Flood Control District
of Maricopa County
Contract FCD 2001C020

Buckeye/Sun Valley Area Drainage Master Plan

Survey Report for North Area

Prepared by:

HUITT-ZOLLARS

November 27, 2002

TABLE OF CONTENTS

I. TABLE OF CONTENTS

II. COVER LETTER

III. PROJECT APPROACH

IV. AERIAL CONTROL POINTS
- A. Averaged Grid Coordinates
- B. Positional Accuracy Certification
- C. Vertical Accuracy Certification
- D. Feet to Meter Conversions
- E. VERTCON Calculations
- F. Adjusted Coordinate & Elevation Information by Area
- G. Aerial Control- All Points- All Areas
- H. Multiple Area Point Averages
- J. Final Point Coordinates and Elevations
- K. Panel Elevation Information
- L. Sketches of Aerial Control Point Locations
- M. Map of Aerial Control Points

V. BLIND CHECK POINTS
- A. Averaged Grid Coordinates
- B. Feet to Meter Conversions
- C. VERTCON Calculations
- D. Panel Elevation Information
- E. Map of Blind Check Points

VI. ELEVATION REFERENCE MARKS (ERM's)
- A. Flood Control District of Maricopa County (FCDMC) Descriptions
- B. Sketches of ERMs Found in the Field
- C. ERM Coordinate & Elevation Information
- D. Feet to Meter Conversions
- E. VERTCON Calculations
- F. Final ERM Coordinate & Elevation Information (By Area)
- G. Positional Accuracy Certification
- H. Vertical Accuracy Certification
- J. Final ERM Coordinate & Elevation Information (Entire Project)
- K. Map of ERM's

VII. MAP OF ALL CONTROL POINTS

November 27, 2002

Ms. Valerie A. Swick, CFM
Planning Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009

RE: Buckeye/Sun Valley Area Drainage Master Plan (ADMP)
Contract FCD 2001C020
Survey Report for the Northerly Area of Project Limits

Dear Ms. Swick:

Huitt-Zollars, Inc., is pleased to submit the following survey report regarding the above referenced area of this project. The contents of this report were prepared during the time of March 2002 and November 2002.

Huitt-Zollars, Inc., as a sub-consultant to Kenney Aerial Mapping, provided mapping control data over an area roughly bounded by the White Tank Mountains to the north, the Union Pacific Railroad to the south, the mid-section line between Dean and Airport Roads to the east, and the 331st Avenue alignment to the west. This area covers approximately 85 square miles and encompasses most of Township 1 North, Range 3 West, Township 1 North, Range 4 West, the Eastern half of Township 1 North, Range 5 West and portions of surrounding townships were included in this survey.

We were responsible for providing main aerial target data to Kenney Aerial, "blind" aerial target data to the Flood Control District for quality control, and locations and descriptions of existing elevation reference marks that still existed within our area. We also provided "Check Profiles" along designated lines as provided by the Flood Control District.

The data, as well as the accuracy of the data, contained within this report and the attached maps were prepared under the direct supervision of Steve Long, RLS (Survey Manager), and Dan Francetic, RLS (Project Manager).

Sincerely,

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
22768
STEVEN R.
LONG
Date Signed 11/27/02
ARIZONA, U.S.A.

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
33874
DANIEL G.
FRANCETIC
Date Signed 12-13-02
ARIZONA, U.S.A.

Steven R. Long, RLS
Survey Manager

Dan Francetic, RLS
Project Manager

PROJECT APPROACH

Due to the large size of the project area, the speediest way to expedite this survey is to use Global Positioning System (GPS) satellite surveying methods. In accordance with Federal Emergency Management Agency (FEMA) Document 37, as well as the FCDMC's own guidelines and specifications, differential GPS methods are considered adequate for the purposes of this project. Differential GPS is generally defined as having a "base" receiver unit at a known point and measuring other points in the project area by using a "rover" receiver unit, producing a three-dimensional difference in location between the two. This information can then be used to calculate horizontal coordinates and elevation for the point located at the "rover". We decided to use Real-Time Kinematic (RTK) methods to conduct this differential GPS survey. With its constant radio communication with the "base" unit, the "rover" could collect information on the fly, reducing the amount of data processing necessary at the office afterwards. All aerial control points, GPS control points, ERM's, and approximately half of the blind aerial targets were located at least twice (on different days at different times of day) to verify their accuracy.

As directed by John Stock with the FCDMC, Maricopa County Geodetic Densification and Cadastral Survey (GDACS) control points were to be used as both a horizontal and vertical basis of this survey. Due to the large size of the project area, and the limitations of GPS RTK surveying, the whole project could not be collected from one base point. We determined that the best way to approach this project would be to divide our area into five smaller survey areas, denoted Area A, Area B, Area C, Area D, and Area E [see Drawing DWG2 at the end of this section]. Our GDACS base points for these areas are noted below:

Area A- 4BF1

Area B- 4BH4

Area C- 4CI1

Area D- 4AI1

Area E- 4AG1

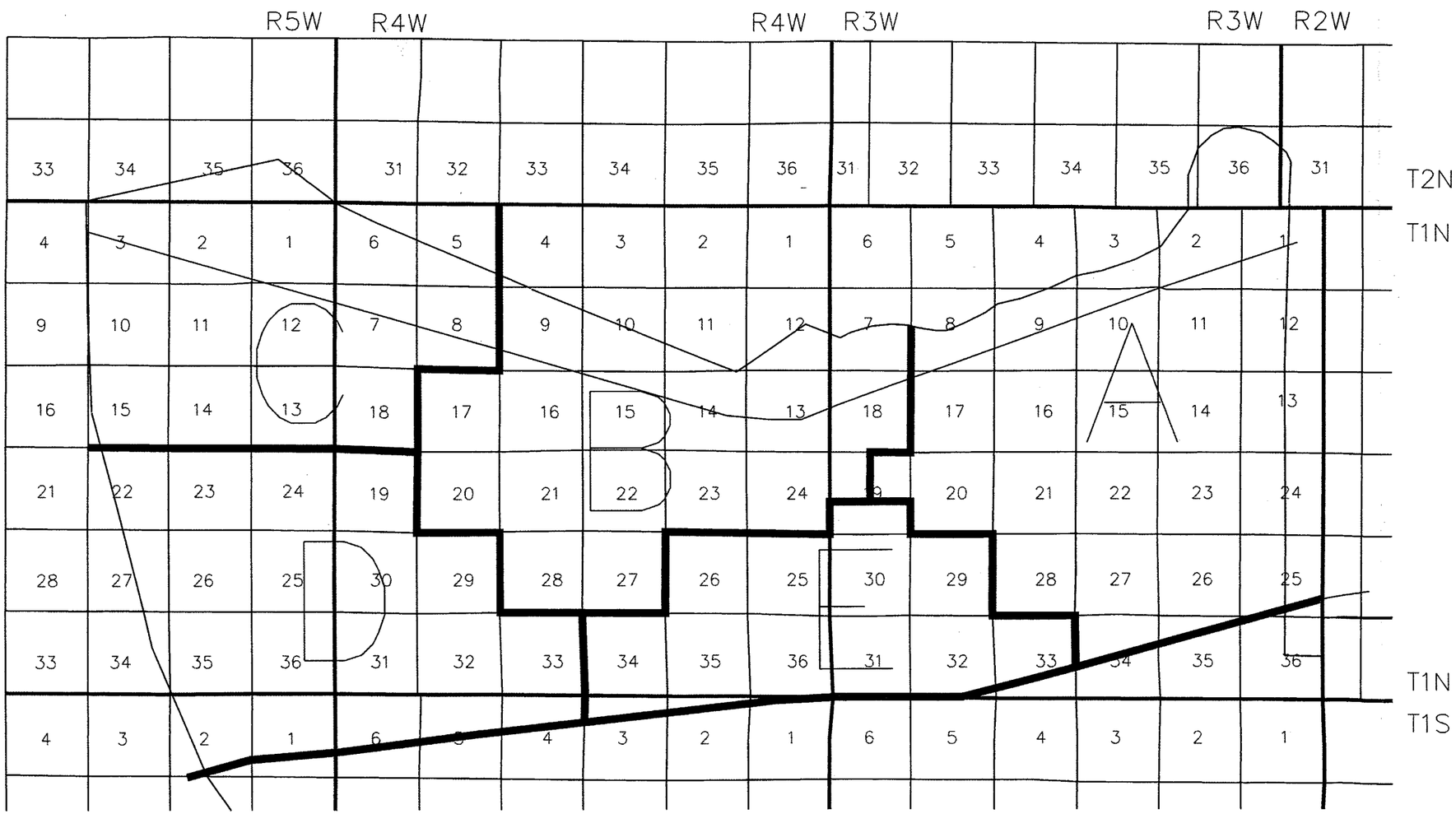
To ensure the quality of our measurements, we did a "site calibration" by using the nearest GDACS points to the northeast, northwest, southwest, and southeast of our base point. This provided a check of the GDACS control points and a best-fit mathematical model for the area we were surveying. Please see Section IV for these results. With this "site calibration", we could survey a four-sided area with the GDACS points at the vertices, and the base GDACS points in the center. This area would be roughly 36 square miles. Because the National Geodetic Survey (NGS) has not yet certified the GDACS points for vertical accuracy, we took measurements on NGS vertical benchmarks in each area to check and ensure the vertical accuracy of our surveys.

After the control for our sites was calibrated, checked, and verified, we moved on to locating the aerial control points. Kenney designated 32 such points in our entire project area. All these points were located at least twice, and where they fell between survey areas, were located from both areas. Results were checked and averaged, then provided to Kenney.

We then moved on to locating blind check points. We designated 100 locations for these points with Kenney's approval. Most of these points fell on Section corners or at the Center of Sections. We located about half of these points twice to verify their accuracy.

We finished by searching for and locating ERM points as provided by the FCDMC. Some of these points were not found, or were found destroyed. All ERM points that were found were located at least twice to verify accuracy. Accurate descriptions and sketches were produced for each one, and are included in this report [Section VIII].

All GPS work was conducted with Trimble 4700, 4800, and 5700 GPS receivers and Trimble TSC1 data collectors. Data was downloaded and processed through Trimble Geomatics Office (Version 1.50) software. Further data processing was done in Microsoft Excel 2000. All enclosed maps were produced in AutoCAD 2002. Existing control point information obtained from the Maricopa County D.O.T. (www.mcdot.maricopa.gov) and NGS (www.ngs.noaa.gov) websites. NGVD29 elevations were obtained using the VERTCON (Version 2.0) conversion program available through the NGS website (www.ngs.noaa.gov/TOOLS).



N. T. S.

NO.	REVISION	DATE
–		–

HUITT-ZOLLARS
Huitt-Zollars, Inc.
4750 North 24th Street, Suite 100
Phoenix, Arizona 85016-6859
Phone (602) 952-9123 Fax (602) 952-9124

RESULTS OF SURVEY

BUCKEYE/SUN VALLEY – SURVEY AREA

DATE:	NOV. 07, 2002
DRAWN:	PHIL
DESIGNED:	PHIL
CHECKED:	FRANCETIC
PROJ. NO.:	05-1294-01
FILE:	H:\PROJ\05129401\SURVEY\PHIL\DWG2.DWG
SHEET:	1 OF 1

AVERAGED GRID COORDINATES

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL GRID COORDINATES- AREA 'A'
5/1/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
1026	897154.4471		518015.3469		1118.681		GBCF
1026C	897154.4610	897154.4541	518015.3430	518015.3450	1118.724	1118.702	
1025	902135.4956		517972.6665		1196.079		CPCR
1025C	902135.5290	902135.5123	517972.6180	517972.6423	1196.020	1196.049	
1024	901420.6742		513579.9965		1380.983		CPCR
1024C	901420.6820	901420.6781	513579.9760	513579.9863	1380.930	1380.956	
1021	886544.9212		494234.8288		1094.469		CPCR
1021C	886544.9120	886544.9166	494234.7860	494234.8074	1094.381	1094.425	
1022	891646.8893		494323.8067		1172.912		CPCR
5022	891646.8988	891646.8941	494323.8184	494323.8126	1172.747	1172.830	CPCR
1031	886622.7547		504878.0315		1076.554		FIP
1031C	886622.8450	886622.7999	504878.0550	504878.0433	1076.548	1076.551	
1027	891931.7450		518000.3115		1073.002		CPCR
1027C	891931.7420	891931.7435	518000.2470	518000.2793	1072.993	1072.997	
1028	883946.9498		517972.3503		1006.791		CPCR
1028C	883946.9500	883946.9499	517972.3680	517972.3592	1006.776	1006.783	
1029	876034.4959		518081.9502		936.544		FIP
1029C	876034.5560	876034.5260	518081.9360	518081.9431	936.484	936.514	
1030	876076.6402		504784.1274		966.170		FIP
1030C	876076.6480	876076.6441	504784.1200	504784.1237	966.092	966.131	
1012	876086.1985		494253.2968		973.456		BCH
5012	876086.1689	876086.1837	494253.2919	494253.2944	973.585	973.520	BCH
1023	898503.1666		508730.5594		1252.053		CPN
5023	898503.0572	898503.1119	508730.5824	508730.5709	1251.956	1252.004	CPN

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL GRID COORDINATES- AREA 'B'
5/6/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
1021	886544.9502		494234.8114		1094.495		CPCR
5021	886544.8622	886544.9062	494234.6992	494234.7553	1094.406	1094.451	CPCR
1022	891646.8194		494323.8239		1172.701		CPCR
5022	891647.0088	891646.9141	494323.7185	494323.7712	1173.062	1172.882	CPCR
1004	876128.4730		483920.7708		981.305		CPCPS
1004C	876128.5490	876128.5110	483920.7820	483920.7764	981.359	981.332	
1019	892046.3881		478479.2676		1138.397		ACF
1019C	892046.4460	892046.4171	478479.2720	478479.2698	1138.410	1138.404	
1020	886297.9839		481740.6332		1203.443		CPCR
1020C	886298.0110	886297.9975	481740.6540	481740.6436	1203.472	1203.458	
1018	886550.5103		473218.6699		1069.510		CPCR
1018C	886550.4970	886550.5037	473218.6500	473218.6600	1069.588	1069.549	
1017	876171.3105		473184.8556		989.554		CPCR
5017	876171.2515	876171.2810	473184.9038	473184.8797	989.793	989.674	CPCR
1005	876246.6607		462601.0825		973.995		CPCR
5005	876246.5713	876246.6160	462601.1210	462601.1018	974.022	974.009	CPCR
1010	886720.4105		462628.5521		1042.442		CPCPS
1010C	886720.4620	886720.4363	462628.5560	462628.5541	1042.480	1042.461	

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL GRID COORDINATES- AREA 'C'
5/7/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
1007	881726.9151		441426.3016		989.305		CPCR
1007C	881726.9061	881726.9106	441426.3721	441426.3369	988.993	989.149	CPCR
1008	889730.6641		441554.8457		1004.660		CPCR
1008C	889730.7019	889730.6830	441554.8588	441554.8523	1004.452	1004.556	CPCR
1009	897509.3774		457370.8246		1105.148		BCH
1009C	897509.4070	897509.3922	457370.8080	457370.8163	1105.130	1105.139	
1010	886720.4218		462628.5564		1042.454		CPCPS
1010C	886720.4186	886720.4202	462628.5378	462628.5471	1042.402	1042.428	FCPS
1011	887062.4844		451907.8805		1039.130		CPCR
1011C	887062.4522	887062.4683	451907.9114	451907.8960	1038.959	1039.045	CPCR
1013	898872.5017		465192.6351		1147.287		CPCR
5013	898872.5147		465192.6434		1147.980		CPCR
1013C	898872.4843	898872.4995	465192.6519	465192.6477	1148.021	1148.000	CPCR
1014	900212.5495		453727.0083		1115.109		CPCR
1014C	900212.5161	900212.5328	453727.0460	453727.0272	1115.158	1115.133	CPCR
1015	897642.6204	897642.6204	441527.8215	441527.8215	1065.372	1065.372	BCF

NOTE
THE FIRST SHOT ON 1013 IS AN OUTLIER AND WAS THROWN-OUT AS BAD DATA.

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL GRID COORDINATES- AREA 'D'
5/9/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
1000	865737.5158		473093.0248		906.271		BCH
5000	865737.5907	865737.5533	473092.9895	473093.0072	906.260	906.265	BCH
1001	865837.9094		457247.1387		919.982		BCH
1001C	865837.9720	865837.9407	457247.1430	457247.1409	919.986	919.984	
1002	865925.5548		444024.8800		931.800		BCH
1002C	865925.5330	865925.5439	444024.8690	444024.8745	931.779	931.790	
1005	876246.5956		462601.1518		973.977		CPCR
5005	876246.6272	876246.6114	462601.1519	462601.1519	973.900	973.938	CPCR
1007	881726.7564		441426.3760		989.368		CPCR
5007	881726.8413	881726.7989	441426.3134	441426.3447	989.237	989.302	CPCR
1006	873862.6492		441423.7268		968.418		FIP
1006C	873862.6630	873862.6561	441423.7330	441423.7299	968.465	968.441	
1016	876448.5453		451995.8529		982.672		CPCR
1016C	876448.5740	876448.5597	451995.8380	451995.8455	982.673	982.672	

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL GRID COORDINATES- AREA 'E'
5/13/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
1003	865751.8518		489005.6876		894.479		FRR
1003C	865751.8700	865751.8609	489005.6740	489005.6808	894.455	894.467	
1000	865737.5741	865737.5741	473093.0497	473093.0497	906.294	906.294	BCH
1004	876128.5581		483920.7585		981.370		CPCPS
1004C	876128.6060	876128.5821	483920.7040	483920.7313	981.363	981.367	
1012	876086.1573		494253.2926		973.636		BCH
5012	876086.1644	876086.1609	494253.2803	494253.2865	973.718	973.677	BCH

POSITIONAL ACCURACY CERTIFICATION

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
POSITIONAL ACCURACY CERTIFICATION
5/1/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DELTA Z**	**SUMSQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3-ORD ALER-M**
4BF1	**883294.5619**		**504822.9876**		**1034.106**								
1026	897154.4471	13859.8852	518015.3469	13192.3593	1118.681	84.5745	366141914.5	19134.8351	5832.2977		-0.0012		
1026C	897154.4610	13859.8991	518015.3430	13192.3554	1118.724	84.6180	366142204.3	19134.8427	5832.3000	5832.2989	0.0012	5.8322989	0.5854
1025	902135.4956	18840.9337	517972.6665	13149.6789	1196.079	161.9729	527921073.1	22976.5331	7003.2473		0.0001		
1025C	902135.5290	18840.9671	517972.6180	13149.6304	1196.020	161.9140	527921037.1	22976.5323	7003.2470	7003.2472	-0.0001	7.0032472	0.7021
1024	901420.6742	18126.1123	513579.9965	8757.0089	1380.983	346.8767	405361475.4	20133.5907	6136.7185		0.0004		
1024C	901420.6820	18126.1201	513579.9760	8756.9884	1380.930	346.8240	405361362.6	20133.5879	6136.7176	6136.7180	-0.0004	6.1367180	0.6157
1021	886544.9212	3250.3593	494234.8288	-10588.1588	1094.469	60.3633	122677586.1	11075.9914	3375.9622		-0.0058		
1021C	886544.9120	3250.3501	494234.7860	-10588.2016	1094.381	60.2750	122678422.0	11076.0292	3375.9737	3375.9679	0.0058	3.3759679	0.3413
1022	891646.8893	8352.3274	494323.8067	-10499.1809	1172.912	138.8063	180013439.8	13416.9087	4089.4738		0.0000		
5022	891646.8988	8352.3274	494323.8184	-10499.1809	1172.747	138.8063	180013439.8	13416.9087	4089.4738	4089.4738	0.0000	4.0894738	0.4120
1031	886622.7547	3328.1928	504878.0315	55.0439	1076.554	42.4475	11081698.9	3328.9186	1014.6544		-0.0138		
1031C	886622.8450	3328.2831	504878.0550	55.0674	1076.548	42.4420	11082302.1	3329.0092	1014.6820	1014.6682	0.0138	1.0146682	0.1131
1027	891931.7450	8637.1831	518000.3115	13177.3239	1073.002	38.8959	248244310.0	15755.7707	4802.3589		0.0085		
1027C	891931.7420	8637.1801	518000.2470	13177.2594	1072.993	38.8870	248242557.6	15755.7151	4802.3420	4802.3504	-0.0085	4.8023504	0.4828
1028	883946.9498	652.3879	517972.3503	13149.3627	1006.791	-27.3151	173332095.5	13165.5648	4012.8641		-0.0027		
1028C	883946.9500	652.3881	517972.3680	13149.3804	1006.776	-27.3300	173332562.1	13165.5825	4012.8695	4012.8668	0.0027	4.0128668	0.4044
1029	876034.4959	-7260.0660	518081.9502	13258.9626	936.544	-97.5623	228518166	15116.8173	4607.6059		0.0062		
1029C	876034.5560	-7260.0059	518081.9360	13258.9484	936.484	-97.6220	228516928.4	15116.7764	4607.5934	4607.5997	-0.0062	4.6075997	0.4635
1030	876076.6402	-7217.9217	504784.1274	-38.8602	966.170	-67.9364	52104519.14	7218.3460	2200.1519		0.0011		
1030C	876076.6480	-7217.9139	504784.1200	-38.8676	966.092	-68.0140	52104417.66	7218.3390	2200.1497	2200.1508	-0.0011	2.2001508	0.2256

1012	876086.1985	-7208.3634	494253.2968	-10569.6908	973.456	-60.6501	163682544.9	12793.8479	3899.5649		-0.0031		
5012	876086.1689	-7208.3930	494253.2919	-10569.6957	973.585	-60.5212	163683059.6	12793.8680	3899.5710	3899.5679	0.0031	3.8995679	0.3931
1023	898503.1666	15208.6047	508730.5594	3907.5718	1252.053	217.9465	246618275	15704.0847	4786.6050		0.0155		
5023	898503.0572	15208.4953	508730.5824	3907.5948	1251.956	217.8498	246615084.9	15703.9831	4786.5740	4786.5895	-0.0155	4.7865895	0.4813

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND THE BASEPOINT 4BF1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4BF1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
POSITIONAL ACCURACY CERTIFICATION
5/6/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DELTA Z**	**SUMSQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3-ORD ALER-M**
4BH4	**885553.0936**		**477391.9038**		**1128.311**								
1021	886544.9502	991.8566	494234.8114	16842.9076	1094.495	-33.8156	284668459.4	16872.1208	5142.6224		0.0178		
5021	886544.8622	991.7686	494234.6992	16842.7954	1094.406	-33.9050	284664511.4	16872.0038	5142.5868	5142.6046	-0.0178	5.1426046	0.5167
1022	891646.8194	6093.7258	494323.8239	16931.9201	1172.701	44.3899	323825382.9	17995.1489	5484.9214		0.0052		
5022	891647.0088	6093.9152	494323.7185	16931.8147	1173.062	44.7511	323824154.2	17995.1147	5484.9110	5484.9162	-0.0052	5.4849162	0.5508
1004	876128.4730	-9424.6206	483920.7708	6528.8670	981.305	-147.0061	131471188.6	11466.0886	3494.8638		0.0087		
1004C	876128.5490	-9424.5446	483920.7820	6528.8782	981.359	-146.9520	131469886.4	11466.0318	3494.8465	3494.8552	-0.0087	3.4948552	0.3530
1019	892046.3881	6493.2945	478479.2676	1087.3638	1138.397	10.0862	43345335.2	6583.7174	2006.7171		-0.0088		
1019C	892046.4460	6493.3524	478479.2720	1087.3682	1138.410	10.0990	43346097.0	6583.7753	2006.7347	2006.7259	0.0088	2.0067259	0.2068
1020	886297.9839	744.8903	481740.6332	4348.7294	1203.443	75.1322	19471953.8	4412.7037	1344.9921		-0.0039		
1020C	886298.0110	744.9174	481740.6540	4348.7502	1203.472	75.1610	19472179.4	4412.7292	1344.9999	1344.9960	0.0039	1.3449960	0.1435
1018	886550.5103	997.4167	473218.6699	-4173.2339	1069.510	-58.8015	18414178.9	4291.1745	1307.9500		-0.0023		
1018C	886550.4970	997.4034	473218.6500	-4173.2538	1069.588	-58.7230	18414309.2	4291.1897	1307.9546	1307.9523	0.0023	1.3079523	0.1400
1017	876171.3105	-9381.7831	473184.8556	-4207.0482	989.554	-138.7569	105736362.2	10282.8188	3134.2032		-0.0047		
5017	876171.2515	-9381.8421	473184.9038	-4207.0000	989.793	-138.5177	105736997.3	10282.8497	3134.2126	3134.2079	0.0047	3.1342079	0.3174
1005	876246.6607	-9306.4329	462601.0825	-14790.8213	973.995	-154.3157	305401901.4	17475.7518	5326.6092		-0.0023		
5005	876246.5713	-9306.5223	462601.1210	-14790.7828	974.022	-154.2890	305402418.3	17475.7666	5326.6137	5326.6114	0.0023	5.3266114	0.5350
1010	886720.4105	1167.3169	462628.5521	-14763.3517	1042.442	-85.8686	219326555.6	14809.6778	4513.9898		0.0000		
1010C	886720.4620	1167.3684	462628.5560	-14763.3478	1042.480	-85.8310	219326554.2	14809.6777	4513.9898	4513.9898	0.0000	4.5139898	0.4542

NOTES
COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND

THE BASEPOINT 4BH4.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4BH4 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
AERIAL CONTROL POSITIONAL ACCURACY CERTIFICATION
5/7/02

POINT	NORTH	DELTA N	EAST	DELTA E	ELEV	DEL Z	SUMSQ	SQRT (IF)	SQRT (M)	MEAN (M)	DIFF (M)	MEAN (KM)	3-ORD ALER-M
4CI1	**897430.1827**		**457319.9236**		**1105.335**								
1007	881726.9151	-15703.2676	441426.3016	-15893.6220	989.305	-116.030	499213296.6	22343.0816	6810.1713		0.0064		
1007C	881726.9061	-15703.2766	441426.3721	-15893.5515	988.993	-116.342	499211410.7	22343.0394	6810.1584	6810.1648	-0.0064	6.8101648	0.6828
1008	889730.6641	-7699.5186	441554.8457	-15765.0779	1004.660	-100.675	307830403.4	17545.0963	5347.7453		0.0041		
1008C	889730.7019	-7699.4808	441554.8588	-15765.0648	1004.452	-100.883	307829450.1	17545.0691	5347.7371	5347.7412	-0.0041	5.3477412	0.5371
1009	897509.3774	79.1947	457370.8246	50.9010	1105.148	-0.187	8862.747241	94.1422	28.6945		-0.0024		
1009C	897509.4070	79.2243	457370.8080	50.8844	1105.130	-0.205	8865.753899	94.1581	28.6994	28.6970	0.0024	0.0286970	0.0501
1010	886720.4218	-10709.7609	462628.5564	5308.6328	1042.454	-62.881	142884514.8	11953.4311	3643.4058		0.0008		
1010C	886720.4186	-10709.7641	462628.5378	5308.6142	1042.402	-62.933	142884392.3	11953.4260	3643.4042	3643.4050	-0.0008	3.6434050	0.3678
1011	887062.4844	-10367.6983	451907.8805	-5412.0431	1039.130	-66.205	136783761.6	11695.4590	3564.7759		-0.0023		
1011C	887062.4522	-10367.7305	451907.9114	-5412.0122	1038.959	-66.376	136784117.5	11695.4742	3564.7805	3564.7782	0.0023	3.5647782	0.3600
5013	898872.5147	1442.3320	465192.6434	7872.7198	1147.980	42.645	64061857.22	8003.8651	2439.5781		-0.0005		
1013C	898872.4843	1442.3016	465192.6519	7872.7283	1148.021	42.686	64061906.87	8003.8682	2439.5790	2439.5786	0.0005	2.4395786	0.2490
1014	900212.5495	2782.3668	453727.0083	-3592.9153	1115.109	9.774	20650700.88	4544.3042	1385.1039		0.0076		
1014C	900212.5161	2782.3334	453727.0460	-3592.8776	1115.158	9.823	20650245.09	4544.2541	1385.0886	1385.0963	-0.0076	1.3850963	0.1473
1015	897642.6204	212.4377	441527.8215	-15792.1021	1065.372	-39.963	249437215.6	15793.5815	4813.8836	4813.8836	0	4.8138836	0.4840

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4CI1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4CI1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J
COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K
COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N
COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
AERIAL CONTROL POSITIONAL ACCURACY CERTIFICATION
5/9/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DEL Z**	**SUMSQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3-ORD ALER-M**
4AI1	**865867.8438**		**457205.2421**		**920.775**								
1000	865737.5158	-130.3280	473093.0248	15887.7827	906.271	-14.5037	252438834.9	15888.3239	4842.7611		0.0055		
5000	865737.5907	-130.2531	473092.9895	15887.7474	906.260	-14.5155	252437694.0	15888.2880	4842.7502	4842.7556	-0.0055	4.8427556	0.4868
1001	865837.9094	-29.9344	457247.1387	41.8966	919.982	-0.7933	2652.023	51.4978	15.6965		0.0050		
1001C	865837.9720	-29.8718	457247.1430	41.9009	919.986	-0.7890	2648.632	51.4649	15.6865	15.6915	-0.0050	0.0156915	0.0500
1002	865925.5548	57.7110	444024.8800	-13180.3621	931.800	11.0251	173725397.2	13180.4931	4017.4143		-0.0017		
1002C	865925.5330	57.6892	444024.8690	-13180.3731	931.779	11.0040	173725684.2	13180.5039	4017.4176	4017.4159	0.0017	4.0174159	0.4048
1005	876246.5956	10378.7518	462601.1518	5395.9097	973.977	53.2015	136837160.8	11697.7417	3565.4717		-0.0042		
5005	876246.6272	10378.7834	462601.1519	5395.9098	973.900	53.1246	136837809.7	11697.7694	3565.4801	3565.4759	0.0042	3.5654759	0.3600
1007	881726.7564	15858.9126	441426.3760	-15778.8661	989.368	68.5928	500482429.2	22371.4646	6818.8224		-0.0158		
5007	881726.8413	15858.9975	441426.3134	-15778.9287	989.237	68.4618	500487079.6	22371.5686	6818.8541	6818.8383	0.0158	6.8188383	0.6837
1006	873862.6492	7994.8054	441423.7268	-15781.5153	968.418	47.6425	312975408.4	17691.1110	5392.2506		-0.0001		
1006C	873862.6630	7994.8192	441423.7330	-15781.5091	968.465	47.6900	312975437.9	17691.1118	5392.2509	5392.2508	0.0001	5.3922508	0.5415
1016	876448.5453	10580.7015	451995.8529	-5209.3892	982.672	61.8968	139092811.3	11793.7615	3594.7385		-0.0049		
1016C	876448.5740	10580.7302	451995.8380	-5209.4041	982.673	61.8980	139093574.0	11793.7939	3594.7484	3594.7434	0.0049	3.5947434	0.3629

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4AI1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4AI1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K
COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N
COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
AERIAL CONTROL POSITIONAL ACCURACY CERTIFICATION
5/13/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DEL Z**	**SUMSQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3-ORD ALER- M**
4AG1	**865722.8301**		**488725.1914**		**892.385**								
1003	865751.8518	29.0217	489005.6876	280.4962	894.479	2.0944	79524.7638	282.0014	85.9540		0.0018		
1003C	865751.8700	29.0399	489005.6740	280.4826	894.455	2.0700	79518.0896	281.9895	85.9504	85.9522	-0.0018	0.0859522	0.050733
1000	865737.5741	14.7440	473093.0497	-15632.1417	906.294	13.9088	244364265.0	15632.1548	4764.6808	4764.6808	0.0000	4.7646808	0.479084
1004	876128.5581	10405.7280	483920.7585	-4804.4329	981.370	88.9850	131369669.0	11461.6608	3493.5142		-0.0101		
1004C	876128.6060	10405.7759	483920.7040	-4804.4874	981.363	88.9780	131371188.3	11461.7271	3493.5344	3493.5243	0.0101	3.4935243	0.352912
1012	876086.1573	10363.3272	494253.2926	5528.1012	973.636	81.2513	137965055.3	11745.8527	3580.1359		-0.0002		
5012	876086.1644	10363.3343	494253.2803	5528.0889	973.718	81.3331	137965079.8	11745.8537	3580.1362	3580.1361	0.0002	3.5801361	0.361488

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4AG1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4AG1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

VERTICAL ACCURACY CERTIFICATION

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
VERTICAL ACCURACY CERTIFICATION
5/1/02

A POINT 4BF1	B ELEV 1034.106	C DELTA Z	D DEL Z (M)	E MEAN Z	F DIFF Z	G SD MN ~~HD~~ (M)	H SD MN ~~HD~~ (KM)	I 3RD ORD ALERR (M)
1026	1118.681	84.574	25.778		-0.007			
1026C	1118.724	84.618	25.792	25.785	0.007	5832.2989	5.83229889	0.5854
1025	1196.079	161.973	49.369		0.009			
1025C	1196.020	161.914	49.351	49.360	-0.009	7003.2472	7.00324717	0.7021
1024	1380.983	346.877	105.728		0.008			
1024C	1380.930	346.824	105.712	105.720	-0.008	6136.7180	6.13671803	0.6157
1021	1094.469	60.363	18.399		0.013			
1021C	1094.381	60.275	18.372	18.385	-0.013	3375.9679	3.37596794	0.3413
1022	1172.912	138.806	42.308		0.000			
5022	1172.747	138.806	42.308	42.308	0.000	4089.4738	4.08947378	0.4120
1031	1076.554	42.448	12.938		0.001			
1031C	1076.548	42.442	12.936	12.937	-0.001	1014.6682	1.01466819	0.1131
1027	1073.002	38.896	11.855		0.001			
1027C	1072.993	38.887	11.853	11.854	-0.001	4802.3504	4.80235043	0.4828
1028	1006.791	-27.315	-8.326		0.002			
1028C	1006.776	-27.330	-8.330	-8.328	-0.002	4012.8668	4.01286684	0.4044
1029	936.544	-97.562	-29.737		0.009			
1029C	936.484	-97.622	-29.755	-29.746	-0.009	4607.5997	4.60759968	0.4635
1030	966.170	-67.936	-20.707		0.012			
1030C	966.092	-68.014	-20.731	-20.719	-0.012	2200.1508	2.20015079	0.2256
1012	973.456	-60.650	-18.486		-0.020			
5012	973.585	-60.521	-18.447	-18.467	0.020	3899.5679	3.89956792	0.3931
1023	1252.053	217.947	66.430		0.015			
5023	1251.956	217.850	66.401	66.415	-0.015	4786.5895	4.78658953	0.4813

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.
COLUMN C IS THE DIFFERENCE BETWEEN THE ELEVATION AT THE BASEPOINT, 4BF1, AND THE POINT.
COLUMN D IS COLUMN C CONVERTED INTO METERS.
COLUMN E IS THE DIFFERENCE MEAN OF THE TWO MEASUREMENTS IN COLUMN D.
COLUMN F IS THE DIFFERENCE BETWEEN THE MEASUREMENT IN COLUMN D AND THE MEAN IN COLUMN E,

COLUMN G IS THE MEAN SLOPE DISTANCE BETWEEN 4BF1 AND THE POINT (OBTAINED FROM COLUMN K ON THE POSITIONAL ACCURACY SHEET).

