Ground Control Survey Report

Horizontal & Vertical Control, Coordinates and NGS Data Sheets for AZ_ Organ Pipe Cactus_ NM_2020_B20 Project

CONTRACT: G16PC00029

CONTRACTOR: Merrick-Surdex JV

TASK ORDER NUMBER: 140G0220F0218

TASK NAME: AZ_Organ Pipe Cactus_NM_2020_B20

CLIENT POINT-OF-CONTACT (POC):
USGS/NGTOC (USGS)
Leslie Lansbery, MS 668
1400 Independence Road
Rolla, MO 65401
(573) 308-3538
dvinc@usgs.gov

Submitted to:
USGS
science for a changing world

Submitted by:
MERRICK SURDEX
JOINT VENTURE

Contract Project Manager:
Doug Jacoby
Merrick & Company
5970 Greenwood Plaza Blvd.
Greenwood Village, CO 80111
(303) 353-3903 (o)
(303) 521-6522 (c)
doug.jacoby@merrick.com

Contractor Job Number: J65220670

ARIZONA ORGAN PIPE NATIONAL MONUMENT
LIDAR MAPPING PROJECT
GROUND CONTROL SURVEY REPORT

JOB NO. 65220670
DATE SEPTEMBER 2020

Contractor Project Manager:

PM Name:	Doug Jacoby
Subcontractor Firm:	Merrick-Surdex Joint Venture, LLP (JV)
Address:	5970 Greenwood Plaza Blvd. Greenwood Village, CO 80111
Office Phone/Fax:	(303) 353-3903
Cell Phone:	(303) 521-6522
E-mail:	doug.jacoby@merrick.com

Prepared by:

Merrick & Company
303-751-0741 / Fax: 303-751-2581
www.merrick.com

Prepared by:
Kevin T. Kenna, PLS
Geodesist
Merrick & Company
Geomatics
Direct: 303-353-3920
kevin.kenna@merrick.com

USGS ARIZONA ORGAN PIPE NATIONAL MONUMENT
LIDAR MAPPING PROJECT
GROUND CONTROL SURVEY REPORT

I. INTRODUCTION

This report summarizes the results of a ground control survey requested by USGS. The survey was conducted in Pima County, Arizona. The purpose of the survey of ground control and check points for LIDAR (Light Detection and Ranging) mapping of an area of interest covering approximately 532 square miles. .

Ground control field observations were performed by Merrick & Company personnel. Field effort commenced on September 17th, 2020 through September 24, 2020. Equipment used for this project included one Trimble R10 GNSS receiver with RTX service provided by Trimble (A satellite-based service using worldwide continuously operating reference stations). Horizontal and vertical measurements were verified by recovering and observing coordinates from the Trimble R10 GNSS receivers with the RTX service to 8 NGS (National Geodetic Survey) ground stations. The quality of LiDAR data was verified with 93 checkpoints. These checkpoints were utilized to verify confidence levels of the LIDAR datasets.

II. HORIZONTAL AND VERTICAL CONTROL

The coordinate system for this project is UTM ZONE 12 NORTH based on North American Datum of 1983 (NAD83), adjustment of 2011. The geodetic network was tied to CORS (Continuously Operating Reference Stations) via RTX and NGS ground stations. RTX coordinates are observed in International Terrestrial Reference Frame datum with the realization year of 2014 (ITRF (2014)).

Coordinate values measured utilizing the RTX network were converted into NAD83(2011) values using the HTDP (Horizontal Time Dependent Positioning) program version 3.2.9. NAVD 88 elevations were computed using Geoid 18. HTDP program is provided by the National Geodetic Survey. The following existing NGS control points were used as horizontal checks to control this survey:

NGS Primary Horizontal Control Checkpoints		
PT# (NGS NAME)	RECORD POSITION NAD-83 (2011)	
	LATITUDE	LONGITUDE
CHER	32°01'51.46610"N	112°47'57.19929"W
DUST	32°18'17.42692"N	112°45'34.56723"W
H 333	32°15'14.90349"N	112°44'39.89289"W
R 26	32°15'26.07350"N	112°44'03.44816"W

NGS Primary Control Horizontal NAD-83 (2011) Comparisons: Record Versus Measured		
PT# (NGS NAME)	NORTH (meters)	EAST (meters)
CHER	+0.057	-0.016
DUST	+0.053	+0.011
H 333	+0.058	-0.019
R 26	+0.098	+0.054

NGS Primary Vertical Control checks		
Comparisons: Record Versus Measured		
PT# (NGS NAME)	RECORD	MEASURED
	NAVD 88 elevation in meters	Difference in meters
DUST	520.327	+0.026
DUST RM1	520.205	+0,027
DUST RM2	520.202	+0.048
H 333	544.068	+0.012
M 333	542.932	+0.018
R 26	549.374	-0.008
U 342	336.64	-0.04

III. JOB SUMMARY AND EQUIPMENT

The coordinate system is UTM Zone 12 North. The units are in meters. The projection parameters are as follows:

UTM ZONE 12 NORTH
PROJECTION: TRANSVERSE MERCATOR
LATITUDE OF ORIGIN = N 0° 00’ 00.000000”
LONGITUDE OF ORIGIN = W 111° 00’ 00.000000”
FALSE NORTHING =0.000 meters
FALSE EASTING =500000.000 meters
SCALE FACTOR =0.9996000000

The data collected was converted and checked with published ground station coordinates. The specifications for accuracy with RTX are 2 centimeters horizontally and 5 centimeters vertically. Existing NGS published control stations were surveyed to assure that there were no discrepancies in the field observation data. Close examinations of the residuals showed no distortions in orientation or scale. Crustal movement in this area is to North

Satellite data was collected using one Trimble R10 receiver. The coordinates were processed using Trimble Business Center (Version 5.32).

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PT#	NAD83(2011)		ELLIPSOID	UTM ZONE 12 NORTH		NAVD 88	CODE	NOTE
	LATITUDE	LONGITUDE	HEIGHT	NORTHING	EASTING	ELEVATION		
			METERS	METERS	METERS	GEOID 18		
						METERS		
2001	31°53'07.62418"N	112°48'48.78576"W	397.537	3529173.139	328474.977	429.782	LIPT	NVA
2002	31°57'54.89989"N	112°45'02.99088"W	513.724	3537922.452	334550.928	545.614	LIPT	NVA
2002A	31°59'32.56444"N	112°48'19.18800"W	514.122	3541014.802	329450.356	546.094	LIPT	NVA
2003	32°10'12.57812"N	112°57'15.38496"W	381.440	3560970.547	315734.545	413.524	LIPT	NVA
2004	32°08'59.50223"N	112°40'04.09908"W	622.018	3558265.306	342713.937	653.468	LIPT	NVA
2005	32°03'55.54494"N	112°47'07.15632"W	539.616	3549082.234	331474.741	571.458	LIPT	NVA
2006	32°01'44.59246"N	113°01'29.30952"W	356.342	3545448.387	308788.831	388.787	LIPT	NVA
2007	32°06'58.97768"N	113°01'30.63324"W	330.553	3555131.592	308935.905	362.884	LIPT	NVA
2008	31°58'01.87856"N	113°00'46.07316"W	331.299	3538568.047	309795.465	363.835	LIPT	NVA
2009	31°55'41.54135"N	112°52'54.51168"W	412.262	3534023.273	322100.537	444.581	LIPT	NVA
2010	32°01'52.45849"N	112°47'57.06888"W	500.697	3545313.348	330102.621	532.613	LIPT	NVA
2011	31°57'41.70100"N	113°05'06.91440"W	271.034	3538076.328	302935.265	303.737	LIPT	NVA
2012	32°09'49.48128"N	112°45'48.22632"W	523.870	3559948.199	333723.036	555.596	LIPT	NVA
2013	32°08'44.05196"N	113°02'38.61348"W	326.344	3558401.407	307215.462	358.679	LIPT	NVA
2014	32°01'54.39284"N	112°56'57.30144"W	422.586	3545618.903	315930.757	454.849	LIPT	NVA
2015	31°59'37.71060"N	112°42'28.36404"W	626.043	3541023.677	338660.311	657.725	LIPT	NVA
2016	31°59'54.17311"N	112°58'51.92652"W	369.869	3541971.132	312855.633	402.274	LIPT	NVA
2017	32°12'03.30149"N	112°45'33.94692"W	510.027	3564063.308	334164.529	541.709	LIPT	NVA
2018	32°06'51.41056"N	112°46'10.56648"W	538.996	3554473.822	333047.675	570.761	LIPT	NVA
2018A	32°07'49.27750"N	112°46'06.83076"W	523.010	3556254.319	333174.849	554.769	LIPT	NVA
2019	31°51'18.47074"N	112°44'08.96172"W	403.956	3525691.396	335773.785	436.077	LIPT	NVA
2020	31°49'27.82279"N	112°38'03.14304"W	468.961	3522134.777	345337.621	500.859	LIPT	NVA
2021	32°09'46.88971"N	113°00'09.93672"W	341.268	3560263.484	311147.286	373.467	LIPT	NVA
2022	32°12'01.16568"N	112°54'18.95868"W	421.022	3564231.905	320415.378	452.998	LIPT	NVA
2023	31°58'38.41118"N	112°43'33.18492"W	567.760	3539224.528	336929.968	599.546	LIPT	NVA
2024	31°55'09.86322"N	112°56'41.54604"W	339.728	3533153.029	316120.070	372.219	LIPT	NVA
2025	31°52'17.40202"N	112°37'43.69764"W	484.148	3527349.187	345927.240	515.952	LIPT	NVA

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PT#	NAD83(2011)		ELLIPSOID	UTM ZONE 12 NORTH		NAVD 88	CODE	NOTE
	LATITUDE	LONGITUDE	HEIGHT	NORTHING	EASTING	ELEVATION		
			METERS	METERS	METERS	GEOID 18		
						METERS		
2026	31°59'10.96793"N	112°48'21.76956"W	520.603	3540350.842	329371.491	552.585	LIPT	NVA
2027	31°55'59.73100"N	112°47'59.45532"W	461.696	3534451.723	329859.218	493.793	LIPT	NVA
2028	32°01'11.65642"N	112°43'28.73100"W	720.219	3543941.961	337122.177	751.887	LIPT	NVA
2029	32°00'30.60306"N	112°50'11.23404"W	525.708	3542851.724	326540.007	557.735	LIPT	NVA
2029A	32°02'04.02896"N	112°51'37.00944"W	507.317	3545767.447	324338.709	539.378	LIPT	NVA
2030	32°11'49.85311"N	112°56'40.26372"W	432.054	3563949.768	316708.745	464.064	LIPT	NVA
2030A	32°11'02.12172"N	112°55'31.13940"W	425.666	3562447.147	318492.632	457.685	LIPT	NVA
2031	32°05'26.26264"N	113°01'03.30024"W	342.178	3552262.670	309598.885	374.525	LIPT	NVA
2032	32°07'49.24729"N	113°05'08.31012"W	303.787	3556788.717	303260.187	336.238	LIPT	NVA
2033	31°50'08.67862"N	112°40'17.93604"W	427.703	3523446.845	341812.958	459.692	LIPT	NVA
2034	32°09'25.33252"N	112°40'03.98280"W	615.204	3559060.729	342729.309	646.653	LIPT	NVA
2035	32°02'18.39566"N	112°42'57.34584"W	752.707	3545984.137	337978.289	784.309	LIPT	NVA
3001	31°53'07.61561"N	112°48'47.22732"W	396.421	3529172.190	328515.923	428.665	LIPT	VVA
3002	31°57'53.89243"N	112°45'00.35496"W	514.663	3537890.307	334619.627	546.552	LIPT	VVA
3002A	31°59'34.03036"N	112°48'20.78280"W	512.517	3541060.646	329409.253	544.490	LIPT	VVA
3003	32°10'10.69115"N	112°57'14.67792"W	380.690	3560912.095	315752.010	412.775	LIPT	VVA
3004	32°03'57.46831"N	112°47'06.74700"W	540.438	3549141.290	331486.455	572.279	LIPT	VVA
3005	32°01'47.47148"N	113°01'28.60824"W	356.713	3545536.710	308808.893	389.156	LIPT	VVA
3006	31°57'46.06816"N	113°00'43.80192"W	326.661	3538080.012	309846.038	359.205	LIPT	VVA
3007	31°55'45.91679"N	112°52'51.19752"W	414.678	3534156.510	322189.921	446.991	LIPT	VVA
3008	31°57'38.56824"N	113°04'51.00924"W	268.715	3537971.804	303351.019	301.412	LIPT	VVA
3009	32°08'46.94539"N	113°02'40.26660"W	325.809	3558491.344	307173.837	358.144	LIPT	VVA
3010	32°01'56.77410"N	112°56'42.35568"W	430.611	3545685.169	316324.184	462.863	LIPT	VVA
3011	31°59'45.60961"N	112°42'26.17128"W	637.239	3541266.022	338721.700	668.912	LIPT	VVA
3012	32°11'54.92040"N	112°45'34.00236"W	511.764	3563805.221	334158.853	543.449	LIPT	VVA
3012A	32°09'49.63694"N	112°45'48.07332"W	524.114	3559952.928	333727.123	555.840	LIPT	VVA
3013	32°06'59.79287"N	112°46'06.03336"W	537.176	3554730.018	333170.727	568.937	LIPT	VVA

