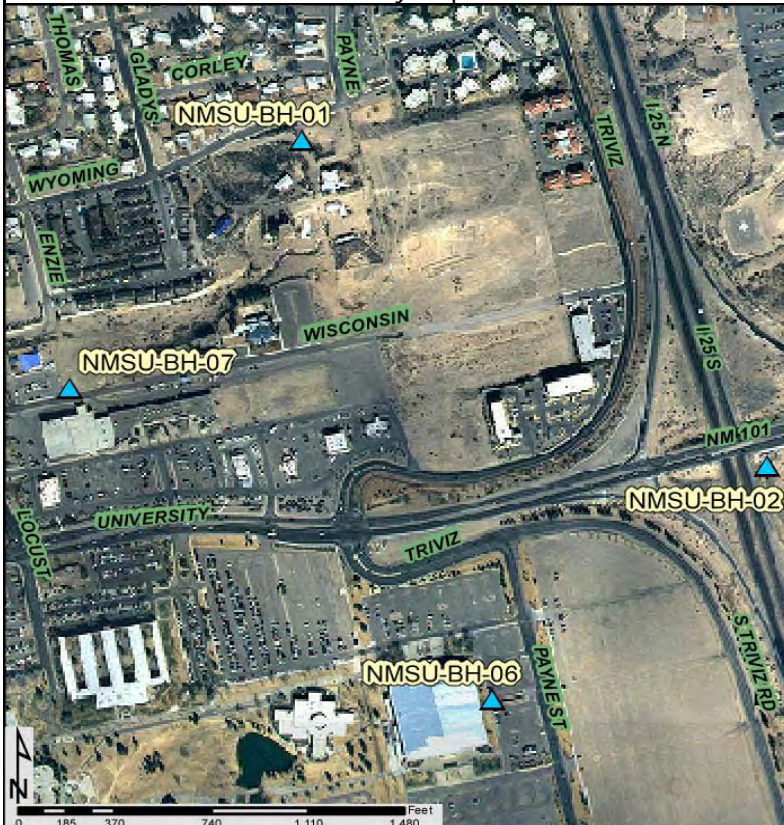


Photo:



Control Station Data



Name of Station: **NMSU-BH-02**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-02**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'12.48303"N**
 Longitude: **106°44'17.30616"W**
 GRID Northing: **468409.87 USFT**
 GRID Easting: **1489572.40 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **468528.01 USFT**
 Easting: **1489534.36 USFT**
 Elevation: **4031.90 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'39"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

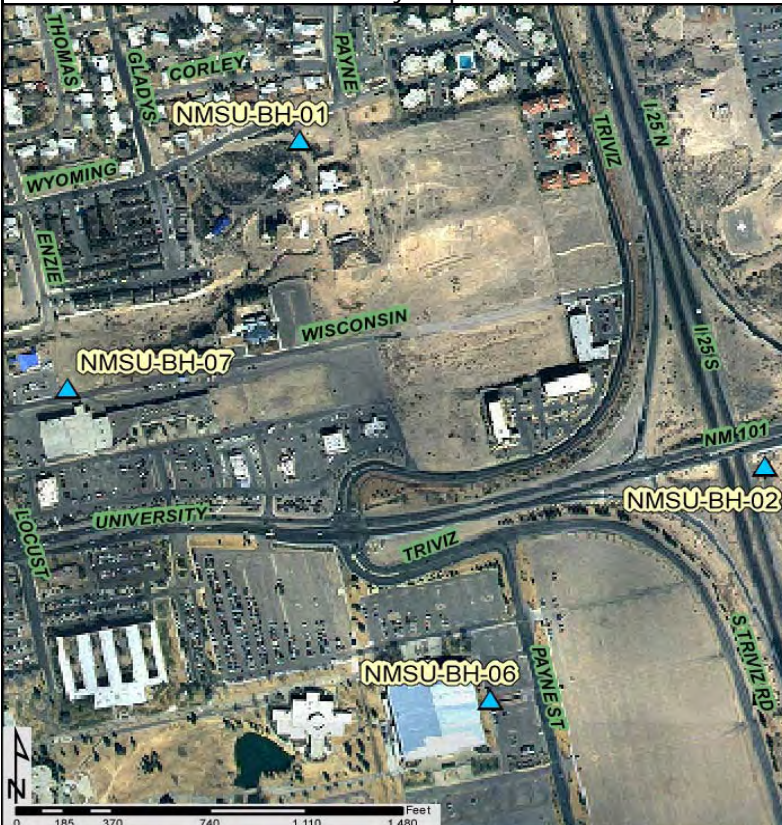
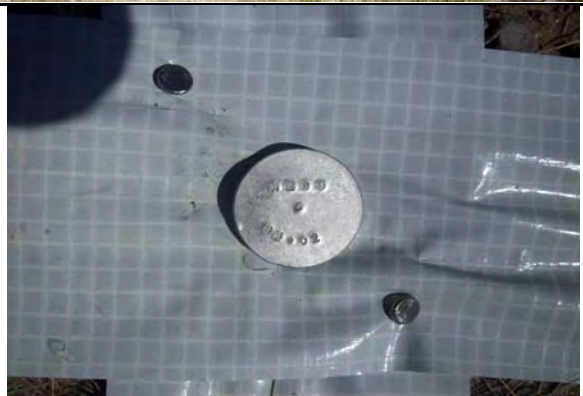


Photo:



Control Station Data



Name of Station: **NMSU-BH-03**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-03**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'02.91620"N**
 Longitude: **106°43'56.36171"W**
 GRID Northing: **467434.99 USFT**
 GRID Easting: **1491365.91 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **467552.88 USFT**
 Easting: **1491328.32 USFT**
 Elevation: **4033.82 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'27"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-04**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-04**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'37.78792"N**
 Longitude: **106°43'46.37089"W**
 GRID Northing: **464891.89 USFT**
 GRID Easting: **1492212.19 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **465009.14 USFT**
 Easting: **1492174.81 USFT**
 Elevation: **4046.80 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°15'22"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-05**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-05**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'49.72915"N**
 Longitude: **106°44'07.30414"W**
 GRID Northing: **466106.65 USFT**
 GRID Easting: **1490420.56 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **466224.21 USFT**
 Easting: **1490382.73 USFT**
 Elevation: **3999.75 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'33"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-06**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-06**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'02.82383"N**
 Longitude: **106°44'29.55345"W**
 GRID Northing: **467438.59 USFT**
 GRID Easting: **1488516.63 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **467556.48 USFT**
 Easting: **1488478.32 USFT**
 Elevation: **4002.89 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'45"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