COLUMN H CONVERTS COLUMN G FROM METERS TO KILOMETRS FOR USE IN THE EQUATION COLUMN I.

COLUMN I IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN F MUST BE LESS THAN THE NUMBER IN COLUMN I FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
VERTICAL ACCURACY CERTIFICATION
5/6/02

A	B	C	D	E	F	G	H	I
POINT	**ELEV**	**DELTA Z**	**DEL Z (M)**	**MEAN Z**	**DIFF Z**	**MEAN (M)**	**MEAN (KM)**	**3-ORD ALER-M**
4BH4	**1128.311**							
1021	1094.495	-33.816	-10.307		0.0136			
5021	1094.406	-33.905	-10.334	-10.3206	-0.0136	5142.6046	5.1426046	0.5167
1022	1172.701	44.390	13.530		-0.0550			
5022	1173.062	44.751	13.640	13.5851	0.0550	5484.9162	5.4849162	0.5508
1004	981.305	-147.006	-44.807		-0.0082			
1004C	981.359	-146.952	-44.791	-44.7992	0.0082	3494.8552	3.4948552	0.3530
1019	1138.397	10.086	3.074		-0.0020			
1019C	1138.410	10.099	3.078	3.0762	0.0020	2006.7259	2.0067259	0.2068
1020	1203.443	75.132	22.900		-0.0044			
1020C	1203.472	75.161	22.909	22.9047	0.0044	1344.9960	1.3449960	0.1435
1018	1069.510	-58.802	-17.923		-0.0120			
1018C	1069.588	-58.723	-17.899	-17.9107	0.0120	1307.9523	1.3079523	0.1400
1017	989.554	-138.757	-42.293		-0.0365			
5017	989.793	-138.518	-42.220	-42.2566	0.0365	3134.2079	3.1342079	0.3174
1005	973.995	-154.316	-47.035		-0.0041			
5005	974.022	-154.289	-47.027	-47.0314	0.0041	5326.6114	5.3266114	0.5350
1010	1042.442	-85.869	-26.173		-0.0057			
1010C	1042.480	-85.831	-26.161	-26.1670	0.0057	4513.9898	4.5139898	0.4542

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.

COLUMN C IS THE DIFFERENCE BETWEEN THE ELEVATION AT THE BASEPOINT, 4BH4, AND THE POINT.

COLUMN D IS COLUMN C CONVERTED INTO METERS.

COLUMN E IS THE DIFFERENCE MEAN OF THE TWO MEASUREMENTS IN COLUMN D.

COLUMN F IS THE DIFFERENCE BETWEEN THE MEASUREMENT IN COLUMN D AND THE MEAN IN COLUMN E,

COLUMN G IS THE MEAN SLOPE DISTANCE BETWEEN 4BH4 AND THE POINT (OBTAINED FROM COLUMN K ON THE POSITIONAL ACCURACY SHEET).

COLUMN H CONVERTS COLUMN G FROM METERS TO KILOMETRS FOR USE IN THE EQUATION COLUMN I.

COLUMN I IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN F MUST BE LESS THAN THE NUMBER IN COLUMN I FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
AERIAL CONTROL VERTICAL ACCURACY CERTIFICATION
5/7/02

POINT	ELEV	DEL Z	DEL Z (M)	MEAN Z	DIFF Z	MEAN (M)	MEAN (KM)	3-ORD ALER-M
4CI1	**1105.335**							
1007	989.305	-116.030	-35.366		0.0475			
1007C	988.993	-116.342	-35.461	-35.414	-0.0475	6810.1648	6.8101648	0.6828
1008	1004.660	-100.675	-30.686		0.0316			
1008C	1004.452	-100.883	-30.749	-30.718	-0.0316	5347.7412	5.3477412	0.5371
1009	1105.148	-0.187	-0.057		0.0028			
1009C	1105.130	-0.205	-0.062	-0.060	-0.0028	28.6970	0.0286970	0.0501
1010	1042.454	-62.881	-19.166		0.0078			
1010C	1042.402	-62.933	-19.182	-19.174	-0.0078	3643.4050	3.6434050	0.3678
1011	1039.130	-66.205	-20.179		0.0260			
1011C	1038.959	-66.376	-20.231	-20.205	-0.0260	3564.7782	3.5647782	0.3600
5013	1147.980	42.645	12.998		-0.0063			
1013C	1148.021	42.686	13.011	13.004	0.0063	2439.5786	2.4395786	0.2490
1014	1115.109	9.774	2.979		-0.0075			
1014C	1115.158	9.823	2.994	2.986	0.0075	1385.0963	1.3850963	0.1473
1015	1065.372	-39.963	-12.181	-12.181	0.0000	4813.8836	4.8138836	0.4840

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.

COLUMN C IS THE DIFFERENCE BETWEEN THE ELEVATION AT THE BASEPOINT, 4CI1, AND THE POINT.

COLUMN D IS COLUMN C CONVERTED INTO METERS.

COLUMN E IS THE DIFFERENCE MEAN OF THE TWO MEASUREMENTS IN COLUMN D.

COLUMN F IS THE DIFFERENCE BETWEEN THE MEASUREMENT IN COLUMN D AND THE MEAN IN COLUMN E,

COLUMN G IS THE MEAN SLOPE DISTANCE BETWEEN 4CI1 AND THE POINT (OBTAINED FROM COLUMN K ON THE POSITIONAL ACCURACY SHEET).

COLUMN H CONVERTS COLUMN G FROM METERS TO KILOMETRS FOR USE IN THE EQUATION COLUMN I.

COLUMN I IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN F MUST BE LESS THAN THE NUMBER IN COLUMN I FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
AERIAL CONTROL VERTICAL ACCURACY CERTIFICATION
5/9/02

A	B	C	D	E	F	G	H	I
POINT	**ELEV**	**DEL Z**	**DEL Z (M)**	**MEAN Z**	**DIFF Z**	**MN HD (M)**	**MN HD (KM)**	**3-ORD ALERR (M)**
4AI1	**920.775**							
1000	906.271	-14.5037	-4.4207		0.0018			
5000	906.260	-14.5155	-4.4243	-4.4225	-0.0018	4842.7556	4.8427556	0.4868
1001	919.982	-0.7933	-0.2418		-0.0007			
1001C	919.986	-0.7890	-0.2405	-0.2411	0.0007	15.6915	0.0156915	0.0500
1002	931.800	11.0251	3.3605		0.0032			
1002C	931.779	11.0040	3.3540	3.3572	-0.0032	4017.4159	4.0174159	0.4048
1005	973.977	53.2015	16.2158		0.0117			
5005	973.900	53.1246	16.1924	16.2041	-0.0117	3565.4759	3.5654759	0.3600
1007	989.368	68.5928	20.9071		0.0200			
5007	989.237	68.4618	20.8672	20.8871	-0.0200	6818.8383	6.8188383	0.6837
1006	968.418	47.6425	14.5214		-0.0072			
1006C	968.465	47.6900	14.5359	14.5287	0.0072	5392.2508	5.3922508	0.5415
1016	982.672	61.8968	18.8661		-0.0002			
1016C	982.673	61.8980	18.8665	18.8663	0.0002	3594.7434	3.5947434	0.3629

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.

COLUMN C IS THE DIFFERENCE BETWEEN THE ELEVATION AT THE BASEPOINT, 4AI1, AND THE POINT.

COLUMN D IS COLUMN C CONVERTED INTO METERS.

COLUMN E IS THE DIFFERENCE MEAN OF THE TWO MEASUREMENTS IN COLUMN D.

COLUMN F IS THE DIFFERENCE BETWEEN THE MEASUREMENT IN COLUMN D AND THE MEAN IN COLUMN E,

COLUMN G IS THE MEAN SLOPE DISTANCE BETWEEN 4AI1 AND THE POINT (OBTAINED FROM COLUMN K ON THE POSITIONAL ACCURACY SHEET).

COLUMN H CONVERTS COLUMN G FROM METERS TO KILOMETRS FOR USE IN THE EQUATION COLUMN I.

COLUMN I IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN F MUST BE LESS THAN THE NUMBER IN COLUMN I FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
AERIAL CONTROL VERTICAL ACCURACY CERTIFICATION
5/13/02

A	B	C	D	E	F	G	H	I
POINT	**ELEV**	**DEL Z**	**DEL Z (M)**	**MEAN Z**	**DIFF Z**	**MN SD (M)**	**MN SD (KM)**	**3RD ORD ALERR (M)**
4AG1	**892.385**							
1003	894.479	2.0944	0.6384		0.0037			
1003C	894.455	2.0700	0.6309	0.6347	-0.0037	85.9522	0.0859522	0.0507
1000	906.294	13.9088	4.2394	4.2394	0.0000	4764.6808	4.764680795	0.4791
1004	981.370	88.9850	27.1226		0.0011			
1004C	981.363	88.9780	27.1205	27.1216	-0.0011	3493.5243	3.4935243	0.3529
1012	973.636	81.2513	24.7654		-0.0125			
5012	973.718	81.3331	24.7903	24.7779	0.0125	3580.1361	3.5801361	0.3615

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.

COLUMN C IS THE DIFFERENCE BETWEEN THE ELEVATION AT THE BASEPOINT, 4AG1, AND THE POINT.

COLUMN D IS COLUMN C CONVERTED INTO METERS.

COLUMN E IS THE DIFFERENCE MEAN OF THE TWO MEASUREMENTS IN COLUMN D.

COLUMN F IS THE DIFFERENCE BETWEEN THE MEASUREMENT IN COLUMN D AND THE MEAN IN COLUMN E,

COLUMN G IS THE MEAN SLOPE DISTANCE BETWEEN 4AG1 AND THE POINT (OBTAINED FROM COLUMN K ON THE POSITIONAL ACCURACY SHEET).

COLUMN H CONVERTS COLUMN G FROM METERS TO KILOMETRS FOR USE IN THE EQUATION COLUMN I.

COLUMN I IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN F MUST BE LESS THAN THE NUMBER IN COLUMN I FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

FEET TO METER CONVERSIONS

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
GRID COORDINATES- FEET TO METER CONVERSIONS
5/2/02

PT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
1012	876086.1837	494253.2944	973.520	873.444	-100.076	267031.0688	150648.4041	296.729	266.226	-30.503
1021	886544.9166	494234.8074	1094.425	994.631	-99.794	270218.8906	150642.7693	333.581	303.164	-30.417
1022	891646.8941	494323.8126	1172.830	1073.188	-99.642	271773.9733	150669.8981	357.479	327.108	-30.371
1023	898503.1119	508730.5709	1252.004	1152.722	-99.282	273863.7485	155061.0780	381.611	351.350	-30.261
1024	901420.6781	513579.9863	1380.956	1281.763	-99.193	274753.0227	156539.1798	420.915	390.681	-30.234
1025	902135.5123	517972.6423	1196.049	1096.851	-99.198	274970.9041	157878.0614	364.556	334.320	-30.236
1026	897154.4541	518015.3450	1118.702	1019.370	-99.332	273452.6776	157891.0771	340.980	310.704	-30.276
1027	891931.7435	518000.2793	1072.997	973.538	-99.459	271860.7954	157886.4851	327.050	296.734	-30.315
1028	883946.9499	517972.3592	1006.783	907.144	-99.639	269427.0303	157877.9751	306.868	276.497	-30.370
1029	876034.5260	518081.9431	936.514	836.708	-99.806	267015.3235	157911.3763	285.449	255.029	-30.421
1030	876076.6441	504784.1237	966.131	866.196	-99.935	267028.1611	153858.2009	294.477	264.017	-30.460
1031	886622.7999	504878.0433	1076.551	976.891	-99.660	270242.6294	153886.8276	328.133	297.756	-30.376

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
GRID COORDINATES- FEET TO METER CONVERSIONS
5/6/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
1004	876128.5110	483920.7764	981.332	881.071	-100.261	267043.9702	147499.0526	299.110	268.550	-30.560
1005	876246.6160	462601.1018	974.009	873.260	-100.749	267079.9686	141000.8158	296.878	266.170	-30.708
1010	886720.4363	462628.5541	1042.461	941.942	-100.519	270272.3890	141009.1833	317.742	287.104	-30.638
1017	876171.2810	473184.8797	989.674	889.148	-100.526	267057.0064	144226.7513	301.653	271.012	-30.640
1018	886550.5037	473218.6600	1069.549	969.289	-100.260	270220.5935	144237.0476	325.998	295.439	-30.559
1019	892046.4171	478479.2698	1138.404	1038.422	-99.982	271895.7479	145840.4814	346.985	316.511	-30.474
1020	886297.9975	481740.6436	1203.458	1103.413	-100.045	270143.6296	146834.5482	366.814	336.320	-30.494
1021	886544.9062	494234.7553	1094.451	994.693	-99.758	270218.8874	150642.7534	333.589	303.182	-30.406
1022	891646.9141	494323.7712	1172.882	1073.270	-99.612	271773.9794	150669.8855	357.494	327.133	-30.362

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
AERIAL CONTROL GRID COORDINATES- FEET TO METER CONVERSIONS
5/7/02

PT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
1007	881726.9106	441426.3369	989.149	888.210	-100.939	268750.3624	134546.7475	301.493	270.726	-30.766
1008	889730.6830	441554.8523	1004.556	903.735	-100.821	271189.9122	134585.9190	306.189	275.458	-30.730
1009	897509.3922	457370.8163	1105.139	1004.757	-100.382	273560.8627	139406.6248	336.846	306.250	-30.596
1010	886720.4202	462628.5471	1042.428	941.920	-100.508	270272.3841	141009.1812	317.732	287.097	-30.635
1011	887062.4683	451907.8960	1039.045	938.367	-100.678	270376.6403	137741.5267	316.701	286.014	-30.687
1013	898872.4995	465192.6477	1148.000	1047.745	-100.255	273976.3378	141790.7190	349.910	319.353	-30.558
1014	900212.5328	453727.0272	1115.133	1014.668	-100.465	274384.7800	138295.9979	339.893	309.271	-30.622
1015	897642.6204	441527.8215	1065.372	964.680	-100.692	273601.4707	134577.6800	324.725	294.034	-30.691

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
AERIAL CONTROL GRID COORDINATES- FEET TO METER CONVERSIONS
5/10/02

PT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H (M)
1000	865737.5533	473093.0072	906.265	805.535	-100.731	263876.8062	144198.7486	276.230	245.527	-30.703
1001	865837.9407	457247.1409	919.984	818.991	-100.993	263907.4043	139368.9285	280.411	249.628	-30.783
1002	865925.5439	444024.8745	931.790	830.621	-101.168	263934.1058	135338.7817	284.009	253.173	-30.836
1005	876246.6114	462601.1519	973.938	873.241	-100.697	267079.9672	141000.8311	296.856	266.164	-30.692
1006	873862.6561	441423.7299	968.441	867.352	-101.089	266353.3376	134545.9529	295.181	264.369	-30.812
1007	881726.7989	441426.3447	989.302	888.325	-100.977	268750.3283	134546.7499	301.539	270.761	-30.778
1016	876448.5597	451995.8455	982.672	881.808	-100.864	267141.5210	137768.3337	299.519	268.775	-30.743

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
AERIAL CONTROL GRID COORDINATES- FEET TO METER CONVERSIONS
5/13/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H (M)
1000	865737.5741	473093.0497	906.294	805.547	-100.747	263876.8126	144198.7615	276.238	245.531	-30.708
1003	865751.8609	489005.6808	894.467	794.070	-100.397	263881.1672	149048.9315	272.634	242.033	-30.601
1004	876128.5821	483920.7313	981.367	881.050	-100.317	267043.9918	147499.0389	299.121	268.544	-30.576
1012	876086.1609	494253.2865	973.677	873.568	-100.109	267031.0618	150648.4017	296.777	266.264	-30.513

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

VERTCON CALCULATIONS

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
VERTCON CALCULATIONS
5/6/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
1012	33,24,23.29439	112,35,27.18287	296.729	-0.64	296.089	971.421
1021	33,26,06.76724	112,35,28.20093	333.581	-0.645	332.936	1092.310
1022	33,26,57.24946	112,35,27.54115	357.479	-0.647	356.832	1170.709
1023	33,28,05.97433	112,32,37.99464	381.611	-0.627	380.984	1249.948
1024	33,28,35.12553	112,31,40.95625	420.915	-0.612	420.303	1378.947
1025	33,28,42.45061	112,30,49.14562	364.556	-0.601	363.955	1194.078
1026	33,27,53.17233	112,30,48.30365	340.980	-0.619	340.361	1116.670
1027	33,27,01.49984	112,30,48.12750	327.050	-0.638	326.412	1070.906
1028	33,25,42.49932	112,30,47.91622	306.868	-0.641	306.227	1004.682
1029	33,24,24.22232	112,30,46.08820	285.449	-0.643	284.806	934.403
1030	33,24,23.85778	112,33,22.95747	294.477	-0.641	293.836	964.029
1031	33,26,08.20317	112,33,22.61453	328.133	-0.642	327.491	1074.446

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
VERTCON CALCULATIONS
5/6/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
1004	33,24,23.03420	112,37,29.07051	299.110	-0.639	298.471	979.235
1005	33,24,22.69663	112,41.40.56826	296.878	-0.637	296.241	971.919
1010	33,26,06.31958	112,41,41.16862	317.742	-0.643	317.099	1040.352
1017	33,24,22.71665	112,39,35.71563	301.653	-0.639	301.014	987.577
1018	33,26,05.40490	112,39,36.19213	325.998	-0.643	325.355	1067.439
1019	33,27,00.14599	112,38,34.57039	346.985	-0.646	346.339	1136.284
1020	33,26,03.49818	112,37,55.61271	366.814	-0.644	366.170	1201.345
1021	33,26,06.76713	112,35,28.20155	333.589	-0.645	332.944	1092.335
1022	33,26,57.24966	112,35,27.54164	357.494	-0.647	356.847	1170.759

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
VERTCON CALCULATIONS
5/7/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
1007	33,25,15.27816	112,45,50.86834	301.493	-0.630	300.863	987.082
1008	33,26,34.47094	112,45,50.12151	306.189	-0.632	305.557	1002.482
1009	33,27,52.66372	112,42,44.18336	336.846	-0.644	336.202	1103.026
1010	33,26,06.31942	112,41,41.16870	317.732	-0.643	317.089	1040.318
1011	33,26,08.89177	112,43,47.70147	316.701	-0.638	316.063	1036.952
1013	33,28,06.73233	112,41,11.97502	349.910	-0.645	349.265	1145.884
1014	33,28,19.12826	112,43,27.44182	339.893	-0.642	339.251	1113.027
1015	33,27,52.74236	112,45,51.20191	324.725	-0.635	324.090	1063.288

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
VERTCON CALCULATIONS
5/10/02

PT	LATITUDE	LONGITUDE	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
1000	33,22,39.48458	112,39,35.92054	276.230	-0.634	275.596	904.186
1001	33,22,39.31971	112,42,42.78517	280.411	-0.632	279.779	917.910
1002	33,22,39.16028	112,45,18.70955	284.009	-0.632	283.377	929.715
1005	33,24,22.69659	112,41,40.56767	296.856	-0.637	296.219	971.847
1006	33,23,57.47552	112,45,50.14359	295.181	-0.629	294.552	966.378
1007	33,25,15.27705	112,45,50.86824	301.539	-0.630	300.909	987.234
1016	33,24,23.89261	112,43,45.68516	299.519	-0.634	298.885	980.594

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
VERTCON CALCULATIONS
5/13/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
1000	33,22,39.48479	112,39,35.92005	276.238	-0.634	275.604	904.213
1003	33,22,40.71044	112,36,28.27539	272.634	-0.636	271.998	892.382
1004	33,24,23.03490	112,37,29.07105	299.121	-0.639	298.482	979.272
1012	33,24,23.29417	112,35,27.18296	296.777	-0.64	296.137	971.578

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ADJUSTED COORDINATE AND ELEVATION INFORMATION
5/6/02

PT	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1012	876086.1837	494253.2944	973.520	971.421
1021	886544.9166	494234.8074	1094.425	1092.310
1022	891646.8941	494323.8126	1172.830	1170.709
1023	898503.1119	508730.5709	1252.004	1249.948
1024	901420.6781	513579.9863	1380.956	1378.947
1025	902135.5123	517972.6423	1196.049	1194.078
1026	897154.4541	518015.3450	1118.702	1116.670
1027	891931.7435	518000.2793	1072.997	1070.906
1028	883946.9499	517972.3592	1006.783	1004.682
1029	876034.5260	518081.9431	936.514	934.403
1030	876076.6441	504784.1237	966.131	964.029
1031	886622.7999	504878.0433	1076.551	1074.446

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

ADJUSTED COORDINATE
&
ELEVATION INFORMATION BY AREA

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ADJUSTED COORDINATE AND ELEVATION INFORMATION
5/6/02

PT	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1004	876128.5110	483920.7764	981.332	979.235
1005	876246.6160	462601.1018	974.009	971.919
1010	886720.4363	462628.5541	1042.461	1040.352
1017	876171.2810	473184.8797	989.674	987.577
1018	886550.5037	473218.6600	1069.549	1067.439
1019	892046.4171	478479.2698	1138.404	1136.284
1020	886297.9975	481740.6436	1203.458	1201.345
1021	886544.9062	494234.7553	1094.451	1092.335
1022	891646.9141	494323.7712	1172.882	1170.759

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
ADJUSTED COORDINATE AND ELEVATION INFORMATION
5/7/02

POINT	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1007	881726.9106	441426.3369	989.149	987.082
1008	889730.6830	441554.8523	1004.556	1002.482
1009	897509.3922	457370.8163	1105.139	1103.026
1010	886720.4202	462628.5471	1042.428	1040.318
1011	887062.4683	451907.8960	1039.045	1036.952
1013	898872.4995	465192.6477	1148.000	1145.884
1014	900212.5328	453727.0272	1115.133	1113.027
1015	897642.6204	441527.8215	1065.372	1063.288

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ADJUSTED COORDINATE AND ELEVATION INFORMATION
5/10/02

PT	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1000	865737.5533	473093.0072	906.265	904.186
1001	865837.9407	457247.1409	919.984	917.910
1002	865925.5439	444024.8745	931.790	929.715
1005	876246.6114	462601.1519	973.938	971.847
1006	873862.6561	441423.7299	968.441	966.378
1007	881726.7989	441426.3447	989.302	987.234
1016	876448.5597	451995.8455	982.672	980.594

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ADJUSTED COORDINATE AND ELEVATION INFORMATION
5/13/02

POINT	NORTH (IF)	EAST (IF)	NAVD88 (IF)	NGVD29 (IF)
1000	865737.5741	473093.0497	906.294	904.213
1003	865751.8609	489005.6808	894.467	892.382
1004	876128.5821	483920.7313	981.367	979.272
1012	876086.1609	494253.2865	973.677	971.578

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

AERIAL CONTROL

-ALL POINTS
-ALL AREAS

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL- ALL POINTS ALL AREAS
5/13/02

PT	AREA	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1000	D	865737.5533	473093.0072	906.265	904.186
1000	E	865737.5741	473093.0497	906.294	904.213
1001	D	865837.9407	457247.1409	919.984	917.910
1002	D	865925.5439	444024.8745	931.790	929.715
1003	E	865751.8609	489005.6808	894.467	892.382
1004	B	876128.5110	483920.7764	981.332	979.235
1004	E	876128.5821	483920.7313	981.367	979.272
1005	B	876246.6160	462601.1018	974.009	971.919
1005	D	876246.6114	462601.1519	973.938	971.847
1006	D	873862.6561	441423.7299	968.441	966.378
1007	C	881726.9106	441426.3369	989.149	987.082
1007	D	881726.7989	441426.3447	989.302	987.234
1008	C	889730.6830	441554.8523	1004.556	1002.482
1009	C	897509.3922	457370.8163	1105.139	1103.026
1010	B	886720.4363	462628.5541	1042.461	1040.352
1010	C	886720.4202	462628.5471	1042.428	1040.318
1011	C	887062.4683	451907.8960	1039.045	1036.952
1012	A	876086.1837	494253.2944	973.520	971.421
1012	E	876086.1609	494253.2865	973.677	971.578
1013	C	898872.4995	465192.6477	1148.000	1145.884
1014	C	900212.5328	453727.0272	1115.133	1113.027
1015	C	897642.6204	441527.8215	1065.372	1063.288
1016	D	876448.5597	451995.8455	982.672	980.594
1017	B	876171.2810	473184.8797	989.674	987.577
1018	B	886550.5037	473218.6600	1069.549	1067.439
1019	B	892046.4171	478479.2698	1138.404	1136.284
1020	B	886297.9975	481740.6436	1203.458	1201.345

1021	A	886544.9166	494234.8074	1094.425	1092.310
1021	B	886544.9062	494234.7553	1094.451	1092.335
1022	A	891646.8941	494323.8126	1172.830	1170.709
1022	B	891646.9141	494323.7712	1172.882	1170.759
1023	A	898503.1119	508730.5709	1252.004	1249.948
1024	A	901420.6781	513579.9863	1380.956	1378.947
1025	A	902135.5123	517972.6423	1196.049	1194.078
1026	A	897154.4541	518015.3450	1118.702	1116.670
1027	A	891931.7435	518000.2793	1072.997	1070.906
1028	A	883946.9499	517972.3592	1006.783	1004.682
1029	A	876034.5260	518081.9431	936.514	934.403
1030	A	876076.6441	504784.1237	966.131	964.029
1031	A	886622.7999	504878.0433	1076.551	1074.446

MULTIPLE AREA POINT AVERAGES

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL- MULTIPLE AREA POINT AVERAGES
5/13/02

PT	AREA	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1000	D	865737.5533	473093.0072	906.265	904.186
1000	E	865737.5741	473093.0497	906.294	904.213
AVG		865737.5637	473093.0284	906.280	904.199
1004	B	876128.5110	483920.7764	981.332	979.235
1004	E	876128.5821	483920.7313	981.367	979.272
AVG		876128.5465	483920.7538	981.349	979.254
1005	B	876246.6160	462601.1018	974.009	971.919
1005	D	876246.6114	462601.1519	973.938	971.847
AVG		876246.6137	462601.1268	973.973	971.883
1007	C	881726.9106	441426.3369	989.149	987.082
1007	D	881726.7989	441426.3447	989.302	987.234
AVG		881726.8547	441426.3408	989.226	987.158
1010	B	886720.4363	462628.5541	1042.461	1040.352
1010	C	886720.4202	462628.5471	1042.428	1040.318
AVG		886720.4282	462628.5506	1042.445	1040.335
1012	A	876086.1837	494253.2944	973.520	971.421
1012	E	876086.1609	494253.2865	973.677	971.578
AVG		876086.1723	494253.2904	973.599	971.499
1021	A	886544.9166	494234.8074	1094.425	1092.310
1021	B	886544.9062	494234.7553	1094.451	1092.335
AVG		886544.9114	494234.7814	1094.438	1092.322
1022	A	891646.8941	494323.8126	1172.830	1170.709
1022	B	891646.9141	494323.7712	1172.882	1170.759
AVG		891646.9041	494323.7919	1172.856	1170.734

FINAL POINT COORDINATES
&
ELEVATIONS

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL- FINAL POINT COORDINATES & ELEVATIONS
5/14/02

PT	GRID N (IF)	GRID E (IF)	NAVD88 (IF)	NGVD29 (IF)
1000	865737.5637	473093.0284	906.280	904.199
1001	865837.9407	457247.1409	919.984	917.910
1002	865925.5439	444024.8745	931.790	929.715
1003	865751.8609	489005.6808	894.467	892.382
1004	876128.5465	483920.7538	981.349	979.254
1005	876246.6137	462601.1268	973.973	971.883
1006	873862.6561	441423.7299	968.441	966.378
1007	881726.8547	441426.3408	989.226	987.158
1008	889730.6830	441554.8523	1004.556	1002.482
1009	897509.3922	457370.8163	1105.139	1103.026
1010	886720.4282	462628.5506	1042.445	1040.335
1011	887062.4683	451907.8960	1039.045	1036.952
1012	876086.1723	494253.2904	973.599	971.499
1013	898872.4995	465192.6477	1148.000	1145.884
1014	900212.5328	453727.0272	1115.133	1113.027
1015	897642.6204	441527.8215	1065.372	1063.288
1016	876448.5597	451995.8455	982.672	980.594
1017	876171.2810	473184.8797	989.674	987.577
1018	886550.5037	473218.6600	1069.549	1067.439
1019	892046.4171	478479.2698	1138.404	1136.284
1020	886297.9975	481740.6436	1203.458	1201.345
1021	886544.9114	494234.7814	1094.438	1092.322
1022	891646.9041	494323.7919	1172.856	1170.734
1023	898503.1119	508730.5709	1252.004	1249.948
1024	901420.6781	513579.9863	1380.956	1378.947
1025	902135.5123	517972.6423	1196.049	1194.078
1026	897154.4541	518015.3450	1118.702	1116.670
1027	891931.7435	518000.2793	1072.997	1070.906
1028	883946.9499	517972.3592	1006.783	1004.682
1029	876034.5260	518081.9431	936.514	934.403
1030	876076.6441	504784.1237	966.131	964.029
1031	886622.7999	504878.0433	1076.551	1074.446

NOTES
GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
NAVD88 ELEVATIONS OBTAINED THROUGH GPS METHODS.
NGVD29 ELEVATIONS CALCULATED BY APPLYING THE **VERTCON** PROGRAM PROVIDED BY NGS.

PANEL ELEVATION INFORMATION

Project BUCKEYE/SUN VALLEY TOMP
Client
Task PANEL TO SURVEYED POINT ELEVATION DIFFERENCES

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5-14-02
Chkd Date
Sheet 1 of 3

CONTROL POINT ELEV. DIFFERENCES

POINT	AREA	DIFF. RAW DATA	DIFF. NOTES
1000	E	N/A	0.51' BELOW GRD (+0.51')
& WILSON	D	BCM 0.54' DOWN (+0.54')	N/A +0.525'
1001 & JOHNSON	D	BCM 0.46' DOWN (+0.46')	BCM 0.43' DOWN (+0.43') +0.445
1002 S½ SEC. 34 ON ℄ (W OF RIM)	D	BCM 0.47' DOWN (+0.47')	BCM 0.46 DOWN (+0.46') +0.465
1003 ℄ & ROOKS	E	CPRR 0.12' DOWN (+0.12')	FRR 0.14' DOWN (+0.14') +0.13'
1004 OGLESBY & BROADWAY	E	CPCPS FLUSH (0)	FLUSH (0)
	B	CPPS FLUSH (0)	N/A
1005 BRUNERT BROADWAY	B	CPCR FLUSH (0)	N/A
	D	CPCR FLUSH (0)	FLUSH (0)
1006 W½ SEC. 27 (ON 33RD AVE)	D	CPR(FIP) 0.38' DOWN (+0.38')	N/A
1007 33RD AVE & LOW. BUCKEYE	D	CPCR FLUSH (0)	FLUSH (0)
	C	N/A	N/A
1008 W½ SEC. 10 (ON 33RD AVE AL)	C	CPCR FLUSH (0)	N/A
1009 JOHNSON & MCDOWELL	C	BCM 0.82' DOWN (+0.82')	0.82' DOWN (+0.82')
1010 YUMA & BRUNER AL.	C	CPCPS N/A	N/A
	B	CPCPS(FCPS) 0.19' DOWN (+0.19')	N/A
1011 YUMA & 31ST AV. AL	C	CPCR FLUSH (0)	N/A
1012 MILLER & BROADWAY	A	N/A BCM	
	E	BCM 0.86' DOWN (+0.86')	BCM 0.86' DOWN (+0.86')

Project BUCKEYE\SUN VALLEY APMP
Client
Task PANEL TO SURVEYED POINT ELEVATION DIFFERENCES

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5-14-02
Chkd Date
Sheet 2 of 3

POINT	AREA	DIFF. RAW DATA	DIFF. NOTES
1013 N OF TSH	C	CPCR FLUSH (0)	N/A
1014 S OF TSH	C	CPCR FLUSH (0)	N/A
1015 381ST AVE & McDOWELL	C	~~BCF 0.80' ABV GRD (-0.80')~~	N/A 0.64 ABV GRND (-0.71) THIS PT. WAS NOT CORRECTED IN DATA @ THIST IME. CORRECT 5-2 DGF
1016 BROADWAY 315TH AVE ALIGNMENT	D	CPCR FLUSH (0)	N/A
1017	B	CPCR FLUSH (0)	FLUSH (0)
1018	B	CPCR FLUSH (0)	FLUSH (0)
1019	B	ACF 0.09 ABV GR (-0.09')	FLUSH (0)
1020	B	CPCR N/A	FLUSH (0)
1021	B	CPCR FLUSH (0)	N/A
MILLER + YUMA	A	CPCR N/A	FLUSH (0)
1022	A	CPCR N/A	FLUSH (0)
MILLER + VAN BUREN	B	CPCR FLUSH (0)	N/A
1023	A	~~CPCR 0.05' ABV GRD (-0.05')~~ NAIL IN MIDDLE OF TREE (0)	N/A
1024	A	CPCR 0.15' ABV GRD (-0.15')	FLUSH (0)
1025	A	CPCR N/A	FLUSH (0)
1026	A	ACE BCF FLUSH (0)	FLUSH (0)
1027	A	CPCR FLUSH (0)	FLUSH (0)
1028	A	CPCR N/A	FLUSH (0)

Project BUCKEYE\SUN VALLEY

Client

Task PANEL TO SURVEYED POINT ELEVATION DIFFERENCES

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-14-02

Chkd Date

Sheet 3 of 3

POINT	AREA	DIFF. RAW DATA	DIFF. NOTES	
1029	A	FIP 1.29' DOWN (+1.29')	DOWN 1.29' (+1.29')	
1030	A	FIP 0.62' DOWN (+0.62')	DOWN 0.66' (+0.66')	+0.64
1031	A	FIP 0.70' DOWN (+0.70')	DOWN 0.70' (+0.70')	

BUCKEYE \ SUN VALLEY ADMP
AERIAL CONTROL- FINAL PANEL COORDINATES & ELEVATIONS
5/14/02
REVISED: 5/21/02

PT	GRID N (IF)	GRID E (IF)	PT EL (IF)	PNL EL (IF)	NGVD29 (IF)	PNL EL 29
1000	865737.5637	473093.0284	906.280	906.805	904.199	904.724
1001	865837.9407	457247.1409	919.984	920.429	917.910	918.355
1002	865925.5439	444024.8745	931.790	932.255	929.715	930.180
1003	865751.8609	489005.6808	894.467	894.597	892.382	892.512
1004	876128.5465	483920.7538	981.349	981.349	979.254	979.254
1005	876246.6137	462601.1268	973.973	973.973	971.883	971.883
1006	873862.6561	441423.7299	968.441	968.821	966.378	966.758
1007	881726.8547	441426.3408	989.226	989.226	987.158	987.158
1008	889730.6830	441554.8523	1004.556	1004.556	1002.482	1002.482
1009	897509.3922	457370.8163	1105.139	1105.959	1103.026	1103.846
1010	886720.4282	462628.5506	1042.445	1042.635	1040.335	1040.525
1011	887062.4683	451907.8960	1039.045	1039.045	1036.952	1036.952
1012	876086.1723	494253.2904	973.599	974.459	971.499	972.359
1013	898872.4995	465192.6477	1148.000	1148.000	1145.884	1145.884
1014	900212.5328	453727.0272	1115.133	1115.133	1113.027	1113.027
1015	897642.6204	441527.8215	1065.372	1064.572	1063.288	1062.488
1016	876448.5597	451995.8455	982.672	982.672	980.594	980.594
1017	876171.2810	473184.8797	989.674	989.674	987.577	987.577
1018	886550.5037	473218.6600	1069.549	1069.549	1067.439	1067.439
1019	892046.4171	478479.2698	1138.404	1138.314	1136.284	1136.194
1020	886297.9975	481740.6436	1203.458	1203.458	1201.345	1201.345
1021	886544.9114	494234.7814	1094.438	1094.438	1092.322	1092.322
1022	891646.9041	494323.7919	1172.856	1172.856	1170.734	1170.734
1023	898503.1119	508730.5709	1252.004	1252.004	1249.948	1249.948
1024	901420.6781	513579.9863	1380.956	1380.806	1378.947	1378.797
1025	902135.5123	517972.6423	1196.049	1196.049	1194.078	1194.078
1026	897154.4541	518015.3450	1118.702	1118.702	1116.670	1116.670
1027	891931.7435	518000.2793	1072.997	1072.997	1070.906	1070.906
1028	883946.9499	517972.3592	1006.783	1006.783	1004.682	1004.682
1029	876034.5260	518081.9431	936.514	937.804	934.403	935.693
1030	876076.6441	504784.1237	966.131	966.771	964.029	964.669

1031	886622.7999	504878.0433	1076.551	1077.251	1074.446	1075.146

NOTES

GRID NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.