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	LATITUDE	LONGITUDE	HEIGHT	NORTHING	EASTING	ELEVATION		
			METERS	METERS	METERS	GEOID 18		
						METERS		
3013A	32°07'48.45216"N	112°46'07.18896"W	522.900	3556229.056	333165.044	554.659	LIPT	VVA
3014	31°51'19.46866"N	112°44'08.08368"W	404.270	3525721.758	335797.355	436.390	LIPT	VVA
3015	31°49'31.05044"N	112°38'02.05548"W	471.312	3522233.740	345367.711	503.207	LIPT	VVA
3016	32°09'48.91979"N	112°59'51.02736"W	344.955	3560316.797	311643.835	377.140	LIPT	VVA
3017	32°11'56.44273"N	112°54'19.77372"W	419.278	3564086.826	320391.456	451.257	LIPT	VVA
3017A	32°11'49.54016"N	112°56'39.24492"W	431.718	3563939.647	316735.251	463.728	LIPT	VVA
3018	31°55'12.03884"N	112°56'39.80868"W	340.265	3533219.213	316166.908	372.754	LIPT	VVA
3019	31°52'11.58154"N	112°37'43.48848"W	480.295	3527169.865	345930.045	512.102	LIPT	VVA
3020	31°55'57.30434"N	112°47'58.93440"W	460.839	3534376.765	329871.657	492.938	LIPT	VVA
3021	32°00'32.15416"N	112°50'07.11816"W	524.121	3542897.657	326648.824	556.146	LIPT	VVA
3021A	32°02'05.62110"N	112°51'35.68320"W	506.411	3545815.881	324374.346	538.471	LIPT	VVA
3023	32°07'53.68332"N	113°04'56.90820"W	305.573	3556919.559	303561.651	338.016	LIPT	VVA
3024	32°09'22.13132"N	112°40'03.76896"W	616.284	3558962.058	342733.384	647.733	LIPT	VVA
3025	32°02'18.42500"N	112°42'55.78632"W	756.073	3545984.390	338019.212	787.673	LIPT	VVA
3022	32°05'23.30167"N	113°01'02.03700"W	343.007	3552170.857	309630.299	375.354	LIPT	VVA
4001	31°53'07.27908"N	112°48'48.82032"W	397.553	3529162.526	328473.892	429.798	LIPT	CAL
4001A	31°52'51.48178"N	112°49'03.28260"W	392.520	3528682.397	328085.726	424.783	LIPT	CAL
4002	31°58'01.67009"N	112°44'54.61044"W	520.116	3538127.387	334774.308	551.994	LIPT	CAL
4002A	31°59'33.98536"N	112°48'19.95156"W	513.304	3541058.896	329431.047	545.276	LIPT	CAL
4003	32°03'41.25704"N	112°47'12.61752"W	532.153	3548644.589	331324.236	564.004	LIPT	CAL
4004	31°57'32.77850"N	113°04'37.24896"W	266.861	3537786.548	303708.891	299.553	LIPT	CAL
4005	32°01'49.31357"N	112°57'13.99104"W	415.935	3545470.387	315490.071	448.211	LIPT	CAL
4006	32°12'01.11895"N	112°45'34.37172"W	511.062	3563996.275	334152.305	542.745	LIPT	CAL
4007	32°07'01.32103"N	112°46'09.09516"W	535.981	3554778.398	333091.251	567.745	LIPT	CAL
4007A	32°07'49.38348"N	112°46'05.95488"W	524.805	3556257.206	333197.856	556.563	LIPT	CAL
4008	31°51'11.02165"N	112°43'44.49324"W	405.167	3525451.734	336413.263	437.275	LIPT	CAL
4009	31°49'27.09761"N	112°38'05.88768"W	463.455	3522113.531	345265.122	495.356	LIPT	CAL

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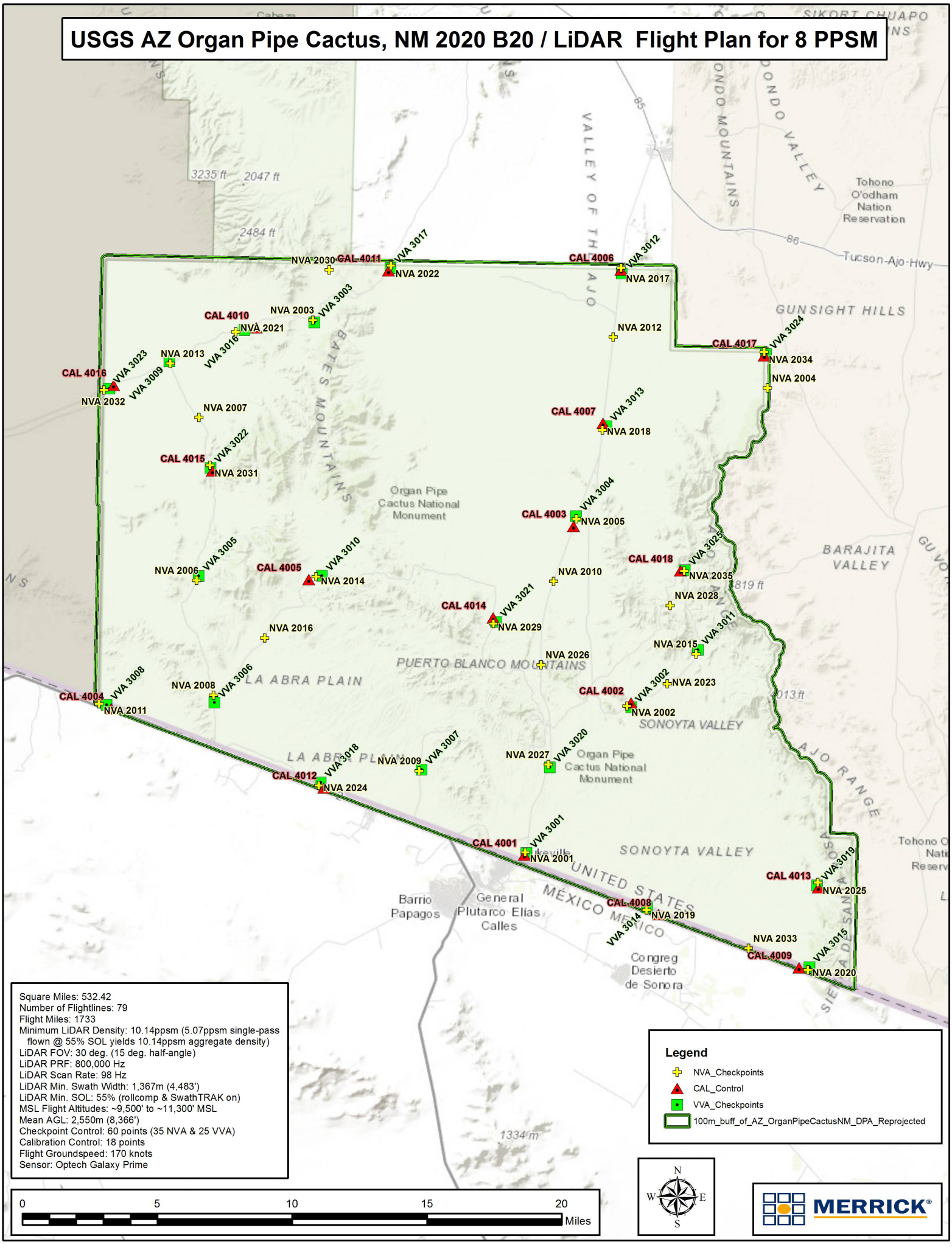
	LATITUDE	LONGITUDE	HEIGHT	NORTHING	EASTING	ELEVATION		
			METERS	METERS	METERS	GEOID 18		
						METERS		
4009A	31°49'45.34176"N	112°39'00.25488"W	436.619	3522696.964	343844.215	468.560	LIPT	CAL
4010	32°09'55.89079"N	112°59'23.52588"W	351.050	3560518.143	312368.285	383.213	LIPT	CAL
4011	32°11'52.06999"N	112°54'24.43212"W	418.895	3563954.318	320267.077	450.877	LIPT	CAL
4011A	32°11'48.33402"N	112°56'39.80652"W	431.208	3563902.766	316719.872	463.219	LIPT	CAL
4012	31°55'04.48500"N	112°56'28.28940"W	342.819	3532981.150	316465.317	375.306	LIPT	CAL
4013	31°52'06.64244"N	112°37'41.55024"W	483.376	3527017.004	345978.698	515.184	LIPT	CAL
4014	32°00'42.13516"N	112°50'11.75388"W	521.767	3543207.105	326532.403	553.792	LIPT	CAL
4014A	32°02'04.16843"N	112°51'36.42264"W	507.256	3545771.477	324354.177	539.316	LIPT	CAL
4015	32°05'17.18725"N	113°00'58.33728"W	345.027	3551980.728	309723.781	377.373	LIPT	CAL
4016	32°07'59.77711"N	113°04'44.85396"W	307.426	3557101.138	303881.188	339.860	LIPT	CAL
4017	32°09'18.83578"N	112°40'04.14732"W	616.945	3558860.722	342721.899	648.394	LIPT	CAL
4018	32°02'18.87266"N	112°43'07.72680"W	741.832	3546003.158	337706.211	773.446	LIPT	CAL
CHER	32°01'51.46795"N	112°47'57.19992"W	501.222	3545282.900	330098.675	533.138	MFBC	NGS GROUND STATION
DUST	32°18'17.42864"N	112°45'34.56684"W	488.741	3575585.606	334337.192	520.353	MFBC	NGS GROUND STATION
DUSTRM1	32°18'17.24839"N	112°45'35.03664"W	488.620	3575580.256	334324.813	520.232	MFBC	NGS GROUND STATION
DUSTRM2	32°18'17.86219"N	112°45'34.86852"W	488.638	3575599.087	334329.520	520.250	MFBC	NGS GROUND STATION
H333	32°15'14.90537"N	112°44'39.89364"W	512.481	3569941.040	335675.781	544.080	MFBC	NGS GROUND STATION
M333	32°12'01.00094"N	112°45'34.53696"W	511.266	3563992.712	334147.919	542.950	MFBC	NGS GROUND STATION
R26	32°15'26.07671"N	112°44'03.44616"W	517.796	3570269.625	336635.178	549.366	MFBC	NGS GROUND STATION
U342	32°07'49.21756"N	113°05'07.97820"W	304.145	3556787.633	303268.868	336.596	MFBC	NGS GROUND STATION