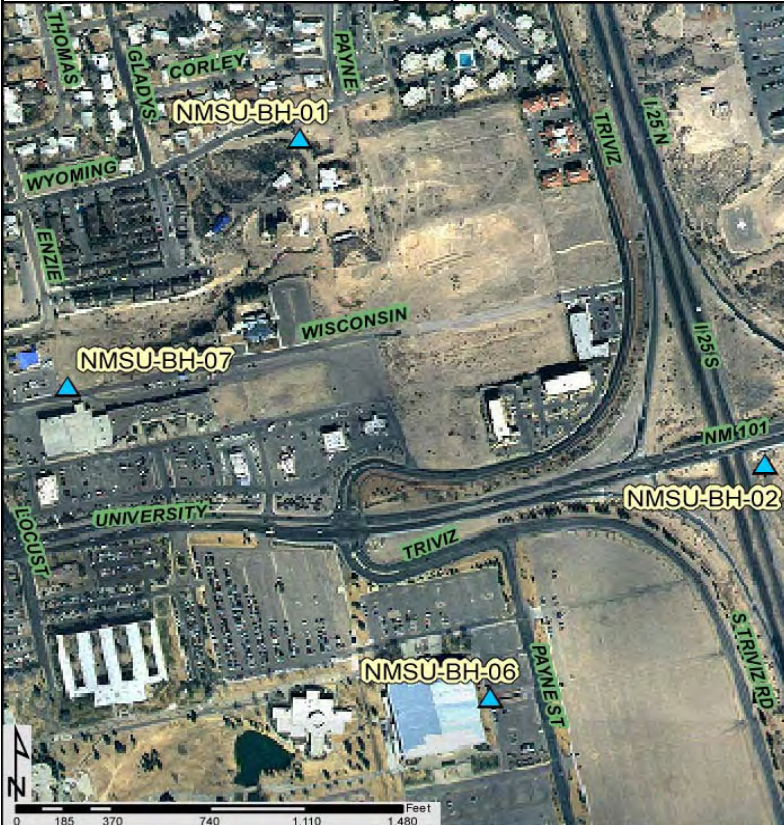


Photo:



Control Station Data



Name of Station: **NMSU-BH-07**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **13-APR-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-07**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'15.57157"N**
 Longitude: **106°44'48.48927"W**
 GRID Northing: **468734.26 USFT**
 GRID Easting: **1486897.11 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **468852.48 USFT**
 Easting: **1486858.39 USFT**
 Elevation: **3973.00 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'55"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

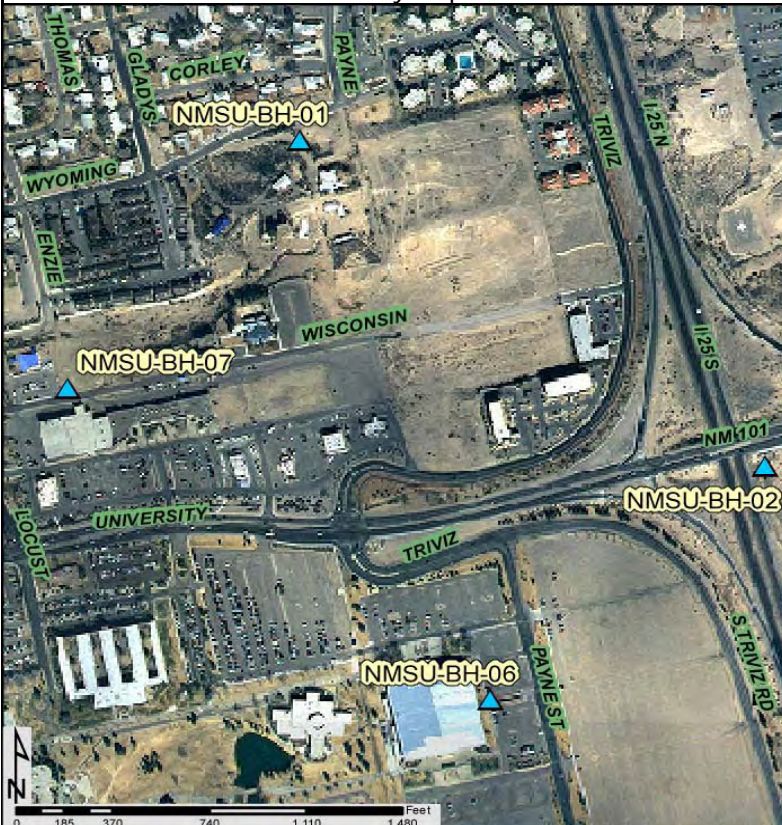


Photo:



Control Station Data



Name of Station: **NMSU-BH-08**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **PK NAIL**
 Stamping: **NMSU-BH-08**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'24.69419"N**
 Longitude: **106°45'10.37625"W**
 GRID Northing: **469664.88 USFT**
 GRID Easting: **1485022.69 USFT**

* * M O D I F I E D * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **469783.33 USFT**
 Easting: **1484983.50 USFT**
 Elevation: **3928.87 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'07"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

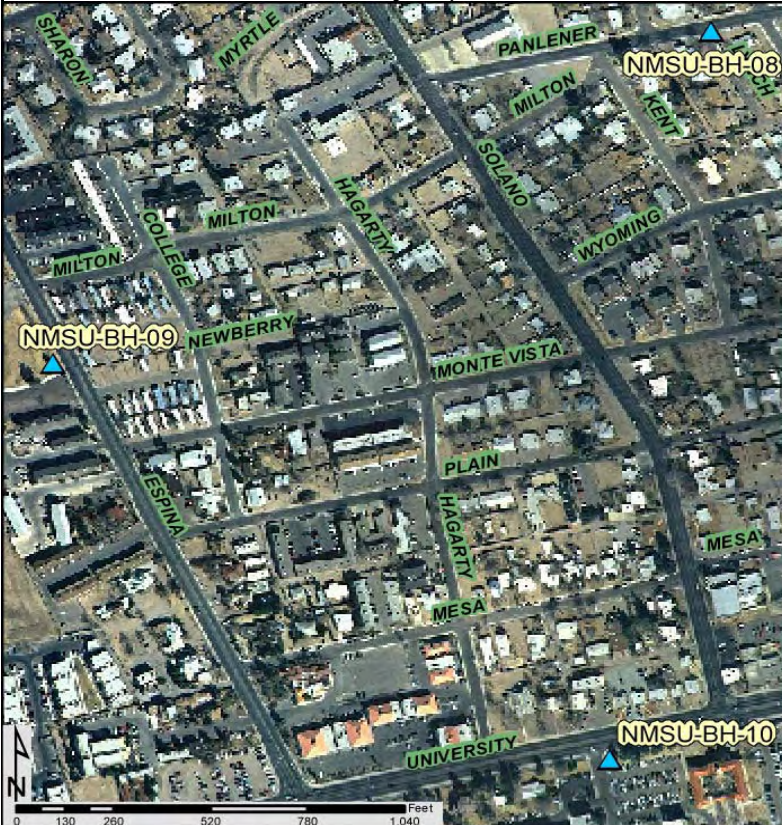


Photo:



Control Station Data



Name of Station: **NMSU-BH-09**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-09**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'15.03793"N**
 Longitude: **106°45'30.85491"W**
 GRID Northing: **468697.38 USFT**
 GRID Easting: **1483260.25 USFT**

* * M O D I F I E D * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **468815.59 USFT**
 Easting: **1483220.61 USFT**
 Elevation: **3887.29 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'18"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