POINT ELEVATIONS ARE FOR THE ACTUAL SURVEYED MONUMENT AND ARE ON THE NAVD88 DATUM.

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE MONUMENT AND THE PANEL AS IT LIED ON THE GROUND.

SKETCHES OF
AERIAL CONTROL POINT LOCATIONS

ACP # 1000

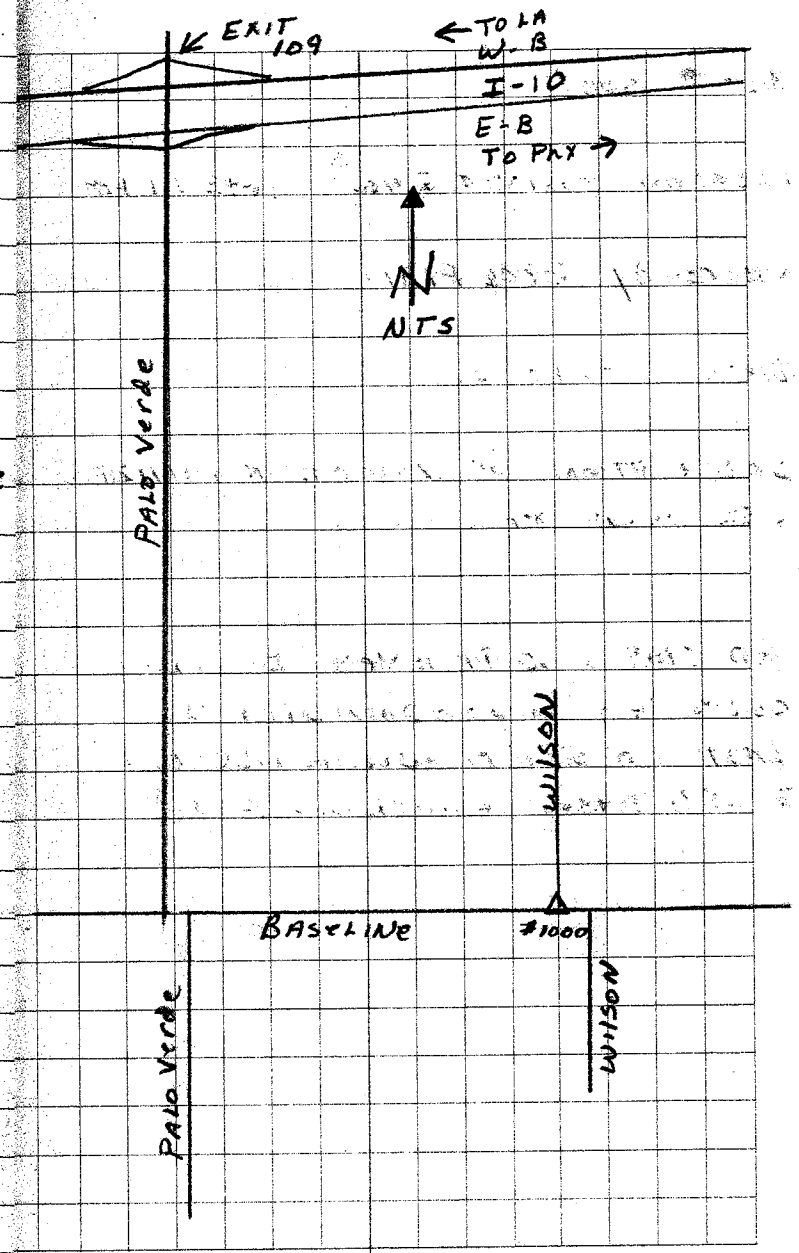
LOCATION T1N ~~T1S~~ R4W S33/34 G+SR BL+M

SKETCH BY GREG FRARY HUITT-ZOLLARS

DATE 5-20-02

DESCRIPTION 3" BRASS CAP IN A HANDHOLE .56 DOWN. MARICOPA COUNTY HWY DEPT

EXIT #109 I-10 PALO Verde Rd, THEN SOUTH 4.21 mile TO BASELINE RD, THEN EAST 1.0 mile TO WILSON RD North. ℄ OF ℄ BASELINE + WILSON RD North.



ACP# 1001

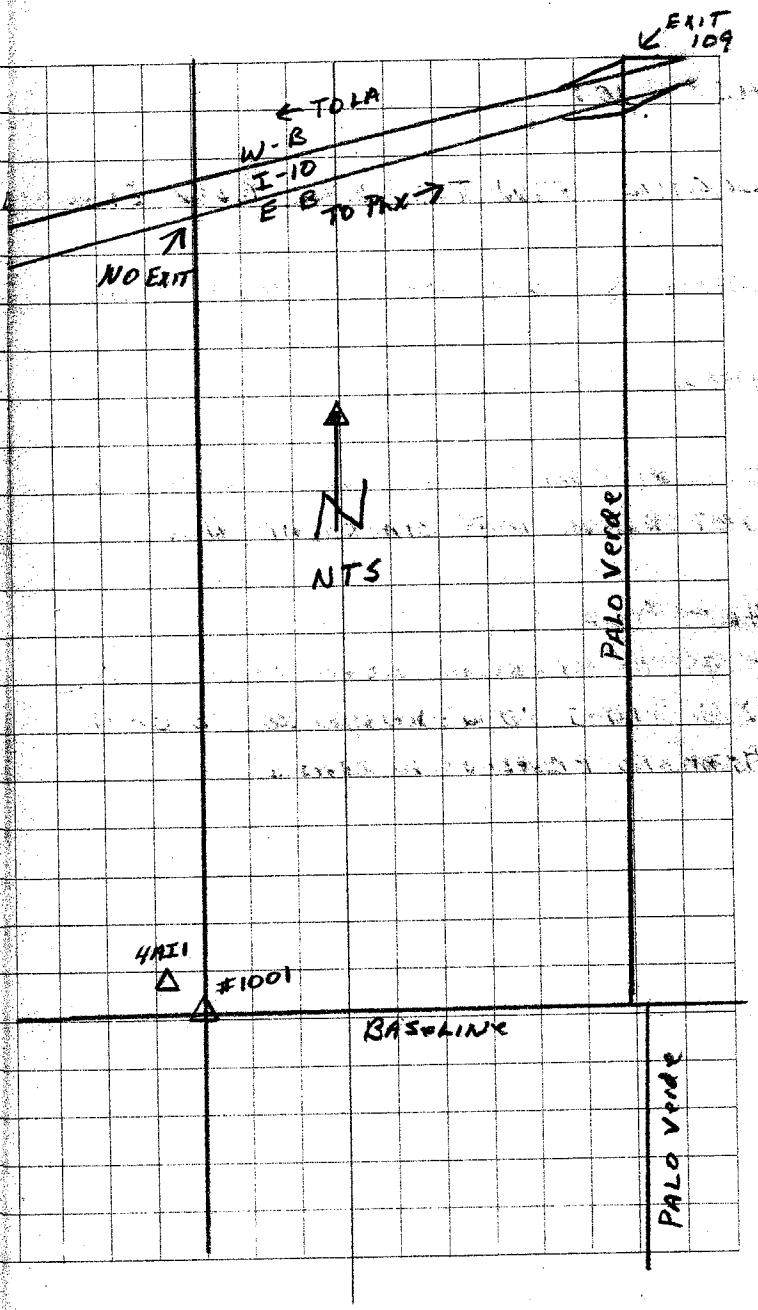
LOCATION T1N T1S R4W R5W G+SR B
S 36,31,1,6

SKETCH BY Greg Frary HUITT-ZOLLARS

DATE 5-20-02

DESCRIPTION 3" BRASS CAP IN HAND HOLE
.47 DOWN. MARICOPA COUNTY HWY DEPT

EXIT #109 PALO VERDE RD. GO SOUTH
4.21 TO BASELINE ROAD. THEN GO WEST
2.0 MILES TO JOHNSON RD. ℄ OF ℄
JOHNSON + BASELINE ROADS.



ACP # 1002

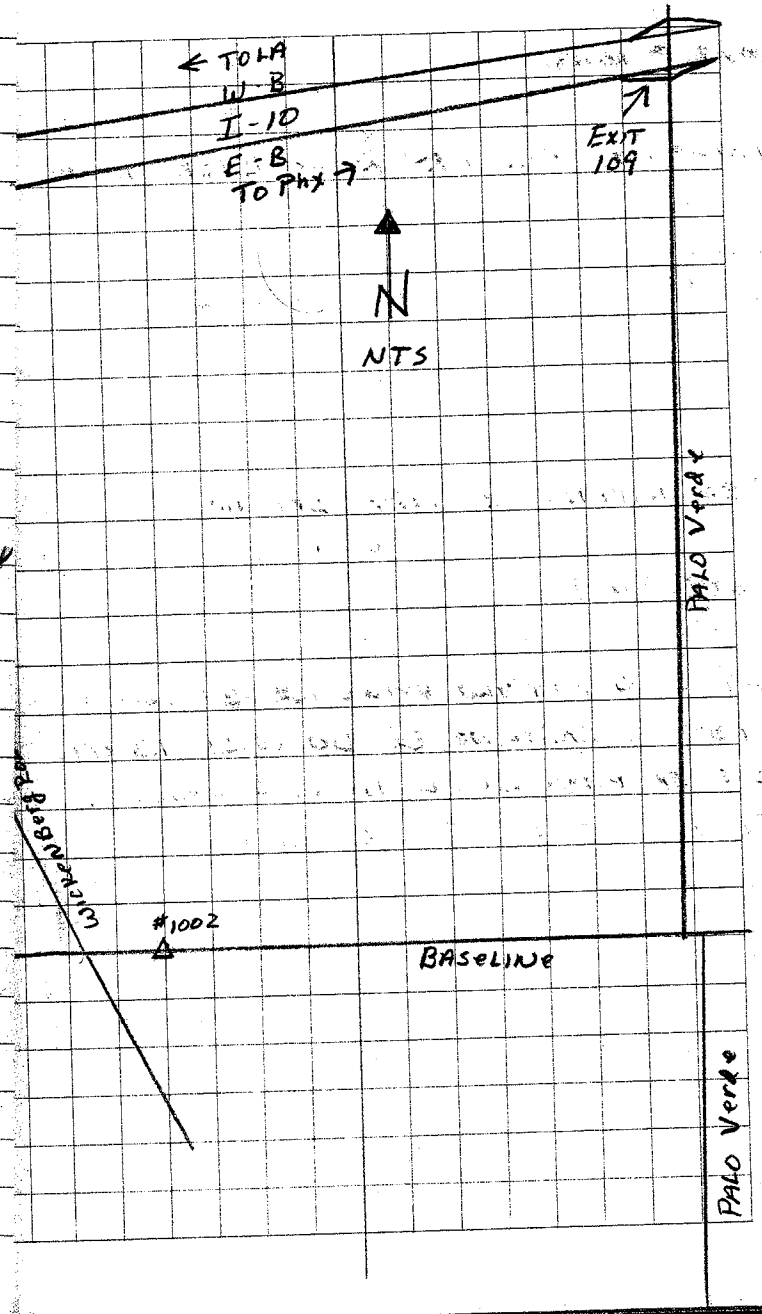
LOCATION T1N T1S R5W G+SR BL+M
SECTOIN 34 SECTION 3

SKETCH BY GREG FRIARY HUNT-ZOLLARS

DATE 5-20-02

DESCRIPTION 3" BRASS CAP IN A HANDHOLE .50 DOWN. MARICOPA COUNTY HWY DEPT

EXIT #109 I-10 PALO VERDE RD GO SOUTH 4.21 mile TO BASELINE RD. GO WEST 4.3 miles ON BASELINE RD TO BCH. & BASELINE RD 300.00 EAST OF WICKENBERG RD.



ACP # 1003

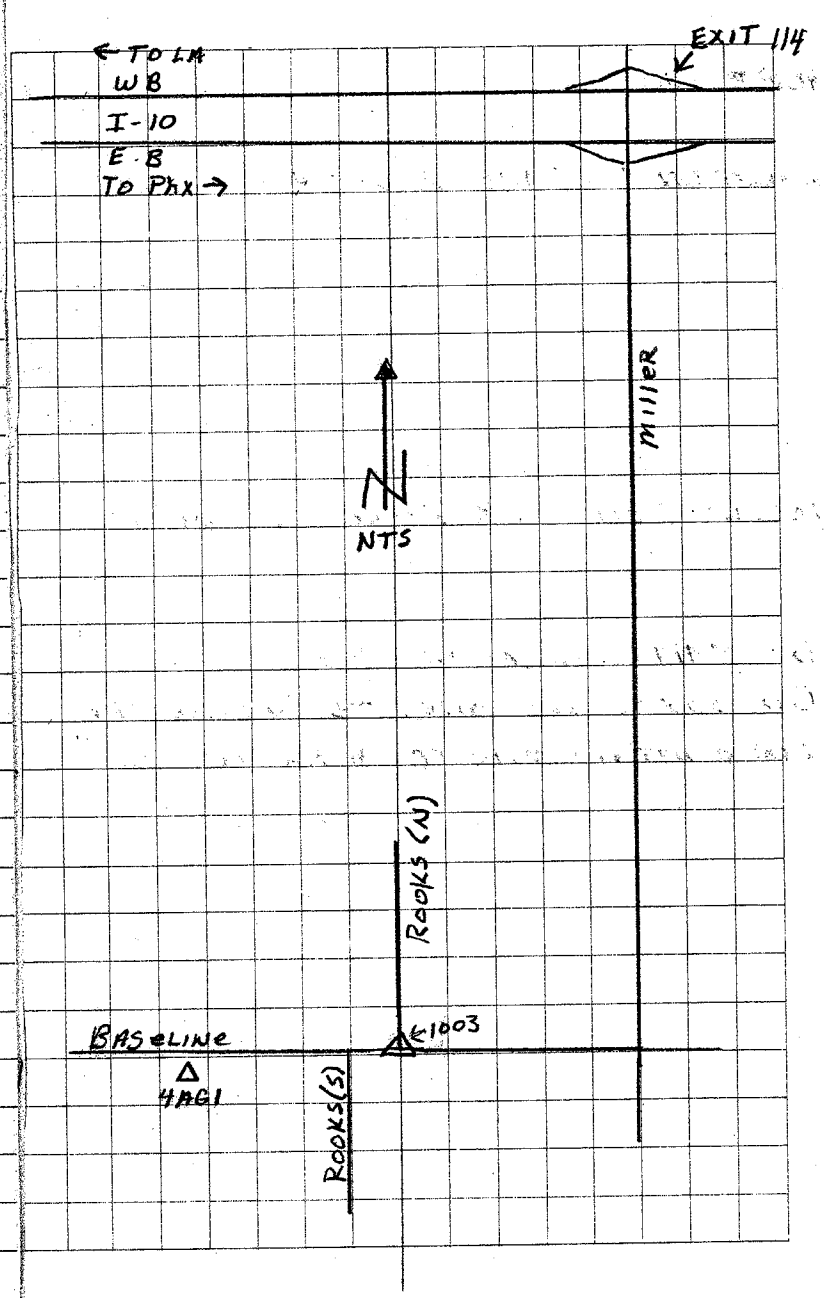
LOCATION T1N R3W R4W S 36/31
G+SR BL+M

SKETCH BY GREG FRARY HUITT-ZOLLARS

DATE 5-21-02

DESCRIPTION RR SPIKE 0.14 DOWN
BASELINE + NORTH ROOKS RD.

EXIT I-10 @ MILLER RD #114
GO SOUTH 3.7 MILES TO BASELINE RD.
THEN go WEST 1.0 mile TO NORTH ROOKS RD.



ACP # 1004

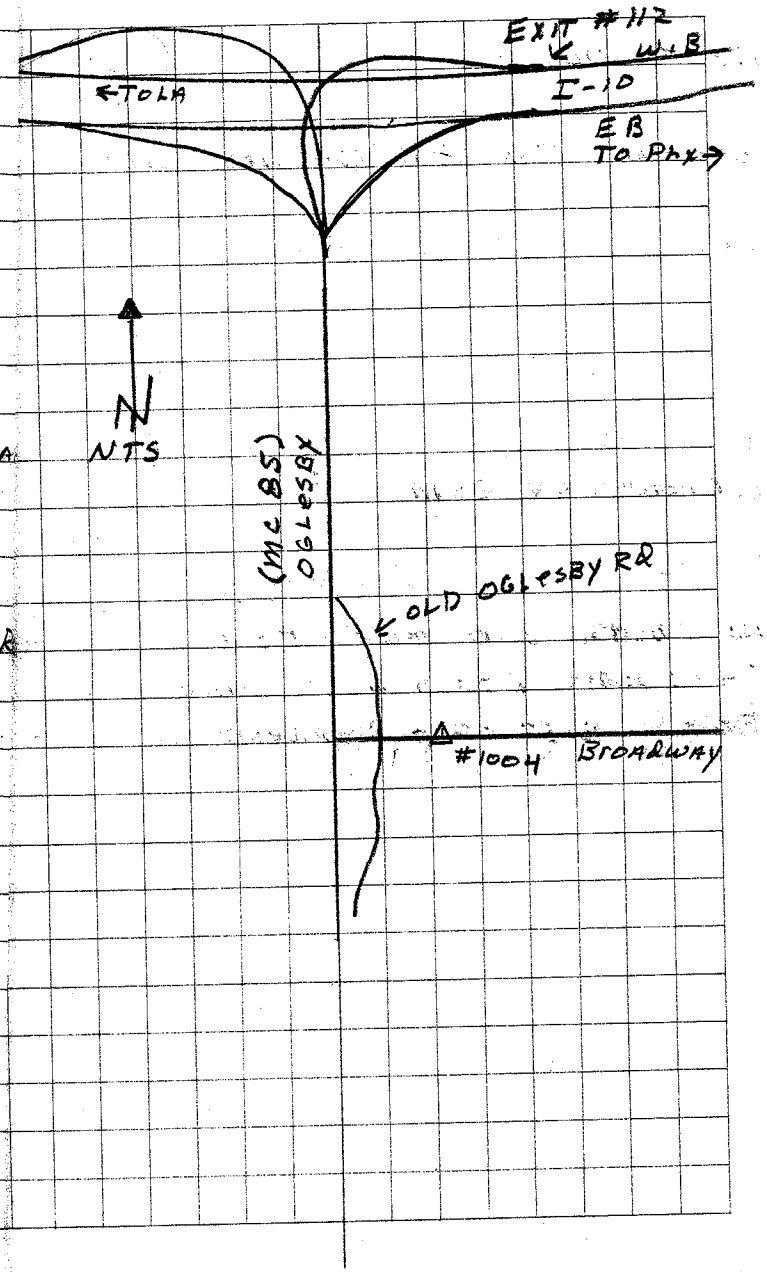
LOCATION T1N R4W S24 G&SR B&M

SKETCH BY Greg Frary HUITT - Zollars

DATE 5-21-02

DESCRIPTION SET COTTON PICKER SPINDLE
℄ BROADWAY ROAD

EXIT # 112 I-10 (M.C. 85) OGLESBY RD
GO SOUTH 2.0 miles TO BROADWAY R
THEN EAST 200.0'± TO POINT.
30.0'± EAST OF OLD OGLESBY RD.



ACP # 1005

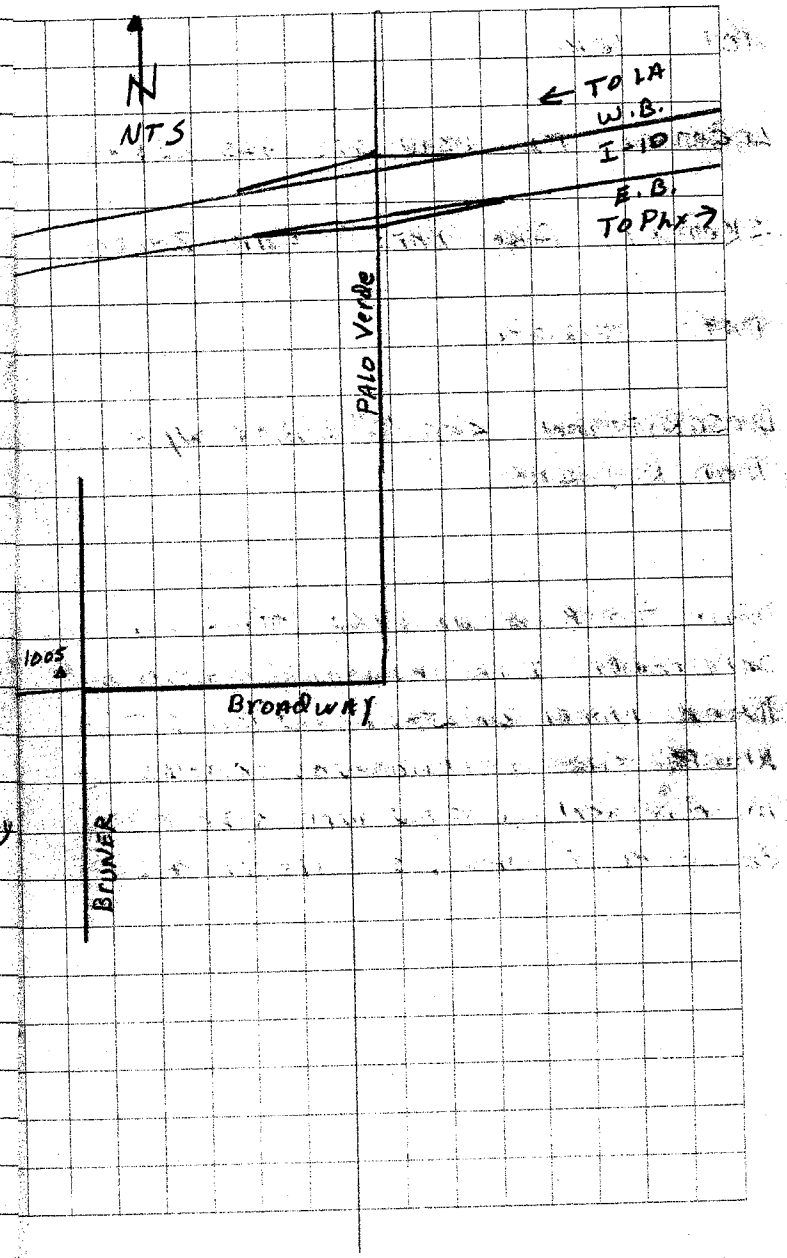
LOCATION T1N R4W S19 G+SR BL+M

SKETCH BY Greg Frary HUITT-ZOLLARS

DATE - 5-20-02

DESCRIPTION - SET ½" REBAR W/ H.-ZI Red REF CAP

EXIT # 109 I-10 PALO VERDE RD GO SOUTH 2.21 miles TO BROADWAY ROAD. THEN GO WEST 1.0 MILES TO BRUNER ROAD. BROADWAY RD + BRUNER RD ARE DIRT. 33.0 NORTH OF BROADWAY ℄ + 20.5 WEST OF BRUNER ℄.



ACP # 1006

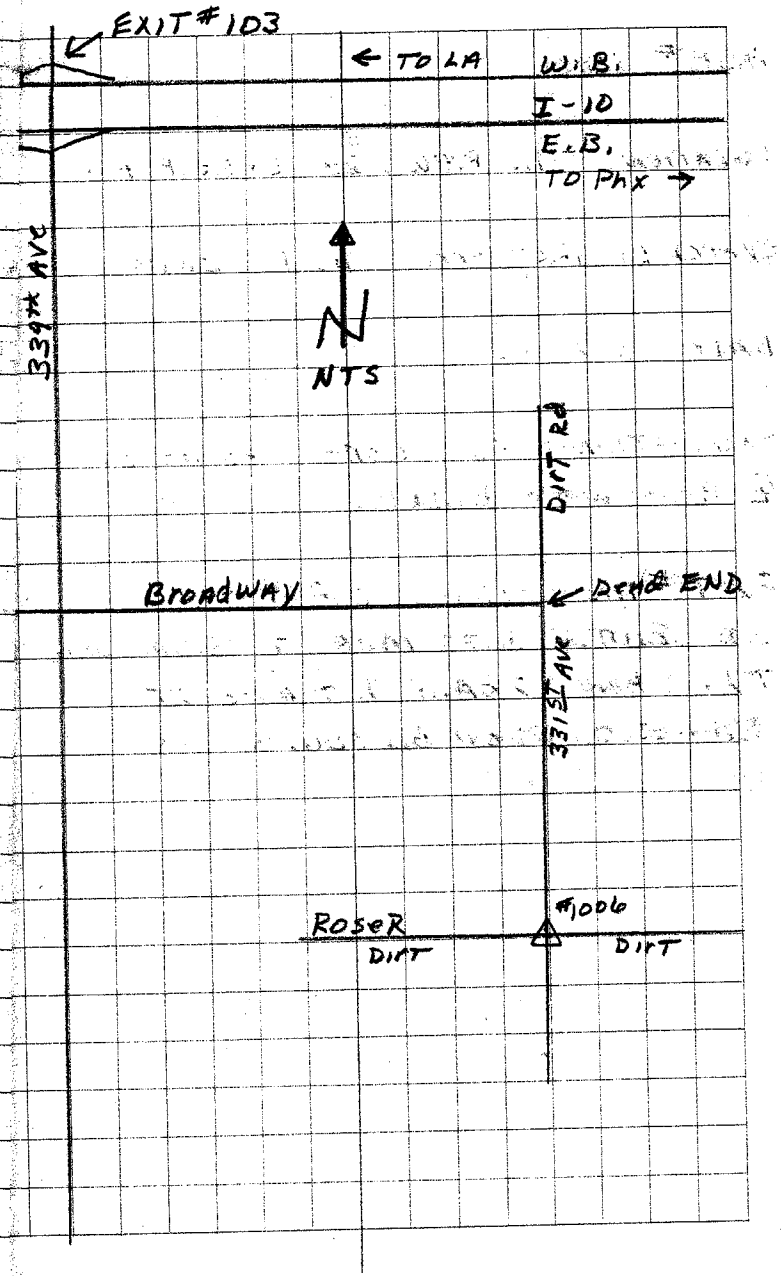
LOCATION T1N R5W S28 S27 G+SR B.L.+M

Sketch By Greg Frary HUITT-ZOLLARS

DATE 5-21-02

DESCRIPTION ½" REBAR . 40 DOWN
℄ 331ST AVE + ROSER.

EXIT #103 . I-10 339TH AVE
GO SOUTH 3.77 MILES TO BROADWAY
RD. THEN GO EAST 1.0 mile TO
331ST AVE. THEN GO SOUTH 0.5
mile TO ROSER.



ACP # 1007

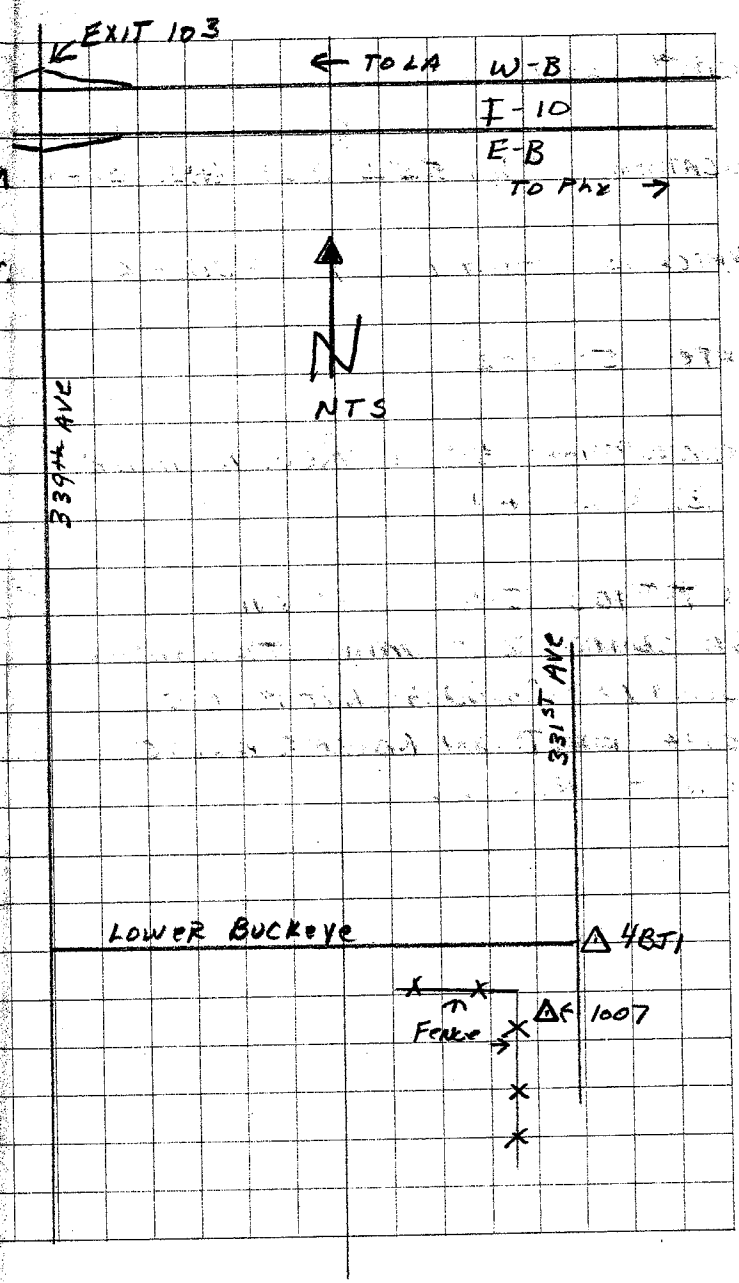
LOCATION T1N R5W S21 G+SR B1+m

SKETCH BY GREG FRARY HUITT-ZOLLAR

DATE 5-21-02

DESCRIPTION SET ½" REBAR W/HZI RED REF CAP

EXIT # 103 I-10 339th AVE
GO SOUTH 2.77 MILES TO LOWER BUCKEYE, THEN GO WEST 1.0 MILE EAST ON LOWER BUCKEYE TO 331ST AVE. LOWER BUCKEYE TURNS TO DIRT 0.2 MILE EAST OF 339th AVE. 67.0' SOUTH OF ℄ LOWER BUCKEYE, 39.0' WEST OF ℄ 331ST AVE. 13.75' EAST OF FOUR STRAND WIRE FENCE. LOWER BUCKEYE DEAD END'S INTO 331ST AVE.



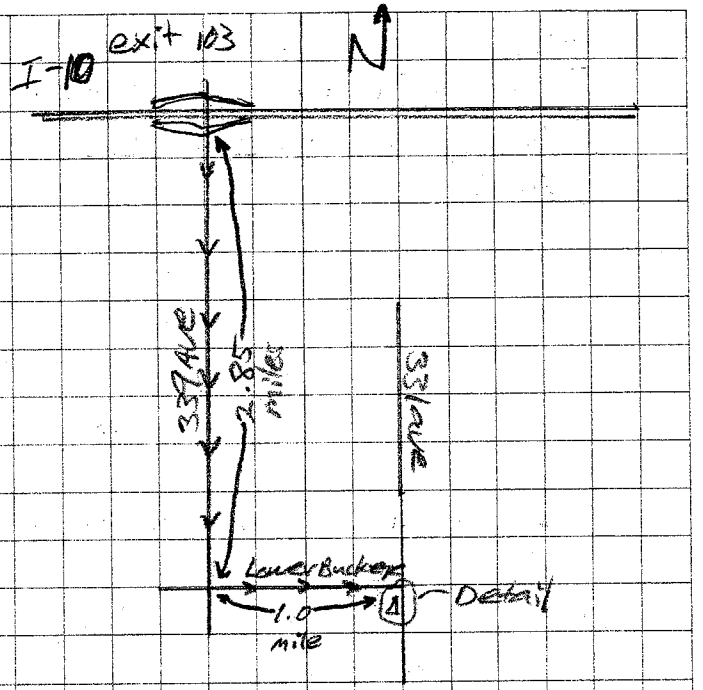
ACP# 1007

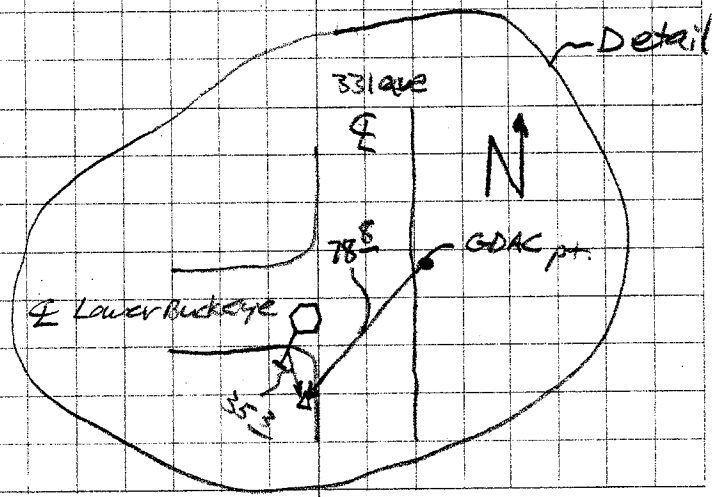
Location T1N R5W S15, 16, 21, 22 G+SR BL+M

Sketch B. Malmos Company Huitt Zollars Inc.

Date 5/21/02

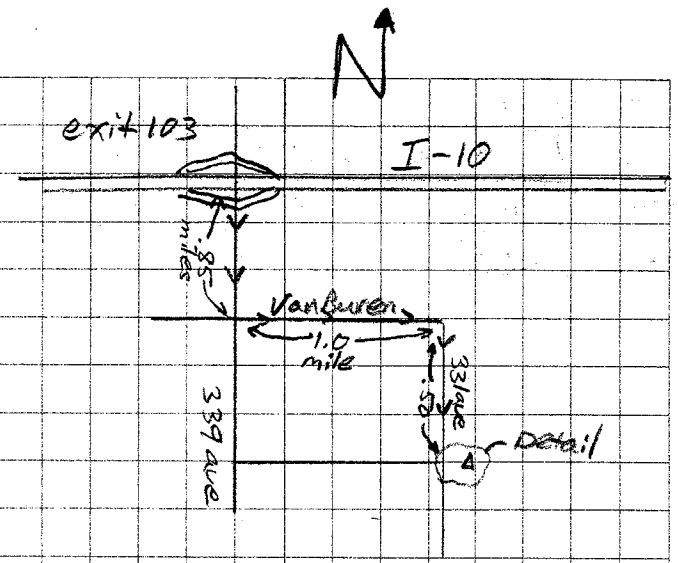
Description: 1/2" rebar with HZ ref. cap.
Exit I-10 @ exit 103 (33 ave)
Go South to Lower Buckeye
2.85 miles. Go East 1.0
mile to 33 ave.