USGS AZ Organ Pipe Cactus, NM 2020 B20 / LiDAR Flight Plan for 8 PPSM
Square Miles: 532.42
Number of Flightlines: 79
Flight Miles: 1733
Minimum LiDAR Density: 10.14ppsm (5.07ppsm single-pass flown @ 55% SOL yields 10.14ppsm aggregate density)
LiDAR FOV: 30 deg. (15 deg. half-angle)
LiDAR PRF: 800,000 Hz
LiDAR Scan Rate: 98 Hz
LiDAR Min. Swath Width: 1,367m (4,483')
LiDAR Min. SOL: 55% (rollcomp & SwathTRAK on)
MSL Flight Altitudes: ~9,500' to ~11,300' MSL
Mean AGL: 2,550m (8,366')
Checkpoint Control: 60 points (35 NVA & 25 VVA)
Calibration Control: 18 points
Flight Groundspeed: 170 knots
Sensor: Optech Galaxy Prime
Legend
NVA_Checkpoints
CAL_Control
VVA_Checkpoints
100m_buff_of_AZ_OrganPipeCactusNM_DPA_Reprojected
0 5 10 15 20 Miles
N W E S
MERRICK
Organ Pipe Cactus National Monument
VALLEY OF THE AJO
BATES MOUNTAINS
PUERTO BLANCO MOUNTAINS
LA ABRA PLAIN
SONOYTA VALLEY
GUNSIGHT HILLS
BARAJITA VALLEY
AJO RANGE
Tohono O'odham Nation Reservation
Tucson-Ajo-Hwy
UNITED STATES
MÉXICO
Barrio Papagos
General Plutarco Elías Calles
Congreg Desierto de Sonora
3235 ft
2047 ft
2484 ft
1334 m
CAL 4011
NVA 2030
VVA 3017
NVA 2022
CAL 4006
VVA 3012
NVA 2017
CAL 4010
NVA 2003
VVA 3003
NVA 2021
VVA 3016
NVA 2012
CAL 4017
VVA 3024
NVA 2034
NVA 2004
CAL 4016
VVA 3023
NVA 2013
VVA 3009
NVA 2032
NVA 2007
CAL 4007
VVA 3013
NVA 2018
CAL 4015
VVA 3022
NVA 2031
CAL 4003
VVA 3004
NVA 2005
NVA 2006
VVA 3005
CAL 4005
VVA 3010
NVA 2014
NVA 2010
CAL 4018
VVA 3025
NVA 2035
NVA 2028
CAL 4014
VVA 3021
NVA 2029
NVA 2016
NVA 2015
VVA 3011
NVA 2026
CAL 4004
VVA 3008
NVA 2011
NVA 2008
VVA 3006
CAL 4002
VVA 3002
NVA 2023
NVA 2002
LA ABRA PLAIN
VVA 3018
NVA 2009
VVA 3007
NVA 2027
VVA 3020
CAL 4012
NVA 2024
CAL 4001
VVA 3001
NVA 2001
CAL 4013
VVA 3019
NVA 2025
CAL 4008
NVA 2019
VVA 3014
NVA 2033
CAL 4009
VVA 3015
NVA 2020

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0919 **********
DA0919 DESIGNATION - U 342
DA0919 PID - DA0919
DA0919 STATE/COUNTY- AZ/PIMA
DA0919 COUNTRY - US
DA0919 USGS QUAD - PALO VERDE CAMP (2018)
DA0919
DA0919 *CURRENT SURVEY CONTROL
DA0919 _____
DA0919* NAD 83(1986) POSITION- 32 07 49.3 (N) 113 05 08.0 (W) HD_HELD2
DA0919* NAVD 88 ORTHO HEIGHT - 336.64 (+/-2cm) 1104.5 (feet) VERTCON
DA0919 _____
DA0919 GEOID HEIGHT - -32.451 (meters) GEOID18
DA0919 VERT ORDER - SECOND CLASS 0 (See Below)
DA0919
DA0919.The horizontal coordinates were established by autonomous hand held GPS
DA0919.observations and have an estimated accuracy of +/- 10 meters.
DA0919.
DA0919.The NAVD 88 height was computed by applying the VERTCON shift value to
DA0919.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
DA0919
DA0919.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0919.GEOID18 height accuracy estimate available here.
DA0919
DA0919.The vertical order pertains to the NGVD 29 superseded value.
DA0919
DA0919.Click photographs - Photos may exist for this station.
DA0919
DA0919; North East Units Estimated Accuracy
DA0919;SPC AZ C - 125,919. 103,072. MT (+/- 10 meters HH2 GPS)
DA0919
DA0919_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA0326856790(NAD 83)
DA0919
DA0919 SUPERSEDED SURVEY CONTROL
DA0919
DA0919 NGVD 29 (??/??/92) 335.950 (m) 1102.20 (f) ADJ UNCH 2 0
DA0919
DA0919.Superseded values are not recommended for survey control.
DA0919
DA0919.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0919.See file dsdata.pdf to determine how the superseded data were derived.
DA0919
DA0919_MARKER: DB = BENCH MARK DISK
DA0919_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0919_STAMPING: U 342 1961
DA0919_MARK LOGO: CGS

DA0919_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0919+STABILITY: SURFACE MOTION
DA0919_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0919+SATELLITE: SATELLITE OBSERVATIONS - December 31, 2009
DA0919
DA0919 HISTORY   - Date   Condition   Report By
DA0919 HISTORY   - 1961   MONUMENTED   CGS
DA0919 HISTORY   - 1962   GOOD   CGS
DA0919 HISTORY   - 20091231 GOOD   GEOCAC
DA0919
DA0919   STATION DESCRIPTION
DA0919
DA0919'DESCRIBED BY COAST AND GEODETIC SURVEY 1962
DA0919'28.55 MI SW FROM AJO.
DA0919'ABOUT 0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND
DA0919'RAILROAD FROM THE STATION AT AJO. THENCE 2.4 MILES SOUTHEAST ALONG
DA0919'STATE HIGHWAY 85. THENCE 1.9 MILES SOUTHWEST ALONG AN OILED ROAD.
DA0919'THENCE 15.1 MILES SOUTHWEST ALONG A GRADED DIRT ROAD TO BATES WELL AND
DA0919'HENRY GRAYS RANCH HOUSE. THENCE 9.0 MILES SOUTHWEST ALONG A TRAIL
DA0919'ROAD, 0.5 MILE SOUTHWEST OF A 4X4-INCH WHITE WOODEN REFERENCE POST
DA0919'WHICH PROJECTS 16 FEET AND IS NUMBERED 51, 48 FEET SOUTHEAST OF THE
DA0919'CENTER OF AN ENTRANCE GATE TO THE CABEZA PRIETA GAME REFUGE, 1.5 FEET
DA0919'NORTHEAST OF A FENCE, 1.5 FEET SOUTHEAST OF A METAL WITNESS POST,
DA0919'ABOUT 1 FOOT ABOVE THE LEVEL OF THE TRAIL ROAD, AND SET IN THE TOP OF
DA0919'A CONCRETE POST PROJECTING 7 INCHES.
DA0919
DA0919   STATION RECOVERY (2009)
DA0919
DA0919'RECOVERY NOTE BY GEOCACHING 2009 (ACM)
DA0919'RECOVERED IN GOOD CONDITION.

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

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0339 **********
DA0339 DESIGNATION - R 26
DA0339 PID - DA0339
DA0339 STATE/COUNTY- AZ/PIMA
DA0339 COUNTRY - US
DA0339 USGS QUAD - SIKORT CHUAPO (2018)
DA0339
DA0339 *CURRENT SURVEY CONTROL
DA0339 _____
DA0339* NAD 83(1992) POSITION- 32 15 26.07350(N) 112 44 03.44816(W) ADJUSTED
DA0339* NAVD 88 ORTHO HEIGHT - 549.374 (meters) 1802.40 (feet) ADJUSTED
DA0339 _____
DA0339 GEOID HEIGHT - -31.570 (meters) GEOID18
DA0339 LAPLACE CORR - 3.97 (seconds) DEFLEC18
DA0339 DYNAMIC HEIGHT - 548.662 (meters) 1800.07 (feet) COMP
DA0339 MODELED GRAVITY - 979,327.0 (mgal) NAVD 88
DA0339
DA0339 HORZ ORDER - THIRD
DA0339 VERT ORDER - FIRST CLASS II
DA0339
DA0339.The horizontal coordinates were established by classical geodetic methods
DA0339.and adjusted by the National Geodetic Survey in August 1993.
DA0339.
DA0339.The orthometric height was determined by differential leveling and
DA0339.adjusted by the NATIONAL GEODETIC SURVEY
DA0339.in June 1991.
DA0339
DA0339.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0339.GEOID18 height accuracy estimate available here.
DA0339
DA0339.Click photographs - Photos may exist for this station.
DA0339
DA0339.The Laplace correction was computed from DEFLEC18 derived deflections.
DA0339
DA0339.The dynamic height is computed by dividing the NAVD 88
DA0339.geopotential number by the normal gravity value computed on the
DA0339.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0339.degrees latitude (g = 980.6199 gals.).
DA0339
DA0339.The modeled gravity was interpolated from observed gravity values.
DA0339
DA0339. The following values were computed from the NAD 83(1992) position.
DA0339
DA0339; North East Units Scale Factor Converg.
DA0339;SPC AZ C - 139,682.947 136,323.149 MT 0.99997316 -0 26 11.1
DA0339;SPC AZ C - 458,277.39 447,254.43 iFT 0.99997316 -0 26 11.1

DA0339;UTM 12 - 3,570,269.527 336,635.124 MT 0.99992912 -0 55 33.0
DA0339
DA0339! - Elev Factor x Scale Factor = Combined Factor
DA0339!SPC AZ C - 0.99991870 x 0.99997316 = 0.99989187
DA0339!UTM 12 - 0.99991870 x 0.99992912 = 0.99984783
DA0339
DA0339_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3663570269(NAD 83)
DA0339
DA0339 SUPERSEDED SURVEY CONTROL
DA0339
DA0339 NAD 83(1986)- 32 15 26.06297(N) 112 44 03.45208(W) AD( ) 3
DA0339 NAD 27 - 32 15 25.84000(N) 112 44 00.93000(W) AD( ) 3
DA0339 NGVD 29 (??/??/92) 548.646 (m) 1800.02 (f) ADJ UNCH 1 2
DA0339 NGVD 29 548.65 (m) 1800.0 (f) LEVELING 3
DA0339
DA0339.Superseded values are not recommended for survey control.
DA0339
DA0339.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0339.See file dsdata.pdf to determine how the superseded data were derived.
DA0339
DA0339_MARKER: DD = SURVEY DISK
DA0339_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0339_STAMPING: R 26 1930
DA0339_PROJECTION: PROJECTING 15 CENTIMETERS
DA0339_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0339+STABILITY: SURFACE MOTION
DA0339_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0339+SATELLITE: SATELLITE OBSERVATIONS - January 30, 2012
DA0339
DA0339 HISTORY - Date Condition Report By
DA0339 HISTORY - 1936 MONUMENTED USGS
DA0339 HISTORY - 1953 GOOD CGS
DA0339 HISTORY - 1981 GOOD NGS
DA0339 HISTORY - 19970306 GOOD USPSQD
DA0339 HISTORY - 19990106 GOOD USPSQD
DA0339 HISTORY - 20120130 GOOD GEOCAC
DA0339
DA0339 STATION DESCRIPTION
DA0339
DA0339'DESCRIBED BY US GEOLOGICAL SURVEY 1936 (JB)
DA0339'ABOUT 11 MILES, AIR LINE, SOUTHEAST OF AJO, AT A T-ROAD INTERSECTION
DA0339'MARKED BY A SIGN SONOYTA, MEXICO. 27 MILES, JUST WEST OF THE
DA0339'PAPAGO INDIAN RESERVATION BOUNDARY FENCE ON THE SELLS-AJO
DA0339'HIGHWAY IN THE VICINITY OF THE GUNSIGHT MINE. MARKED BY AN
DA0339'OLD SURVEY MARK STAMPED U.S. GEOLOGICAL SURVEY GOVT. WITH
DA0339'STATE R 26-1930 OVER WHICH IS A TARGET. THE TARGET IS 53.3
DA0339'METERS SOUTH OF THE CENTERLINE OF THE SELLS-AJO HIGHWAY AND
DA0339'7.5 METERS EAST OF THE CENTERLINE OF THE SONOYTA ROAD.
DA0339
DA0339 STATION RECOVERY (1953)
DA0339
DA0339'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1953
DA0339'11.7 MI SE FROM AJO.
DA0339'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD