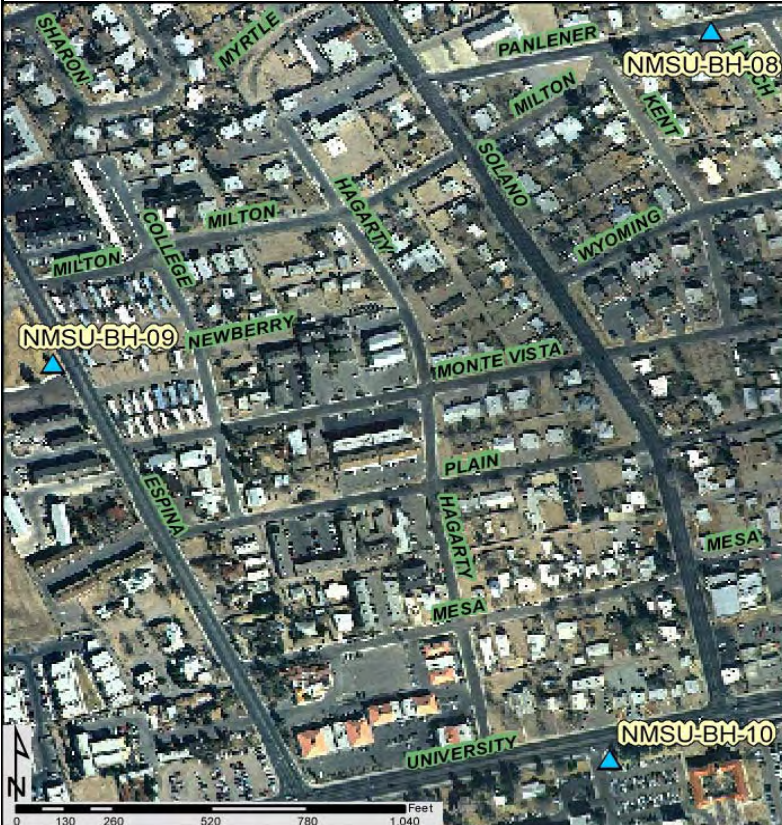


Photo:



Control Station Data



Name of Station: **NMSU-BH-10**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-10**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'03.69421"N**
 Longitude: **106°45'13.41680"W**
 GRID Northing: **467544.01 USFT**
 GRID Easting: **1484751.73 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **467661.93 USFT**
 Easting: **1484712.47 USFT**
 Elevation: **3909.39 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'09"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

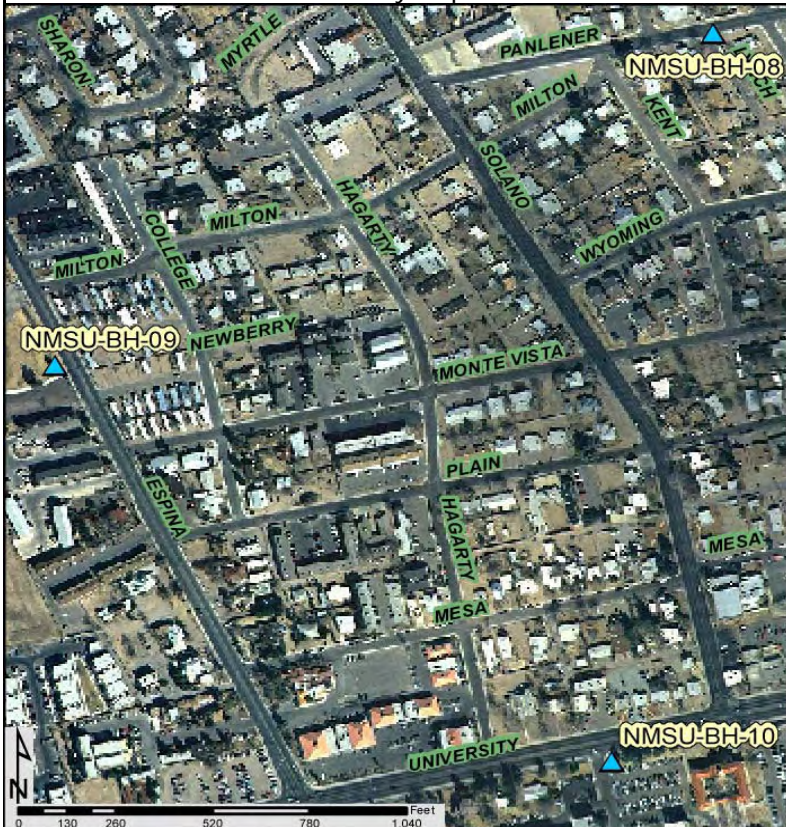


Photo:



Control Station Data



Name of Station: **NMSU-BH-11**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-11**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'50.82568"N**
 Longitude: **106°44'52.11830"W**
 GRID Northing: **466235.09 USFT**
 GRID Easting: **1486574.00 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **466352.68 USFT**
 Easting: **1486535.19 USFT**
 Elevation: **3938.15 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'57"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

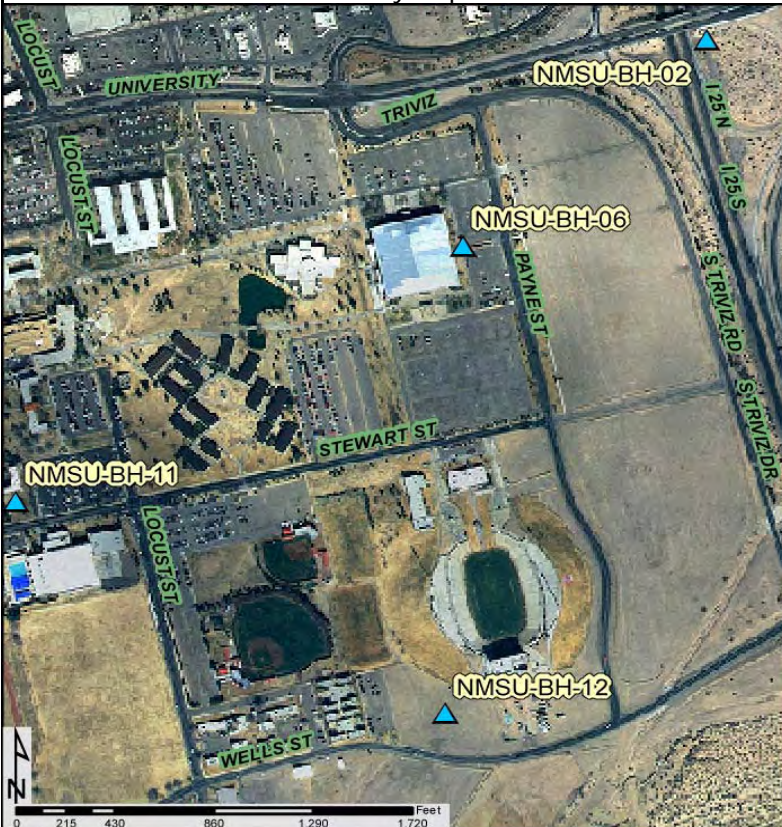


Photo:



Control Station Data



Name of Station: **NMSU-BH-12**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-12**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'40.99942"N**
 Longitude: **106°44'30.35240"W**
 GRID Northing: **465233.51 USFT**
 GRID Easting: **1488437.94 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **465350.85 USFT**
 Easting: **1488399.61 USFT**
 Elevation: **3978.23 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°15'45"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