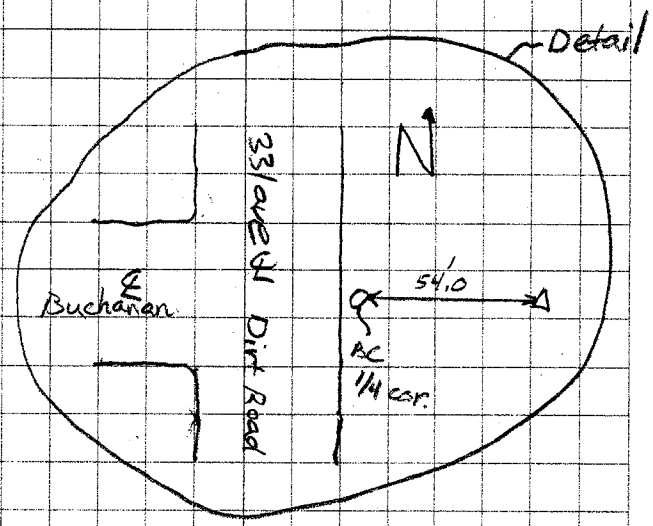




ACP#	1008			
Location	T1N	R5W	S9,10	G+SR B&M
Sketch	B. Malmos	Company	Hurit Zollars Inc.	
Date	5/21/02			

Description; 1/2" Rebar with HZ ref. cap
Exit I-10 @ exit 103 (339 ave)
Go South .85 miles to Van
Buren. Go East on dirt
road 1.0 mile to 331 ave. Go South
.5 mile to Buchanan Rd.





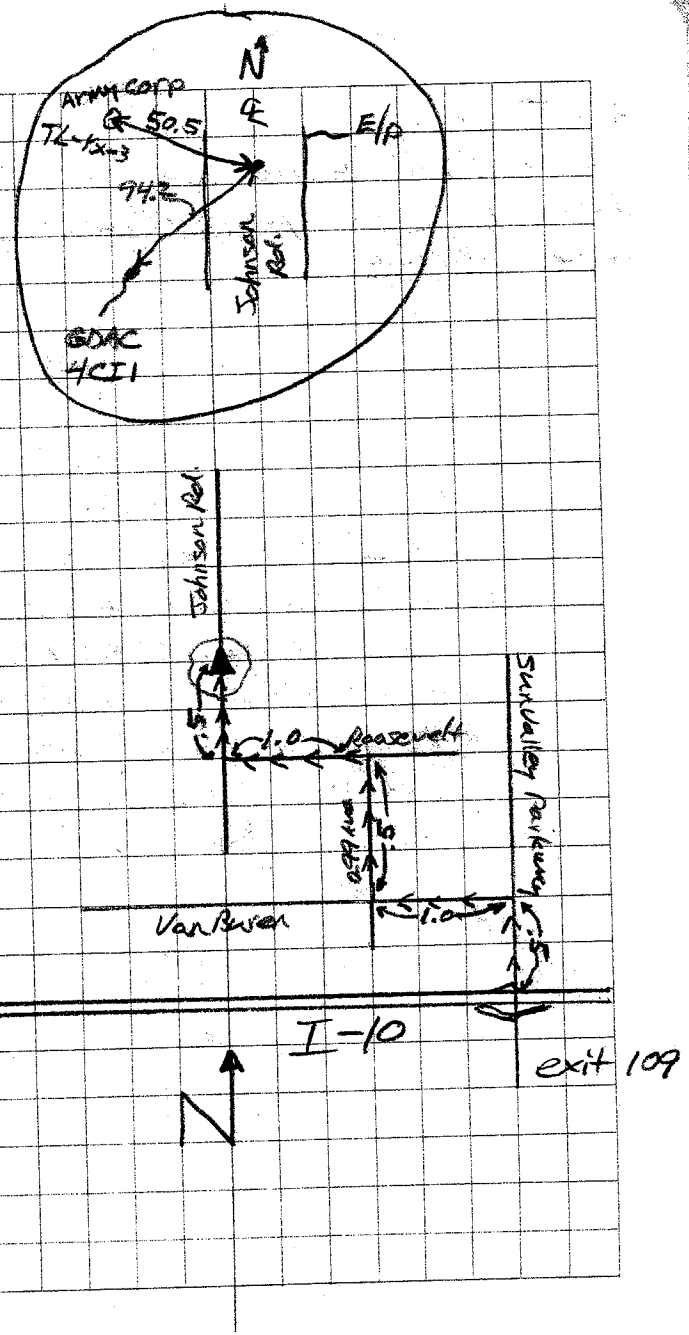
ACP# 1009 ACE# TL-VX-3

Location T1N2NR4W5W S36,1,6,31 SHLR BL4M

Sketch B. Malmos Company Hutt-Zollars Inc.

Date 5/20/02

Description; 3 inch cap GLO, Down .82
Marked T1N, R4W, 5W, 1915
36,31,1,6 Exit I-10 @ 109
(Sun Valley Parkway) Go North
.5 miles to Van Buren. Go
West 1.0 mile to 299 ave
Go North .5 mile to Roosevelt
Go West 1.0 mile to Johnson Rd.
Go North .5 mile to RCH in
center of paved road.



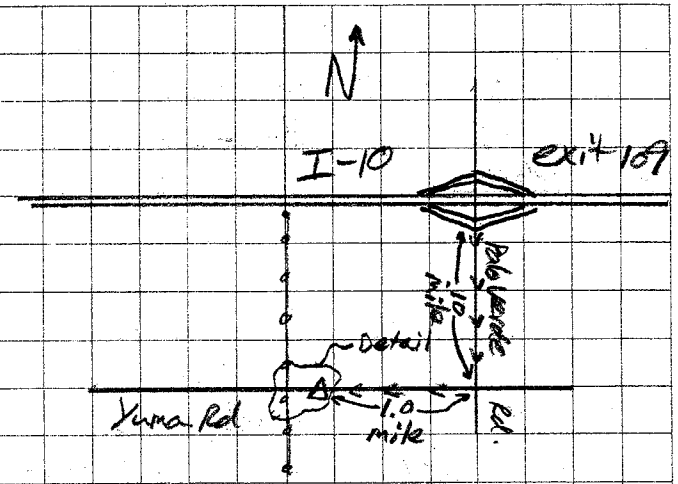
ACP# 1010

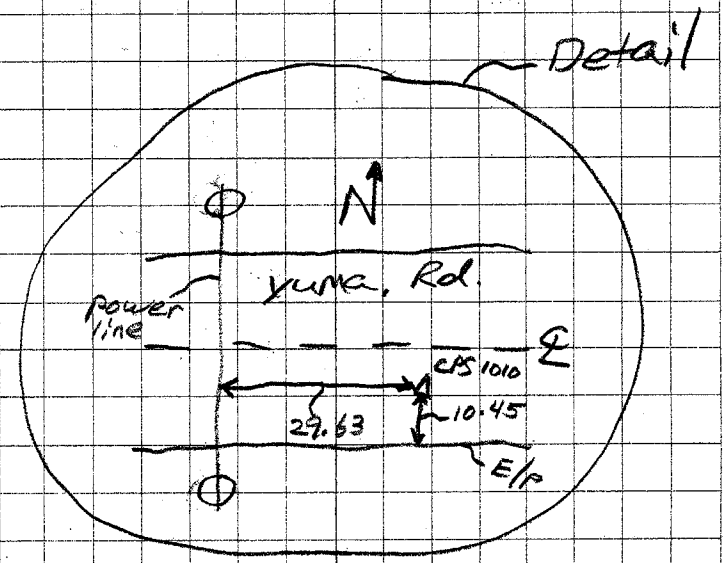
Location T1N R4W S 7, 8, 18, ~~19~~ 17 SRGR BL+M

Sketch B. Mulros Company Hutt Zollars Inc.

Date 5/20/02

Description; CPS in pavement & Eastbound lane of Yuma Rd. Exit I-10 @ exit 109 (Palo Verde Rd)
Go South .10 mile to Yuma Rd.
Go West 1.0 mile to CPS on Southside of Yuma Rd.





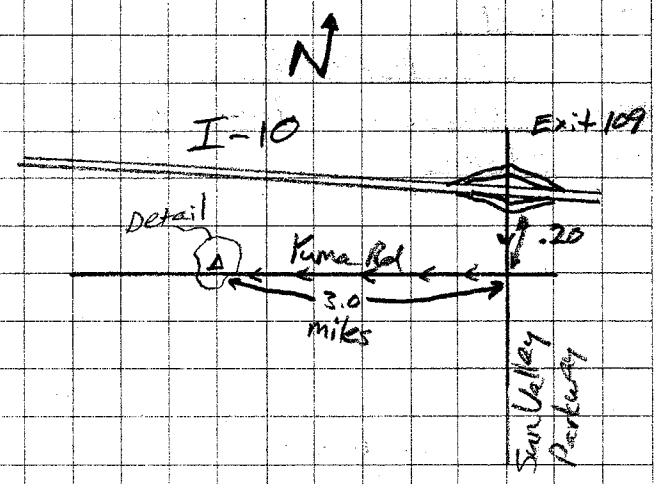
ACP# 1011

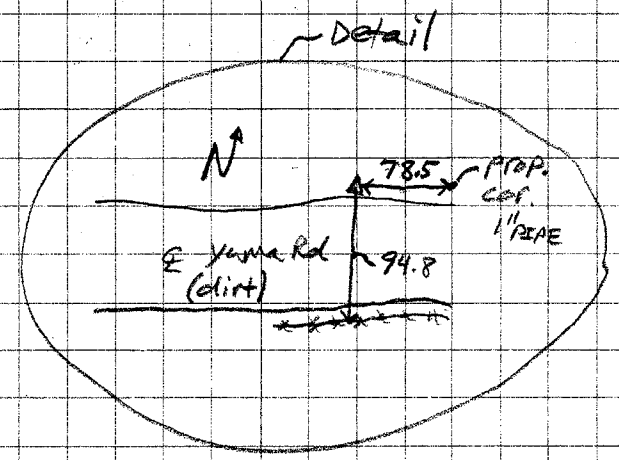
Location T1N R5W S11,12,13,14 G+SR B&M

Sketch B. Malnos Company Hritz Zollars Inc.

Date 5/21/02

Description: 1/2" rebar with HZ cap.
Exit I-10 @ exit 109
(Palo Verde Rd) Go South .20
to Yuma Rd. Go west 3.0
to 3/5 ave alignment. North side
of Yuma Rd.





ACP # 1012

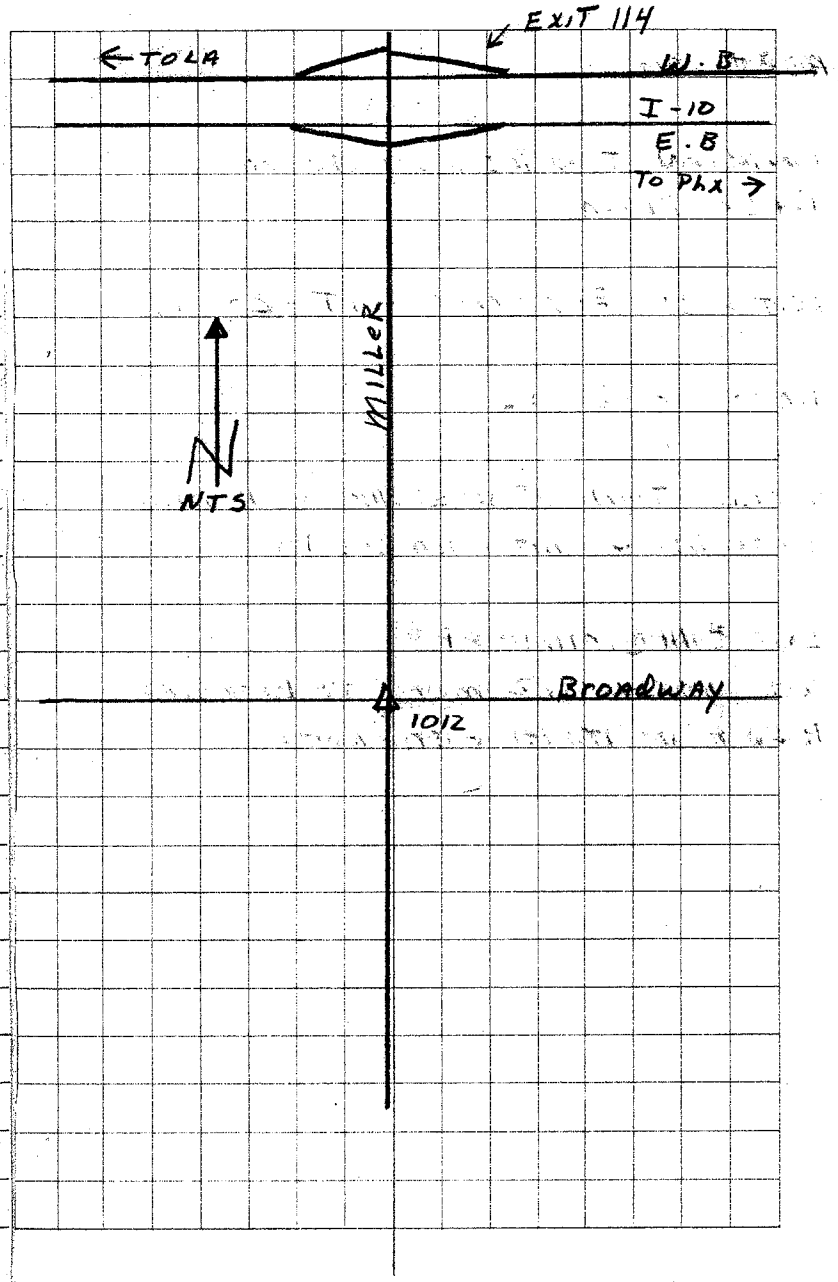
LOCATION T1N R3W S19 S20 S30 S29
G+SR BL+m

SKETCH BY Greg Frary HUITT-Zollars

DATE 5-21-02

DESCRIPTION: 3" BRASS CAP IN A HANDHOLE
0.87 DOWN. MARICOPA COUNTY HWY DEPT.

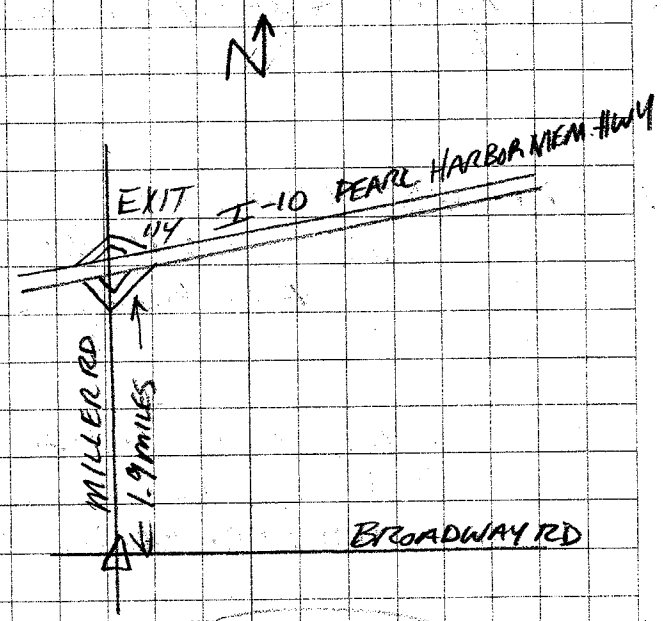
EXIT I-10 @ miller Rd # 114
GO SOUTH 1.82 miles TO BROADWAY.
℄ OF ℄ OF miller + BROADWAY.



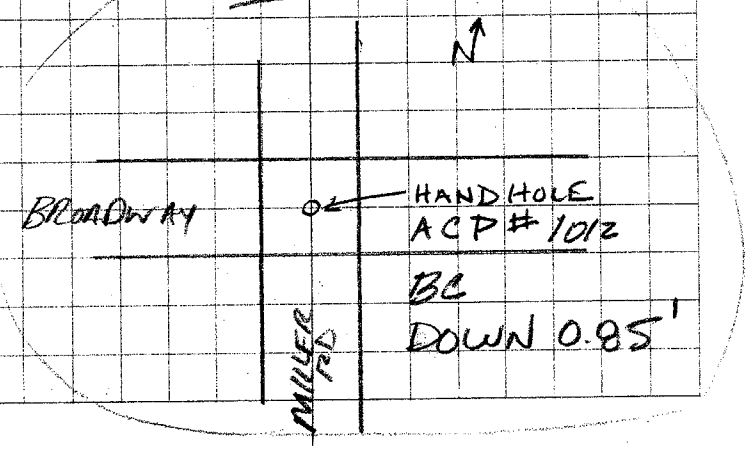
ACP# 1012
LOCATION: T1N R3W SW COR SEC 20 G&SR B&M
SKETCH BY: RANDY KARRY / HUITT-ZOLLARS INC.
DATE: 5/17/02

DESCRIPTION: MARICOPA COUNTY HIGHWAY DEPT.
BC, SINGLE PUNCH, DOWN 0.85
IN HAND HOLE.

GO TO: EXIT 114 (MILLER RD) & I-10
GO SOUTH 1.9 MILES TO BROADWAY
HAND HOLE @ ℄ OF ROADS



DETAIL



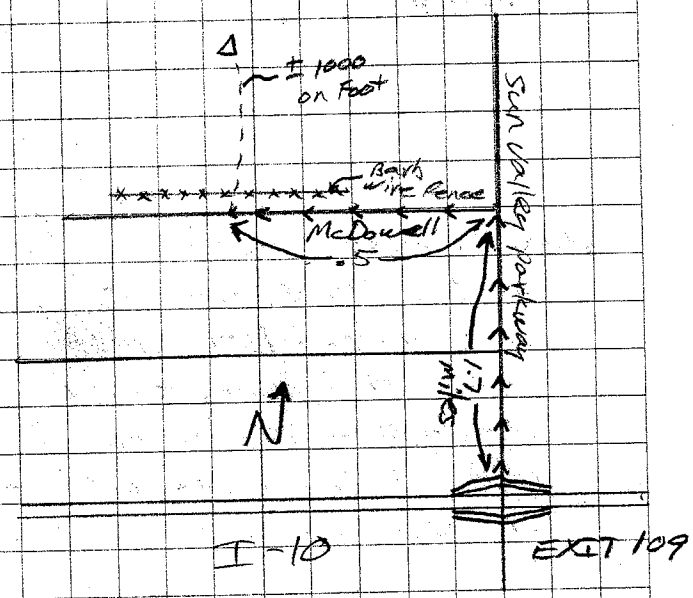
ACP# 1013

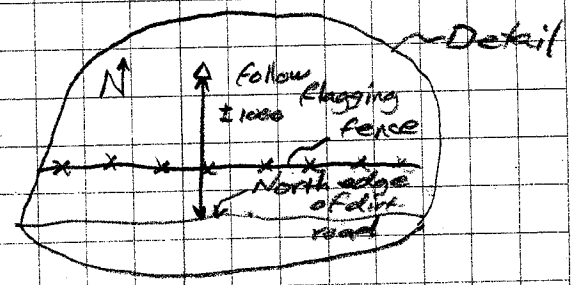
Location T2N R4W S 32 GSR RL&M

Sketch B. Holmes Company Hutt Zollars Inc.

Date 5/20/02

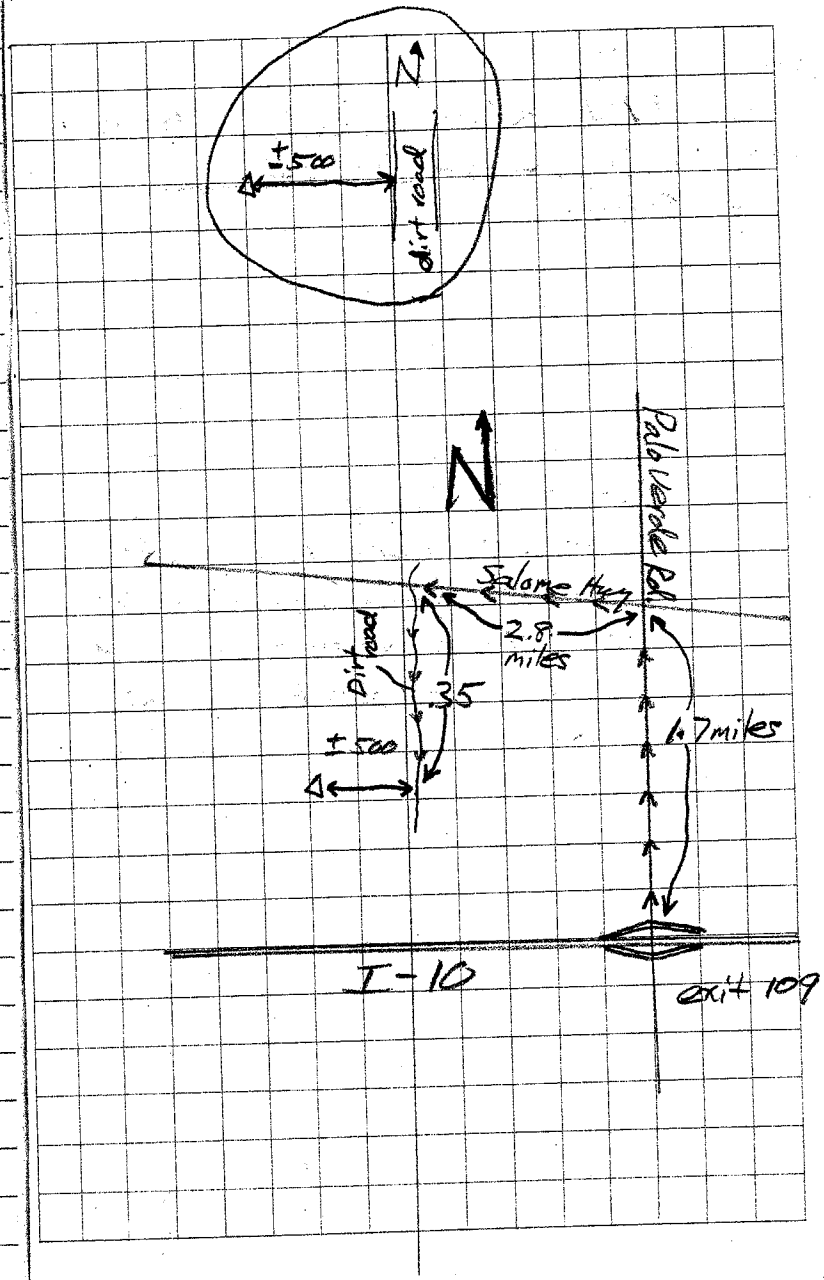
Description; 1/2" rebar with HZ ref. cap
Exit I-10 @ exit 109 (Sun Valley Parkway) Go North 1.7 miles to McDowell Rd. Go West to Flagging .5 mile. Follow Flagging North on foot ± 1000 ft to Rebar.





ACP# 1014
Location T2N R5W S35,36 SR&M BL&M
Sketch B.Molnar Company Hutt-Zollars Inc.
Date 5/20/02

Description; 1/2" rebar with HZ ref. cap.
Exit I-10 @ exit 109 (palo verde) Go North 1.7 miles to Salome Hwy. Go West 2.8 miles to Dirt road. (45' west of MP 20) Go South .35 miles on dirt road. Go west ±500'± to ACP.



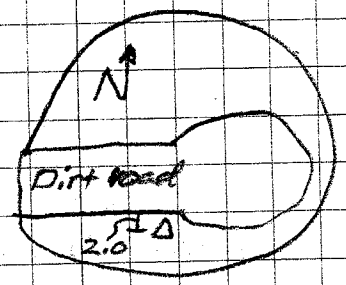
ACP# 1015

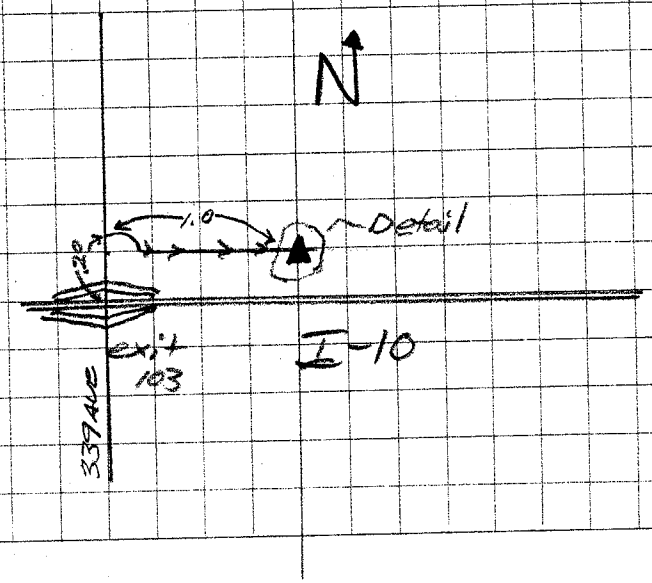
Location T2N R5W S34, 33, 4, 3 G+SR BL+M

Sketch B. Malmo Company Hutt Zollars Inc.

Date 5/20/02

Description; GLO BC 3 1/2" Above grnd. .64 marked 1915 T2N R5W S33, S34 S4, S3 T1N. Exit I-10 @ exit 103 (339th ave) Go North to dirt road .20 miles. Go East 1.0 mile to BC





ACP # 1016

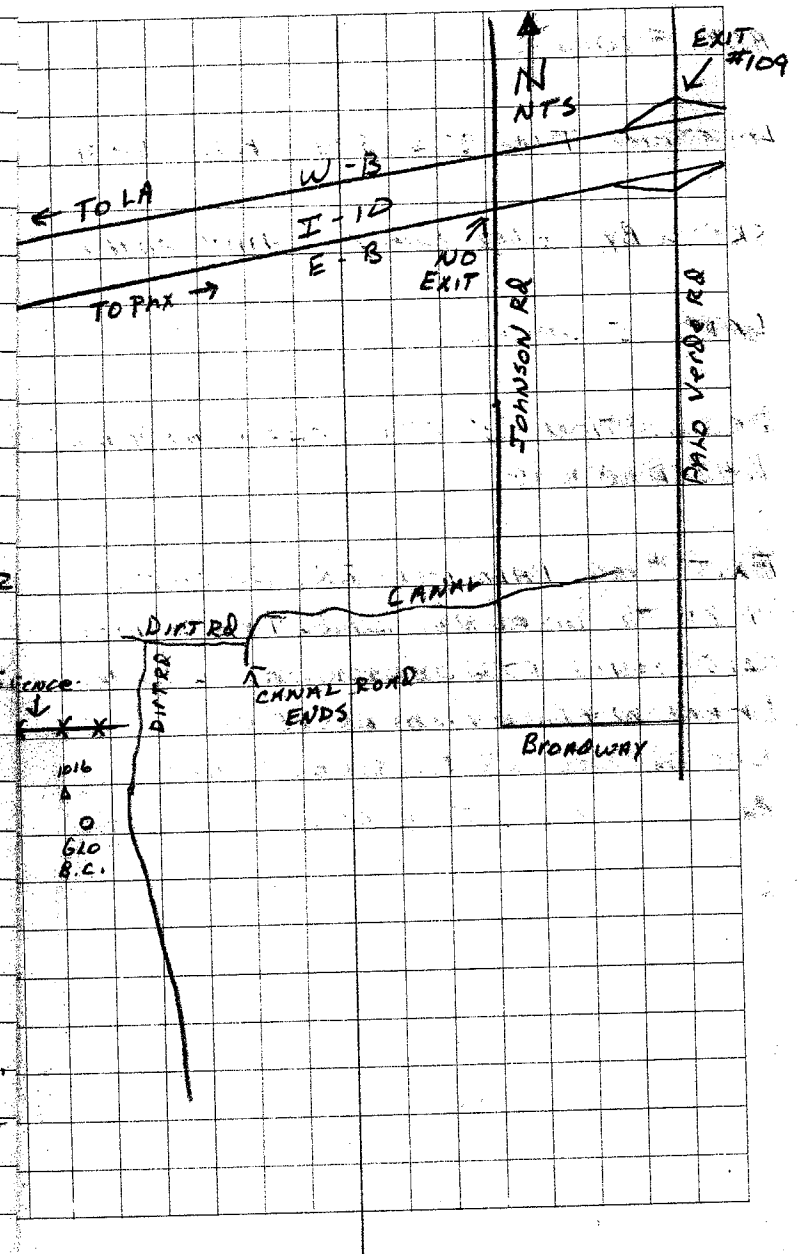
LOCATION T1N R5W S23 G&SR B&M

SKETCH BY Greg Frary Hunt-Zollars

DATE 5-20-02

DESCRIPTION - SET ½" REBAR W/ HZI RED REF CAP

EXIT #109 PALO VERDE RD. GO SOUTH 2.2 miles TO BROADWAY RD (DIRT). GO WEST ON BROADWAY TO JOHNSON RD 2.0 miles. THEN NORTH ON JOHNSON RD TO NORTH SIDE OF ROOSEVELT CANAL .15 mile. THEN WEST ON NORTH SIDE OF ROOSEVELT CANAL .63 mile TO A DIRT RD TO WEST. ON DIRT RD .38 mile TO A DIRT RD SOUTH. THEN .20 mile SOUTH TO ACP# 1016. 20.95 SOUTH OF FOUR STRAND BARBED WIRE FENCE, 30.0' WEST OF DIRT RD. 12.25' NORTH WEST OF SECTION CORNER. 2½" GLO CAP STAMPED T1N R5W S23 S24 S26 S25 1915



ERM# 39 ACP# 1017

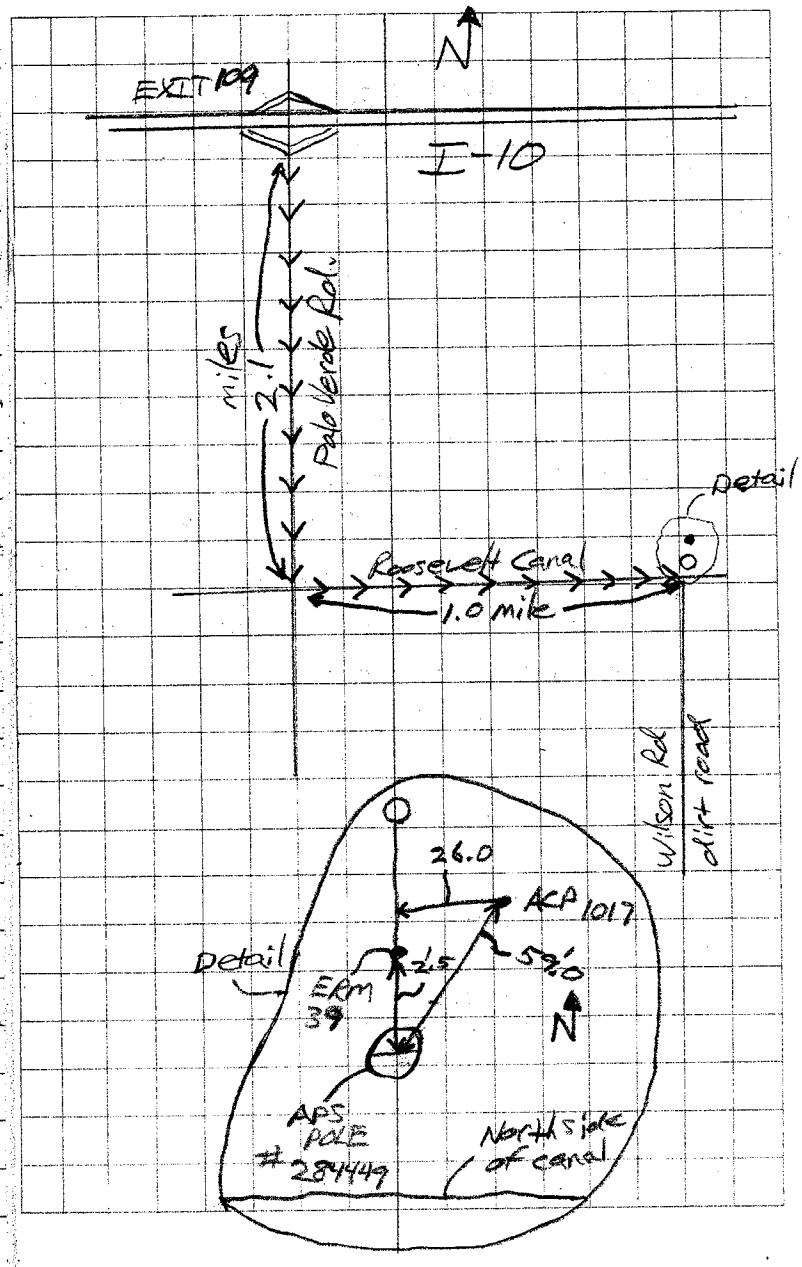
Location T1N R4W S27 G&SR B&M

Sketch B. Malmos Company Hewitt Zollars Inc.

Date 5/13/02

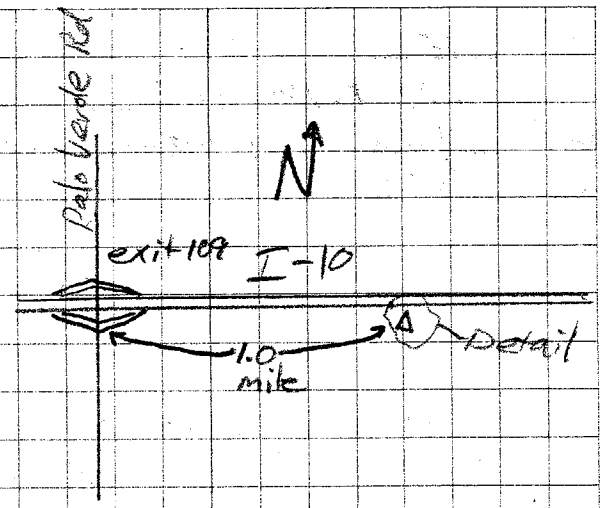
Desc. 1/2" rebar with HZ ref. cap

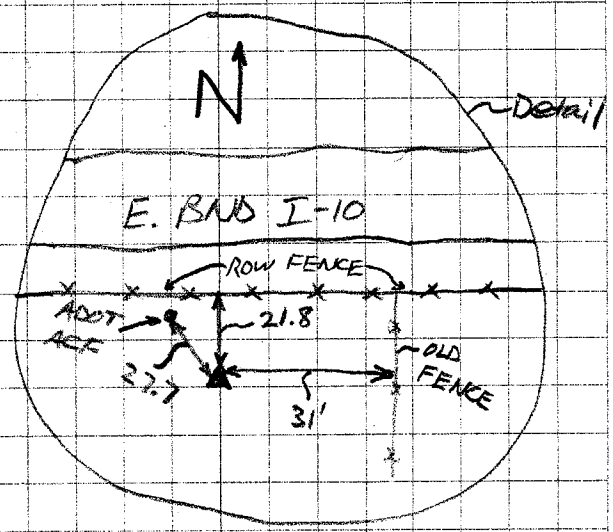
Description; 3 in BC FCDMC stamp "ERM 39" Flush with ground. 2.5 ft North of APS pole# 284449. on North side of Roosevelt Canal. Exit I-10 @ exit 109 (Palo Verde Rd) Go South 2.1 miles to Roosevelt Canal bridge. Go East 1.0 to APS power pole.