DA0339'FROM THE STATION AT AJO, THENCE 11.55 MILES SOUTHEAST ALONG STATE
DA0339'HIGHWAY 86, AT THE T JUNCTION OF THE OLD SONOYTA-AJO HIGHWAY, 176 FEET
DA0339'SOUTHWEST OF THE CENTER LINE OF STATE HIGHWAY 86, 28 FEET SOUTHEAST OF
DA0339'THE CENTER LINE OF THE OLD HIGHWAY, 4.3 FEET SOUTHEAST OF A CAST IRON
DA0339'POST (AN OLD CUSTOMS SIGN MARKER POST), 1.7 FEET NORTHWEST OF A
DA0339'WITNESS POST, ABOUT 1 1/2 FEET LOWER THAN THE HIGHWAY, AND SET IN THE
DA0339'TOP OF A CONCRETE POST PROJECTING 0.5 FOOT ABOVE THE GROUND.
DA0339
DA0339 STATION RECOVERY (1981)
DA0339
DA0339'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0339'1.3 KM (0.8 MI) SOUTHEAST ALONG STATE HIGHWAY 86 FROM THE JUNCTION OF
DA0339'STATE HIGHWAY 85 IN WHY, 0.4 KM (0.25 MI) NORTHWEST OF HIGHWAY
DA0339'MILEPOST 54, AT THE JUNCTION OF A DIRT ROAD LEADING SOUTHWEST, 53.6 M
DA0339'(176 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY, 8.5 M (28.0 FT)
DA0339'SOUTHEAST OF THE CENTERLINE OF THE DIRT ROAD.
DA0339'THE MARK IS 0.3 METERS NW FROM A WITNESS POST.
DA0339'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY CENTERLINE.
DA0339
DA0339 STATION RECOVERY (1997)
DA0339
DA0339'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0339'RECOVERED IN GOOD CONDITION.
DA0339
DA0339 STATION RECOVERY (1999)
DA0339
DA0339'RECOVERY NOTE BY US POWER SQUADRON 1999
DA0339'RECOVERED IN GOOD CONDITION.
DA0339
DA0339 STATION RECOVERY (2012)
DA0339
DA0339'RECOVERY NOTE BY GEOCACHING 2012 (MEL)
DA0339'CONCRETE POST HAS BEEN REPAIRED AT SOME TIME IN THE PAST.

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0345 **********
DA0345 DESIGNATION - M 333
DA0345 PID - DA0345
DA0345 STATE/COUNTY- AZ/PIMA
DA0345 COUNTRY - US
DA0345 USGS QUAD - ARMENTA WELL (2018)
DA0345
DA0345 *CURRENT SURVEY CONTROL
DA0345 _____
DA0345* NAD 83(1986) POSITION- 32 12 01.04 (N) 112 45 34.58 (W) HD_HELD1
DA0345* NAVD 88 ORTHO HEIGHT - 542.932 (meters) 1781.27 (feet) ADJUSTED
DA0345 _____
DA0345 GEOID HEIGHT - -31.684 (meters) GEOID18
DA0345 DYNAMIC HEIGHT - 542.228 (meters) 1778.96 (feet) COMP
DA0345 MODELED GRAVITY - 979,325.1 (mgal) NAVD 88
DA0345
DA0345 VERT ORDER - FIRST CLASS II
DA0345
DA0345.The horizontal coordinates were determined by differentially corrected
DA0345.hand held GPS observations or other comparable positioning techniques
DA0345.and have an estimated accuracy of +/- 3 meters.
DA0345.
DA0345.The orthometric height was determined by differential leveling and
DA0345.adjusted by the NATIONAL GEODETIC SURVEY
DA0345.in June 1991.
DA0345
DA0345.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0345.GEOID18 height accuracy estimate available here.
DA0345
DA0345.Click photographs - Photos may exist for this station.
DA0345
DA0345.The dynamic height is computed by dividing the NAVD 88
DA0345.geopotential number by the normal gravity value computed on the
DA0345.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0345.degrees latitude (g = 980.6199 gals.).
DA0345
DA0345.The modeled gravity was interpolated from observed gravity values.
DA0345
DA0345; North East Units Estimated Accuracy
DA0345;SPC AZ C - 133,386.1 133,888.4 MT (+/- 3 meters HH1 GPS)
DA0345
DA0345_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3414663993(NAD 83)
DA0345
DA0345 SUPERSEDED SURVEY CONTROL
DA0345
DA0345 NGVD 29 (??/??/92) 542.212 (m) 1778.91 (f) ADJ UNCH 1 2

DA0345
DA0345.Superseded values are not recommended for survey control.
DA0345
DA0345.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0345.See file dsdata.pdf to determine how the superseded data were derived.
DA0345
DA0345_MARKER: DB = BENCH MARK DISK
DA0345_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0345_STAMPING: DOT M 333 1953 WBT
DA0345_MARK LOGO: CGS
DA0345_PROJECTION: PROJECTING 10 CENTIMETERS
DA0345_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0345+STABILITY: SURFACE MOTION
DA0345_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0345+SATELLITE: SATELLITE OBSERVATIONS - August 26, 2012
DA0345
DA0345 HISTORY - Date Condition Report By
DA0345 HISTORY - 1953 MONUMENTED CGS
DA0345 HISTORY - 1981 GOOD NGS
DA0345 HISTORY - 19970305 GOOD USPSQD
DA0345 HISTORY - 19990120 GOOD USPSQD
DA0345 HISTORY - 20120826 GOOD GEOCAC
DA0345
DA0345 STATION DESCRIPTION
DA0345
DA0345'DESCRIBED BY COAST AND GEODETIC SURVEY 1953
DA0345'15.7 MI SE FROM AJO.
DA0345'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD
DA0345'FROM THE STATION AT AJO, THENCE 10.75 MILES SOUTHEAST ALONG STATE
DA0345'HIGHWAY 86, THENCE 4.8 MILES SOUTH ALONG THE SONOYTA-AJO HIGHWAY, AT
DA0345'AN ENTRANCE TO THE ORGAN PIPE CACTUS NATIONAL MONUMENT, 56.4 FEET WEST
DA0345'OF THE CENTER LINE OF THE HIGHWAY, 50.0 FEET NORTHWEST OF THE
DA0345'NORTHWEST CORNER OF A CATTLE GUARD, 35.4 FEET NORTHWEST OF THE
DA0345'NORTHWEST POST OF THE NATIONAL MONUMENT SIGN, 2.5 FEET NORTHEAST OF A
DA0345'FENCE, 2.2 FEET EAST OF A WITNESS POST, ABOUT 1/2 FOOT HIGHER THAN THE
DA0345'HIGHWAY, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.3 FOOT
DA0345'ABOVE THE GROUND.
DA0345
DA0345 STATION RECOVERY (1981)
DA0345
DA0345'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0345'7.8 KM (4.85 MI) SOUTHWEST ALONG STATE HIGHWAY 85 FROM THE JUNCTION OF
DA0345'STATE HIGHWAY 86 IN WHY, AT THE ENTRANCE TO THE ORGAN PIPE NATIONAL
DA0345'MONUMENT, 17.1 M (56.4 FT) NORTHWEST OF THE CENTERLINE OF THE HIGHWAY,
DA0345'15.2 M (50.0 FT) NORTH OF THE NORTHWEST CORNER OF A CATTLE GUARD,
DA0345'10.7 M (35.4 FT) NORTHWEST OF THE NORTHWEST WOODEN POST FOR THE
DA0345'MONUMENT SIGN, 0.8 M (2.5 FT) NORTHEAST OF A WIRE FENCE LINE.
DA0345'THE MARK IS 06 METERS SE FROM A WITNESS POST.
DA0345'THE MARK IS ABOVE LEVEL WITH THE HIGHWAY CENTERLINE.
DA0345
DA0345 STATION RECOVERY (1997)
DA0345
DA0345'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0345'RECOVERED IN GOOD CONDITION.

DA0345
DA0345 STATION RECOVERY (1999)
DA0345
DA0345'RECOVERY NOTE BY US POWER SQUADRON 1999
DA0345'RECOVERED IN GOOD CONDITION.
DA0345
DA0345 STATION RECOVERY (2012)
DA0345
DA0345'RECOVERY NOTE BY GEOCACHING 2012 (ACM)
DA0345'RECOVERED IN GOOD CONDITION, AS DESCRIBED EXCEPT THAT THE CATTLE GUARD
DA0345'HAS BEEN REMOVED, THE MONUMENT SIGN IS NOW A MASONRY STRUCTURE WITH NO
DA0345'WOODEN POST AND THE WITNESS POST IS GONE. THE MARK IS ABOUT 20 FT
DA0345'(6.1 M) SOUTHWEST OF THE SOUTHEAST CORNER OF THE SIGN.

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0340 **********
DA0340 DESIGNATION - H 333
DA0340 PID - DA0340
DA0340 STATE/COUNTY- AZ/PIMA
DA0340 COUNTRY - US
DA0340 USGS QUAD - SIKORT CHUAPO (2018)
DA0340
DA0340 *CURRENT SURVEY CONTROL
DA0340 _____
DA0340* NAD 83(1992) POSITION- 32 15 14.90349(N) 112 44 39.89289(W) ADJUSTED
DA0340* NAVD 88 ORTHO HEIGHT - 544.068 (meters) 1785.00 (feet) ADJUSTED
DA0340 _____
DA0340 GEOID HEIGHT - -31.599 (meters) GEOID18
DA0340 LAPLACE CORR - 3.87 (seconds) DEFLEC18
DA0340 DYNAMIC HEIGHT - 543.365 (meters) 1782.69 (feet) COMP
DA0340 MODELED GRAVITY - 979,329.0 (mgal) NAVD 88
DA0340
DA0340 HORZ ORDER - SECOND
DA0340 VERT ORDER - FIRST CLASS II
DA0340
DA0340.The horizontal coordinates were established by classical geodetic methods
DA0340.and adjusted by the National Geodetic Survey in August 1993.
DA0340.
DA0340.The orthometric height was determined by differential leveling and
DA0340.adjusted by the NATIONAL GEODETIC SURVEY
DA0340.in June 1991.
DA0340
DA0340.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0340.GEOID18 height accuracy estimate available here.
DA0340
DA0340.Click photographs - Photos may exist for this station.
DA0340
DA0340.The Laplace correction was computed from DEFLEC18 derived deflections.
DA0340
DA0340.The dynamic height is computed by dividing the NAVD 88
DA0340.geopotential number by the normal gravity value computed on the
DA0340.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0340.degrees latitude (g = 980.6199 gals.).
DA0340
DA0340.The modeled gravity was interpolated from observed gravity values.
DA0340
DA0340. The following values were computed from the NAD 83(1992) position.
DA0340
DA0340; North East Units Scale Factor Converg.
DA0340;SPC AZ C - 139,346.205 135,366.624 MT 0.99997499 -0 26 30.4
DA0340;SPC AZ C - 457,172.59 444,116.22 iFT 0.99997499 -0 26 30.4