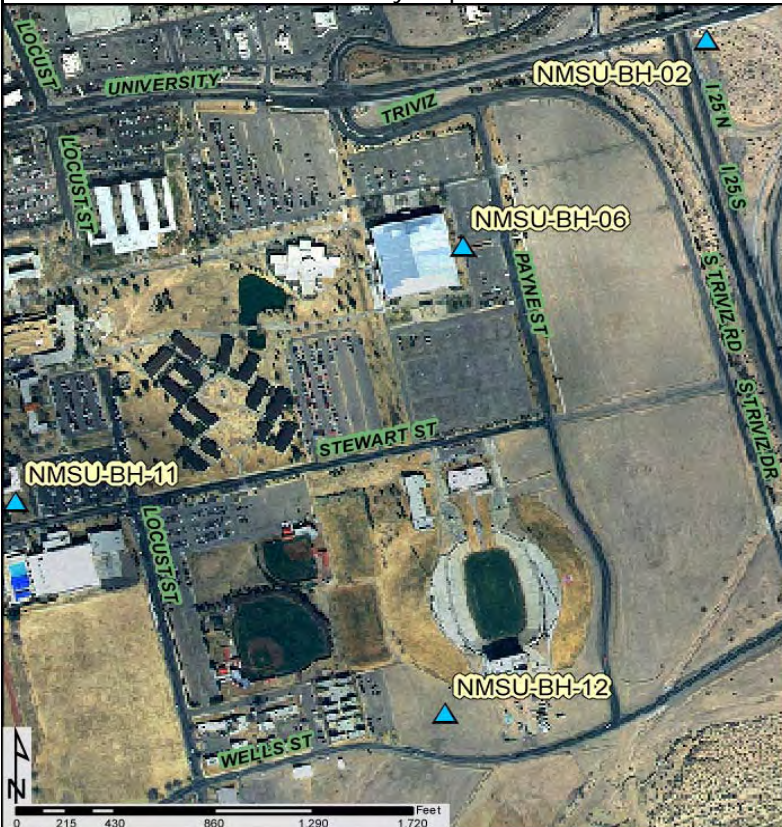


Photo:



Control Station Data



Name of Station: **NMSU-BH-13**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **12-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-13**

Horizontal Data

Horizontal Datum: **NAD 83**

Method: **RTK GPS @ 2 X 180 EPOCHS**

Latitude: **32° 16' 27.52098" N**

Longitude: **106° 44' 09.30138" W**

GRID Northing: **463863.25 USFT**

GRID Easting: **1490238.95 USFT**

*** * MODIFIED * ***

Projection: **NMSP CENTRAL ZONE**

Northing: **463980.25 USFT**

Easting: **1490201.07 USFT**

Elevation: **3993.69 USFT**

Vertical Data

Vertical Datum: **NAVD 88**

Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**

Point Combined Factor: **N/A**

Point Δα: **-0° 15' 34"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-14**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-14**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32° 16' 08.11951" N**
 Longitude: **106° 43' 53.26533" W**
 GRID Northing: **461896.49 USFT**
 GRID Easting: **1491606.86 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **462012.99 USFT**
 Easting: **1491569.33 USFT**
 Elevation: **3992.34 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0° 15' 25"**

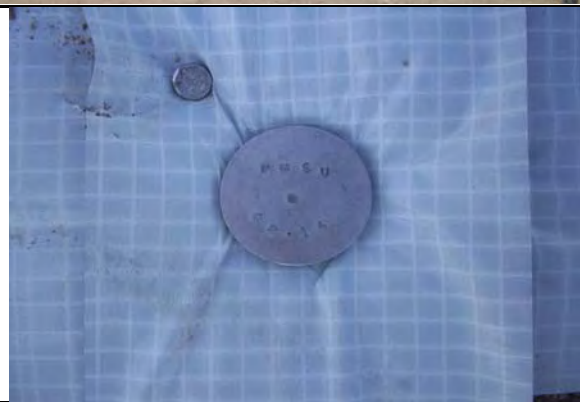
Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-15**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **MESILLA CIVIL COLONY TR 1**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **12-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **PK NAIL**

Stamping: **NMSU-BH-15**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°17'04.99809"N**
 Longitude: **106°45'55.00371"W**
 GRID Northing: **467692.73 USFT**
 GRID Easting: **1481182.48 USFT**

* * M O D I F I E D * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **467810.69 USFT**
 Easting: **1481142.31 USFT**
 Elevation: **3882.48 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'31"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

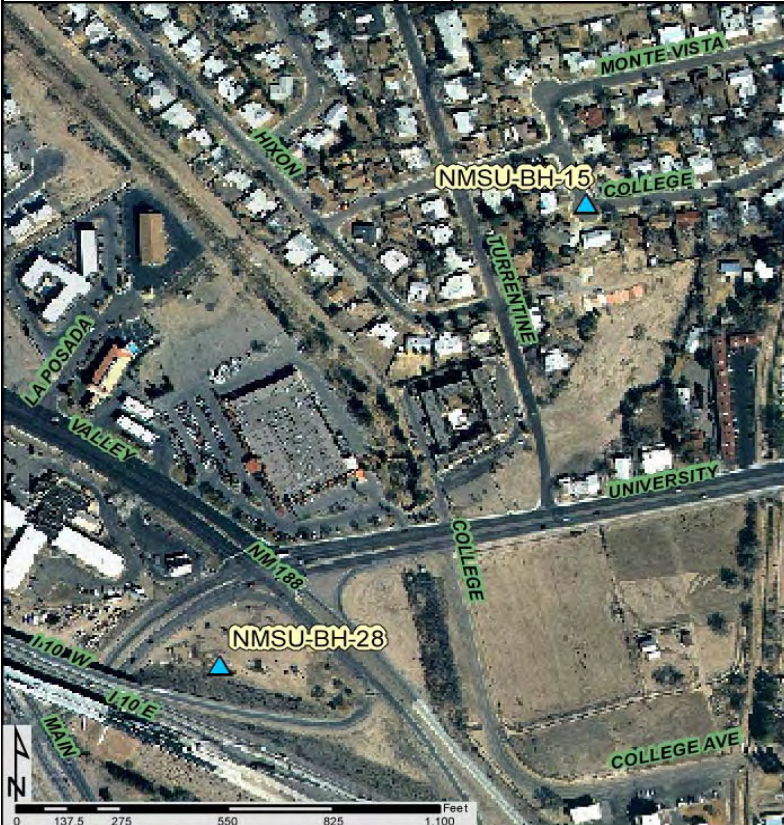


Photo:



Control Station Data



Name of Station: **NMSU-BH-16**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-16**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'55.65622"N**
 Longitude: **106°45'35.94699"W**
 GRID Northing: **466740.89 USFT**
 GRID Easting: **1482813.84 USFT**

* * M O D I F I E D * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **466858.61 USFT**
 Easting: **1482774.09 USFT**
 Elevation: **3881.07 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°16'21"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