ACP# 1018
Location T1N R4W S16,9,10,15 G&SR B&M
Sketch B. Malmos Company Hwy#2 Mars Inc.
Date 5/21/02

Description; 1/2" rebar HI ref. cap
From exit 109 (Palo Verde)
Go East 1.0 mile, on I-10
ACP is on southside of Hwy.





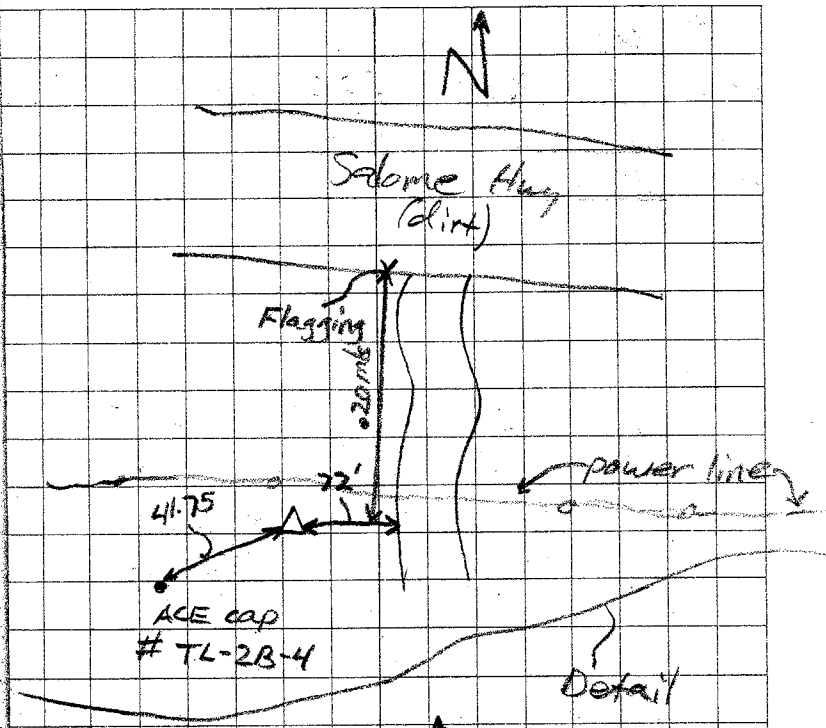
ACP# 1019

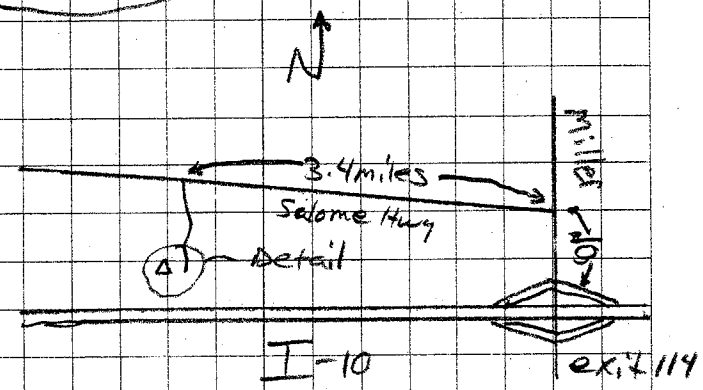
Location T1N R4W S 2,3,10,11 G&SR B&M

Sketch B. Malmos Company Hutt Zollars Inc.

Date 5/21/02

Description; 2" ACF LS 12317 Fish 2000
Exit I-10 @ exit 114 (Miller Rd)
Go North .10 mile to Old
Salome Hwy. Go North-west
3.4 miles to Flagging on
southside of dirt road
Follow flagging South .20
mile to Aluminum cap.





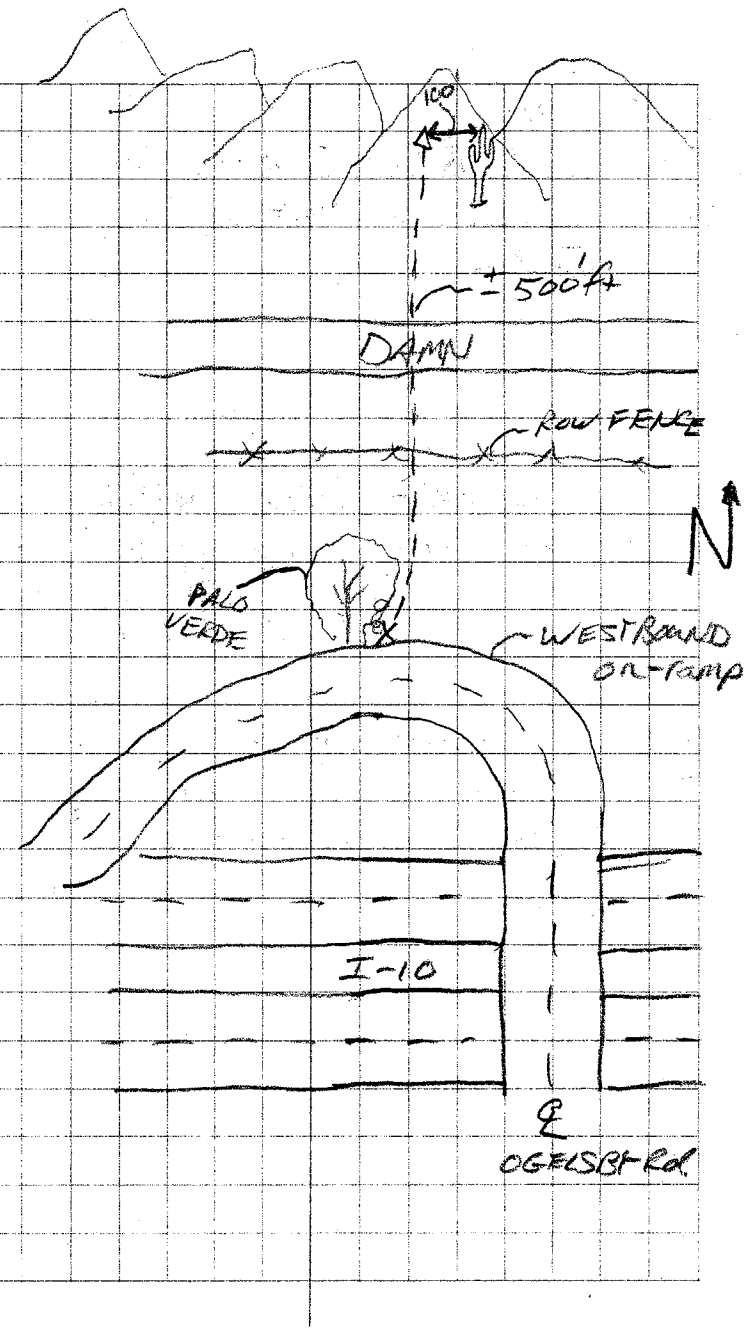
ACP# 1020

Location T1N R4W S11 G&SR B&M

Sketch B. Malmos Company Hutt Zollars Inc.

Date 5/21/02

Description; 1/2" rebar with HZ ref. cap
Goto Exit 112 (Olgelsby Rd)
On Olgelsby, follow westbound
on ramp that leads to I-10
westbound. Look for orange
flagging tied to Palo Verde Tree
on Northside of on ramp.
Follow flagging North ±500
on foot to ACP.



ACP#1021

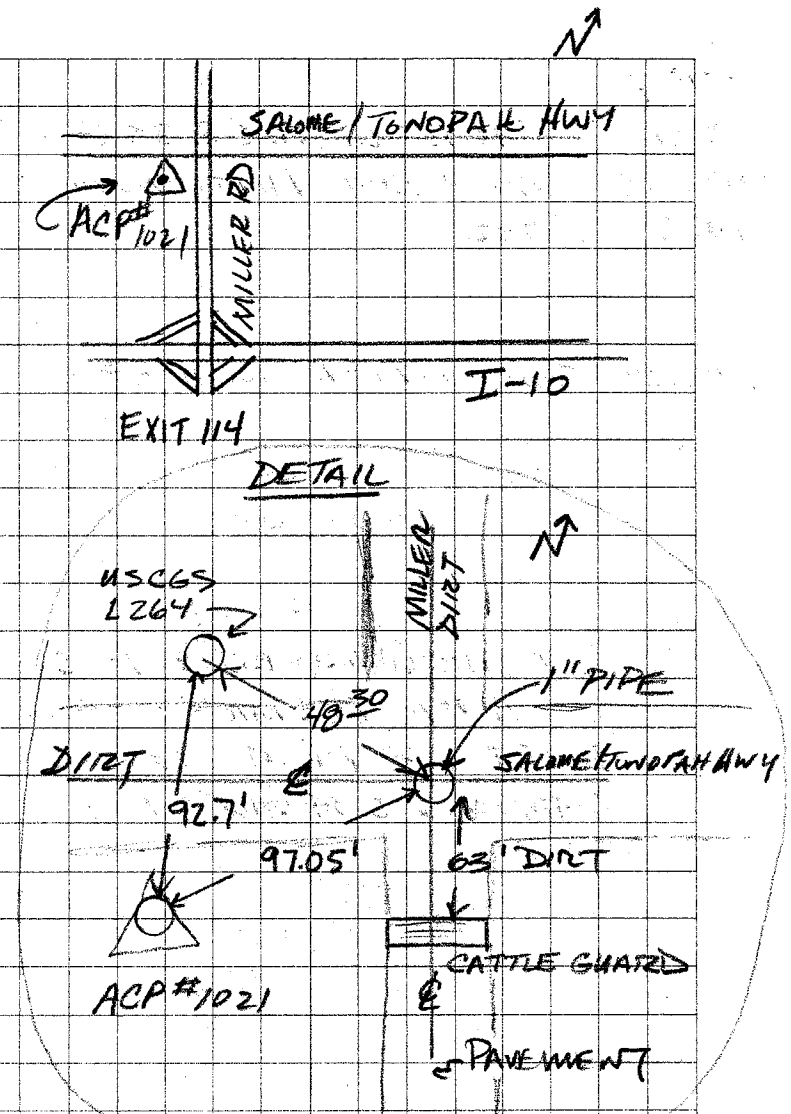
LOCATION T1N R3W SW COR SEC 8 G&SRB&M

SKETCH BY RANDY KARRY/HUITT-ZOLLARS INC

DATE 5/17/02

DESCRIPTION: 1/2 REBAR WITH HZ REF CAP

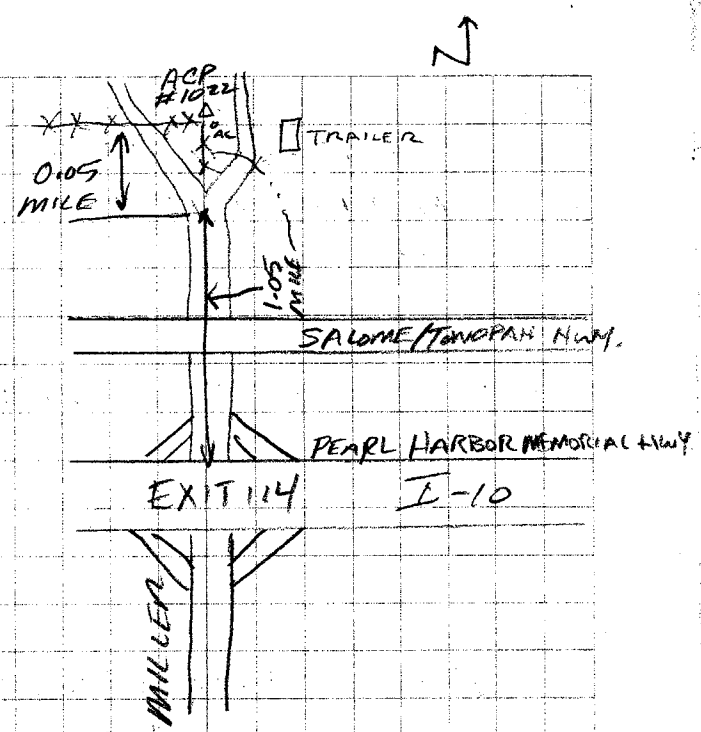
GO TO: EXIT 114 (MILLER RD) ON I-10, GO NORTH 0.1 MILE TO INTERSECTION OF SALOME/TONOPAH AND MILLER. FOUND ONE INCH PIPE, DOWN 0.40 GO 97.05' SW TO ACP#1021. SWING TIE TO 92.7 FT NE TO U.S COAST & GEODETIC BC IN CONC #L264 (1947)

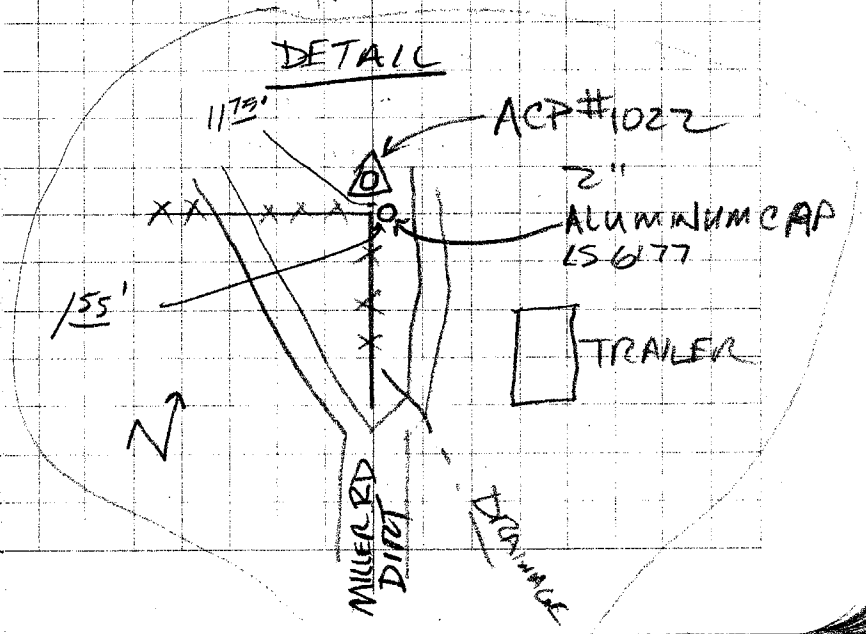


ACP#1022
LOCATION T1N R3W NW COR SECTION 8 G&SR&B&M
SKETCH BY RANDY KARRY / HUITT-ZOLLARS INC
DATE 5/17/02

DESCRIPTION: 1/2" REBAR W/ HZ REF. CAP

GO TO: EXIT 114 (MILLER RD) & I-10
GO NORTH 1.05 MILES TO "Y" IN
DIRT RD GO RIGHT ACROSS
DRAINAGE 0.05 MILES TO FENCE
COR (WES) (BARBED WIRE) GO NORTH
11.75 TO 1/2" REBAR W HZ REF
CAP ACP#1022.
SWINGTIE: 11.75 SE TO 2" INCH ALUMINUM
CAP LS 6177
MARKINGS NE COR
P.W. RAMEY



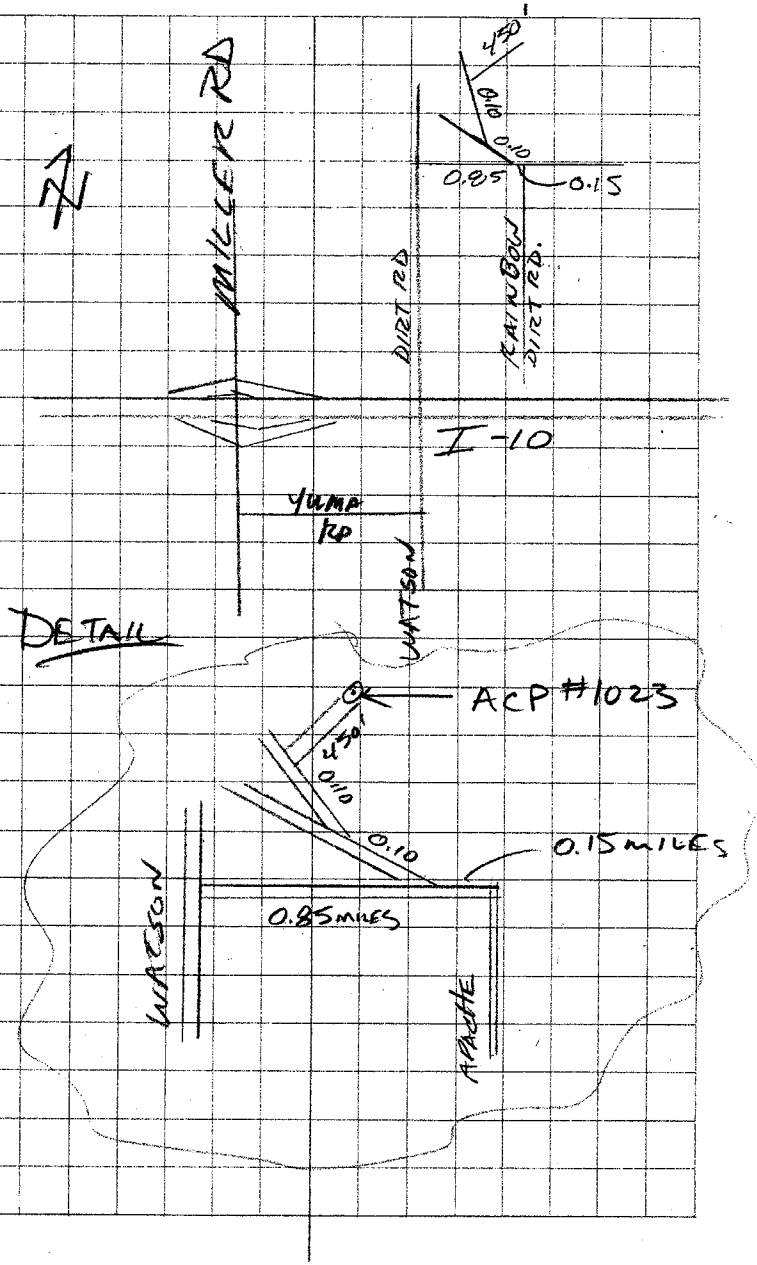


ACP#1023
LOCATION T1NR3W S34 G+SR BL&m
SKETCH RANDY KARRY / HUITT-ZOLLARS INC
DATE 9/26/02

DESCRIPTION; 1/2 REBAR W, HZ CAP INSIDE TRACTOR TIRE, NEAR A LARGE PILE OF TIRES.

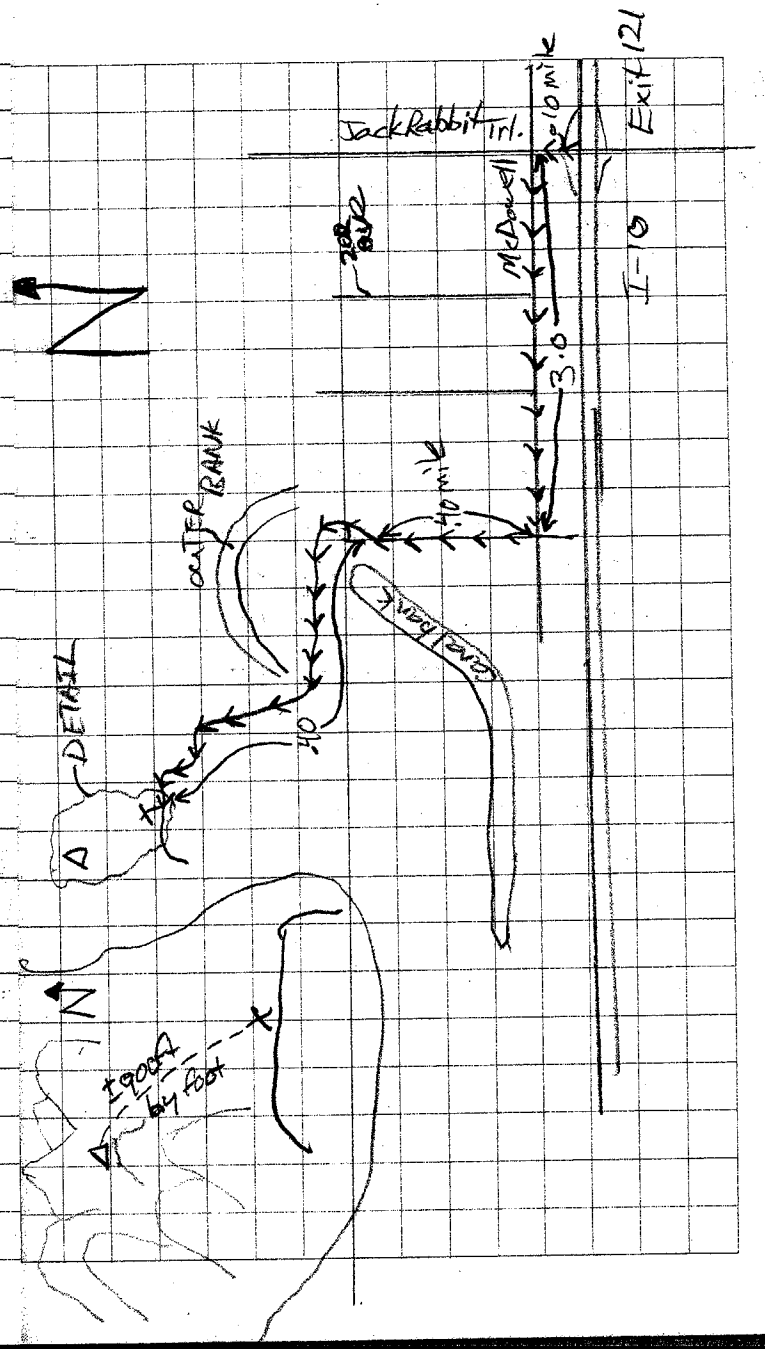
GO TO: EXIT I-10 & MILLER VALLEY RD GO EAST 2 MILES TO WATSON RD, THEN NORTH 1.25 MILES TO McDOWELL THEN 0.85 MILES TO DIRT ROAD, ~~HEAD~~ NORTH WEST 0.1 MILES

THEN NORTH 0.1 MILES THEN NE 450 FOOT TO ACP#1023



ERM#	1024
Location	T2N R2W S36 G+SR B&M
Sketch	B. Malmos Company Huitt-Zollars Inc.
Date	5/10/02

Description; 1/2 inch rebar w/HZ cap. Exit I-10 @ exit 121 (Jack Rabbit Trail) Turn Right and go North to McDowell Rd. .10 mile. Turn left and go west approx. 3 miles on dirt road to a "TEE". Turn right and go North approx. .40 of mile to end of canal bank. Follow dirt road through bottom of canal area to westside of canal. Follow dirt road North by North west. approx. ± .40 mile to area marked by orange flagging. Follow orange flagging trail by foot approx ± 900ft North West into canyon area.



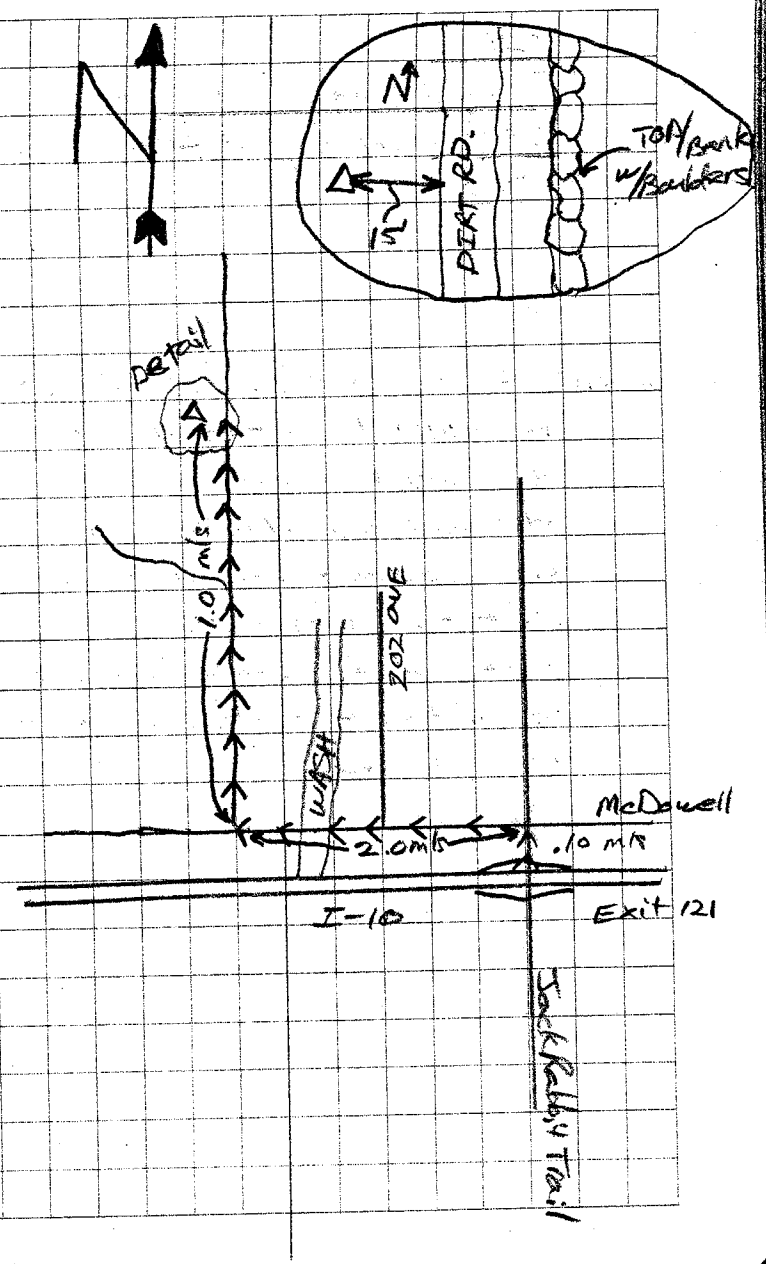
ERM# 1025

Location T2N R2W S31 G+SR BL+M

Sketch B-Matmos Company Huitt Zollars Inc.

Date 5/6/02

Description; Exit I-10 @ 121 (Jack Rabbit Trail) Turn Right - go North to McDowell Rd .10/mile. Turn left and go West 2.0 mls from paved to dirt road. Turn right on dirt road. Go North 1.0 mile. Rebar w/HZ cap is 15'ft west of west edge of dirt road.



ERM# 1026

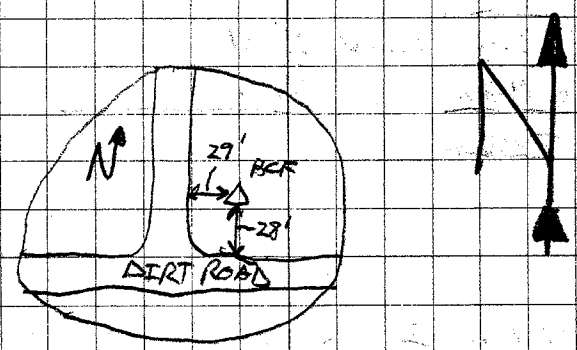
Location T2N R2W S31 GSR BL+M

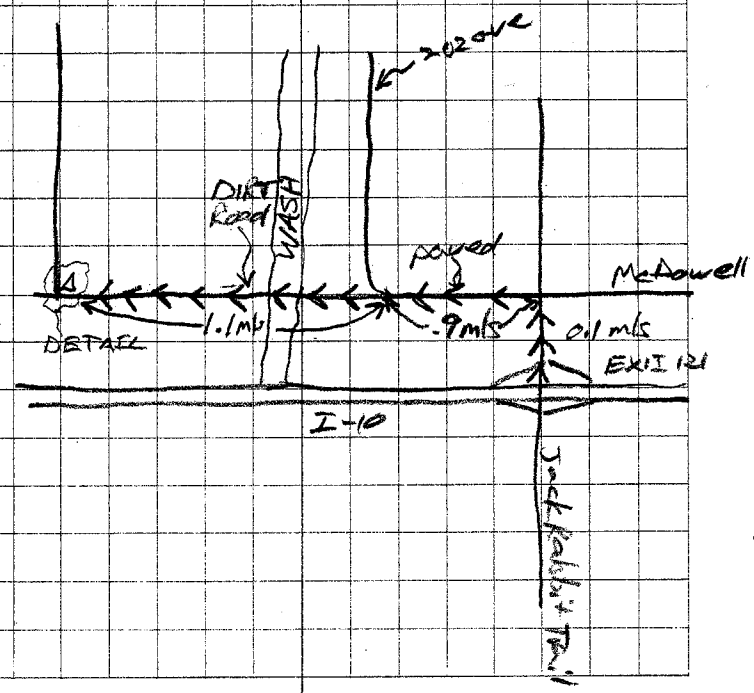
Sketch B. Malmos Company: Hewitt Zollars Inc

Date 5/10/02

Description; Army Corp of Eng / RC 3 inch
L-ZJ-3

Exit I-10 @ EXIT 121 (Jack Rabbit Trail)
Head North .10 of mile to McDowell Rd
Go west approx. 2 miles from pave-
-ment to dirt road. RC is North-East of
dirt road "TEE". 29'ft to the east +
28'ft to the North.

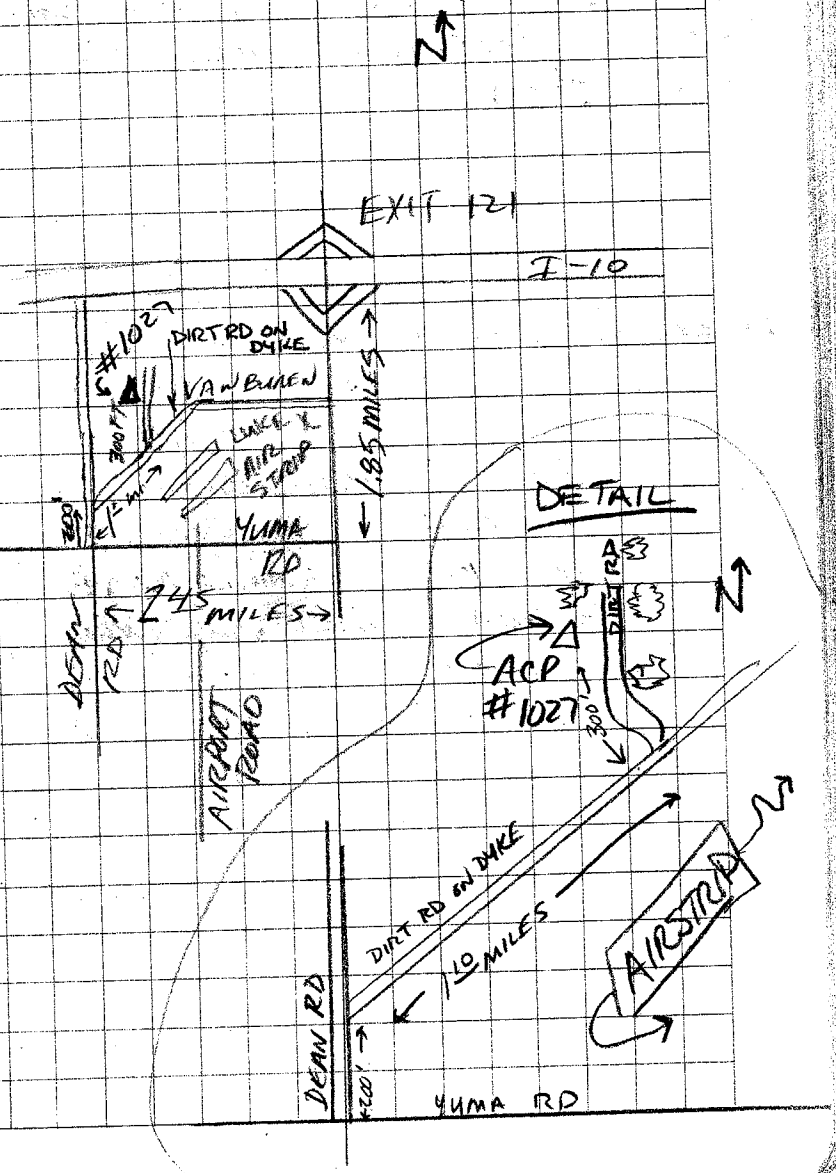




ACP # 1027
LOCATION: T1N R3W N1/4 SEC12 GSRB/M
SKETCH BY: RANDY KARRY / HUITT-ZOLLARS INC
DATE 5/17/02

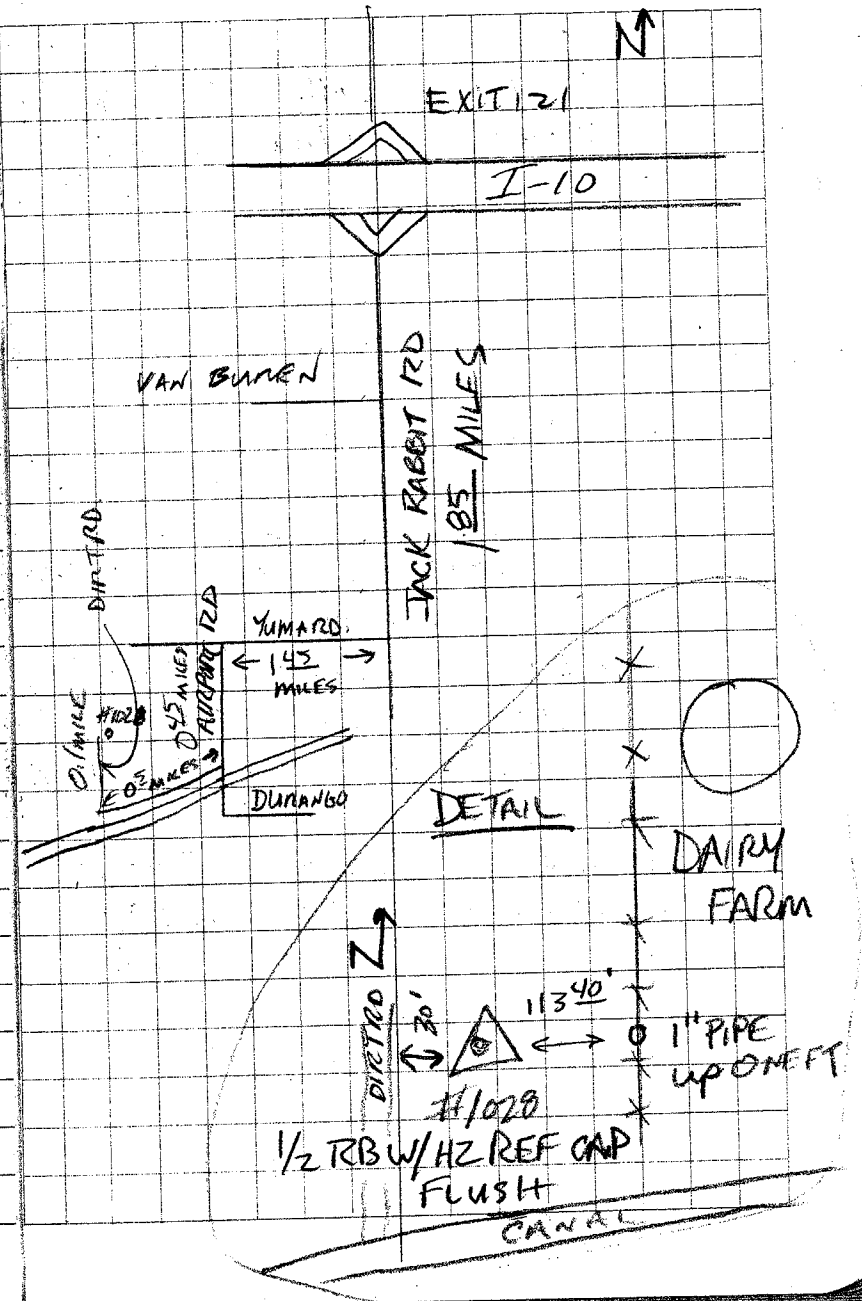
DESCRIPTION: 1/2 INCH W/ REBAR H-Z REF CAP