DA0340;UTM 12 - 3,569,940.982 335,675.800 MT 0.99993300 -0 55 52.2
DA0340
DA0340! - Elev Factor x Scale Factor = Combined Factor
DA0340!SPC AZ C - 0.99991954 x 0.99997499 = 0.99989453
DA0340!UTM 12 - 0.99991954 x 0.99993300 = 0.99985255
DA0340
DA0340: Primary Azimuth Mark Grid Az
DA0340:SPC AZ C - WHY 026 15 17.0
DA0340:UTM 12 - WHY 026 44 38.8
DA0340
DA0340_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3567569940(NAD 83)
DA0340
DA0340|----------|
DA0340| PID Reference Object Distance Geod. Az |
DA0340| dddmmss.s |
DA0340| DA1499 WHY APPROX. 1.9 KM 0254846.6 |
DA0340| CH4395 H 333 RM 1 13.037 METERS 19544 |
DA0340| CH4396 H 333 RM 2 13.088 METERS 28710 |
DA0340|----------|
DA0340
DA0340 SUPERSEDED SURVEY CONTROL
DA0340
DA0340 NAD 83(1986)- 32 15 14.89271(N) 112 44 39.89708(W) AD( ) 2
DA0340 NAD 27 - 32 15 14.67240(N) 112 44 37.36627(W) AD( ) 2
DA0340 NGVD 29 (??/??/92) 543.338 (m) 1782.60 (f) ADJ UNCH 1 2
DA0340 NGVD 29 543.34 (m) 1782.6 (f) LEVELING 3
DA0340
DA0340.Superseded values are not recommended for survey control.
DA0340
DA0340.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0340.See file dsdata.pdf to determine how the superseded data were derived.
DA0340
DA0340_MARKER: DB = BENCH MARK DISK
DA0340_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0340_STAMPING: DOT H 333 1953
DA0340_MARK LOGO: CGS
DA0340_PROJECTION: PROJECTING 20 CENTIMETERS
DA0340_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0340+STABILITY: SURFACE MOTION
DA0340_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0340+SATELLITE: SATELLITE OBSERVATIONS - April 14, 2016
DA0340
DA0340 HISTORY - Date Condition Report By
DA0340 HISTORY - 1953 MONUMENTED CGS
DA0340 HISTORY - 1977 GOOD AZDT
DA0340 HISTORY - 1981 GOOD NGS
DA0340 HISTORY - 19970305 GOOD USPSQD
DA0340 HISTORY - 19990120 GOOD USPSQD
DA0340 HISTORY - 20120826 GOOD GEOCAC
DA0340 HISTORY - 20160414 GOOD AZDT
DA0340
DA0340 STATION DESCRIPTION
DA0340
DA0340'DESCRIBED BY COAST AND GEODETIC SURVEY 1953

DA0340'11.9 MI SE FROM AJO.
DA0340'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD
DA0340'FROM THE STATION AT AJO, THENCE 10.75 MILES SOUTHEAST ALONG STATE
DA0340'HIGHWAY 86, THENCE 1.0 MILE SOUTH ALONG THE SONOYTA-AJO HIGHWAY, 52
DA0340'1/2 FEET WEST OF THE CENTER LINE OF THE HIGHWAY, 2.4 FEET SOUTH OF A
DA0340'WITNESS POST, ABOUT 1 1/2 FEET LOWER THAN THE HIGHWAY, AND SET IN THE
DA0340'TOP OF A CONCRETE POST PROJECTING 0.4 FOOT ABOVE THE GROUND.
DA0340
DA0340 STATION RECOVERY (1977)
DA0340
DA0340'RECOVERY NOTE BY ARIZONA DEPARTMENT OF TRANSPORTATION 1977 (TT)
DA0340'THE STATION IS ABOUT 10.5 MILES SOUTHEAST OF AJO AND 1.05 MILES
DA0340'SOUTH OF WHY ON THE WEST SIDE ARIZONA HWY. 85.
DA0340'
DA0340'THE STATION IS A STANDARD USC AND GS BENCH MARK DISK STAMPED H 333
DA0340'1953 AND SET IN THE TOP OF A CONCRETE POST. THE STATION IS 52
DA0340'FEET WEST OF HWY. CENTERLINE AND MARKED BY A WITNESS POST AND
DA0340'SIGN 3.7 FEET TO NW.
DA0340'
DA0340'REFERENCE MARK 1 IS AN ADOT HWY. DIVISION DISK STAMPED BM H 333
DA0340'RM 1 1977 AND IS SET IN 10 INCH DIAMETER CONCRETE MONUMENT 50 FEET
DA0340'WEST OF HWY. CENTERLINE.
DA0340'
DA0340'REFERENCE MARK 2 IS AN ADOT HWY. DIVISION DISK STAMPED BM H 333
DA0340'RM 2 1977 AND IS SET IN A 10 INCH DIAMETER CONCRETE MONUMENT 96
DA0340'FEET WEST OF HWY. CENTERLINE.
DA0340'
DA0340'TO REACH THE STATION FROM THE JUNCTION OF ARIZONA HWYS. 85 AND 86
DA0340'AT WHY, TRAVEL SOUTH ON HWY. 85 FOR ABOUT 1.05 MILES TO MILE POST
DA0340'53.95 AND THE STATION ON THE RIGHT. (WEST)
DA0340'
DA0340'HEIGHT OF LIGHT ABOVE STATION MARK 1.5 METERS.
DA0340
DA0340 STATION RECOVERY (1981)
DA0340
DA0340'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0340'1.7 KM (1.05 MI) SOUTHWEST ALONG STATE HIGHWAY 85 FROM THE JUNCTION OF
DA0340'STATE HIGHWAY 86 IN AJO, 0.2 KM (0.1 MI) NORTHEAST OF HIGHWAY MILEPOST
DA0340'54, 16.0 M (52.5 FT) NORTHWEST OF THE CENTERLINE OF THE HIGHWAY.
DA0340'THE MARK IS 0.6 METERS SE FROM A WITNESS POST.
DA0340'THE MARK IS 0.3 M BELOW THE HIGHWAY CENTERLINE.
DA0340
DA0340 STATION RECOVERY (1997)
DA0340
DA0340'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0340'RECOVERED IN GOOD CONDITION.
DA0340
DA0340 STATION RECOVERY (1999)
DA0340
DA0340'RECOVERY NOTE BY US POWER SQUADRON 1999
DA0340'RECOVERED IN GOOD CONDITION.
DA0340
DA0340 STATION RECOVERY (2012)
DA0340

DA0340'RECOVERY NOTE BY GEOCACHING 2012 (ACM)
DA0340'RECOVERED IN GOOD CONDITION, AS DESCRIBED.
DA0340
DA0340 STATION RECOVERY (2016)
DA0340
DA0340'RECOVERY NOTE BY ARIZONA DEPARTMENT OF TRANSPORTATION 2016 (DLR)
DA0340'THE STATION IS ON SR85 AT MILEPOST 53.95

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0334 **********
DA0334 FBN - This is a Federal Base Network Control Station.
DA0334 DESIGNATION - DUST
DA0334 PID - DA0334
DA0334 STATE/COUNTY- AZ/PIMA
DA0334 COUNTRY - US
DA0334 USGS QUAD - AJO SOUTH (2018)
DA0334
DA0334 *CURRENT SURVEY CONTROL
DA0334 _____
DA0334* NAD 83(2011) POSITION- 32 18 17.42692(N) 112 45 34.56723(W) ADJUSTED
DA0334* NAD 83(2011) ELLIP HT- 488.714 (meters) (06/27/12) ADJUSTED
DA0334* NAD 83(2011) EPOCH - 2010.00
DA0334* NAVD 88 ORTHO HEIGHT - 520.327 (meters) 1707.11 (feet) ADJUSTED
DA0334 _____
DA0334 GEOID HEIGHT - -31.612 (meters) GEOID18
DA0334 NAD 83(2011) X - -2,087,712.699 (meters) COMP
DA0334 NAD 83(2011) Y - -4,976,291.060 (meters) COMP
DA0334 NAD 83(2011) Z - 3,389,311.938 (meters) COMP
DA0334 LAPLACE CORR - 3.20 (seconds) DEFLEC18
DA0334 DYNAMIC HEIGHT - 519.654 (meters) 1704.90 (feet) COMP
DA0334 MODELED GRAVITY - 979,330.3 (mgal) NAVD 88
DA0334
DA0334 VERT ORDER - FIRST CLASS II
DA0334
DA0334 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DA0334 Standards:
DA0334 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
DA0334 Horiz Ellip SD_N SD_E SD_h (unitless)
DA0334 ----------
DA0334 NETWORK 0.41 1.00 0.18 0.15 0.51 -0.00645132
DA0334 ----------
DA0334 Click here for local accuracies and other accuracy information.
DA0334
DA0334
DA0334.The horizontal coordinates were established by GPS observations
DA0334.and adjusted by the National Geodetic Survey in June 2012.
DA0334
DA0334.NAD 83(2011) refers to NAD 83 coordinates where the reference frame has
DA0334.been affixed to the stable North American tectonic plate. See
DA0334.NA2011 for more information.
DA0334
DA0334.The horizontal coordinates are valid at the epoch date displayed above
DA0334.which is a decimal equivalence of Year/Month/Day.
DA0334
DA0334.The orthometric height was determined by differential leveling and

DA0334.adjusted by the NATIONAL GEODETIC SURVEY
DA0334.in June 1991.
DA0334
DA0334.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0334.GEOID18 height accuracy estimate available here.
DA0334
DA0334.Click photographs - Photos may exist for this station.
DA0334
DA0334.The X, Y, and Z were computed from the position and the ellipsoidal ht.
DA0334
DA0334.The Laplace correction was computed from DEFLEC18 derived deflections.
DA0334
DA0334.The ellipsoidal height was determined by GPS observations
DA0334.and is referenced to NAD 83.
DA0334
DA0334.The dynamic height is computed by dividing the NAVD 88
DA0334.geopotential number by the normal gravity value computed on the
DA0334.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0334.degrees latitude (g = 980.6199 gals.).
DA0334
DA0334.The modeled gravity was interpolated from observed gravity values.
DA0334
DA0334. The following values were computed from the NAD 83(2011) position.
DA0334
DA0334; North East Units Scale Factor Converg.
DA0334;SPC AZ C - 144,979.357 133,979.752 MT 0.99997768 -0 27 01.8
DA0334;SPC AZ C - 475,654.06 439,566.12 iFT 0.99997768 -0 27 01.8
DA0334;UTM 12 - 3,575,585.553 334,337.181 MT 0.99993844 -0 56 26.1
DA0334
DA0334! - Elev Factor x Scale Factor = Combined Factor
DA0334!SPC AZ C - 0.99992327 x 0.99997768 = 0.99990095
DA0334!UTM 12 - 0.99992327 x 0.99993844 = 0.99986172
DA0334
DA0334: Primary Azimuth Mark Grid Az
DA0334:SPC AZ C - GUNSIGHT 149 14 02.2
DA0334:UTM 12 - GUNSIGHT 149 43 26.5
DA0334
DA0334_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3433775585(NAD 83)
DA0334
DA0334|---|
DA0334| PID Reference Object Distance Geod. Az |
DA0334| dddmmss.s |
DA0334| DA1515 GUNSIGHT APPROX.13.5 KM 1484700.4 |
DA0334| CH5108 DUST AZ MK 1491324.9 |
DA0334| DA0333 DUST RM 1 13.483 METERS 24541 |
DA0334| DA1531 AJO PHELPS DODGE SMELT STACK APPROX.11.6 KM 3073513.0 |
DA0334| DA0332 DUST RM 2 15.509 METERS 32927 |
DA0334|---|
DA0334
DA0334 SUPERSEDED SURVEY CONTROL
DA0334
DA0334 NAD 83(2007)- 32 18 17.42637(N) 112 45 34.56605(W) AD(2007.00) 0
DA0334 ELLIP H (02/10/07) 488.723 (m) GP(2007.00)
DA0334 ELLIP H (09/30/99) 488.754 (m) GP( ) 3 1