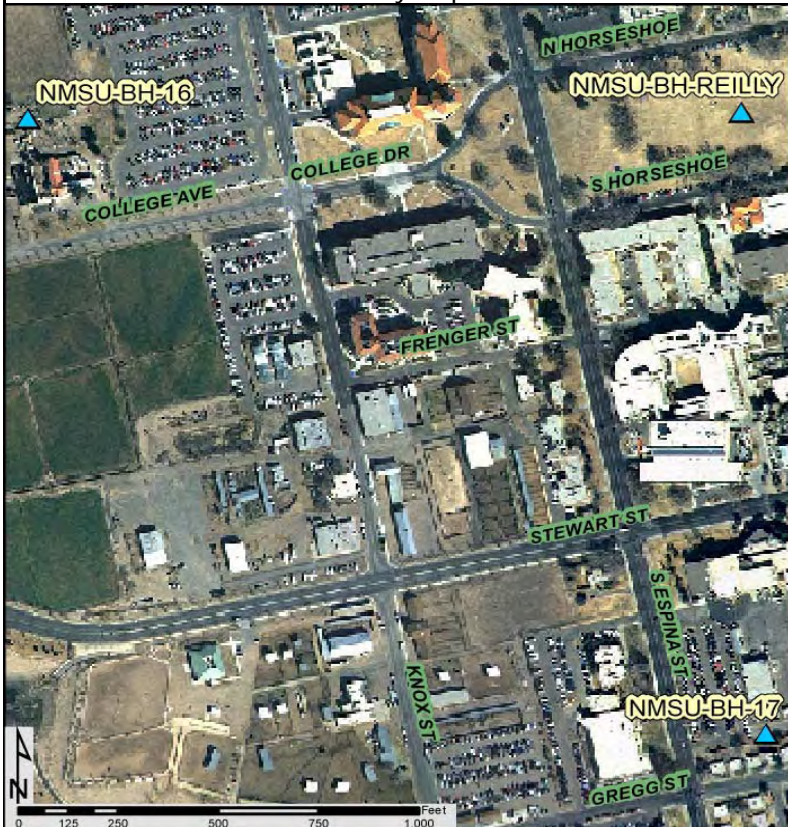


Photo:



Control Station Data



Name of Station: **NMSU-BH-17**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-17**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'39.21082"N**
 Longitude: **106°45'14.32470"W**
 GRID Northing: **465070.28 USFT**
 GRID Easting: **1484662.17 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **465187.58 USFT**
 Easting: **1484622.89 USFT**
 Elevation: **3908.56 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°16'09"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



**POINT VIEW
NORTH**



Control Station Data



Name of Station: **NMSU-BH-18**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **12-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-18**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'32.00022"N**
 Longitude: **106°44'52.99851"W**
 GRID Northing: **464333.09 USFT**
 GRID Easting: **1486489.60 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **464450.20 USFT**
 Easting: **1486450.78 USFT**
 Elevation: **3944.61 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'57"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

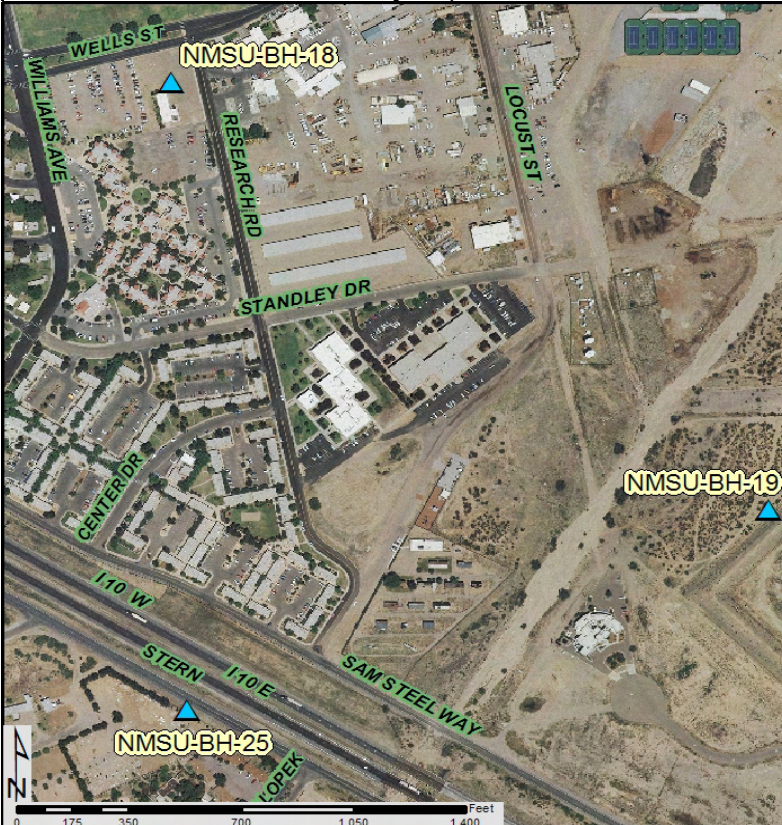
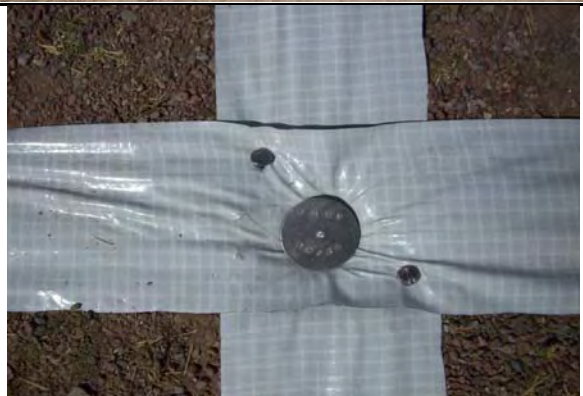


Photo:



Control Station Data



Name of Station: **NMSU-BH-19**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-19**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'17.77930"N**
 Longitude: **106°44'31.27578"W**
 GRID Northing: **462887.43 USFT**
 GRID Easting: **1488347.91 USFT**

*** * MODIFIED * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **463004.18 USFT**
 Easting: **1488309.55 USFT**
 Elevation: **3950.41 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'46"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