GO TO: EXIT 121 (JACK RABBIT RD) @ I-10
GO SOUTH 1.85 MILES TO YUMA RD.
GO WEST 1.45 MILES TO DEAN RD.
GO NORTH 200 FT TURN RIGHT
IN A NE DIRECTION STAY ON
DIRT RD ON DYKE 1.1 MILE,
GO NORTH 300 FT. ON DIRT ROAD,
20 FT WEST TO ACP #1027



ACP# 1028
LOCATION: T1N R3W CENTER 13 GSRB&M
SKETCH BY: RANDY KARRY / HUITT-ZOLLARS INC
DATE: 5/17/02

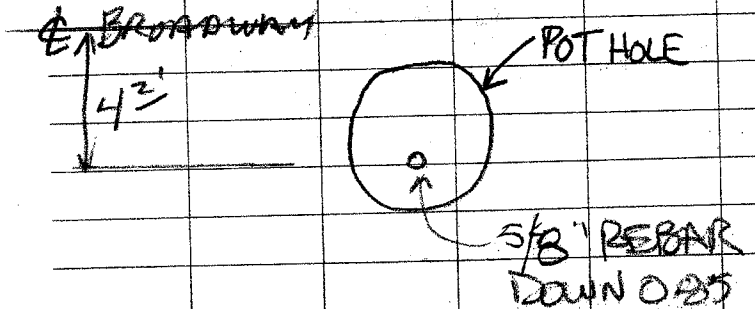
END
DESCRIPTION: 1" PIPE, ONE FOOT ABOVE GROUND. 113.40 WEST OF FENCE BARBWIRE CORNER (SW COR OF DAIRY FARM) (ON LINE W/ N-S FENCE LINE)
TO: 1/2" REBAR W/ HZ REF CAP #1028
GO TO: EXIT 121 (JACKRABBIT RD) & I-10.
GO SOUTH 1.85 MILES TO YUMA RD.
GO WEST 1.45 MILES TO AIRPORT RD.
GO SOUTH 0.45 MILES TO NORTH MAINT ROAD OF ROOSVELT CANAL.
GO WEST 0.5 MILES TO DIRT RD.
GO NORTH 0.1 MILES TO ACP #1028

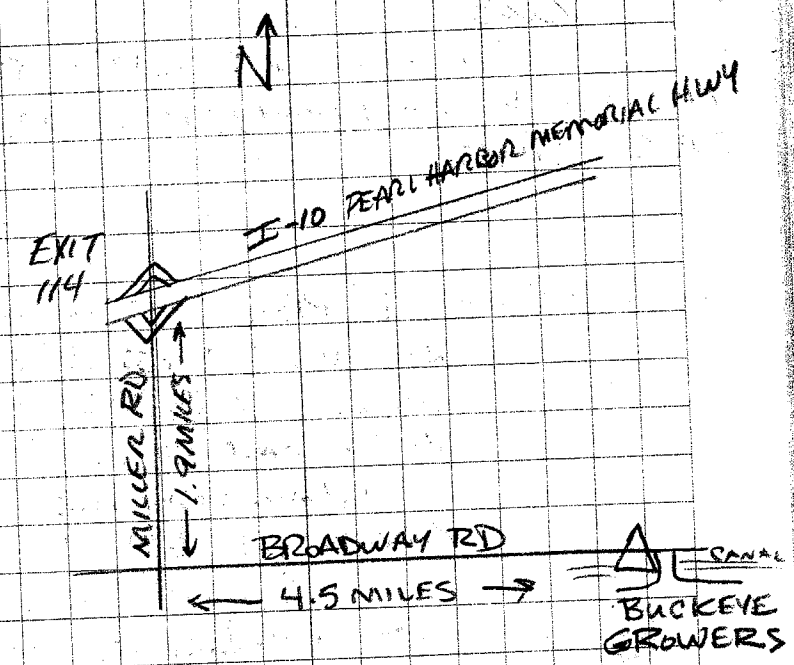


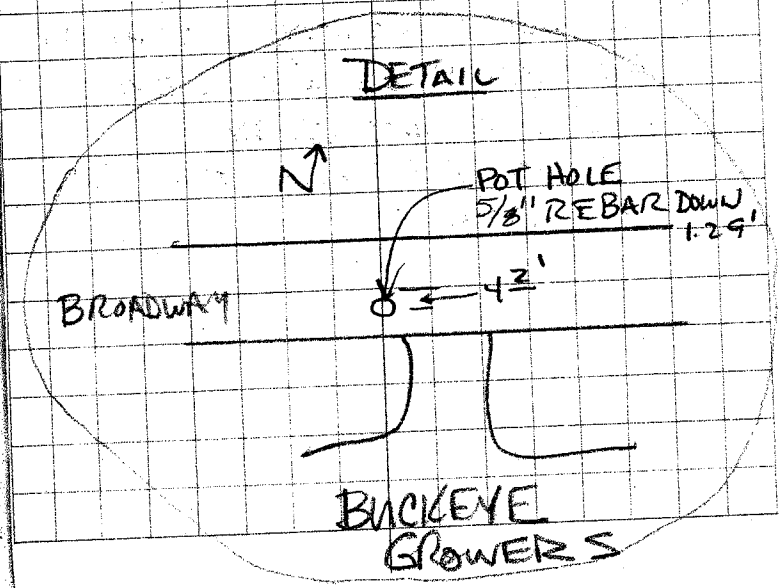
ACP# 1029
LOCATION: T1N, R3W S1/4 SEC24 GFSRBLM
SKETCH BY: RANDY KARRY/HUITT-ZOLLARS INC.
DATE 5/17/02

DESCRIPTION: 5/8" REBAR IN POT HOLE DOWN 1.29', 4.2' SOUTH OF ℄ OF BROADWAY RD. @ ENTRANCE TO BUCKEYE GROWERS (PALM TREE FARM)

GOTO: EXIT 114 (MILLER RD) & I-10
GO SOUTH 1.9 MILES TO BROADWAY
GO EAST 4.5 MILES TO S1/4 SECTION 24 ON BROADWAY RD IN POT HOLE DOWN 1.29' 5/8" REBAR



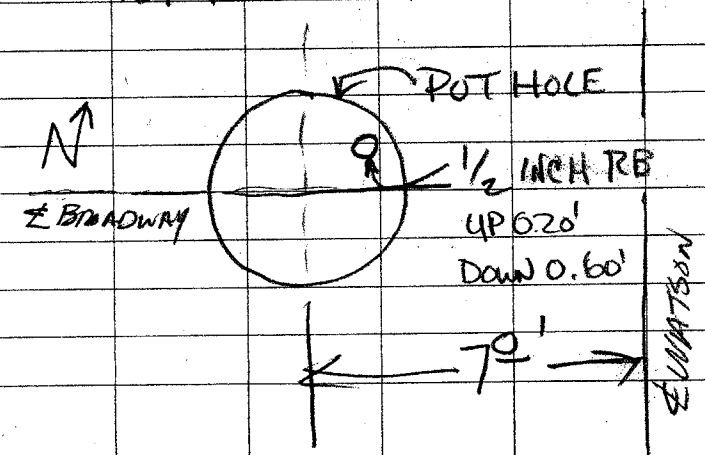


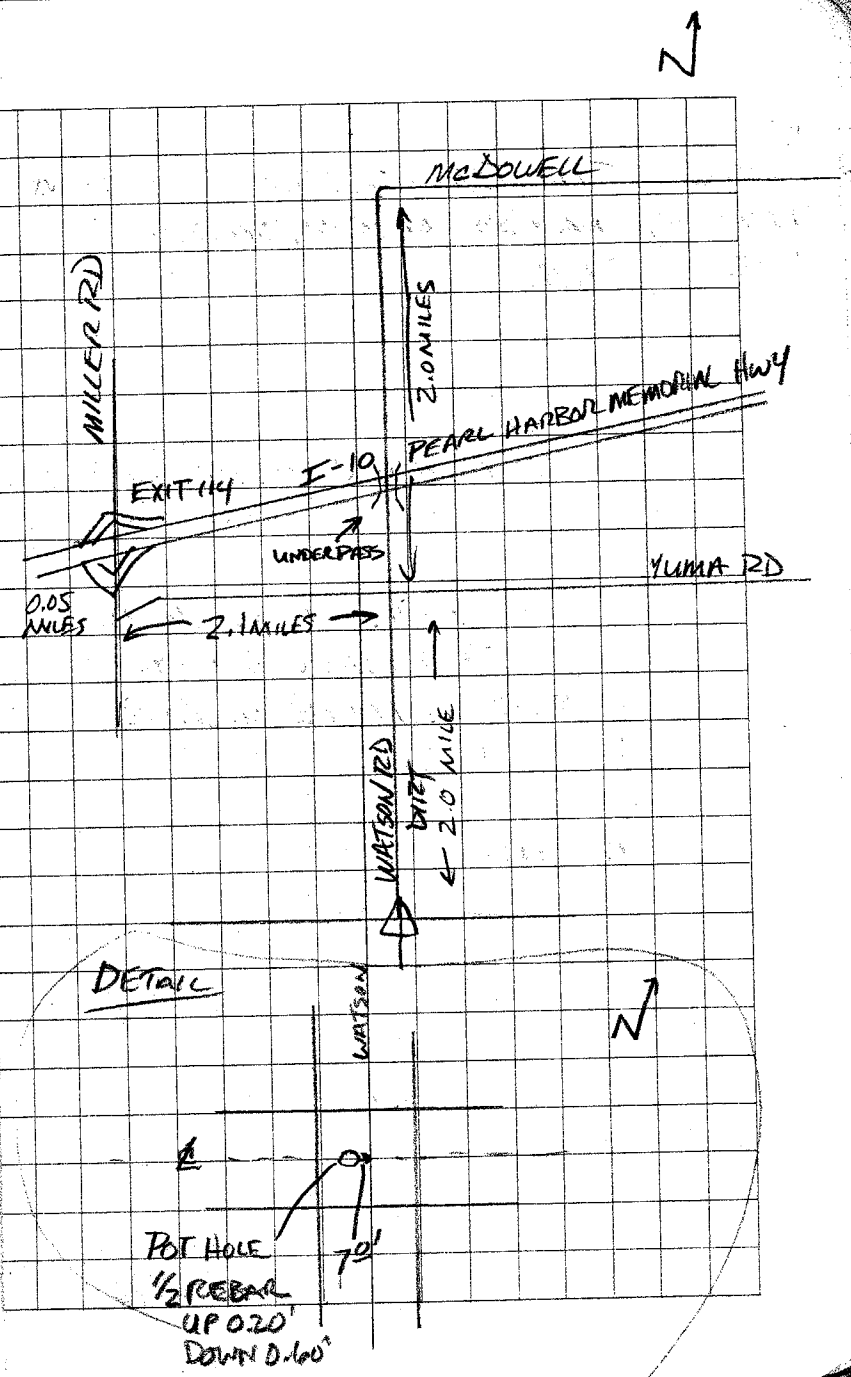


ACP# 1030
LOCATION T1N R3W SW SEC. 22 G&SR&BLM.
SKETCH BY: RANDY KARRY/HUITT ZOLLARS INC.
DATE 5/17/02

DESCRIPTION: 1/2 REBAR IN POT HOLE, UP 0.20' & DOWN 0.60' FROM PAVEMENT
7.0' WEST OF ℄ WATSON RD
0.0 ℄ BROADWAY RD.

GO TO: EXIT 114 (MILLER RD) & I-10
GO SOUTH 0.05 MILES TO YUMA RD.
GO EAST 2.1 MILES TO WATSON RD.
GO SOUTH 2.0 MILES TO BROADWAY
POT HOLE IN INTERSECTION.

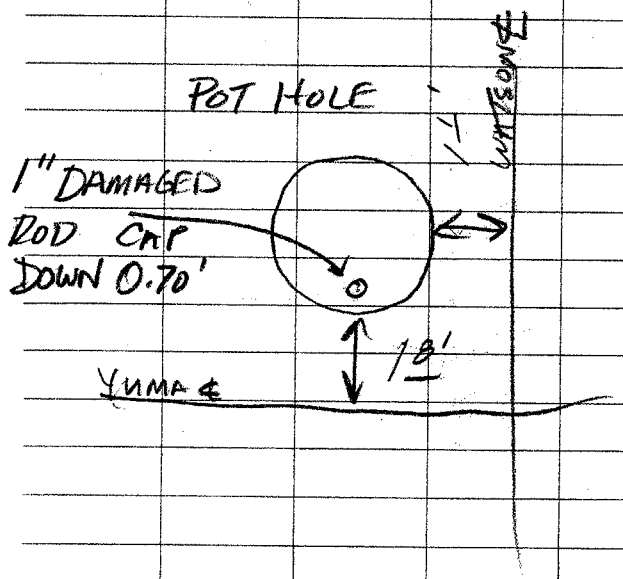


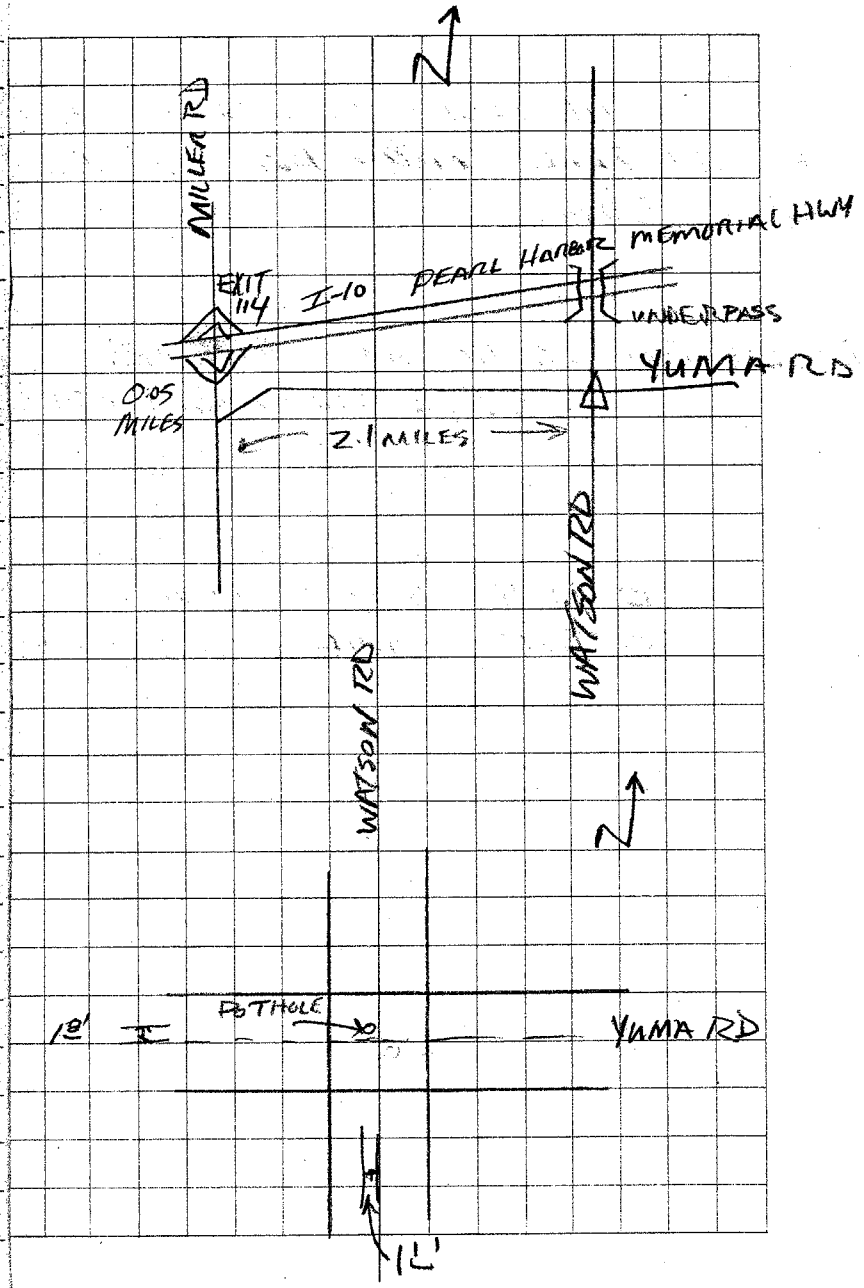


ACP# 1031
LOCATION: T1N R3W SW SEC10 GSR BLM.
SKETCH BY: RANDY KARRY/HUITT-ZOLLARS INC.
DATE: 5/17/02

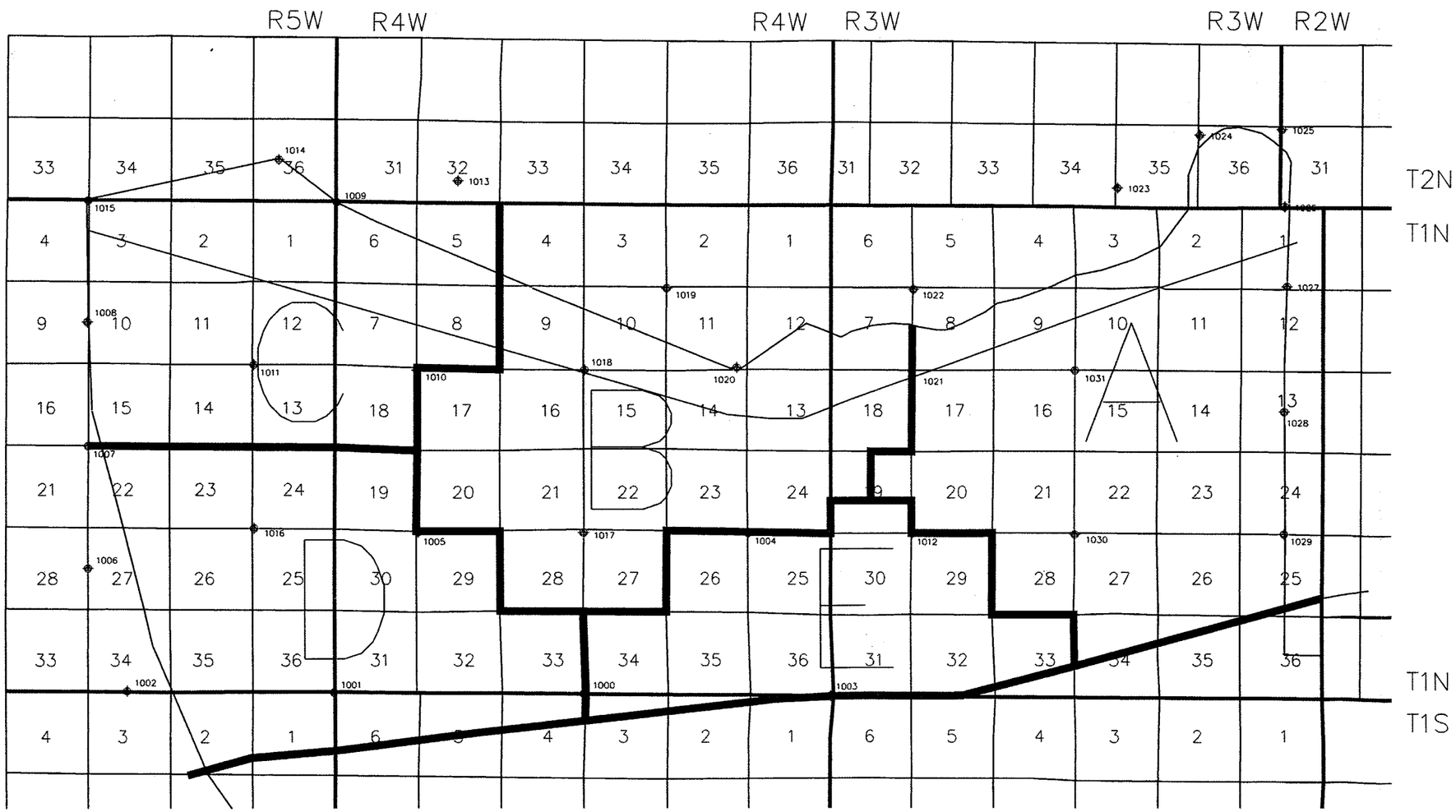
DESCRIPTION: 1 INCH PIPE IN POTHOLE
DAMAGED CAP, DOWN 0.70'
-ROD-

GO TO: EXIT 114 (MILLER RD) & I-10
GO SOUTH 0.05 MILES TO YUMA RD.
GO EAST 2.1 MILE TO WATSON RD.





MAP OF AERIAL CONTROL POINTS



N. T. S.

NO.	REVISION	DATE
–	–	–

HUITT-ZOLLARS
Huitt-Zollars, Inc.
4742 North 24th Street, Suite 100
Phoenix, Arizona 85016-6159
Phone (602) 952-8123 Fax (602) 952-8124

RESULTS OF SURVEY

BUCKEYE/SUN VALLEY CONTROL – AERIAL POINTS

DATE:	NOV. 07, 2002
DRAWN:	PHIL
DESIGNED:	PHIL
CHECKED:	FRANCETIC
PROJ. NO.:	05-1294-01
FILE:	H:\PROJ\05129401\SURVEY\PHIL\DWG3.DWG
SHEET:	1 OF 1

AVERAGED GRID COORDINATES

BUCKEYE \ SUN VALLEY ADMP
BLIND CHECK GRID COORDINATES- AREA 'A'
5/10/02
REVISED: 5-17-02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
2087	897110.4004		510241.8628		1216.162		CPCR
2046	868161.6150		504667.1309		896.434		CPCR
2046E	868161.5650	868161.5900	504667.1510	504667.1409	896.396	896.415	
2045	870790.9445		504752.2802		920.735		FIP
6045	870790.9058		504752.2881		920.678		FIP
2045E	870790.8564	870790.9022	504752.3649	504752.3111	920.700	920.704	
2094	870809.3548		510186.5326		904.317		CPPK
2095	870780.9468	870780.8975	515402.1885	515402.2217	899.193	899.174	CPPK
6095	870780.8482		515402.2548		899.154		CPPK
2096	876078.5953		515423.7338		943.444		CPPK
2092	876073.3094		510085.6847		956.973		CPPK
2093	873438.4347		507438.9684		937.983		CPCR
2049	878321.9972		491621.3298		995.655		CPCR
2049B	878322.0077		491621.3818		995.871		CPCR ← REPORT IN AREA 'B'
2049E	878322.0175	878322.0075	491621.3966	491621.3694	995.762	995.763	CPCR
2079	881346.5721		494290.7287		1025.531		BCH
2079B	881346.5652	881346.5687	494290.7469	494290.7378	1025.490	1025.510	BCH
2081	881689.3848		499614.6832		1028.459		CPCR
2085	881275.4326	881275.4489	504830.9895	504830.9785	1014.055	1014.109	CPPK
6085	881275.4651		504830.9674		1014.162		CPPK
2097	878731.5246		512766.7798		975.656		CPCR
2099	878671.1214		518064.8264		962.378		CPCR
2098	881380.9781		515406.9752		992.102		BCH
2090	881359.8366		510103.5420		1008.490		CPPK
2091	883976.0805		507497.0094		1039.134		CPPK
2080	883956.7294	883956.7221	496927.2230	496927.2232	1057.324	1057.365	CPPK
6080	883956.7147		496927.2233		1057.405		CPPK
2082	886584.6107		499595.2458		1080.444		BCH

2089	886493.6561		510261.6317		1069.219		CPCR
2100	886582.2479		515456.3902		1040.948		CPS
2101	891901.6924		515497.2538		1098.541		CPCR
2086	891871.5159		504743.6739		1173.883		CPCR
2083	888705.3704		499517.2444		1102.665		CPCR
2102	894538.7078		513034.7512		1172.231		CPCR
2088	891948.4780		510183.1428		1144.674		BCH
2103	897058.3097		515344.3635		1140.685		CPCR
2104	902283.6978	902283.7110	515681.0665	515681.0656	1241.781	1241.698	CPCR
6104	902283.7242		515681.0646		1241.614		CPCR
2084	878637.6883		502154.0235		993.079		CPCR
2105	860159.0664		510072.0603		859.576		BCH ← CHECK OF PEC CONTROL
2106	860122.2263		515350.5009		861.641		BCH ←
2044	870797.5017		499471.6918		926.246		BCH
2044E	870797.4746	870797.4882	499471.6621	499471.6769	926.301	926.274	
2043	868175.8286		499491.6562		902.538		BCH ← IN AREA 'E'
2048	876082.2457		499485.7446		973.215		BCH
2048E	876082.2550	876082.2504	499485.7701	499485.7574	973.272	973.244	BCH

BUCKEYE \ SUN VALLEY ADMP
BLIND CHECK GRID COORDINATES- AREA 'B'
5/13/02
REVISED: 5/22/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
2009	871012.8453		473143.6549		946.885		FIP
2009E	871012.7530		473143.6784		946.650		FIP
2009D	871012.7721	871012.7901	473143.6322	473143.6552	946.621	946.719	FIP
2010	871008.3145		478429.7961		945.822		CPR
2010E	871008.3900	871008.3523	478429.8468	478429.8215	945.949	945.885	FIP
2011	876830.4318		478458.8429		998.721		CPCR
2011E	876830.5158	876830.4738	478458.7964	478458.8197	998.774	998.747	CPCR
2017	881428.9737		462719.7592		1003.218		CPCR
2017D	881429.0517	881429.0127	462719.7798	462719.7695	1003.213	1003.215	CPCR
2018	879091.0180	879091.0180	459908.6130	459908.6130	991.546	991.546	CPCR
2021	871062.9065		467835.3405		939.314		CPN
2021D	871062.9569	871062.9317	467835.2369	467835.2887	939.299	939.307	FIP
2023	876266.5099		467902.2440		974.359		CPPK
2023D	876266.5547	876266.5323	467902.2116	467902.2278	974.381	974.370	CPPK
2032	886705.4972		467931.4981		1053.274		BCF
2032C	886705.6150	886705.5561	467931.5538	467931.5260	1053.230	1053.252	BCF
2033	892063.8658		467932.8499		1100.672		BCH
2033C	892063.8757	892063.8708	467932.7395	467932.7947	1100.581	1100.626	BCH
2049A	878321.9972		491621.3298		995.655		CPCR
2049	878322.0077		491621.3818		995.871		CPCR
2049E	878322.0175	878322.0075	491621.3966	491621.3694	995.762	995.763	CPCR
2051	876095.9812		489015.0556		968.029		BCH
2051E	876095.9846	876095.9829	489015.0025	489015.0291	968.094	968.061	BCF
2066	884015.0570		464885.3459		1025.756		CPCR
2067	881585.6477		467870.3818		1014.435		ACF
2068	878632.9506		470533.8970		998.674		CPCR
2069	881515.6517		473151.4382		1029.645		CPCR
2070	873638.3599		475830.4224		970.510		CPCR
2071	881489.7650		478437.5977		1043.090		CPCR
2072	886619.3963		478542.8964		1089.009		CPCR
2073	879332.1544		480981.5749		1017.840		CPCR
2074	881448.5357		483591.1629		1025.921		CPCR
2075	883421.3992		486236.9374		1033.500		CPCR
2076	881590.5981		489136.9446		1023.712		CPCR
2077	886707.4532		489019.6609		1139.984		BCF

2078	890201.8746	487551.4383	1155.481	CPCR

BUCKEYE \ SUN VALLEY ADMP
BLIND CHECK GRID COORDINATES- AREA `C`
5/13/02
REVISED: 5/24/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
2015	881676.2595		457319.2117		1004.148		CPPK
6015	881676.2630		457319.1841		1003.961		CPPK
2015D	881676.2477	881676.2567	457319.2047	457319.2002	1004.222	1004.111	CPPK
2016	881709.9630		452018.4183		1009.320		CPCR
2027	887023.1633		441453.2856		998.695		CPCR
2028	892382.4237		441494.6670		1017.989		CPCR
6028	892382.4314	892382.4276	441494.7058	441494.6864	1017.912	1017.950	CPCR
2029	892242.4293		457217.7665		1063.471		CPCR
6029	892242.4290	892242.4292	457217.7670	457217.7668	1063.471	1063.471	CPCR
2030	886946.4751		457343.6929		1037.805		BCF
2034	892159.8309		462641.8883		1084.946		FIP
2035	894808.3883		462637.1446		1105.477		FIP
6035	894808.4161	894808.4022	462637.1821	462637.1634	1105.553	1105.515	FIP
2036	887002.2923		446759.2316		1020.076		CPCR
2037	897535.9785		452121.8271		1095.051		CPCR
2056	881757.6359		446739.2601		977.705		CPCR
2057	884285.3570		444061.5700		974.212		CPCR
2058	897597.4613		446769.0028		1080.763		CPCR
6058	897597.4971	897597.4792	446769.0296	446769.0162	1080.715	1080.739	CPCR
2059	894653.7752		444227.2230		1042.542		CPCR
2038	894653.7195	894653.7474	444227.2026	444227.2128	1042.460	1042.501	CPCR
2060	892319.6601		446794.4811		1055.850		BCF
2039	892319.5861	892319.6231	446794.5059	446794.4935	1055.791	1055.820	BCF
2061	892294.0218		452072.0984		1067.215		BCF
2040	892294.0213	892294.0216	452072.1058	452072.1021	1067.169	1067.192	BCF
2062	890415.1966		459963.9725		1063.480		BCF
2041	890415.1547	890415.1757	459963.9811	459963.9768	1063.421	1063.450	CPCR
2063	889681.5423		449408.0627		1059.127		CPCR
2043	889681.5542	889681.5483	449408.0403	449408.0515	1059.092	1059.110	CPCR

NOTES

6000 SERIES CHECK SHOTS FROM DIFFERENT .DC FILE

SHOTS 2038-2043 WERE MISNUMBERED AND RESHOT AS 2059-2063. THESE SHOTS SURVE AS THE CHECKS.