DA0334 NAD 83(1986)- 32 18 17.41479(N)   112 45 34.57110(W) AD(   ) B
DA0334 NAD 83(1992)- 32 18 17.42572(N)   112 45 34.56595(W) AD(   ) A
DA0334 ELLIP H (09/30/92) 488.773 (m)   GP(   ) 2 1
DA0334 NAD 83(1986)- 32 18 17.41479(N)   112 45 34.57110(W) AD(   ) 2
DA0334 NAD 27   - 32 18 17.19619(N)   112 45 32.03439(W) AD(   ) 2
DA0334 NAVD 88   520.33   (m)   1707.1   (f) LEVELING   3
DA0334 NGVD 29 (??/??/92) 519.612 (m)   1704.76   (f) ADJ UNCH   1 2
DA0334 NGVD 29   519.61   (m)   1704.8   (f) LEVELING   3
DA0334
DA0334.Superseded values are not recommended for survey control.
DA0334
DA0334.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0334.See file dsdata.pdf to determine how the superseded data were derived.
DA0334
DA0334_MARKER: DS = TRIANGULATION STATION DISK
DA0334_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0334_STAMPING: DUST 1936 DOT
DA0334_MARK LOGO: CGS
DA0334_PROJECTION: PROJECTING 20 CENTIMETERS
DA0334_MAGNETIC: O = OTHER; SEE DESCRIPTION
DA0334_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0334+STABILITY: SURFACE MOTION
DA0334_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0334+SATELLITE: SATELLITE OBSERVATIONS - April 14, 2016
DA0334
DA0334 HISTORY   - Date   Condition   Report By
DA0334 HISTORY   - 1936   MONUMENTED   CGS
DA0334 HISTORY   - 1953   GOOD   CGS
DA0334 HISTORY   - 1953   GOOD   CGS
DA0334 HISTORY   - 1978   GOOD   NGS
DA0334 HISTORY   - 1979   GOOD   NGS
DA0334 HISTORY   - 1981   GOOD   NGS
DA0334 HISTORY   - 1981   GOOD   NGS
DA0334 HISTORY   - 19880320 GOOD   USPSQD
DA0334 HISTORY   - 19920203 GOOD   NGS
DA0334 HISTORY   - 19970305 GOOD   USPSQD
DA0334 HISTORY   - 19980918 GOOD   AZ-013
DA0334 HISTORY   - 19981110 GOOD   NGS
DA0334 HISTORY   - 20061112 GOOD   USPSQD
DA0334 HISTORY   - 20160414 GOOD   AZDT
DA0334
DA0334   STATION DESCRIPTION
DA0334
DA0334'DESCRIBED BY COAST AND GEODETIC SURVEY 1936 (JB)
DA0334'ABOUT 7 MILES, AIR LINE, SOUTHEAST OF AJO, 15.0 METERS SOUTH
DA0334'OF THE CENTERLINE OF THE SELLS-AJO HIGHWAY, AND 4.6 MILES
DA0334'ALONG THE SELLS-AJO HIGHWAY, IN THE DIRECTION OF AJO FROM THE
DA0334'PAPAGO INDIAN RESERVATION BOUNDARY FENCE. SURFACE AND UNDERGROUND
DA0334'MARKS ARE STANDARD BRONZE DISKS.
DA0334'SURFACE-STATION AND REFERENCE MARKS ARE SET IN 8- BY 8-INCH
DA0334'POSTS PROJECTING 6 INCHES ABOVE SURFACE OF GROUND. REFERENCE
DA0334'MARK NO. 1, A STANDARD BRONZE REFERENCE DISK, IS 13.490
DA0334'METERS (44.26 FEET) FROM STATION S 65 DEG 39 MIN W.
DA0334'REFERENCE MARK NO. 2, A STANDARD BRONZE REFERENCE DISK,

DA0334'IS 15.510 METERS (50.89 FEET) FROM STATION
DA0334'N 30 DEG 34 MIN W. THE AZIMUTH MARK, A STANDARD
DA0334'BRONZE DISK, IS ABOUT 0.3 MILE FROM STATION IN
DA0334'S 30 DEG 47 MIN E.
DA0334
DA0334 STATION RECOVERY (1953)
DA0334
DA0334'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1953 (EWR)
DA0334'THE STATION AND REFERENCE MARKS WERE RECOVERED IN GOOD CONDITION.
DA0334'THE AZIMUTH MARK WAS FOUND DESTROYED, AND THE DISK WAS RECOVERED.
DA0334'A COMPLETE NEW DESCRIPTION FOLLOWS--
DA0334'
DA0334'THE STATION IS LOCATED ABOUT 8 MI. SE OF AJO, ALONG STATE
DA0334'HIGHWAY 86. TO REACH FROM THE TUCSON, CORNELIA AND GILA BEND
DA0334'RAILROAD STATION AT AJO, GO 0.15 MI. SE ALONG THE TRACK TO STATE
DA0334'HIGHWAY 86, THENCE 7.9 MI. SE ALONG THE HIGHWAY TO A POINT
DA0334'1.4 MI. SE OF THE SE END OF A BEND IN THE HIGHWAY.
DA0334'
DA0334'THE STATION MARK IS A STANDARD STATION-MARK DISK, STAMPED
DA0334'DUST 1936, 51.5 FT. SW OF THE CENTERLINE OF THE HIGHWAY, 50.9 FT.
DA0334'SE OF REFERENCE MARK 2, 44.3 FT. NE OF REFERENCE MARK 1, 1.8
DA0334'FT. N OF A WITNESS POST, ABOUT 1 FT. LOWER THAN THE HIGHWAY,
DA0334'AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.6 FT. ABOVE
DA0334'THE GROUND.
DA0334'
DA0334'REFERENCE MARK 1 IS A REFERENCE-MARK DISK, STAMPED DUST NO 1
DA0334'1936, 95.8 FT. SW OF THE CENTERLINE OF THE HIGHWAY, 44.3
DA0334'FT. SW OF THE STATION, 1.8 FT. N OF A WITNESS POST, ABOUT
DA0334'LEVEL WITH THE STATION, AND SET IN THE TOP OF A CONCRETE POST
DA0334'PROJECTING 0.5 FT. ABOVE THE GROUND.
DA0334'
DA0334'R.M. 2 IS A REFERENCE MARK DISK, STAMPED DUST NO 2 1936, 52
DA0334'FEET SOUTHWEST OF THE CENTER LINE OF THE HIGHWAY, 50.9 FEET
DA0334'NW OF THE STATION, 2.2 FEET NE OF A WITNESS POST, AND SET IN
DA0334'TOP OF A CONCRETE POST PROJECTING 0.5 FOOT ABOVE THE GROUND.
DA0334
DA0334 STATION RECOVERY (1953)
DA0334
DA0334'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1953
DA0334'8.05 MI SE FROM AJO.
DA0334'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD
DA0334'FROM THE STATION AT AJO, THENCE 7.9 MILES SOUTHEAST ALONG STATE
DA0334'HIGHWAY 86, 1.4 MILES SOUTHEAST OF THE SOUTHEAST END OF A BEND IN THE
DA0334'HIGHWAY, 51.5 FEET SOUTHWEST OF THE CENTER LINE OF THE HIGHWAY, 50.9
DA0334'FEET SOUTHEAST OF DUST R.M. 2, 44.3 FEET NORTHEAST OF DUST R.M. 1, 1.8
DA0334'FEET NORTH OF A WITNESS POST, ABOUT 1 FOOT LOWER THAN THE HIGHWAY, AND
DA0334'SET IN THE TOP OF A CONCRETE POST PROJECTING 0.6 FOOT ABOVE THE
DA0334'GROUND.
DA0334
DA0334 STATION RECOVERY (1978)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1978 (TT)
DA0334'THE STATION AND REFERENCE MARKS WERE RECOVERED AND FOUND IN GOOD
DA0334'CONDITION. AZIMUTH MARK HAD BEEN DESTROYED. MEASUREMENT TO

DA0334'REFERENCE MARKS CHECKED WITHIN 8 CENTIMETERS AND ANGLE BETWEEN RMS
DA0334'CHECKED BY ONE MINUTE.
DA0334'
DA0334'TO REACH THE STATION FROM THE PLAZA IN AJO, TRAVEL SOUTH ALONG
DA0334'ARIZONA HWY. 85-86 FOR 8 MILES TO MILE POST 50.1 AND THE STATION ON
DA0334'THE RIGHT 51 FEET SOUTH OF HWY. CENTERLINE.
DA0334'
DA0334'THE 1953 DESCRIPTION OF THE MARKS ARE ADEQUATE.
DA0334'
DA0334'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--8 MILES SOUTHEAST
DA0334'OF AJO.
DA0334'
DA0334'HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.
DA0334
DA0334 STATION RECOVERY (1979)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1979
DA0334'DUST 1936 RECOVERED GOOD.
DA0334'
DA0334'DUST NO. 1 1936 RECOVERED GOOD.
DA0334'
DA0334'DUST NO 2 1936 RECOVERED GOOD.
DA0334'
DA0334'RECOVERED AS DESCRIBED.
DA0334'
DA0334'DISTANCE AND DIRECTION FROM NEAREST TOWN--12.8 KILOMETERS SOUTH
DA0334'EAST OF AJO.
DA0334
DA0334 STATION RECOVERY (1981)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981 (BWM)
DA0334'THE STATION MARK, RM 1 AND RM 2 WERE RECOVERED AS DESCRIBED.
DA0334
DA0334 STATION RECOVERY (1981)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0334'THE MARK IS 0.3 M BELOW THE HIGHWAY CENTERLINE.
DA0334'4.7 KM (2.9 MI) NORTHWEST ALONG STATE HIGHWAY 85 FROM THE JUNCTION OF
DA0334'STATE HIGHWAY 86 IN WHY, 0.2 KM (0.1 MI) SOUTHEAST OF HIGHWAY MILEPOST
DA0334'50, 15.7 M (51.5 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY, 15.5
DA0334'M (50.9 FT) SOUTHEAST OF REFERENCE MARK 2, 13.4 M (44.3 FT) NORTHEAST
DA0334'OF REFERENCE MARK 1.
DA0334'THE MARK IS 1.5 METERS SE FROM A WITNESS POST.
DA0334
DA0334 STATION RECOVERY (1988)
DA0334
DA0334'RECOVERY NOTE BY US POWER SQUADRON 1988 (EEM)
DA0334'RECOVERED IN GOOD CONDITION.
DA0334
DA0334 STATION RECOVERY (1992)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1992
DA0334'THE STATION IS LOCATED ABOUT 12.5 KM (7.8 MI) SOUTHEAST OF AJO, 4.8 KM
DA0334'(3.0 MI) NORTHWEST OF WHY, ALONG STATE HIGHWAY 85, 2.4 KM (1.5 MI)

DA0334'SOUTHWEST OF THE MIDDLE OF A LONG CURVE, ON THE RIGHT-OF-WAY, AT MILE
DA0334'50.15, IN A FLAT AREA WITH LOW SPARSE BRUSH. OWNERSHIP--STATE
DA0334'DEPARTMENT OF TRANSPORTATION.
DA0334'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAYS 85 AND 86 IN
DA0334'WHY, GO NORTHWEST ON HIGHWAY 85 FOR 2.74 KM (1.70 MI) TO A TRACK ROAD
DA0334'ON THE RIGHT IN A WASH. CONTINUE AHEAD ON HIGHWAY 85 FOR 2.12 KM
DA0334'(1.32 MI) TO THE STATION ON THE LEFT.
DA0334'THE STATION IS SET IN THE TOP OF A 20-CM SQUARE CONCRETE POST
DA0334'PROJECTING 20 CM ABOVE GROUND. LOCATED 45.1 M (148.0 FT) NORTHEAST
DA0334'OF THE RIGHT-OF-WAY FENCE, 15.8 M (51.8 FT) SOUTHWEST OF AND LEVEL
DA0334'WITH THE HIGHWAY CENTER AND 1.5 M (4.9 FT) SOUTHEAST OF A METAL
DA0334'WITNESS POST.
DA0334
DA0334 STATION RECOVERY (1997)
DA0334
DA0334'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0334'RECOVERED IN GOOD CONDITION.
DA0334
DA0334 STATION RECOVERY (1998)
DA0334
DA0334'RECOVERY NOTE BY MARICOPA COUNTY ARIZONA 1998 (LOC)
DA0334'RECOVERED AS DESCRIBED.
DA0334
DA0334 STATION RECOVERY (1998)
DA0334
DA0334'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1998 (CSM)
DA0334'RECOVERED AS DESCRIBED.
DA0334
DA0334 STATION RECOVERY (2006)
DA0334
DA0334'RECOVERY NOTE BY US POWER SQUADRON 2006 (DAB)
DA0334'RECOVERED IN GOOD CONDITION.
DA0334
DA0334 STATION RECOVERY (2016)
DA0334
DA0334'RECOVERY NOTE BY ARIZONA DEPARTMENT OF TRANSPORTATION 2016 (DLR)
DA0334'THE STATION IS ON SR85 AT MILEPOST 50.15