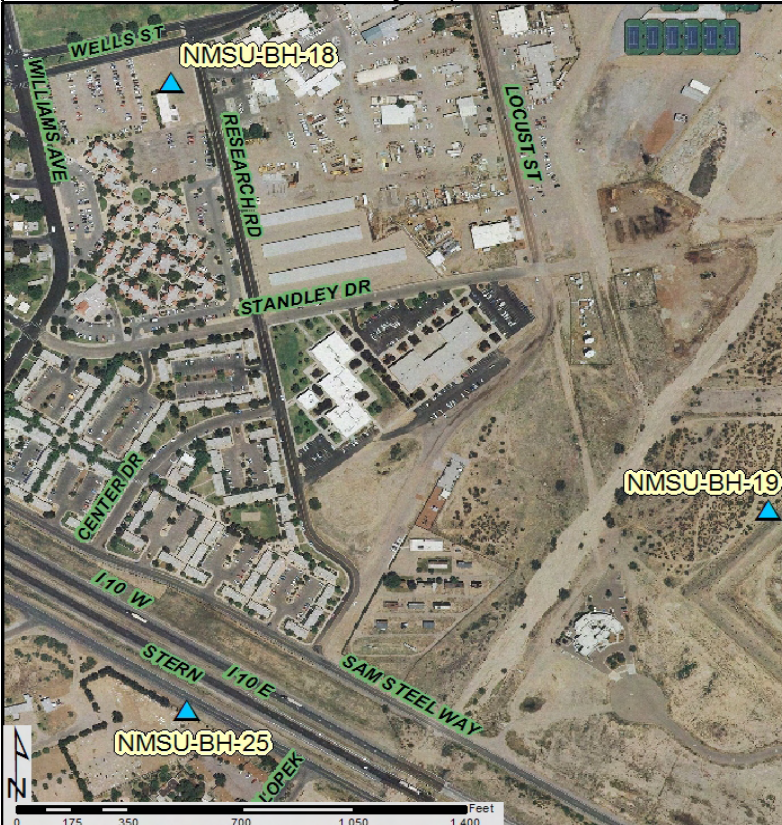


Photo:



Control Station Data



Name of Station: **NMSU-BH-20**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-20**

Horizontal Data

Horizontal Datum: **NAD 83**

Method: **RTK GPS @ 2 X 180 EPOCHS**

Latitude: **32° 16' 05.77350" N**

Longitude: **106° 44' 09.47130" W**

GRID Northing: **461665.70 USFT**

GRID Easting: **1490214.41 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**

Northing: **461782.14 USFT**

Easting: **1490176.52 USFT**

Elevation: **3966.77 USFT**

Vertical Data

Vertical Datum: **NAVD 88**

Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**

Point Combined Factor: **N/A**

Point Δα: **-0° 15' 34"**

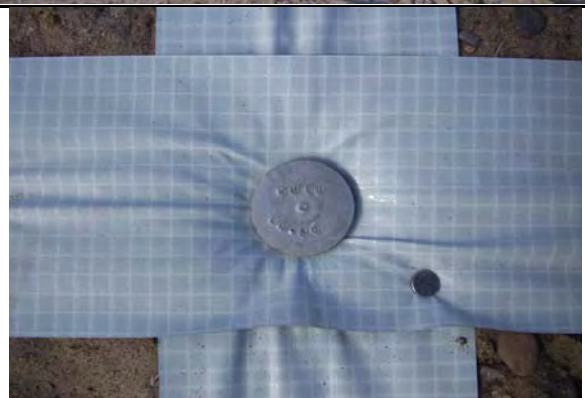
Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-21**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-21**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°15'52.72355"N**
 Longitude: **106°43'50.21293"W**
 GRID Northing: **460339.53 USFT**
 GRID Easting: **1491861.96 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **460455.64 USFT**
 Easting: **1491824.49 USFT**
 Elevation: **3979.42 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'24"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-22**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-22**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°15'35.39553"N**
 Longitude: **106°43'51.58410"W**
 GRID Northing: **458589.04 USFT**
 GRID Easting: **1491736.38 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **458704.70 USFT**
 Easting: **1491698.88 USFT**
 Elevation: **3965.97 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'24"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-23**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-23**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°15'48.17924"N**
 Longitude: **106°44'09.22164"W**
 GRID Northing: **459887.67 USFT**
 GRID Easting: **1490227.79 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **460003.66 USFT**
 Easting: **1490189.91 USFT**
 Elevation: **3949.17 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°15'34"**

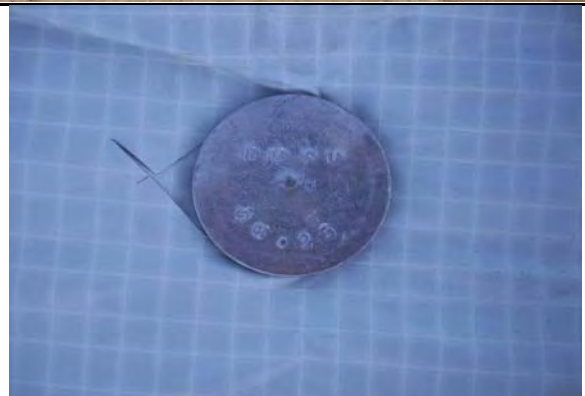
Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-24**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-24**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°15'59.19075"N**
 Longitude: **106°44'31.46709"W**
 GRID Northing: **461009.11 USFT**
 GRID Easting: **1488322.87 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **461125.38 USFT**
 Easting: **1488284.51 USFT**
 Elevation: **3917.74 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'46"**

Location Description:

SEE VICINITY MAP

Vicinity Map:



Photo:



Control Station Data



Name of Station: **NMSU-BH-25**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-25**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'11.01081"N**
 Longitude: **106°44'52.30928"W**
 GRID Northing: **462211.80 USFT**
 GRID Easting: **1486538.93 USFT**

*** * M O D I F I E D * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **462328.37 USFT**
 Easting: **1486500.12 USFT**
 Elevation: **3925.91 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°15'57"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

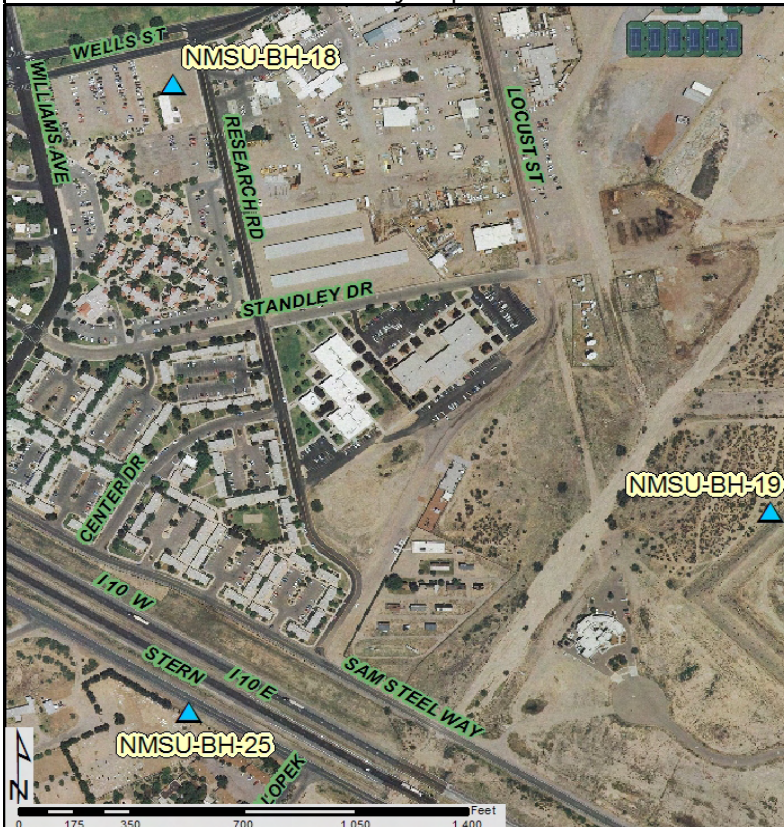


Photo:



Control Station Data



Name of Station: **NMSU-BH-26**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-26**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'21.76804"N**
 Longitude: **106°45'13.64258"W**
 GRID Northing: **463307.38 USFT**
 GRID Easting: **1484712.46 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **463424.24 USFT**
 Easting: **1484673.19 USFT**
 Elevation: **3912.86 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'08"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

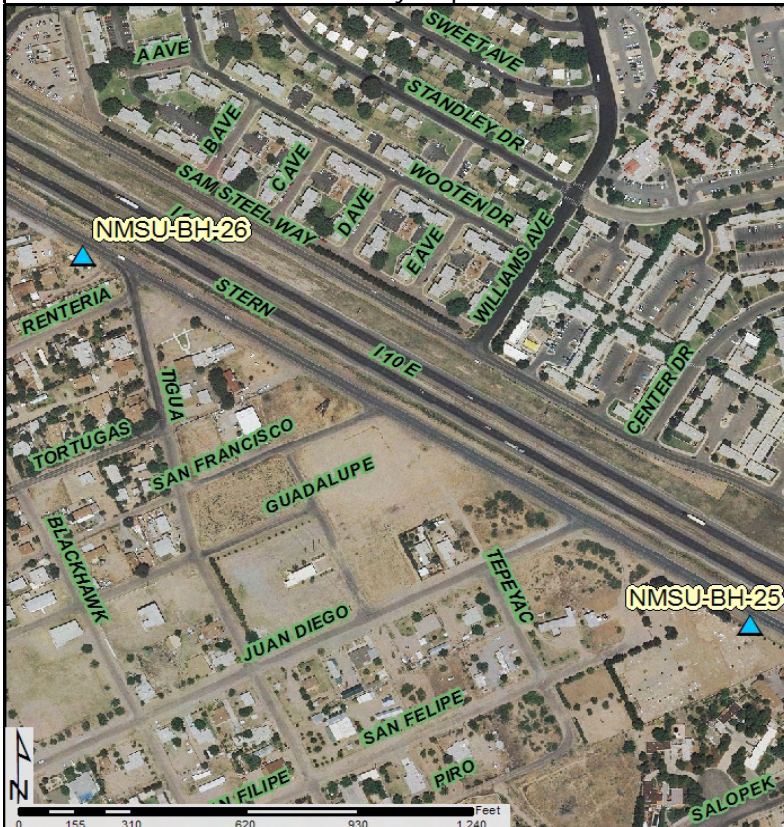


Photo:



Control Station Data



Name of Station: **NMSU-BH-27**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **20-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**
 Stamping: **NMSU-BH-27**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'32.83256"N**
 Longitude: **106°45'35.41291"W**
 GRID Northing: **464434.30 USFT**
 GRID Easting: **1482848.73 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **464551.44 USFT**
 Easting: **1482808.99 USFT**
 Elevation: **3883.77 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'20"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

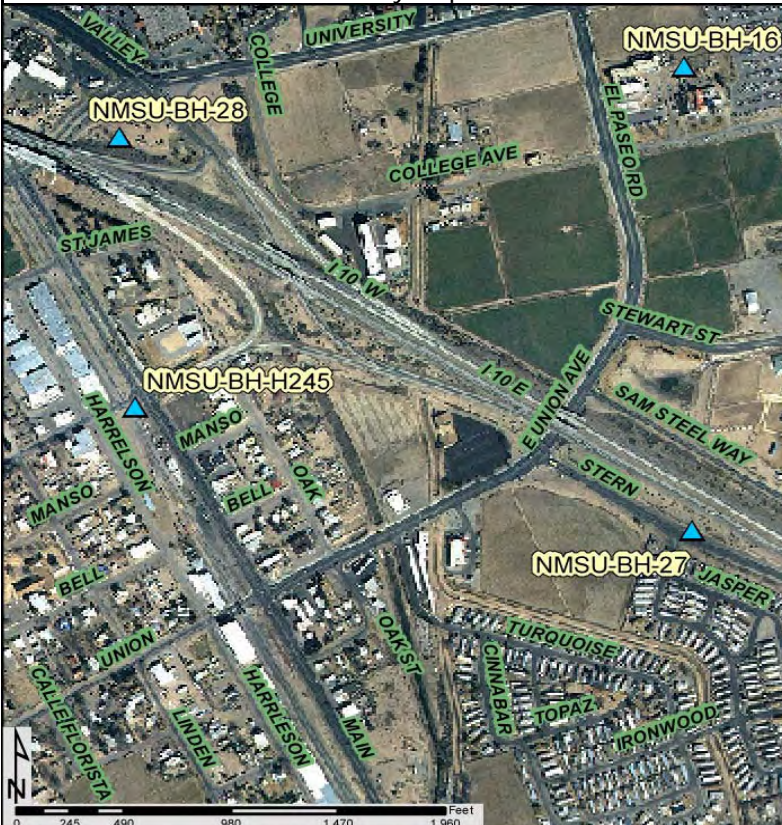


Photo:



Control Station Data



Name of Station: **NMSU-BH-28**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **MESILLA CIVIL COLONY TR 1**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **12-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **2" ALUMINUM CAP**

Stamping: **NMSU-BH-28**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'52.05463"N**
 Longitude: **106°46'06.03826"W**
 GRID Northing: **466389.33 USFT**
 GRID Easting: **1480228.93 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **466506.96 USFT**
 Easting: **1480188.53 USFT**
 Elevation: **3879.54 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'37"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

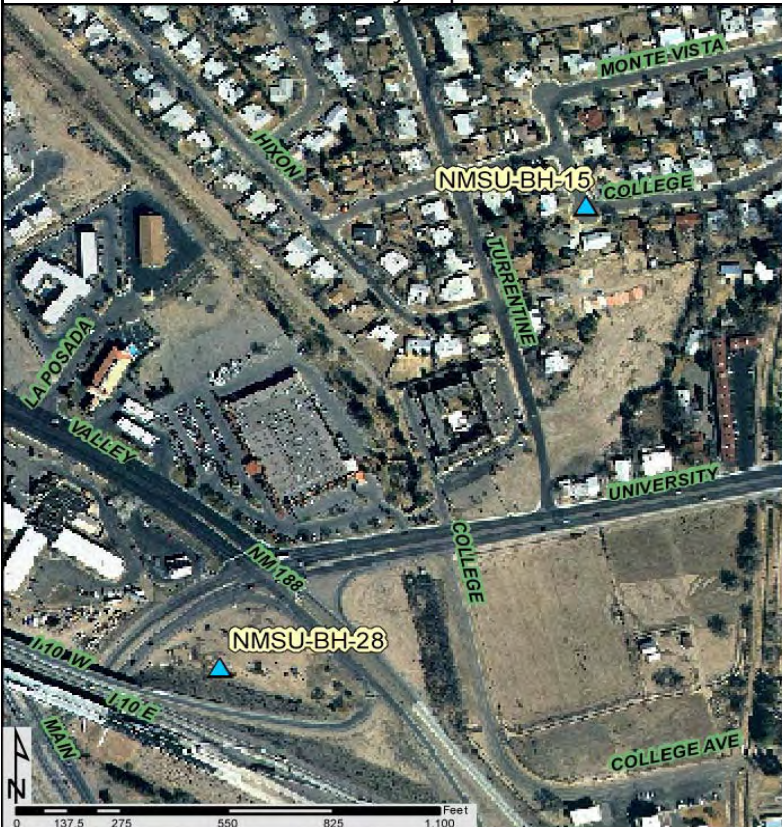


Photo:



Control Station Data



Name of Station: **NMSU-BH-H245**

State: **NEW MEXICO**

County: **DONA ANA**

Grant: **MESILLA CIVIL COLONY TR 1**

Establishing Group: **BOHANNAN HUSTON, INC.**

Date: **20-MAY-09**

BST Project #: **20100038.001.01**

Type/Composition: **BENCH MARK DISK SET IN TOP OF CONCRETE MONUMENT**

Stamping: **H 245 1952**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'38.78198"N**
 Longitude: **106°46'05.09859"W**
 GRID Northing: **465047.71 USFT**
 GRID Easting: **1480303.12 USFT**

*** * MODIFIED * ***

Projection: **NMSP CENTRAL ZONE**
 Northing: **465165.00 USFT**
 Easting: **1480262.74 USFT**
 Elevation: **3881.56 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point Δα: **-0°16'36"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

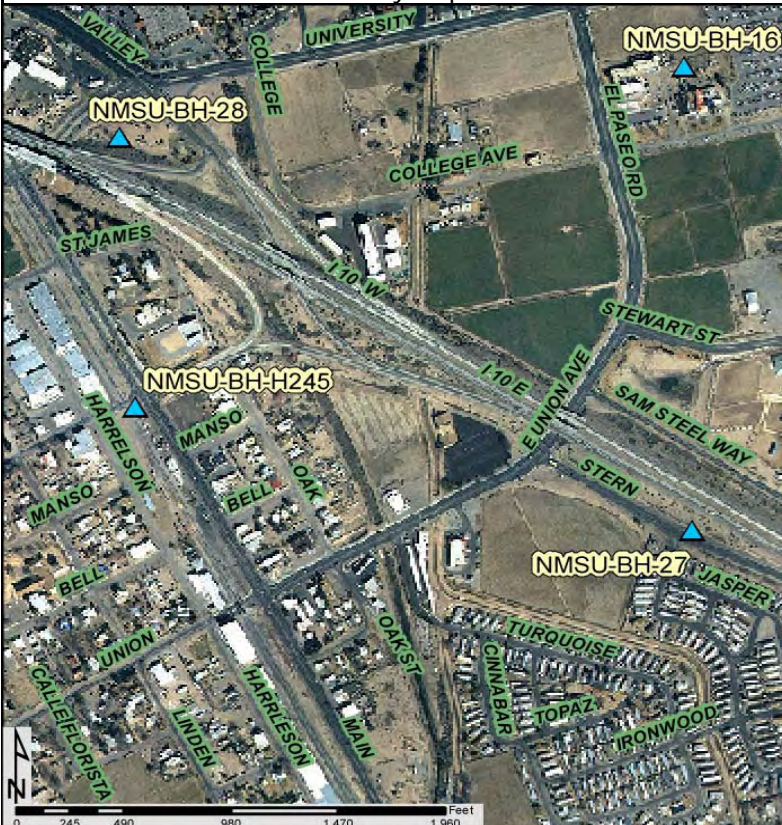


Photo:



Control Station Data



Name of Station: **NMSU-BH-REILLY**
 State: **NEW MEXICO**
 County: **DONA ANA**
 Grant: **DONA ANA BEND COLONY**

Establishing Group: **BOHANNAN HUSTON, INC.**
 Date: **12-MAY-09** BST Project #: **20100038.001.01**

Type/Composition: **s**
 Stamping: **NMSU GPS REILLY 1992**

Horizontal Data

Horizontal Datum: **NAD 83**
 Method: **RTK GPS @ 2 X 180 EPOCHS**
 Latitude: **32°16'55.92956"N**
 Longitude: **106°45'15.16114"W**
 GRID Northing: **466760.08 USFT**
 GRID Easting: **1484598.31 USFT**

* * MODIFIED * *

Projection: **NMSP CENTRAL ZONE**
 Northing: **466877.80 USFT**
 Easting: **1484559.01 USFT**
 Elevation: **3905.72 USFT**

Vertical Data

Vertical Datum: **NAVD 88**
 Method: **RTK GPS @ 2 X 180 EPOCHS**

Project Combined Factor: **0.999747848**
 Point Combined Factor: **N/A**
 Point $\Delta\alpha$: **-0°16'09"**

Location Description:

SEE VICINITY MAP

Vicinity Map:

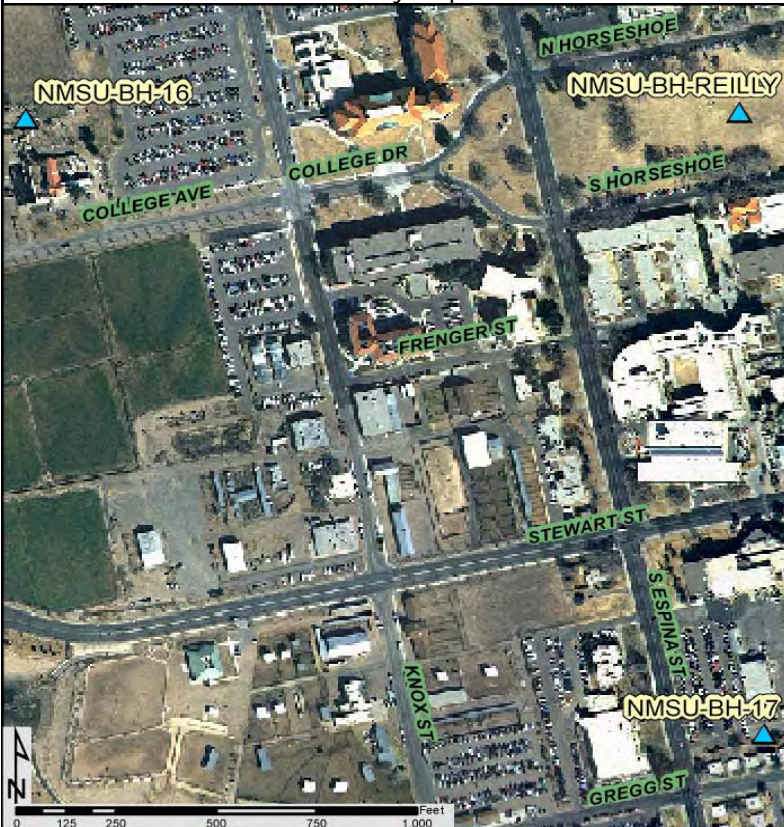


Photo:

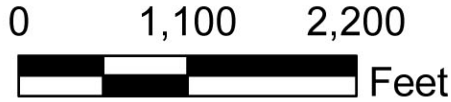


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**NEW MEXICO STATE UNIVERSITY CONTROL
OVERALL LAYOUT**

DONA ANA COUNTY
LAS CRUCES, NEW MEXICO



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