BUCKEYE \ SUN VALLEY ADMP
BLIND CHECK GRID COORDINATES- AREA 'D'
5/13/02
REVISED: 5/28/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
2000	865779.5089	865779.5170	467804.2399	467804.2179	906.805	906.8282	BCH
6000	865779.5250		467804.1959		906.852		BCH
2001	865824.2453		462679.4167		909.045		CPPK
2002	863087.1767		462469.0058		893.086		CPCR
2003	865882.4041	865882.4352	451966.5899	451966.6042	894.150	894.1173	CPPK
6003	865882.4663		451966.6185		894.085		CPPK
2004	865863.2355		446735.0265		905.630		CPCR
2005	862001.4145		445527.3609		919.735		CPR
2012	871113.4511	871113.4506	457266.4310	457266.4254	946.338	946.2778	BCH
6012	871113.4500		457266.4198		946.217		BCH
2013	871217.9740		451986.9427		946.645		CPCR
2014	876382.8973		457299.7134		977.539		CPPK
2019	871020.8244		462567.8845		941.455		CPR
2020	873714.2679		465331.6573		957.365		CPCR
2022	868377.6105		470516.1357		923.807		CPCR
2024	876509.7481		441435.2322		983.339		CPR
2025	871151.5430		446708.2594		915.474		CPCR
2026	868422.1608	868422.1896	459943.8694	459943.8736	929.106	929.0853	CPCR
6026	868422.2184		459943.8778		929.064		CPCR
2064	876473.4058		446718.9548		939.015		CPCR
2065	868648.7659		449465.9649		904.146		CPCR
2107	860432.1193		467836.2752		875.811		BCH
2108	860544.4033		457216.5809		877.116		BCH
2109	855258.7888		457188.8545		838.654		FIP
2052	860371.9741		473108.1198		869.469		ACF

BUCKEYE \ SUN VALLEY ADMP
BLIND CHECK GRID COORDINATES- AREA 'E'
5/30/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG EL	DESC
2006	865853.4983		494343.7970		890.346		CPPK
2007	865647.4145		483666.1606		895.814		BCH
2008	865698.0384		478383.2341		903.972		BCH
6008	865698.0915	865698.0650	478383.2063	478383.2202	904.053	904.012	BCH
2038	868333.7151		481082.8975		921.176		CPCR
2039	870953.7323		483940.1559		937.713		CPPK
2040	870809.2727		488995.9883		928.556		FRR
2041	868254.9456		491526.4142		911.297		CPCR
2042	870838.0340		494194.9143		929.085		BCH
2043	868175.8473		499491.6960		902.636		BCH
2043A	868175.8286	868175.8380	499491.6562	499491.6761	902.538	902.587	BCH
2047	873455.1642		496802.5437		951.728		CPCR
2050	873450.6985		486352.1063		951.966		CPCR
2052	860371.9502		473108.0513		869.501		ACF
2053	860312.2033		483668.8270		858.255		CPPK
2054	860292.6004		494221.5169		853.542		ACF
2055	860210.9049		504771.3883		850.346		BCH

FEET TO METER CONVERSIONS

BUCKEYE \ SUN VALLEY ADMP- AREA "A"
BLIND CHECK POINTS COORDINATES- FEET TO METER CONVERSIONS
5/10/02
REVISED: 5/17/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
2044	870797.4882	499471.6769	926.274	826.159	-100.115	265419.0744	152238.9671	282.328	251.813	-30.515
2045	870790.9022	504752.3111	920.704	820.656	-100.048	265417.0670	153848.5044	280.631	250.136	-30.495
2046	868161.5900	504667.1409	896.415	796.323	-100.092	264615.6526	153822.5445	273.227	242.719	-30.508
2048	876082.2504	499485.7574	973.244	873.234	-100.010	267029.8699	152243.2589	296.645	266.162	-30.483
2049	878322.0075	491621.3694	995.763	895.695	-100.068	267712.5479	149846.1934	303.509	273.008	-30.501
2079	881346.5687	494290.7378	1025.510	925.594	-99.916	268634.4341	150659.8169	312.575	282.121	-30.454
2080	883956.7221	496927.2232	1057.365	957.537	-99.828	269430.0089	151463.4176	322.285	291.857	-30.427
2081	881689.3848	499614.6832	1028.459	928.606	-99.853	268738.9245	152282.5554	313.474	283.039	-30.435
2082	886584.6107	499595.2458	1080.444	980.725	-99.718	270230.9893	152276.6309	329.319	298.925	-30.394
2083	888705.3704	499517.2444	1102.665	1003.007	-99.658	270877.3969	152252.8561	336.092	305.717	-30.376
2084	878637.6883	502154.0235	993.079	893.178	-99.901	267808.7674	153056.5464	302.690	272.241	-30.450
2085	881275.4489	504830.9785	1014.109	914.303	-99.805	268612.7568	153872.4822	309.100	278.680	-30.421
2086	891871.5159	504743.6739	1173.883	1074.373	-99.509	271842.4380	153845.8718	357.799	327.469	-30.330
2087	897110.4004	510241.8628	1216.162	1116.839	-99.323	273439.2500	155521.7198	370.686	340.412	-30.274
2088	891948.4780	510183.1428	1144.674	1045.200	-99.474	271865.8961	155503.8219	348.897	318.577	-30.320
2089	886493.6561	510261.6317	1069.219	969.598	-99.621	270203.2664	155527.7453	325.898	295.533	-30.365
2090	881359.8366	510103.5420	1008.490	908.736	-99.755	268638.4782	155479.5596	307.388	276.983	-30.405
2091	883976.0805	507497.0094	1039.134	939.425	-99.708	269435.9093	154685.0885	316.728	286.337	-30.391
2092	876073.3094	510085.6847	956.973	857.090	-99.883	267027.1447	155474.1167	291.685	261.241	-30.444
2093	873438.4347	507438.9684	937.983	838.015	-99.967	266224.0349	154667.3976	285.897	255.427	-30.470
2094	870809.3548	510186.5326	904.317	804.323	-99.994	265422.6913	155504.8551	275.636	245.158	-30.478
2095	870780.8975	515402.2217	899.174	799.239	-99.935	265414.0176	157094.5972	274.068	243.608	-30.460
2096	876078.5953	515423.7338	943.444	843.613	-99.830	267028.7558	157101.1541	287.562	257.133	-30.428
2097	878731.5246	512766.7798	975.656	875.860	-99.795	267837.3687	156291.3145	297.380	266.962	-30.418
2098	881380.9781	515406.9752	992.102	892.389	-99.713	268644.9221	157096.0460	302.393	272.000	-30.392
2099	878671.1214	518064.8264	962.378	862.627	-99.751	267818.9578	157906.1591	293.333	262.929	-30.404
2100	886582.2479	515456.3902	1040.948	941.357	-99.591	270230.2692	157111.1077	317.281	286.926	-30.355
2101	891901.6924	515497.2538	1098.541	999.080	-99.462	271851.6358	157123.5630	334.835	304.519	-30.316
2102	894538.7078	513034.7512	1172.231	1072.837	-99.394	272655.3981	156372.9922	357.296	327.001	-30.295
2103	897058.3097	515344.3635	1140.685	1041.358	-99.327	273423.3728	157076.9620	347.681	317.406	-30.275
2104	902283.7110	515681.0656	1241.698	1142.519	-99.179	275016.0751	157179.5888	378.469	348.240	-30.230

2105	860159.0664	510072.0603	859.576	759.390	-100.186	262176.4834	155469.9640	261.999	231.462	-30.537
2106	860122.2263	515350.5009	861.641	761.529	-100.112	262165.2546	157078.8327	262.628	232.114	-30.514

NOTES

NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992 DATUM)

ORTHIOMETRIC (O.H.), ELLIPSOID (E.H.) AND GEOID HEIGHTS (G.H.) ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
BLIND CHECK POINTS COORDINATES- FEET TO METER CONVERSIONS
5/13/02
REVISED: 5/22/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
2009	871012.7901	473143.6552	946.719	846.048	-100.671	265484.6984	144214.1861	288.560	257.875	-30.684
2010	871008.3523	478429.8215	945.885	845.356	-100.529	265483.3458	145825.4096	288.306	257.664	-30.641
2011	876830.4738	478458.8197	998.747	898.347	-100.400	267257.9284	145834.2482	304.418	273.816	-30.602
2017	881429.0127	462719.7695	1003.215	902.608	-100.607	268659.5631	141036.9857	305.780	275.115	-30.665
2018	879091.0180	459908.6130	991.546	890.811	-100.735	267946.9423	140180.1452	302.223	271.519	-30.704
2021	871062.9317	467835.2887	939.307	838.561	-100.746	265499.9816	142596.1960	286.301	255.593	-30.707
2023	876266.5323	467902.2278	974.370	873.743	-100.627	267086.0390	142616.5990	296.988	266.317	-30.671
2032	886705.5561	467931.5260	1053.252	952.868	-100.385	270267.8535	142625.5291	321.031	290.434	-30.597
2033	892063.8708	467932.7947	1100.626	1000.328	-100.299	271901.0678	142625.9158	335.471	304.900	-30.571
2049	878322.0075	491621.3694	995.763	895.695	-100.068	267712.5479	149846.1934	303.509	273.008	-30.501
2051	876095.9829	489015.0291	968.061	867.885	-100.177	267034.0556	149051.7809	295.065	264.531	-30.534
2066	884015.0570	464885.3459	1025.756	925.233	-100.524	269447.7894	141697.0534	312.651	282.011	-30.640
2067	881585.6477	467870.3818	1014.435	913.922	-100.512	268707.3054	142606.8924	309.200	278.564	-30.636
2068	878632.9506	470533.8970	998.674	898.152	-100.523	267807.3233	143418.7318	304.396	273.757	-30.639
2069	881515.6517	473151.4382	1029.645	929.257	-100.388	268685.9706	144216.5584	313.836	283.238	-30.598
2070	873638.3599	475830.4224	970.510	869.988	-100.522	266284.9721	145033.1127	295.811	265.172	-30.639
2071	881489.7650	478437.5977	1043.090	942.833	-100.256	268678.0804	145827.7798	317.934	287.376	-30.558
2072	886619.3963	478542.8964	1089.009	988.891	-100.118	270241.5920	145859.8748	331.930	301.414	-30.516
2073	879332.1544	480981.5749	1017.840	917.591	-100.249	268020.4407	146603.1840	310.238	279.682	-30.556
2074	881448.5357	483591.1629	1025.921	925.791	-100.131	268665.5137	147398.5865	312.701	282.181	-30.520
2075	883421.3992	486236.9374	1033.500	933.486	-100.014	269266.8425	148205.0185	315.011	284.526	-30.484
2076	881590.5981	489136.9446	1023.712	923.714	-99.999	268708.8143	149088.9407	312.028	281.548	-30.480
2077	886707.4532	489019.6609	1139.984	1040.122	-99.862	270268.4317	149053.1926	347.467	317.029	-30.438
2078	890201.8746	487551.4383	1155.481	1055.679	-99.802	271333.5314	148605.6784	352.190	321.771	-30.420

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA "C"
BLIND CHECK POINTS- FEET TO METER CONVERSIONS
5/13/02
REVISED: 5/24/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
2015	881676.2567	457319.2002	1004.111	903.438	-100.672	268734.9231	139390.8922	306.053	275.368	-30.685
2016	881709.9630	452018.4183	1009.320	908.534	-100.786	268745.1967	137775.2139	307.641	276.921	-30.720
2027	887023.1633	441453.2856	998.695	897.800	-100.895	270364.6602	134554.9615	304.402	273.650	-30.753
2028	892382.4276	441494.6864	1017.950	917.166	-100.784	271998.1639	134567.5804	310.271	279.552	-30.719
2029	892242.4292	457217.7668	1063.471	962.951	-100.520	271955.4924	139359.9753	324.146	293.507	-30.639
2030	886946.4751	457343.6929	1037.805	937.223	-100.581	270341.2856	139398.3576	316.323	285.666	-30.657
2034	892159.8309	462641.8883	1084.946	984.572	-100.374	271930.3165	141013.2476	330.691	300.097	-30.594
2035	894808.4022	462637.1634	1105.515	1005.136	-100.379	272737.6010	141011.8074	336.961	306.366	-30.595
2036	887002.2923	446759.2316	1020.076	919.290	-100.786	270358.2987	136172.2138	310.919	280.200	-30.720
2037	897535.9785	452121.8271	1095.051	994.563	-100.488	273568.9662	137806.7329	333.772	303.143	-30.629
2056	881757.6359	446739.2601	977.705	876.815	-100.890	268759.7274	136166.1265	298.004	267.253	-30.751
2057	884285.3570	444061.5700	974.212	873.319	-100.893	269530.1768	135349.9665	296.940	266.188	-30.752
2058	897597.4792	446769.0162	1080.739	980.120	-100.618	273587.7117	136175.1961	329.409	298.741	-30.669
2059	894653.7474	444227.2128	1042.501	941.808	-100.693	272690.4622	135400.4545	317.754	287.063	-30.691
2060	892319.6231	446794.4935	1055.820	955.135	-100.686	271979.0211	136182.9616	321.814	291.125	-30.689
2061	892294.0216	452072.1021	1067.192	966.607	-100.585	271971.2178	137791.5767	325.280	294.622	-30.658
2062	890415.1757	459963.9768	1063.450	962.984	-100.466	271398.5455	140197.0201	324.140	293.518	-30.622
2063	889681.5483	449408.0515	1059.110	958.426	-100.684	271174.9359	136979.5741	322.817	292.128	-30.688

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992 DATUM)
ORTHIOMETRIC (O.H.), ELLIPSOID (E.H.) AND GEOID HEIGHTS (G.H.) ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
BLIND CHECK POINTS- FEET TO METER CONVERSIONS
5/28/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
2000	865779.5170	467804.2179	906.828	805.999	-100.829	263889.5968	142586.7256	276.401	245.668	-30.733
2001	865824.2453	462679.4167	909.045	808.133	-100.912	263903.2300	141024.6862	277.077	246.319	-30.758
2002	863087.1767	462469.0058	893.086	792.121	-100.966	263068.9715	140960.5530	272.213	241.438	-30.774
2003	865882.4352	451966.6042	894.117	793.052	-101.065	263920.9662	137759.4210	272.527	241.722	-30.805
2004	865863.2355	446735.0265	905.630	804.495	-101.135	263915.1142	136164.8361	276.036	245.210	-30.826
2005	862001.4145	445527.3609	919.735	818.527	-101.208	262738.0311	135796.7396	280.335	249.487	-30.848
2012	871113.4506	457266.4254	946.278	845.395	-100.883	265515.3797	139374.8065	288.425	257.676	-30.749
2013	871217.9740	451986.9427	946.645	845.681	-100.964	265547.2385	137765.6201	288.537	257.764	-30.774
2014	876382.8973	457299.7134	977.539	876.766	-100.772	267121.5071	139384.9526	297.954	267.238	-30.715
2019	871020.8244	462567.8845	941.455	840.647	-100.808	265487.1473	140990.6912	286.955	256.229	-30.726
2020	873714.2679	465331.6573	957.365	856.654	-100.710	266308.1089	141833.0891	291.805	261.108	-30.696
2022	868377.6105	470516.1357	923.807	823.076	-100.731	264681.4957	143413.3182	281.576	250.874	-30.703
2024	876509.7481	441435.2322	983.339	882.287	-101.052	267160.1712	134549.4588	299.722	268.921	-30.801
2025	871151.5430	446708.2594	915.474	814.426	-101.049	265526.9903	136156.6775	279.037	248.237	-30.800
2026	868422.1896	459943.8736	929.085	828.182	-100.903	264695.0834	140190.8927	283.185	252.430	-30.755
2064	876473.4058	446718.9548	939.015	838.056	-100.959	267149.0941	136159.9374	286.212	255.439	-30.772
2065	868648.7659	449465.9649	904.146	803.095	-101.051	264764.1438	136997.2261	275.584	244.783	-30.800
2107	860432.1193	467836.2752	875.811	774.893	-100.918	262259.7100	142596.4967	266.947	236.187	-30.760
2108	860544.4033	457216.5809	877.116	776.030	-101.086	262293.9341	139359.6139	267.345	236.534	-30.811
2109	855258.7888	457188.8545	838.654	737.497	-101.157	260682.8788	139351.1629	255.622	224.789	-30.833
2052	860371.9741	473108.1198	869.469	768.650	-100.819	262241.3777	144203.3549	265.014	234.285	-30.730

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992 DATUM)
ORTHIOMETRIC (O.H.), ELLIPSOID (E.H.) AND GEOID HEIGHTS (G.H.) ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
BLIND CHECK POINTS- FEET TO METER CONVERSIONS
5/30/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
2006	865853.4983	494343.7970	890.346	790.065	-100.281	263912.1463	150675.9893	271.378	240.812	-30.566
2007	865647.4145	483666.1606	895.814	795.299	-100.514	263849.3319	147421.4458	273.044	242.407	-30.637
2008	865698.0650	478383.2202	904.012	803.381	-100.632	263864.7702	145811.2055	275.543	244.870	-30.672
2038	868333.7151	481082.8975	921.176	820.649	-100.527	264668.1164	146634.0672	280.774	250.134	-30.641
2039	870953.7323	483940.1559	937.713	837.296	-100.418	265466.6976	147504.9595	285.815	255.208	-30.607
2040	870809.2727	488995.9883	928.556	828.244	-100.312	265422.6663	149045.9772	283.024	252.449	-30.575
2041	868254.9456	491526.4142	911.297	810.995	-100.302	264644.1074	149817.2510	277.763	247.191	-30.572
2042	870838.0340	494194.9143	929.085	828.880	-100.205	265431.4328	150630.6099	283.185	252.643	-30.543
2043	868175.8380	499491.6761	902.587	802.426	-100.161	264619.9954	152245.0629	275.109	244.579	-30.529
2047	873455.1642	496802.5437	951.728	851.614	-100.113	266229.1340	151425.4153	290.087	259.572	-30.514
2050	873450.6985	486352.1063	951.966	851.647	-100.319	266227.7729	148240.1220	290.159	259.582	-30.577
2052	860371.9502	473108.0513	869.501	768.676	-100.825	262241.3704	144203.3340	265.024	234.293	-30.731
2053	860312.2033	483668.8270	858.255	757.662	-100.593	262223.1596	147422.2585	261.596	230.935	-30.661
2054	860292.6004	494221.5169	853.542	753.170	-100.372	262217.1846	150638.7184	260.160	229.566	-30.593
2055	860210.9049	504771.3883	850.346	750.158	-100.188	262192.2838	153854.3192	259.185	228.648	-30.537

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992 DATUM)
ORTHIOMETRIC (O.H.), ELLIPSOID (E.H.) AND GEOID HEIGHTS (G.H.) ARE BASED ON USING THE NAVD88 DATUM.

VERTCON CALCULATIONS

VERTical CONversion (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.0

==========

Station Name: 2044

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.30030	112 34 25.23164	.639

Station Name: 2045

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.56053	112 33 22.94951	.640

Station Name: 2046

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.54180	112 33 23.76342	.640

Station Name: 2048

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.58662	112 34 25.45907	.640

Station Name: 2049

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 45.24485	112 35 58.40273	.641

Station Name: 2079

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.34075	112 35 27.14329	.642

Station Name: 2080

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 41.33246	112 34 56.23458	.643

Station Name: 2081

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 19.06942	112 34 24.35577	.642

Station Name: 2082

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 7.49949	112 34 24.94992	.643

Station Name: 2083

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 28.47648	112 34 26.02854	.644

Station Name: 2084

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 49.03474	112 33 54.17124	.641

Station Name: 2085

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.29570	112 33 22.78181	.641

Page 2

Station Name: 2086

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .12361	112 33 24.58151	.643

Station Name: 2087

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 52.28534	112 32 20.06079	.628

Station Name: 2088

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 1.21188	112 32 20.38905	.640

Station Name: 2089

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 7.24859	112 32 19.07754	.641

Station Name: 2090

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 16.44705	112 32 20.58050	.641

Station Name: 2091

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 42.17585	112 32 51.52051	.641

Station Name: 2092

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 24.14286	112 32 20.41809	.641

Station Name: 2093

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 57.91659	112 32 51.45131	.641

Station Name: 2094

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 32.06889	112 32 18.85742	.641

Station Name: 2095

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 32.09138	112 31 17.33923	.642

Station Name: 2096

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 24.50656	112 31 17.44862	.642

Station Name: 2097

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 35.99311	112 31 48.87303	.642

Station Name: 2098

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 16.96578	112 31 18.01004	.641

Page 3

Station Name: 2099

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 50.30709	112 30 46.46834	.642

Station Name: 2100

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 8.42830	112 31 17.78398	.640

Station Name: 2101

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 1.05938	112 31 17.66701	.639

Station Name: 2102

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 27.00628	112 31 46.91381	.632

Station Name: 2103

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 52.06823	112 31 19.82608	.622

Station Name: 2104

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 28 43.78569	112 31 16.21050	.605

Station Name: 2105

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.69110	112 32 19.45721	.640

Station Name: 2106

Blvert-a

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.63411	112 31 17.21919	.640

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
BLIND CHECK POINT VERTCON CALCULATIONS
5/20/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
2044	33,23,31.30030	112,34,25.23164	282.328	-0.639	281.689	924.178
2045	33,23,31.56053	112,33,22.94951	280.631	-0.640	279.991	918.604
2046	33,23,05.54180	112,33,23.76342	273.227	-0.640	272.587	894.315
2048	33,24,23.58662	112,34,25.45907	296.645	-0.640	296.005	971.144
2049	33,24,45.24485	112,35,58.40273	303.509	-0.641	302.868	993.660
2079	33,25,15.34075	112,35,27.14329	312.575	-0.642	311.933	1023.404
2080	33,25,41.33246	112,34,56.23458	322.285	-0.643	321.642	1055.255
2081	33,25,19.06942	112,34,24.35577	313.474	-0.642	312.832	1026.353
2082	33,26,07.49949	112,34,24.94992	329.319	-0.643	328.676	1078.334
2083	33,26,28.47648	112,34,26.02854	336.092	-0.644	335.448	1100.552
2084	33,24,49.03474	112,33,54.17124	302.690	-0.641	302.049	990.976
2085	33,25,15.29570	112,33,22.78181	309.100	-0.641	308.459	1012.006
2086	33,27,00.12361	112,33,24.58151	357.799	-0.643	357.156	1171.773
2087	33,27,52.28534	112,32,20.06079	370.686	-0.628	370.058	1214.101
2088	33,27,01.21188	112,32,20.38905	348.897	-0.640	348.257	1142.574
2089	33,26,07.24859	112,32,19.07754	325.898	-0.641	325.257	1067.116
2090	33,25,16.44705	112,32,20.58050	307.388	-0.641	306.747	1006.387
2091	33,25,42.17585	112,32,51.52051	316.728	-0.641	316.087	1037.030
2092	33,24,24.14286	112,32,20.41809	291.685	-0.641	291.044	954.870
2093	33,23,57.91659	112,32,51.45131	285.897	-0.641	285.256	935.880
2094	33,23,32.06889	112,32,18.85742	275.636	-0.641	274.995	902.214
2095	33,23,32.09138	112,31,17.33923	274.068	-0.642	273.426	897.067
2096	33,24,24.50656	112,31,17.44862	287.562	-0.642	286.920	941.337
2097	33,24,35.99311	112,31,48.87303	297.380	-0.642	296.738	973.549
2098	33,25,16.96578	112,31,18.01004	302.393	-0.641	301.752	989.998
2099	33,24,50.30709	112,30,46.46834	293.333	-0.642	292.691	960.272
2100	33,26,08.42830	112,31,17.78398	317.281	-0.640	316.641	1038.849
2101	33,27,01.05938	112,31,17.66701	334.835	-0.639	334.196	1096.445
2102	33,27,27.00628	112,31,46.91381	357.296	-0.632	356.664	1170.157
2103	33,27,52.06823	112,31,19.82608	347.681	-0.622	347.059	1138.644
2104	33,28,43.78569	112,31,16.21050	378.469	-0.605	377.864	1239.713
2105	33,21,46.69110	112,32,19.45721	261.999	-0.640	261.359	857.476
2106	33,21,46.63411	112,31,17.21919	262.628	-0.640	261.988	859.541

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

VERTical CONversion (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.0

==========

Station Name: 2009

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.67852	112 39 35.76736	.637

Station Name: 2010

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 32.00368	112 38 33.42115	.637

Station Name: 2011

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 29.60670	112 38 33.55813	.639

Station Name: 2017

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 13.97661	112 41 39.62540	.640

Station Name: 2018

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 50.63694	112 42 12.58238	.638

Station Name: 2021

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.79522	112 40 38.37904	.636

Station Name: 2023

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.28137	112 40 38.03804	.638

Station Name: 2032

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 6.56057	112 40 38.59298	.643

Station Name: 2033

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 59.57225	112 40 39.04075	.646

Station Name: 2049

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 45.24485	112 35 58.40273	.641

Station Name: 2051

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.05129	112 36 28.97530	.639

Station Name: 2066

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 39.72097	112 41 14.30272	.642

Page 2

Station Name: 2067

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.90341	112 40 38.87302	.641

Station Name: 2068

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 46.88287	112 40 7.19708	.639

Station Name: 2069

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.58870	112 39 36.56117	.641

Station Name: 2070

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 57.84355	112 39 4.29838	.638

Station Name: 2071

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.70203	112 38 34.19271	.641

Station Name: 2072

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 6.45892	112 38 33.37282	.644

Station Name: 2073

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 54.53050	112 38 4.00304	.641

Station Name: 2074

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.64593	112 37 33.38716	.642

Station Name: 2075

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 35.34181	112 37 2.32879	.643

Station Name: 2076

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 17.42074	112 36 27.96842	.642

Station Name: 2077

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 8.03662	112 36 29.75361	.645

Station Name: 2078

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 42.51162	112 36 47.35503	.647

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
BLIND CHECK POINT VERTCON CALCULATIONS
5/23/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
2009	33 23 31.67852	112 39 35.76736	288.560	-0.637	287.923	944.629
2010	33 23 32.00368	112 38 33.42115	288.306	-0.637	287.669	943.796
2011	33 24 29.60670	112 38 33.55813	304.418	-0.639	303.779	996.651
2017	33 25 13.97661	112 41 39.62540	305.780	-0.640	305.140	1001.115
2018	33 24 50.63694	112 42 12.58238	302.223	-0.638	301.585	989.453
2021	33 23 31.79522	112 40 38.37904	286.301	-0.636	285.665	937.220
2023	33 24 23.28137	112 40 38.03804	296.988	-0.638	296.350	972.277
2032	33 26 06.56057	112 40 38.59298	321.031	-0.643	320.388	1051.143
2033	33 26 59.57225	112 40 39.04075	335.471	-0.646	334.825	1098.507
2049	33 24 45.24485	112 35 58.40273	303.509	-0.641	302.868	993.660
2051	33 24 23.05129	112 36 28.97530	295.065	-0.639	294.426	965.965
2066	33 25 39.72097	112 41 14.30272	312.651	-0.642	312.009	1023.650
2067	33 25 15.90341	112 40 38.87302	309.200	-0.641	308.559	1012.332
2068	33 24 46.88287	112 40 07.19708	304.396	-0.639	303.757	996.578
2069	33 25 15.58870	112 39 36.56117	313.836	-0.641	313.195	1027.542
2070	33 23 57.84355	112 39 04.29838	295.811	-0.638	295.173	968.417
2071	33 25 15.70203	112 38 34.19271	317.934	-0.641	317.293	1040.986
2072	33 26 06.45892	112 38 33.37282	331.930	-0.644	331.286	1086.896
2073	33 24 54.53050	112 38 04.00304	310.238	-0.641	309.597	1015.737
2074	33 25 15.64593	112 37 33.38716	312.701	-0.642	312.059	1023.815
2075	33 25 35.34181	112 37 02.32879	315.011	-0.643	314.368	1031.390
2076	33 25 17.42074	112 36 27.96842	312.028	-0.642	311.386	1021.606
2077	33 26 08.03662	112 36 29.75361	347.467	-0.645	346.822	1137.868
2078	33 26 42.51162	112 36 47.35503	352.190	-0.647	351.543	1153.358

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

VERTical CONversion (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.0

==========

Station Name: 2015

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 16.01867	112 42 43.36273	.638

Station Name: 2016

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 15.94675	112 43 45.90373	.636

Station Name: 2027

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 7.67691	112 45 51.05961	.631

Station Name: 2028

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .70010	112 45 51.08665	.632

Station Name: 2029

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .54488	112 42 45.51372	.643

Station Name: 2030

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 8.16023	112 42 43.54933	.641

Station Name: 2031 ← NOT PART OF DATA SET, ACTUALLY #1010.

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 6.31943	112 41 41.16859	.643

Station Name: 2034

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .13408	112 41 41.49172	.646

Station Name: 2035

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 26.33676	112 41 41.78156	.646

Station Name: 2036

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 7.89391	112 44 48.44899	.635

Station Name: 2037

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 52.52480	112 43 46.14358	.641

Station Name: 2056

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 16.00596	112 44 48.19071	.634

Page 2

Station Name: 2057

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 25 40.80063	112 45 20.02203	.633

Station Name: 2058

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 52.71448	112 44 49.33234	.638

Station Name: 2059

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 23.38982	112 45 19.05450	.635

Station Name: 2060

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .50192	112 44 48.53394	.636

Station Name: 2061

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 27 .66131	112 43 46.24654	.640

Station Name: 2062

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 42.67427	112 42 12.94013	.644

Station Name: 2063

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 26 34.60842	112 44 17.44336	.637

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
BLIND CHECK POINT VERTCON CALCULATIONS
5/28/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
2015	33 25 16.01867	112 42 43.36273	306.053	-0.638	305.415	1002.017
2016	33 25 15.94675	112 43 45.90373	307.641	-0.636	307.005	1007.233
2027	33 26 07.67691	112 45 51.05961	304.402	-0.631	303.771	996.625
2028	33 27 00.70010	112 45 51.08665	310.271	-0.632	309.639	1015.877
2029	33 27 00.54488	112 42 45.51372	324.146	-0.643	323.503	1061.362
2030	33 26 08.16023	112 42 43.54933	316.323	-0.641	315.682	1035.702
2034	33 27 00.13408	112 41 41.49172	330.691	-0.646	330.045	1082.826
2035	33 27 26.33676	112 41 41.78156	336.961	-0.646	336.315	1103.396
2036	33 26 07.89391	112 44 48.44899	310.919	-0.635	310.284	1017.993
2037	33 27 52.52480	112 43 46.14358	333.772	-0.641	333.131	1092.948
2056	33 25 16.00596	112 44 48.19071	298.004	-0.634	297.370	975.625
2057	33 25 40.80063	112 45 20.02203	296.940	-0.633	296.307	972.136
2058	33 27 52.71448	112 44 49.33234	329.409	-0.638	328.771	1078.645
2059	33 27 23.38982	112 45 19.05450	317.754	-0.635	317.119	1040.418
2060	33 27 00.50192	112 44 48.53394	321.814	-0.636	321.178	1053.734
2061	33 27 00.66131	112 43 46.24654	325.280	-0.640	324.640	1065.092
2062	33 26 42.67427	112 42 12.94013	324.140	-0.644	323.496	1061.337
2063	33 26 34.60842	112 44 17.44336	322.817	-0.637	322.180	1057.020

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

VERTical CONversion (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.0

==========

Station Name: 2000

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 39.52192	112 40 38.29027	.633

Station Name: 2001

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 39.59002	112 41 38.72631	.632

Station Name: 2002

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 12.49556	112 41 40.96638	.631

Station Name: 2003

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 39.35664	112 43 45.05725	.632

Station Name: 2004

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 38.75860	112 44 46.74586	.633

Station Name: 2005

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 .45716	112 45 .62209	.633

Station Name: 2012

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.51359	112 42 43.03294	.634

Station Name: 2013

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 32.14429	112 43 45.30846	.633

Station Name: 2014

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.64842	112 42 43.11524	.636

Station Name: 2019

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 30.99353	112 41 40.49935	.634

Station Name: 2020

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 57.84395	112 41 8.13803	.636

Station Name: 2022

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.42085	112 40 6.53217	.635

□

Page 2

Station Name: 2024

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.66461	112 45 50.26212	.629

Station Name: 2025

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.07508	112 44 47.55853	.633

Station Name: 2026

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.08924	112 42 11.21537	.633

Station Name: 2064

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 24 23.72636	112 44 47.93292	.633

Station Name: 2065

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 6.53074	112 44 14.80180	.633

Station Name: 2107

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.62004	112 40 37.45190	.631

Station Name: 2108

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.94650	112 42 42.66898	.630

Station Name: 2109

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 20 54.65177	112 42 42.52033	.629

Station Name: 2052

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.40136	112 39 35.29091	.632

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
BLIND CHECK POINT- VERTCON CALCULATIONS
5/29/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
2000	33 22 39.52192	112 40 38.29027	276.401	-0.633	275.768	904.751
2001	33 22 39.59002	112 41 38.72631	277.077	-0.632	276.445	906.971
2002	33 22 12.49556	112 41 40.96638	272.213	-0.631	271.582	891.016
2003	33 22 39.35664	112 43 45.05725	272.527	-0.632	271.895	892.044
2004	33 22 38.75860	112 44 46.74586	276.036	-0.633	275.403	903.554
2005	33 22 00.45716	112 45 00.62209	280.335	-0.633	279.702	917.658
2012	33 23 31.51359	112 42 43.03294	288.425	-0.634	287.791	944.198
2013	33 23 32.14429	112 43 45.30846	288.537	-0.633	287.904	944.568
2014	33 24 23.64842	112 42 43.11524	297.954	-0.636	297.318	975.452
2019	33 23 30.99353	112 41 40.49935	286.955	-0.634	286.321	939.375
2020	33 23 57.84395	112 41 08.13803	291.805	-0.636	291.169	955.278
2022	33 23 05.42085	112 40 06.53217	281.576	-0.635	280.941	921.724
2024	33 24 23.66461	112 45 50.26212	299.722	-0.629	299.093	981.275
2025	33 23 31.07508	112 44 47.55853	279.037	-0.633	278.404	913.397
2026	33 23 05.08924	112 42 11.21537	283.185	-0.633	282.552	927.008
2064	33 24 23.72636	112 44 47.93292	286.212	-0.633	285.579	936.939
2065	33 23 06.53074	112 44 14.80180	275.584	-0.633	274.951	902.069
2107	33 21 46.62004	112 40 37.45190	266.947	-0.631	266.316	873.740
2108	33 21 46.94650	112 42 42.66898	267.345	-0.630	266.715	875.049
2109	33 20 54.65177	112 42 42.52033	255.622	-0.629	254.993	836.590
2052	33 21 46.40136	112 39 35.29091	265.014	-0.632	264.382	867.396

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

VERTical CONversion (VERTCON) Transformation Program
Between NGVD 29 and NAVD 88
Version 2.0

==========

Station Name: 2006

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 42.06210	112 35 25.33409	.637

Station Name: 2007

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 39.32204	112 37 31.23232	.636

Station Name: 2008

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 22 39.46313	112 38 33.53408	.635

Station Name: 2038

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.72406	112 38 1.91295	.636

Station Name: 2039

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.83874	112 37 28.42673	.637

Station Name: 2040

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 30.74569	112 36 28.78568	.637

Station Name: 2041

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.63949	112 35 58.74361	.637

Station Name: 2042

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 31.36762	112 35 27.47045	.638

Station Name: 2043

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 5.36389	112 34 24.80067	.639

Station Name: 2047

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 57.42654	112 34 56.91273	.639

Station Name: 2050

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 23 56.70394	112 37 .17769	.638

Station Name: 2052

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.40112	112 39 35.29172	.632

□

Page 2

Station Name: 2053

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.53797	112 37 30.77290	.634

Station Name: 2054

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 47.03678	112 35 26.35174	.636

Station Name: 2055

Latitude	Longitude	NAVD 88 - NGVD 29 (meters)
33 21 46.88646	112 33 21.95832	.640

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
BLIND CHECK POINT VERTCON CALCULATIONS
5/30/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
2006	33 22 42.06210	112 35 25.33409	271.378	-0.637	270.741	888.256
2007	33 22 39.32204	112 37 31.23232	273.044	-0.636	272.408	893.727
2008	33 22 39.46313	112 38 33.53408	275.543	-0.635	274.908	901.929
2038	33 23 05.72406	112 38 01.91295	280.774	-0.636	280.138	919.089
2039	33 23 31.83874	112 37 28.42673	285.815	-0.637	285.178	935.623
2040	33 23 30.74569	112 36 28.78568	283.024	-0.637	282.387	926.466
2041	33 23 05.63949	112 35 58.74361	277.763	-0.637	277.126	909.207
2042	33 23 31.36762	112 35 27.47045	283.185	-0.638	282.547	926.992
2043	33 23 05.36389	112 34 24.80067	275.109	-0.639	274.470	900.491
2047	33 23 57.42654	112 34 56.91273	290.087	-0.639	289.448	949.631
2050	33 23 56.70394	112 37 00.17769	290.159	-0.638	289.521	949.873
2052	33 21 46.40112	112 39 35.29172	265.024	-0.632	264.392	867.428
2053	33 21 46.53797	112 37 30.77290	261.596	-0.634	260.962	856.175
2054	33 21 47.03678	112 35 26.35174	260.160	-0.636	259.524	851.455
2055	33 21 46.88646	112 33 21.95832	259.185	-0.640	258.545	848.246

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

PANEL ELEVATION INFORMATION

Project BUCKEYE \ SUN VALLEY HOMP
Client
Task POINT TO PANEL ELEV. DIFF. - AREA 'A'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5-16-02
Chkd Date
Sheet 1 of 3

BLIND CHECK POINT ELEV. DIFFERENCES

POINT	AREA	DIFF-RAW DATA		DIFF. NOTES	
2087	A	UP 0.05' (-0.05')		SET CPCR	
2046		N/A	CPCR	N/A	0
2095 ✓		N/A	FIP	DOWN 0.74' (+0.74')	
2094		N/A	CPPK	EXIST PK.	0
2093 ✓		N/A	CPPK	SET PK.	0
2096		N/A	CPPK	SET PK.	0
2092		N/A	CPPK	N/A	0
2093 ✓		FLUSH (0)	CPCR	SET CPCR	
2049		N/A	CPCR	N/A	0
2079		0.79 DOWN (+0.79')	BCM	DOWN 0.78 (+0.78')	
2081		N/A	CPCR	SET CPCR	0
2085 ✓		(N+0.17') 0.17' S OF CENTER	CPPK	SET PK.	0
2097 ✓		N/A	CPCR	SET CPCR	0
2099		FLUSH (0)	CPCR	SET CPCR	
2098		0.64' DOWN (+0.64')	BCM	0.68' DOWN (+0.68')	+0.66
2090		✓N/A 0.09S 0.12W (N+.09' E+.12')	CPPK	FND PK.	0

NOTE: DID NOT CHANGE DATA FILE TO PREVENT CONFUSION DGF 5-20-02

Project BUCKEYE\SUN VALLEY ADMP
Client
Task POINT TO PANEL ELEV. DIFF. — AREA 'A'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5.16.02
Chkd Date
Sheet 2 of 3

BLIND CHECK POINT ELEV. DIFFERENCES

POINT	AREA	DIFF. RAW DATA		DIFF. NOTES	
2091 ✓	A	N/A	CPPK	SET PK	0
2080 ✓		N/A	CPPK	SET PK	0
2082		0.60' DOWN (+0.60')	BCH	0.60' DOWN (+0.60')	
2089		N/A	CPCR	SET CPCR	0
2100 ✓		FLUSH (0)	CPS	FND CPS	
2101		FLUSH (0)	CPCR	SET CPCR	
2086 ✓		0.12' UP (-0.12')	CPCR	SET CPCR	
2083 ✓		0.15' UP (-0.15')	CPCR	SET REB. w/ REB HZ CAP	
2102 ✓		FLUSH (0)	CPCR	SET CPCR	
2088		0.48' DOWN (+0.48')	BCH	0.50' DOWN (+0.50')	+0.49'
2103		FLUSH (0)	CPCR	SET CPCR	
2104 ✓		FLUSH (0)	CPCR	SET CPCR.	
2084 ✓		FLUSH (0)	CPCR	SET CPCR	
2105		0.49' DOWN (+0.49')	BCH	N/A	
2106		0.52' DOWN (+0.52')	BCH	N/A	
2044 ✓		ERM, CHECK SHOT VS. AREA 'E'	BCH	0.65' DOWN (+0.65')	
2043 ✓		↓	BCH	N/A	0

Project BUCKEYE | SUN VALLEY AOMA

Client

Task PANEL TO POINT ELEV. DIFF — AREA 'A'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-16-02

Chkd Date

Sheet 3 of 3

POINT	AREA	DIFF. RAW DATA	DIFF. NOTES
2048	A	N/A	0.49' DOWN (+0.49)

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
BLIND CHECK POINTS- PANEL ELEVATION INFO
5/20/02

POINT	83 N (IF)	83 E (IF)	88 PT EL	88 PNL EL	29 PT EL	29 PNL EL
2044	870797.4882	499471.6769	926.274	926.924	924.178	924.828
2045	870790.9022	504752.3111	920.704	921.444	918.604	919.344
2046	868161.5900	504667.1409	896.415	896.415	894.315	894.315
2048	876082.2504	499485.7574	973.244	973.244	971.144	971.144
2049	878322.0075	491621.3694	995.763	995.763	993.660	993.660
2079	881346.5687	494290.7378	1025.510	1026.300	1023.404	1024.194
2080	883956.7221	496927.2232	1057.365	1057.365	1055.255	1055.255
2081	881689.3848	499614.6832	1028.459	1028.459	1026.353	1026.353
2082	886584.6107	499595.2458	1080.444	1081.044	1078.334	1078.934
2083	888705.3704	499517.2444	1102.665	1102.515	1100.552	1100.402
2084	878637.6883	502154.0235	993.079	993.079	990.976	990.976
2085	881275.4489	504830.9785	1014.109	1014.109	1012.006	1012.006
2086	891871.5159	504743.6739	1173.883	1173.763	1171.773	1171.653
2087	897110.4004	510241.8628	1216.162	1216.112	1214.101	1214.051
2088	891948.4780	510183.1428	1144.674	1145.164	1142.574	1143.064
2089	886493.6561	510261.6317	1069.219	1069.219	1067.116	1067.116
2090	881359.8366	510103.5420	1008.490	1008.490	1006.387	1006.387
2091	883976.0805	507497.0094	1039.134	1039.134	1037.030	1037.030
2092	876073.3094	510085.6847	956.973	956.973	954.870	954.870
2093	873438.4347	507438.9684	937.983	937.983	935.880	935.880
2094	870809.3548	510186.5326	904.317	904.317	902.214	902.214
2095	870780.8975	515402.2217	899.174	899.174	897.067	897.067
2096	876078.5953	515423.7338	943.444	943.444	941.337	941.337
2097	878731.5246	512766.7798	975.656	975.656	973.549	973.549
2098	881380.9781	515406.9752	992.102	992.762	989.998	990.658
2099	878671.1214	518064.8264	962.378	962.378	960.272	960.272
2100	886582.2479	515456.3902	1040.948	1040.948	1038.849	1038.849
2101	891901.6924	515497.2538	1098.541	1098.541	1096.445	1096.445
2102	894538.7078	513034.7512	1172.231	1172.231	1170.157	1170.157
2103	897058.3097	515344.3635	1140.685	1140.685	1138.644	1138.644
2104	902283.7110	515681.0656	1241.698	1241.698	1239.713	1239.713
2105	860159.0664	510072.0603	859.576	860.066	857.476	857.966
2106	860122.2263	515350.5009	861.641	862.161	859.541	860.061

NOTES

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE POINT THAT WAS LOCATED AND THE PANEL AS IT LIED ON THE GROUND.