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0333 **********
DA0333 DESIGNATION - DUST RM 1
DA0333 PID - DA0333
DA0333 STATE/COUNTY- AZ/PIMA
DA0333 COUNTRY - US
DA0333 USGS QUAD - AJO SOUTH (2018)
DA0333
DA0333 *CURRENT SURVEY CONTROL
DA0333 _____
DA0333* NAD 83(1986) POSITION- 32 18 17.25 (N) 112 45 35.04 (W) HD_HELD1
DA0333* NAVD 88 ORTHO HEIGHT - 520.205 (meters) 1706.71 (feet) ADJUSTED
DA0333 _____
DA0333 GEOID HEIGHT - -31.612 (meters) GEOID18
DA0333 DYNAMIC HEIGHT - 519.532 (meters) 1704.50 (feet) COMP
DA0333 MODELED GRAVITY - 979,330.3 (mgal) NAVD 88
DA0333
DA0333 VERT ORDER - FIRST CLASS II
DA0333
DA0333.The horizontal coordinates were determined by differentially corrected
DA0333.hand held GPS observations or other comparable positioning techniques
DA0333.and have an estimated accuracy of +/- 3 meters.
DA0333.
DA0333.The orthometric height was determined by differential leveling and
DA0333.adjusted by the NATIONAL GEODETIC SURVEY
DA0333.in June 1991.
DA0333
DA0333.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0333.GEOID18 height accuracy estimate available here.
DA0333
DA0333.Click photographs - Photos may exist for this station.
DA0333
DA0333.The dynamic height is computed by dividing the NAVD 88
DA0333.geopotential number by the normal gravity value computed on the
DA0333.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0333.degrees latitude (g = 980.6199 gals.).
DA0333
DA0333.The modeled gravity was interpolated from observed gravity values.
DA0333
DA0333; North East Units Estimated Accuracy
DA0333;SPC AZ C - 144,974.0 133,967.3 MT (+/- 3 meters HH1 GPS)
DA0333
DA0333_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3432475580(NAD 83)
DA0333
DA0333 SUPERSEDED SURVEY CONTROL
DA0333
DA0333 NGVD 29 (??/??/92) 519.492 (m) 1704.37 (f) ADJ UNCH 1 2

DA0333
DA0333.Superseded values are not recommended for survey control.
DA0333
DA0333.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0333.See file dsdata.pdf to determine how the superseded data were derived.
DA0333
DA0333_MARKER: DR = REFERENCE MARK DISK
DA0333_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0333_STAMPING: DUST NO 1 1936
DA0333_MARK LOGO: CGS
DA0333_PROJECTION: PROJECTING 20 CENTIMETERS
DA0333_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0333+STABILITY: SURFACE MOTION
DA0333
DA0333 HISTORY   - Date   Condition   Report By
DA0333 HISTORY   - 1936   MONUMENTED   CGS
DA0333 HISTORY   - 1953   GOOD   CGS
DA0333 HISTORY   - 1981   GOOD   NGS
DA0333 HISTORY   - 19880320 GOOD   USPSQD
DA0333 HISTORY   - 19970305 GOOD   USPSQD
DA0333 HISTORY   - 19990120 MARK NOT FOUND USPSQD
DA0333
DA0333   STATION DESCRIPTION
DA0333
DA0333'DESCRIBED BY COAST AND GEODETIC SURVEY 1953
DA0333'8.05 MI SE FROM AJO.
DA0333'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD
DA0333'FROM THE STATION AT AJO, THENCE 7.9 MILES SOUTHEAST ALONG STATE
DA0333'HIGHWAY 86, 1.4 MILES SOUTHEAST OF THE SOUTHEAST END OF A BEND IN THE
DA0333'HIGHWAY, 95.8 FEET SOUTHWEST OF THE CENTER LINE OF THE HIGHWAY, 63.7
DA0333'FEET SOUTH OF DUST R.M. 2, 44.3 FEET SOUTHWEST OF TRIANGULATION
DA0333'STATION DUST, 1.8 FEET NORTH OF A WITNESS POST, ABOUT 1 FOOT LOWER
DA0333'THAN THE HIGHWAY, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.5
DA0333'FOOT ABOVE THE GROUND.
DA0333
DA0333   STATION RECOVERY (1981)
DA0333
DA0333'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0333'4.7 KM (2.9 MI) NORTHWEST ALONG STATE HIGHWAY 85 FROM THE JUNCTION OF
DA0333'STATE HIGHWAY 86 IN WHY, 0.2 KM (0.1 MI) SOUTHEAST OF HIGHWAY MILEPOST
DA0333'50, 29.7 M (95.8 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY,
DA0333'13.4 M (44.3 FT) SOUTHWEST OF STATION DUST.
DA0333'THE MARK IS 0.3 M BELOW THE HIGHWAY CENTERLINE.
DA0333
DA0333   STATION RECOVERY (1988)
DA0333
DA0333'RECOVERY NOTE BY US POWER SQUADRON 1988 (EEM)
DA0333'RECOVERED IN GOOD CONDITION.
DA0333
DA0333   STATION RECOVERY (1997)
DA0333
DA0333'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0333'RECOVERED IN GOOD CONDITION.
DA0333

DA0333 STATION RECOVERY (1999)
DA0333
DA0333'RECOVERY NOTE BY US POWER SQUADRON 1999
DA0333'MARK NOT FOUND.

*** retrieval complete.
Elapsed Time = 00:00:02

DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA0332 **********
DA0332 DESIGNATION - DUST RM 2
DA0332 PID - DA0332
DA0332 STATE/COUNTY- AZ/PIMA
DA0332 COUNTRY - US
DA0332 USGS QUAD - AJO SOUTH (2018)
DA0332
DA0332 *CURRENT SURVEY CONTROL
DA0332 _____
DA0332* NAD 83(1986) POSITION- 32 18 17.86 (N) 112 45 34.87 (W) HD_HELD1
DA0332* NAVD 88 ORTHO HEIGHT - 520.202 (meters) 1706.70 (feet) ADJUSTED
DA0332 _____
DA0332 GEOID HEIGHT - -31.612 (meters) GEOID18
DA0332 DYNAMIC HEIGHT - 519.529 (meters) 1704.49 (feet) COMP
DA0332 MODELED GRAVITY - 979,330.3 (mgal) NAVD 88
DA0332
DA0332 VERT ORDER - FIRST CLASS II
DA0332
DA0332.The horizontal coordinates were determined by differentially corrected
DA0332.hand held GPS observations or other comparable positioning techniques
DA0332.and have an estimated accuracy of +/- 3 meters.
DA0332.
DA0332.The orthometric height was determined by differential leveling and
DA0332.adjusted by the NATIONAL GEODETIC SURVEY
DA0332.in June 1991.
DA0332
DA0332.Significant digits in the geoid height do not necessarily reflect accuracy.
DA0332.GEOID18 height accuracy estimate available here.
DA0332
DA0332.Click photographs - Photos may exist for this station.
DA0332
DA0332.The dynamic height is computed by dividing the NAVD 88
DA0332.geopotential number by the normal gravity value computed on the
DA0332.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
DA0332.degrees latitude (g = 980.6199 gals.).
DA0332
DA0332.The modeled gravity was interpolated from observed gravity values.
DA0332
DA0332; North East Units Estimated Accuracy
DA0332;SPC AZ C - 144,992.8 133,971.9 MT (+/- 3 meters HH1 GPS)
DA0332
DA0332_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3432975599(NAD 83)
DA0332
DA0332 SUPERSEDED SURVEY CONTROL
DA0332
DA0332 NGVD 29 (??/??/92) 519.487 (m) 1704.35 (f) ADJ UNCH 1 2

DA0332
DA0332.Superseded values are not recommended for survey control.
DA0332
DA0332.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0332.See file dsdata.pdf to determine how the superseded data were derived.
DA0332
DA0332_MARKER: DR = REFERENCE MARK DISK
DA0332_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0332_STAMPING: DUST NO 2 1936 DOT
DA0332_MARK LOGO: CGS
DA0332_PROJECTION: PROJECTING 20 CENTIMETERS
DA0332_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0332+STABILITY: SURFACE MOTION
DA0332_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA0332+SATELLITE: SATELLITE OBSERVATIONS - November 12, 2006
DA0332
DA0332 HISTORY - Date Condition Report By
DA0332 HISTORY - 1936 MONUMENTED CGS
DA0332 HISTORY - 1953 GOOD CGS
DA0332 HISTORY - 1981 GOOD NGS
DA0332 HISTORY - 19880320 GOOD USPSQD
DA0332 HISTORY - 19970305 GOOD USPSQD
DA0332 HISTORY - 19990120 MARK NOT FOUND USPSQD
DA0332 HISTORY - 20061112 GOOD USPSQD
DA0332
DA0332 STATION DESCRIPTION
DA0332
DA0332'DESCRIBED BY COAST AND GEODETIC SURVEY 1953
DA0332'8.05 MI SE FROM AJO.
DA0332'0.15 MILE SOUTHEAST ALONG THE TUCSON, CORNELIA AND GILA BEND RAILROAD
DA0332'FROM THE STATION AT AJO, THENCE 7.9 MILES SOUTHEAST ALONG STATE
DA0332'HIGHWAY 86, 1.4 MILES SOUTHEAST OF THE SOUTHEAST END OF A BEND IN THE
DA0332'HIGHWAY, 63.7 FEET NORTH OF DUST R.M. 1, 52 FEET SOUTHWEST OF THE
DA0332'CENTER LINE OF THE HIGHWAY, 50.9 FEET NORTHWEST OF TRIANGULATION
DA0332'STATION DUST, 2.2 FEET NORTHEAST OF A WITNESS POST, ABOUT 1 FOOT LOWER
DA0332'THAN THE HIGHWAY, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.5
DA0332'FOOT ABOVE THE GROUND.
DA0332
DA0332 STATION RECOVERY (1981)
DA0332
DA0332'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0332'4.7 KM (2.9 MI) NORTHWEST ALONG STATE HIGHWAY 85 FROM THE JUNCTION OF
DA0332'STATE HIGHWAY 86 IN WHY, 0.2 KM (0.1 MI) SOUTHEAST OF HIGHWAY MILEPOST
DA0332'50, 15.8 M (52.0 FT) SOUTHWEST OF THE CENTERLINE OF THE HIGHWAY,
DA0332'15.4 M (50.9 FT) NORTHWEST OF THE STATION DUST.
DA0332'THE MARK IS 0.3 M BELOW THE HIGHWAY CENTERLINE.
DA0332
DA0332 STATION RECOVERY (1988)
DA0332
DA0332'RECOVERY NOTE BY US POWER SQUADRON 1988 (EEM)
DA0332'RECOVERED IN GOOD CONDITION.
DA0332
DA0332 STATION RECOVERY (1997)
DA0332

DA0332'RECOVERY NOTE BY US POWER SQUADRON 1997
DA0332'RECOVERED IN GOOD CONDITION.
DA0332
DA0332 STATION RECOVERY (1999)
DA0332
DA0332'RECOVERY NOTE BY US POWER SQUADRON 1999
DA0332'MARK NOT FOUND.
DA0332
DA0332 STATION RECOVERY (2006)
DA0332
DA0332'RECOVERY NOTE BY US POWER SQUADRON 2006 (DAB)
DA0332'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
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DATASHEETS Data Sheet Retrieval
The NGS Data Sheet

See file dsdata.pdf for more information about the datasheet.
PROGRAM = datasheet95, VERSION = 8.12.5.10
Starting Datasheet Retrieval...
1 National Geodetic Survey, Retrieval Date = OCTOBER 12, 2020
DA1524 **********
DA1524 DESIGNATION - CHER
DA1524 PID - DA1524
DA1524 STATE/COUNTY- AZ/PIMA
DA1524 COUNTRY - US
DA1524 USGS QUAD - TILLOTSON PEAK (2018)
DA1524
DA1524 *CURRENT SURVEY CONTROL
DA1524 _____
DA1524* NAD 83(1992) POSITION- 32 01 51.46610(N) 112 47 57.19929(W) ADJUSTED
DA1524* NAVD 88 ORTHO HEIGHT - 532.9 (meters) 1748. (feet) VERTCON
DA1524 _____
DA1524 GEOID HEIGHT - -31.916 (meters) GEOID18
DA1524 LAPLACE CORR - 4.17 (seconds) DEFLEC18
DA1524 HORZ ORDER - SECOND
DA1524
DA1524.The horizontal coordinates were established by classical geodetic methods
DA1524.and adjusted by the National Geodetic Survey in August 1993.
DA1524.
DA1524.The NAVD 88 height was computed by applying the VERTCON shift value to
DA1524.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
DA1524
DA1524.Significant digits in the geoid height do not necessarily reflect accuracy.
DA1524.GEOID18 height accuracy estimate available here.
DA1524
DA1524.Click photographs - Photos may exist for this station.
DA1524
DA1524.The Laplace correction was computed from DEFLEC18 derived deflections.
DA1524
DA1524. The following values were computed from the NAD 83(1992) position.
DA1524
DA1524; North East Units Scale Factor Converg.
DA1524;SPC AZ C - 114,640.585 129,999.492 MT 0.99998567 -0 28 05.2
DA1524;SPC AZ C - 376,117.40 426,507.52 iFT 0.99998567 -0 28 05.2
DA1524;UTM 12 - 3,545,282.843 330,098.691 MT 0.99995600 -0 57 16.2
DA1524
DA1524! - Elev Factor x Scale Factor = Combined Factor
DA1524!SPC AZ C - 0.99992134 x 0.99998567 = 0.99990701
DA1524!UTM 12 - 0.99992134 x 0.99995600 = 0.99987734
DA1524
DA1524: Primary Azimuth Mark Grid Az
DA1524:SPC AZ C - DEL 009 31 45.1
DA1524:UTM 12 - DEL 010 00 56.1
DA1524
DA1524_U.S. NATIONAL GRID SPATIAL ADDRESS: 12SUA3009845282(NAD 83)
DA1524

DA1524|---|
DA1524| PID Reference Object Distance Geod. Az |
DA1524| dddmmss.s |
DA1524| DA1521 DEL APPROX. 6.7 KM 0090339.9 |
DA1524|---|
DA1524
DA1524 SUPERSEDED SURVEY CONTROL
DA1524
DA1524 NAD 83(1986)- 32 01 51.45487(N) 112 47 57.20062(W) AD( ) 2
DA1524 NAD 27 - 32 01 51.21941(N) 112 47 54.64598(W) AD( ) 2
DA1524 NGVD 29 (07/19/86) 532.2 (m) 1746. (f) VERT ANG
DA1524
DA1524.Superseded values are not recommended for survey control.
DA1524
DA1524.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA1524.See file dsdata.pdf to determine how the superseded data were derived.
DA1524
DA1524_MARKER: DD = SURVEY DISK
DA1524_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA1524_STAMPING: CHER 1977
DA1524_MARK LOGO: AZDT
DA1524_PROJECTION: PROJECTING 5 CENTIMETERS
DA1524_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
DA1524+SATELLITE: SATELLITE OBSERVATIONS - August 26, 2012
DA1524
DA1524 HISTORY - Date Condition Report By
DA1524 HISTORY - 1977 MONUMENTED AZDT
DA1524 HISTORY - 19941110 GOOD USPSQD
DA1524 HISTORY - 20061112 GOOD USPSQD
DA1524 HISTORY - 20120826 GOOD GEOCAC
DA1524
DA1524 STATION DESCRIPTION
DA1524
DA1524'DESCRIBED BY ARIZONA DEPARTMENT OF TRANSPORTATION 1977 (TT)
DA1524'THE STATION IS ABOUT 24 MILES EAST SOUTHEAST OF AJO AND 10 MILES
DA1524'NORTH OF THE PORT OF ENTRY AT LUKEVILLE ALONG THE WEST SIDE OF
DA1524'ARIZONA HWY. 85. THE STATION IS LOCATED IN THE ORGAN PIPE
DA1524'NATIONAL MONUMENT.
DA1524'
DA1524'THE STATION IS AN ADOT HWY. DIVISION DISK STAMPED CHER 1977 AND
DA1524'IS SET IN A 10 INCH DIAMETER CONCRETE MONUMENT 25 FEET WEST OF
DA1524'HWY. CENTERLINE.
DA1524'
DA1524'REFERENCE MARK 1 IS AN ADOT HWY. DIVISION DISK STAMPED CHER RM
DA1524'1 1977 AND IS SET IN A 10 INCH DIAMETER CONCRETE MONUMENT ABOUT
DA1524'25 FEET WEST OF HWY. CENTERLINE.
DA1524'
DA1524'REFERENCE MARK 2 IS AN ADOT HWY. DIVISION DISK STAMPED CHER RM 2
DA1524'1977 SET IN A 10 INCH DIAMETER CONCRETE MONUMENT ABOUT 25 FEET
DA1524'WEST OF HWY. CENTERLINE.
DA1524'
DA1524'TO REACH THE STATION FROM THE JUNCTION OF HWYS. 85 AND 86 IN WHY,
DA1524'TRAVEL SOUTH ON HWY. 85 TO MILE POST 69.85 AND THE STATION ON
DA1524'THE RIGHT (WEST).

DA1524'
DA1524'HEIGHT OF LIGHT ABOVE STATION MARK 1.5 METERS.
DA1524
DA1524 STATION RECOVERY (1994)
DA1524
DA1524'RECOVERY NOTE BY US POWER SQUADRON 1994
DA1524'RECOVERED IN GOOD CONDITION.
DA1524
DA1524 STATION RECOVERY (2006)
DA1524
DA1524'RECOVERY NOTE BY US POWER SQUADRON 2006 (DAB)
DA1524'RECOVERED IN GOOD CONDITION.
DA1524
DA1524 STATION RECOVERY (2012)
DA1524
DA1524'RECOVERY NOTE BY GEOCACHING 2012 (ACM)
DA1524'RECOVERED IN GOOD CONDITION, AS DESCRIBED.

*** retrieval complete.
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M 333 SOUTH.JPG


M 333 WEST.JPG


M 333.JPG


R 26 EAST.JPG


R 26 NORTH.JPG


R 26 SOUTH.JPG


R 26 WEST.JPG


R26.JPG


U 342 EAST.JPG


U 342 NORTH.JPG


U 342 SOUTH.JPG


U 342 WEST.JPG


U 342.JPG


2P21 EAST.JPG


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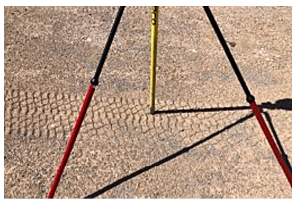
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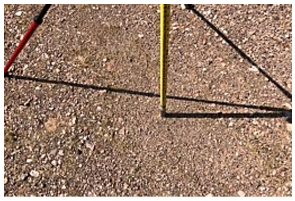
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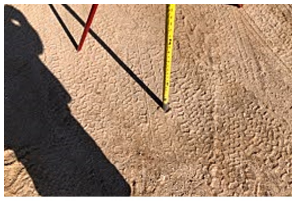
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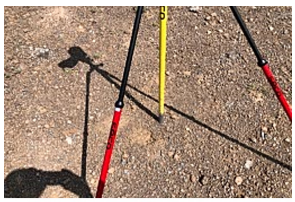
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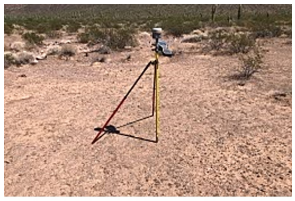
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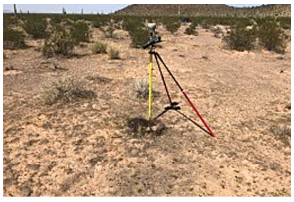
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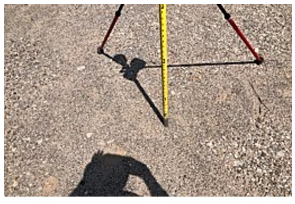
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4002A SOUTH.JPG


4002A WEEST.JPG


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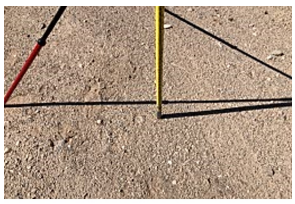
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4005 WEST.JPG


4005.JPG


4006 EAST.JPG


4006 NORTH.JPG


4006 SOUTH.JPG


4006 WEST.JPG

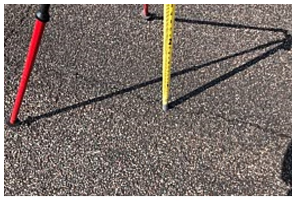

4006.JPG


4007 EAST.JPG


4007 NORTH.JPG


4007 SOUTH.JPG


4007 WEST.JPG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4007A EAST.JPG


4007A NORTH.JPG


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4007A WEST.JPG


4007A.JPG


4008 EAST.JPG


4008 NORTH.JPG


4008 SOUTH.JPG

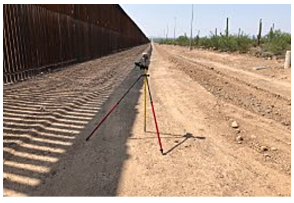

4008 WEST.JPG


4008.JPG


4009 EAST.JPG


4009 NORTH.JPG


4009 SOUTH.JPG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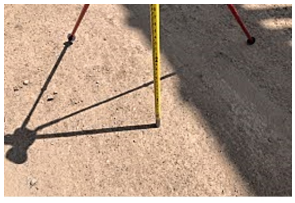
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4009A EAST.JPG


4009A NORTH.JPG


4009A SOUTH.JPG


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4009A.JPG


4010 EAST.JPG


4010 NORTH.JPG


4010 SOUTH.JPG


4010 WEST.JPG


4010.JPG


4011 EAST.JPG


4011 NORTH.JPG


4011 SOUTH.JPG


4011 WEST.JPG


4011.JPG


4011A EAST.JPG


4011A NORTH.JPG


4011A SOUTH.JPG


4011A WEST.JPG


4011A.JPG


4012 EAST.JPG


4012 NORTH.JPG


4012 SOUTH.JPG


4012 WEST.JPG


4012.JPG


4013 EAST.JPG


4013 NORTH.JPG


4013 SOUTH.JPG


4013 WEST.JPG


4013.JPG


4014 EAST.JPG


4014 NORTH.JPG


4014 SOUTH.JPG


4014 WEST.JPG


4014.JPG


4014A EAST.JPG


4014A NORTH.JPG


4014A SOUTH.JPG


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4014A.JPG


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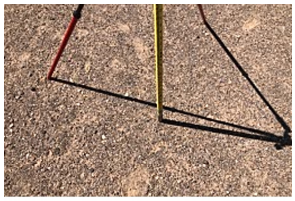
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4016.JPG


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4017 NORTH.JPG


4017 SOUTH.JPG


4017 WEST.JPG


4017.JPG


4018 EAST.JPG


4018 NORTH.JPG


4018 SOUTH.JPG


4018 WEST.JPG


4018.JPG


CHER EAST.JPG


CHER NORTH.JPG


CHER SOUTH.JPG


CHER WEST.JPG


CHER.JPG


DUST EAST.JPG


DUST NORTH.JPG


DUST RM1 EAST.JPG


DUST RM1 NORTH.JPG


DUST RM1 SOUTH.JPG


DUST RM1 WEST.JPG

DUST RM1.JPG

DUST RM2 EAST.JPG

DUST RM2 NORTH.JPG

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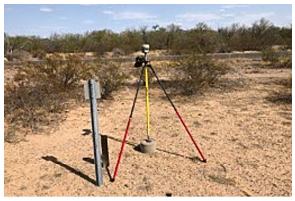

H 333 EAST.JPG

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H 333 WEST.JPG

H 333.JPG

M 333 EAST.JPG