Project BUCKEYE\SUN VALLEY 10MP
Client
Task POINT TO PANEL ELEV. DIFF.- AREA 'B'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5-22-02
Chkd Date
Sheet 1 of 2

BLIND CHECK POINT ELEVATION DIFFERENCES

	POINT	DIFF. RAW DATA		DIFF. NOTES		
ALSO E'	2051	BCM	0.62' DOWN (+0.62') (E) 0.61' DOWN (+0.61')	BCM (E)	0.59' DOWN	+0.61
ALSO A & E	2049	CPCR	N/A	(E) CPCR	N/A	0
ALSO A	2079	BCM	0.80' DOWN (+0.80')			
	2077	BCF	0.45' UP (-0.45')	BCF	N/A	
	2076	CPCR	N/A	CPCR	N/A	0
	2074	CPCR	N/A	CPCR	N/A	0
	2071	CPCR	N/A	CPCR	N/A	0
	2073	CPCR	N/A	CPCR	N/A	0
ALSO E'	2011	CPCR	N/A	N/A		0
	2072	CPCR	N/A	CPCR	N/A	0
ALSO E'	2033	BCM	0.67' DOWN (+0.67') (E) 0.68' DOWN (+0.68')	BCM	0.67' DOWN	(+0.67)
	2078	CPCR	N/A	CPCR	N/A	0
	2075	CPCR	N/A	CPCR	N/A	0
	2069	CPCR	N/A	CPCR	N/A	0
	2067	ACP	N/A	BCF	N/A	0
	2068	CPCR	N/A	CPCR	N/A	0

Project BUCKEYE\SUN VALLEY 10 MP

Client

Task POINT TO PANEL ELEV. DIFF.- AREA 'B'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-22-02

Chkd Date

Sheet 2 of 2

	POINT		DIFF. RAW DATA		DIFF. NOTES	
	2070	CPCR	N/A		CPCR N/A	0
ALSO È & Ó	2009	FIP	N/A	(E) -0.28' DOWN (+0.28')	(D) 0.30' DOWN (+0.30')	+0.29
	2066	CPCR	N/A	(NEW MR POINT)	CPCR N/A	0
AREA Ó	2018	CPCR	N/A		(D) CPCR - N/A	0
ALSO È	2010	CPCR (FIP)	0.56' DOWN (+0.56') (E) ALSO		FIP 0.54' DOWN (+0.54')	+0.55'
ALSO Ó	2021	CPN	N/A	(D) 0.06' DOWN (+.06')	FIP (D) FLUSH (0)	
ALSO Ó	2023	CPPK	N/A		(D) CPPK N/A	0
ALSO Ć	2032	BCF	N/A		BCF N/A	0
ALSO Ó + C	2017	CPCR	N/A		CPCR FLUSH (0)	
	L (N3)					

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
BLIND CHECK POINTS- PANEL ELEVATION INFO
5/23/02

POINT	83 N (IF)	83 E (IF)	88 PT EL	88 PNL EL	29 PT EL	29 PNL EL
2009	871012.7901	473143.6552	946.719	947.009	944.629	944.919
2010	871008.3523	478429.8215	945.885	946.435	943.796	944.346
2011	876830.4738	478458.8197	998.747	998.747	996.651	996.651
2017	881429.0127	462719.7695	1003.215	1003.215	1001.115	1001.115
2018	879091.0180	459908.6130	991.546	991.546	989.453	989.453
2021	871062.9317	467835.2887	939.307	939.367	937.220	937.280
2023	876266.5323	467902.2278	974.370	974.370	972.277	972.277
2032	886705.5561	467931.5260	1053.252	1053.252	1051.143	1051.143
2033	892063.8708	467932.7947	1100.626	1101.296	1098.507	1099.177
2049	878322.0075	491621.3694	995.763	995.763	993.660	993.660
2051	876095.9829	489015.0291	968.061	968.671	965.965	966.575
2066	884015.0570	464885.3459	1025.756	1025.756	1023.650	1023.650
2067	881585.6477	467870.3818	1014.435	1014.435	1012.332	1012.332
2068	878632.9506	470533.8970	998.674	998.674	996.578	996.578
2069	881515.6517	473151.4382	1029.645	1029.645	1027.542	1027.542
2070	873638.3599	475830.4224	970.510	970.510	968.417	968.417
2071	881489.7650	478437.5977	1043.090	1043.090	1040.986	1040.986
2072	886619.3963	478542.8964	1089.009	1089.009	1086.896	1086.896
2073	879332.1544	480981.5749	1017.840	1017.840	1015.737	1015.737
2074	881448.5357	483591.1629	1025.921	1025.921	1023.815	1023.815
2075	883421.3992	486236.9374	1033.500	1033.500	1031.390	1031.390
2076	881590.5981	489136.9446	1023.712	1023.712	1021.606	1021.606
2077	886707.4532	489019.6609	1139.984	1139.534	1137.868	1137.418
2078	890201.8746	487551.4383	1155.481	1155.481	1153.358	1153.358

NOTES

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE POINT THAT WAS LOCATED AND THE PANEL AS IT LIED ON THE GROUND.

Project BUCKEYE/SUN VALLEY ADOT
Client
Task POINT TO PANEL ELEV. DIFF. → AREA 'C'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01
By DGF Date 5-24-02
Chkd Date
Sheet 1 of 2

BLIND CHECK POINT ELEVATION DIFFERENCES

	POINT	DIFF. RAW DATA		DIFF. NOTES		
	2027	CPCR	N/A	N/A		0
	2028	CPCR	N/A	N/A		0
	2029	CPCR	N/A	CPCR	N/A	0
	2030	BCF	N/A	BCF	FLUSH (0)	
AREA 'D'	2015	CPPK	N/A (D) — MAG MAC	N/A		0
AREA 'B'	2032	BCF	N/A			
AREA 'B'	2033	BCH	0.68' DOWN (+0.68')			
	2034	FIP	0.12' DOWN (+0.12')	FIP	0.12' DOWN (+0.12')	
	2035	FIP	0.36' DOWN (+0.36')	N/A		
	2036	CPCR	N/A	N/A		0
	2037	CPCR (DEA)	N/A	N/A		0
AREA 'D'	2016 ← THIS ONLY SHOT (AREA 'C')	CPCR	N/A	N/A		0
AREA 'D' NOT SHOT	2056	CPCR	N/A	N/A		0
	2057	CPCR	FLUSH (0)	N/A		
	2058	CPCR	FLUSH (0)	CPCR	N/A	
	2059	CPCR	FLUSH (0)	CPCR	N/A	

AREA 'B'

Project BUCKEYE\SUN VALLEY AOMP

Client

Task POINT TO PANEL ELEV.- AREA 'C'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-24-02

Chkd Date

Sheet 2 of 2

POINT	DIFF. RAW DATA		DIFF. NOTES	
2060 39	BCF	1.0' ABV GRND (-1.00') NOT ACCURATE	GLO BC	0.94' ABV GROUND (-0.94')
2061 40	BCF	1.25' ABV GRND (-1.25')	GLO BC	1.15' ABV GROUND (-1.15')
2062 41	CPCR	FLUSH (0)	CPCR	N/A
2063 43	CPCR	N/A	CPCR	N/A
~~2016~~	~~NOT SHOT → AREA 'A'~~			
2017	NOT SHOT → AREA 'B'			

BUCKEYE \ SUN VALLEY ADMP- AREA 'C'
BLIND CHECK POINTS- PANEL ELEVATION INFO
5/28/02

POINT	83 N (IF)	83 E (IF)	88 PT EL	88 PNL EL	29 PT EL	29 PNL EL
2015	881676.2567	457319.2002	1004.111	1004.111	1002.017	1002.017
2016	881709.9630	452018.4183	1009.320	1009.320	1007.233	1007.233
2027	887023.1633	441453.2856	998.695	998.695	996.625	996.625
2028	892382.4276	441494.6864	1017.950	1017.950	1015.877	1015.877
2029	892242.4292	457217.7668	1063.471	1063.471	1061.362	1061.362
2030	886946.4751	457343.6929	1037.805	1037.805	1035.702	1035.702
2034	892159.8309	462641.8883	1084.946	1085.066	1082.826	1082.946
2035	894808.4022	462637.1634	1105.515	1105.875	1103.396	1103.756
2036	887002.2923	446759.2316	1020.076	1020.076	1017.993	1017.993
2037	897535.9785	452121.8271	1095.051	1095.051	1092.948	1092.948
2056	881757.6359	446739.2601	977.705	977.705	975.625	975.625
2057	884285.3570	444061.5700	974.212	974.212	972.136	972.136
2058	897597.4792	446769.0162	1080.739	1080.739	1078.645	1078.645
2059	894653.7474	444227.2128	1042.501	1042.501	1040.418	1040.418
2060	892319.6231	446794.4935	1055.820	1054.880	1053.734	1052.794
2061	892294.0216	452072.1021	1067.192	1066.042	1065.092	1063.942
2062	890415.1757	459963.9768	1063.450	1063.450	1061.337	1061.337
2063	889681.5483	449408.0515	1059.110	1059.110	1057.020	1057.020

NOTES

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE POINT THAT WAS LOCATED AND THE PANEL AS IT LIED ON THE GROUND.

Project BUCKEYE \ SUN VALLEY ADMP

Client

Task POINT TO PANEL ELEV. DIFF.- AREA 'D'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-29-02

Chkd Date

Sheet 1 of 2

BLIND CHECK POINT ELEVATION DIFFERENCES

POINT		DIFF. RAW DATA	DIFF. NOTES	
2000	BCM	0.42' DOWN (+0.42')	0.43' DOWN (+0.43')	
2001	CPPK	N/A	N/A	0
2002	CPCR	N/A	N/A	0
2003	CPPK	N/A	N/A	0
2004	CPCR	N/A	N/A	0
2005	FIP	0.28' DOWN (+0.28')	0.26' DOWN (+0.26')	(+0.27)
2012	BCM	1.00' DOWN (+1.00')	—	
2013	CPCR	N/A	0.08' DOWN (+0.08')	
2014	CPPK MAG	N/A	—	0
2015	CPPK MAG	N/A	AREA 'C'	
2019	FIP	0.11' DOWN (+0.11')	FLUSH (0)	
2020	CPCR	N/A	FLUSH (0)	
2021	FIP	0.06' DOWN	AREA 'E'	
2022	CPCR	N/A	FLUSH (0)	
2024	FIP	0.19' DOWN (+0.19')	—	
2025	CPCR	N/A	—	0

Project BUCKEYE | SUN VALLEY ADMP

Client

Task POINT TO PANEL ELEV. DIFF. - AREA 'D'

HUITT ZOLLARS INCORPORATED

Job No. 05-1294-01

By DGF Date 5-29-02

Chkd Date

Sheet 2 of 2

POINT	DIFF. RAW DATA		DIFF. NOTES	
2026	CPCR	N/A	FLUSH (0)	0
2064	CPCR	N/A	N/A	0
2065	CPCR	N/A	N/A	0
2107	BCM	0.61' DOWN (+0.61')	—	
2108	BCM	0.68' DOWN (+0.68')	—	
2109	FIP	0.97' DOWN (+0.97')	—	
2052	ACF	N/A	—	0

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
BLIND CHECK POINTS- PANEL ELEVATION INFO
5/29/02

POINT	83 N (IF)	83 E (IF)	88 PT EL	88 PNL EL	29 PT EL	29 PNL EL
2000	865779.5170	467804.2179	906.828	907.258	904.751	905.181
2001	865824.2453	462679.4167	909.045	909.045	906.971	906.971
2002	863087.1767	462469.0058	893.086	893.086	891.016	891.016
2003	865882.4352	451966.6042	894.117	894.117	892.044	892.044
2004	865863.2355	446735.0265	905.630	905.630	903.554	903.554
2005	862001.4145	445527.3609	919.735	920.005	917.658	917.928
2012	871113.4506	457266.4254	946.278	947.278	944.198	945.198
2013	871217.9740	451986.9427	946.645	946.725	944.568	944.648
2014	876382.8973	457299.7134	977.539	977.539	975.452	975.452
2019	871020.8244	462567.8845	941.455	941.565	939.375	939.485
2020	873714.2679	465331.6573	957.365	957.365	955.278	955.278
2022	868377.6105	470516.1357	923.807	923.807	921.724	921.724
2024	876509.7481	441435.2322	983.339	983.529	981.275	981.465
2025	871151.5430	446708.2594	915.474	915.474	913.397	913.397
2026	868422.1896	459943.8736	929.085	929.085	927.008	927.008
2064	876473.4058	446718.9548	939.015	939.015	936.939	936.939
2065	868648.7659	449465.9649	904.146	904.146	902.069	902.069
2107	860432.1193	467836.2752	875.811	876.421	873.740	874.350
2108	860544.4033	457216.5809	877.116	877.796	875.049	875.729
2109	855258.7888	457188.8545	838.654	839.624	836.590	837.560
2052	860371.9741	473108.1198	869.469	869.469	867.396	867.396

NOTES

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE POINT THAT WAS LOCATED AND THE PANEL AS IT LIED ON THE GROUND.

Project BUCKEYE\SUN VALLEY AOMP
Client
Task POINT TO PANEL ELEV. DIFF. - AREA 'E'

HUITT ZOLLARS INCORPORATED

Job No. 05-129401
By DGP Date 5-30-02
Chkd Date
Sheet 1 of 1

BLINA CHECK POINT ELEVATION DIFFERENCES

POINT		DIFF. RAW DATA	DIFF. NOTES	
2006	CPPK MAG NAIL	N/A	N/A	0
2007	BCH	0.92' DOWN (+0.92')	0.97' DOWN (+0.97')	+0.94
2008	BCH	0.44' DOWN (+0.44')	0.42' DOWN (+0.42')	+0.43
2038	CPCR	0.10' BEL. PAPER (+0.10')	N/A	
2039	CPPK	N/A	N/A	0
2040	FRR	0.32' DOWN (+0.32')	0.31' DOWN (+0.31')	+0.32
2041	CPCR	0.10' BEL. PAPER (+0.10')	N/A	
2042	BCH	0.59' DOWN (+0.59')	0.59' DOWN (+0.59')	
2043	BCH	0.49' DOWN (+0.49')	—	
2047	CPCR	0.10' BEL. PAPER (+0.10')	N/A	
2050	CPCR	N/A	N/A	0
2052	ACF	N/A	—	0
2053	CPPK	N/A	—	0
2054	ACF	N/A	—	0
2055	BCH	0.50' DOWN (+0.55')	—	

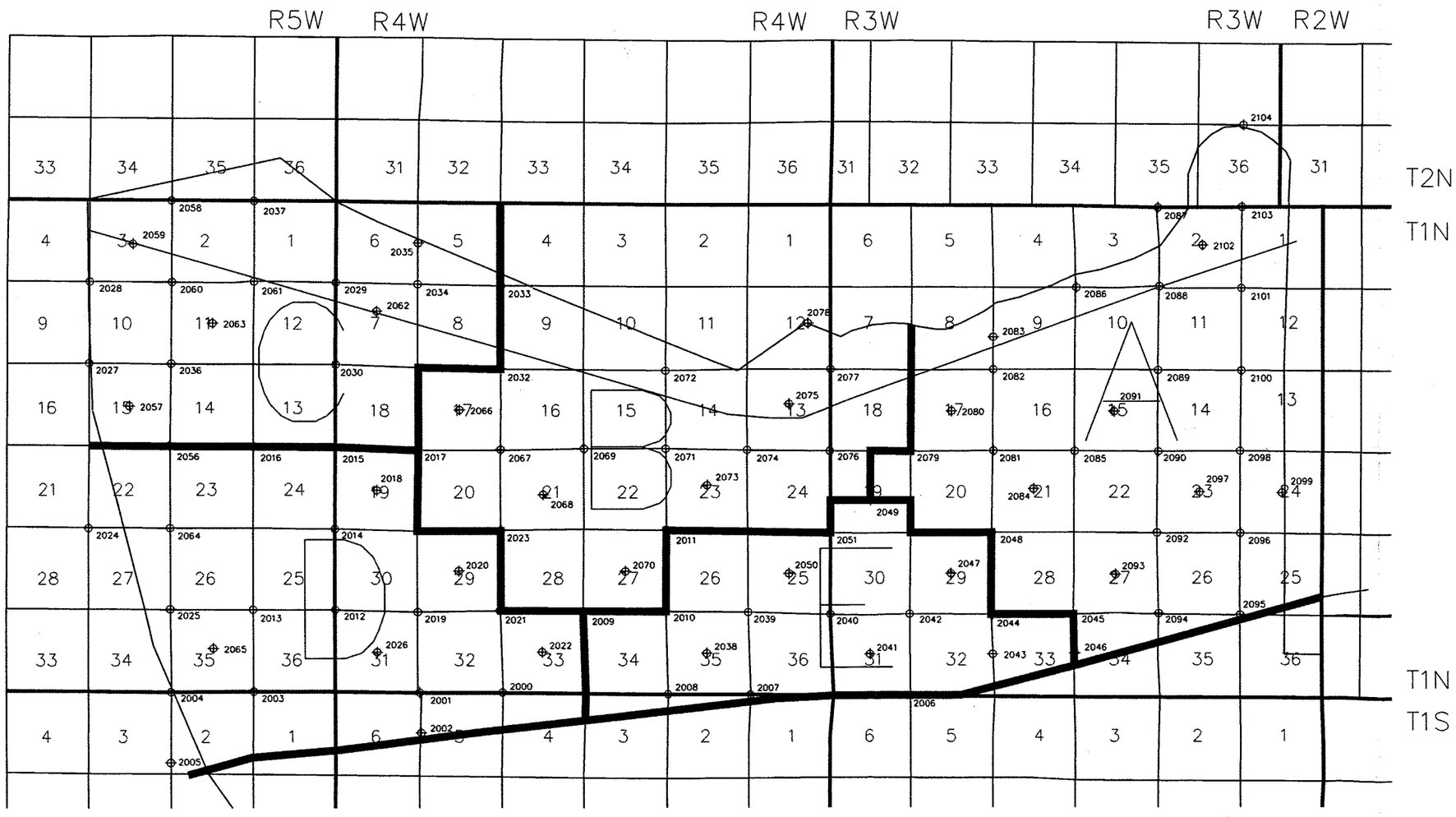
BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
BLIND CHECK POINTS- PANEL ELEVATION INFO
5/30/02

POINT	83 N (IF)	83 E (IF)	88 PT EL	88 PNL EL	29 PT EL	29 PNL EL
2006	865853.4983	494343.7970	890.346	890.346	888.256	888.256
2007	865647.4145	483666.1606	895.814	896.754	893.727	894.667
2008	865698.0650	478383.2202	904.012	904.442	901.929	902.359
2038	868333.7151	481082.8975	921.176	921.276	919.089	919.189
2039	870953.7323	483940.1559	937.713	937.713	935.623	935.623
2040	870809.2727	488995.9883	928.556	928.876	926.466	926.786
2041	868254.9456	491526.4142	911.297	911.397	909.207	909.307
2042	870838.0340	494194.9143	929.085	929.675	926.992	927.582
2043	868175.8380	499491.6761	902.587	903.077	900.491	900.981
2047	873455.1642	496802.5437	951.728	951.828	949.631	949.731
2050	873450.6985	486352.1063	951.966	951.966	949.873	949.873
2052	860371.9502	473108.0513	869.501	869.501	867.428	867.428
2053	860312.2033	483668.8270	858.255	858.255	856.175	856.175
2054	860292.6004	494221.5169	853.542	853.542	851.455	851.455
2055	860210.9049	504771.3883	850.346	850.896	848.246	848.796

NOTES

PANEL ELEVATIONS WERE OBTAINED BY MEASURING THE DIFFERENCE BETWEEN THE POINT THAT WAS LOCATED AND THE PANEL AS IT LIED ON THE GROUND.

MAP OF BLIND CHECK POINTS



N. T. S.

NO.	REVISION	DATE
-		-
-		

HUITT-ZOLLARS
Huitt-Zollars, Inc.
Phoenix
47 North 24th Street, Suite 100
Phoenix, Arizona 85008-6599
Phone (602) 952-2923 Fax (602) 952-0924

RESULTS OF SURVEY

BUCKEYE/SUN VALLEY CONTROL - BLIND CHECK PTS

DATE:	NOV. 07, 2002
DRAWN:	PHIL
DESIGNED:	PHIL
CHECKED:	FRANCETIC
PROJ. NO.:	05-1294-01
FILE:	H:\PROJ\05129401\SURVEY\PHIL\DWG4.DWG
SHEET:	1 OF 1

FLOOD CONTROL DISTRICT
OF
MARICOPA COUNTY
(FCDMC) DESCRIPTIONS

ELEVATION REFERENCE MARKS – BUCKEYE AREA

I.D. NUMBER	ELEVATION	DESCRIPTION/LOCATION
#1	847.084	Brass Cap In Handhole, At The Intersection Of 7th Street And Irwin Avenue, Being The North 1/4 Corner Of Section 8, Township 1 South, Range 3 West.
#2	844.304	Brass Cap In Handhole, At The Intersection Of Apache Road (Extended) And Irwin Avenue, Being The Northeast Corner Of Section 8, Township 1 South, Range 3 West.
#3	871.026	Brass Cap In Handhole, At The Intersection Of Miller Road And Highway 85, Being The West 1/4 Corner Of Section 5, Township 1 South, Range 3 West.
#4	865.278	Brass Cap In Handhole, At The Intersection Of 9th Street And Highway 85, Approximately 1/4 Mile West of the West 1/4 Corner Of Section 4, Township 1 South, Range 3 West.
#5	888.364	Bronze Cap-Stamped x321 (1952) U.S. Coast And Geodetic Survey– 2 Feet West Of Railroad Mile Post 875 And 30.10 Feet North Of North Rail Of Railroad Track, Approximately 0.3 Miles West Of Miller Road, Between Railroad And Baseline Road.
#6	882.635	Brass Cap Set By Maricopa Co. Highway Dept. In Handhole At The Intersection Of Apache Road And Baseline Road, Being Approximately The Northwest Corner Of Section 4, Township 1 South, Range 3 West.
#7	905.682	Brass Cap Set By Maricopa Co. Highway Dept. In Handhole At The Intersection Of Miller Road And Maricopa Road, Being Near The East 1/4 Corner Of Section 31, Township 1 North, Range 3 West.
#8	900.570	Brass Cap In Handhole At The Intersection of Cemetery Road And Maricopa Road, Being The East 1/4 Corner Of Section 32, Township 1 North, Range 3 West.

#9	927.067	Brass Cap Set By Maricopa Co. Highway Dept. In Handhole At The Intersection Of Miller Road And Southern Avenue, Being The Northeast Corner Of Section 31, Township 1 North, Range 3 West.
#10	924.341	Brass Cap in Handhole At The Intersection Of Cemetery Road And Southern Avenue, Being The Northeast Corner Of Section 32, Township 1 North, Range 3 West.
#11	892.095	Arizona Dept. Of Transportation Brass Cap in Concrete Headwall–West Side Bridge At The Intersection Of Buckeye Canal And Dean Road. Stamped 43+38.33 A.H.D. Elev 891.93 – 1982. Being In Northeast 1/4 Of Section 35, Township 1 North, Range 3 West.
#12	888.665	Flood Control District Of Maricopa Co. Brass Cap–Stamped ERM 12–In Concrete, 22.0 Feet South Of Centerline Buckeye Canal and 28.5 Feet East Of Centerline Rainbow Road, Being In Northwest 1/4 Of Section 35, Township 1 North, Range 3 West.
#13	887.808	Flood Control District of Maricopa Co. Brass Cap–Stamped ERM 13–In Concrete, 33 Feet South Of Centerline Southern Pacific Railroad, 61 Feet East Of Centerline Watson Road, 5 Feet East Of Power Pole, Being In Southwest 1/4 Of Section 34, Township 1 North, Range 3 West.
#14	881.411	Flood Control District Of Maricopa County Brass Cap–Stamped ERM 14–In North End Irrigation Structure Over Buckeye Canal, 81.5 Feet West Of Centerline Miller Road, Being In Northeast 1/4 Of Section 6, Township 1 South, Range 3 West.

#15	879.941	Flood Control District Of Maricopa County Brass Cap-Stamped ERM 15-In North End Irrigation Structure Over Buckeye Canal, 370 feet West Of Centerline Of Rooks Road, Being in Northeast 1/4 Of Section 1, Township 1 South, Range 4 West.
#16	873.367	Arizona Dept. of Transportation Brass Cap In Concrete-Stamped P.O.T. 13+85 Elev 873.42-1975-113 Feet South Of State Route 85 And 102 Feet East Of Oglesby Road, Being In Southwest 1/4 Of Section 1, Township 1 South, Range 4 West.
#17	876.508	Brass Cap In North End Concrete Irrigation Structure Over Buckeye Canal, 60 Feet West Of Centerline Turner Road, Being In Southeast 1/4 Of Section 3, Township 1 South, Range 4 West.
#18	878.809	Maricopa Co. Highway Dept. Brass Cap-Stamped 878.77-In South End Concrete Headwall At Southeast Corner Bridge At Intersection Of Buckeye Canal And Wilson Road, Being In Southwest 1/4 Of Section 3, Township 1 South, Range 4 West.
#19	877.834	Maricopa Co. Highway Dept. Brass Cap-Stamped 877.81-1990-In South End Concrete Headwall At Southeast Corner Bridge At Buckeye Canal And Palo Verde Road, Being In Northwest 1/4 Of Section 9, Township 1 South, Range 4 West.
#20	876.354	Maricopa Co. Highway Dept. Brass Cap-Stamped 867.33-In South End Concrete Headwall At Southwest Corner Bridge At Buckeye Canal And Bruner Road, Being In Northeast 1/4, Section 7, Township 1 South, Range 4 West.

#21	874.295	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 21-In Southerly End Concrete Headwall At Southeast Corner Bridge At Buckeye Canal And Johnson Road, Being In Northeast 1/4 Of Section 12, Township 1 South, Range 5 West.
#22	862.064	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 22-At Westerly Bend Of Buckeye Canal Approximately 0.85 Miles West Of Johnson Road, 28.5 Feet North And 0.0 Feet West Of Centerline Westerly Bend, Being In Southwest 1/4 Of Section 1, Township 1 South, Range 5 West.
#23	877.351	Bronze Disk-Stamped K-322 1952 U.S. Coast And Geodetic Survey-Set In Top Concrete Post Projecting 0.3 Feet Above Natural Ground, 0.30 Miles West Of Centerline Of Johnson Road, 90 Feet South Centerline Of Southern Pacific Railroad, Being In Southeast 1/4 Of Section 1, Township 1 South, Range 5 West.
#24	886.904	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 24-In Concrete, 90 Feet South Of Centerline Southern Pacific Railroad, 53.5 Feet East Of Centerline Bruner Road, 4 Feet East Of Power Pole, Being In Southwest 1/4 Of Section 5, Township 1 South, Range 4 West.
#25	889.954	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 25-In Concrete, 90 Feet South Centerline Southern Pacific Railroad, 53.5 Feet West Of Centerline Palo Verde Road, 5 Feet West Of Power Pole, Being In Northeast 1/4, Section 5, Township 1 South, Range 4 West.

#26	891.744	Bronze Disk In Concrete Headwall Stamped D 322 1952 U.S. Coast And Geodetic Survey– 20.5 Feet North Of North Rail Of Southern Pacific Railroad And 0.5 Miles West Of Centerline Of Wilson Avenue, Being In Northeast 1/4 Of Section 4, Township 1 South, Range 4 West.
#27	904.253	Maricopa Co. Highway Dept. Brass Cap In Handhole At The Intersection Of Baseline Road And Wilson Avenue (North), Being The Southeast Corner Of Section 33, Township 1 North, Range 4 West.
#28	901.991	Maricopa Co. Highway Dept. Brass Cap In Handhole At The Intersection Baseline Road And Turner Road (North), Being The Southeast Corner Of Section 34, Township 1 North, Range 4 West.
#29	893.794	Arizona Dept. of Transportation Brass Cap In Handhole Near The Intersection Of Baseline Road And Oglesby Road, 6 Feet South Of Baseline Road And 59.5 Feet East Of Oglesby Road, Being In Southwest 1/4 Of Section 36, Township 1 North, Range 4 West.
#30	891.212	Bronze Disk In Concrete Headwall–Stamped Y 321 1952 U.S. Coast And Geodetic Survey– 10 Feet North Of North Rail Southern Pacific Railroad, 0.5 Miles West of Rooks Road (North), Being In Northeast 1/4 Of Section 1, Township 1 South, Range 4 West.
#31	1004.911	Maricopa Co. Highway Dept. Brass Cap In Concrete Headwall At The Southeast Corner Bridge At Dean Road and Roosevelt Canal, Being In Southwest 1/4 Of Section 13, Township 1 North, Range 3 West.

#32	1002.197	Maricopa Co. Highway Dept. Brass Cap In Concrete Headwall At Northwest Corner Bridge At Rainbow Road And Roosevelt Canal, Being In Northwest 1/4 Of Section 23, Township 1 North, Range 3 West.
#33	998.503	Maricopa Co. Highway Dept. Brass Cap In Concrete Abutment At Southeast Corner Bridge At Watson Road And Roosevelt Canal, Being In Northwest 1/4 Of Section 22, Township 1 North, Range 3 West.
#34	997.214	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 34-In Concrete, 44.5 Feet North Centerline Of Roosevelt Canal At Apache Road, 4 Feet East Power Pole #15/9 PS 54996, Being In Southwest 1/4 Of Section 21, Township 1 North, Range 3 West.
#35	996.549	Maricopa Co. Engineering Dept. Brass Cap In Concrete Headwall At Southwest Corner Bridge At Miller Road And Roosevelt Canal, Being In Southeast 1/4 Of Section 19, Township 1 North, Range 3 West.
#36	991.709	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 36-In Concrete, 61.5 Feet North Centerline Roosevelt Canal At Rooks Road, 5 Feet West Power Pole #2/15 PS 29863, Being In Southeast 1/4 Of Section 24, Township 1 North, Range 4 West.
#37	994.139	Maricopa Co. Highway Dept. Brass Cap In Concrete Headwall At Northwest Corner Bridge At Oglesby Road And Roosevelt Canal, Being In Southeast 1/4 Of Section 23, Township 1 North, Range 4 West.

#38	986.363	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 38-In Concrete At Southwest Corner Fence Of Well Site At Roosevelt Canal And Turner Road, Being In Northeast 1/4 Of Section 27, Township 1 North, Range 4 West.
#39	987.813	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 39-In Concrete, 43.5 Feet North Of Centerline Roosevelt Canal At Wilson Avenue, 2.5 Feet North Of Power Pole, Being In The Northwest 1/4 Of Section 27, Township 1 North, Range 4 West.
#40	984.963	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 40-In Concrete, 40 Feet South Centerline Roosevelt Canal And 37.5 Feet West Of Palo Verde Road, Being In Southeast 1/4 Of Section 20, Township 1 North, Range 4 West.
#41	979.887	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM 41-In Concrete, 13.5 Feet North And 11.5 Feet East Of Well Pump At Southwest Corner Roosevelt Canal And Bruner Road, Being In Southeast 1/4 Of Section 19, Township 1 North, Range 4 West.
#42	986.360	Arizona Dept. of Transportation Brass Cap In Centerline Concrete Headwall West Side Bridge At Johnson Road And Roosevelt Canal, Being In Southeast 1/4 Of Section 24, Township 1 North, Range 5 West.
#43	976.245	Flood Control District Of Maricopa Co. Brass Cap-Stamped ERM-43 In Concrete, 104 Feet South And 33 Feet West Of Existing Irrigation Structure Roosevelt Canal 0.67 Miles West Of Johnson Road, Being In Southwest 1/4 Of Section 24, Township 1 North, Range 5 West.

SKETCHES OF ERMs FOUND IN THE FIELD

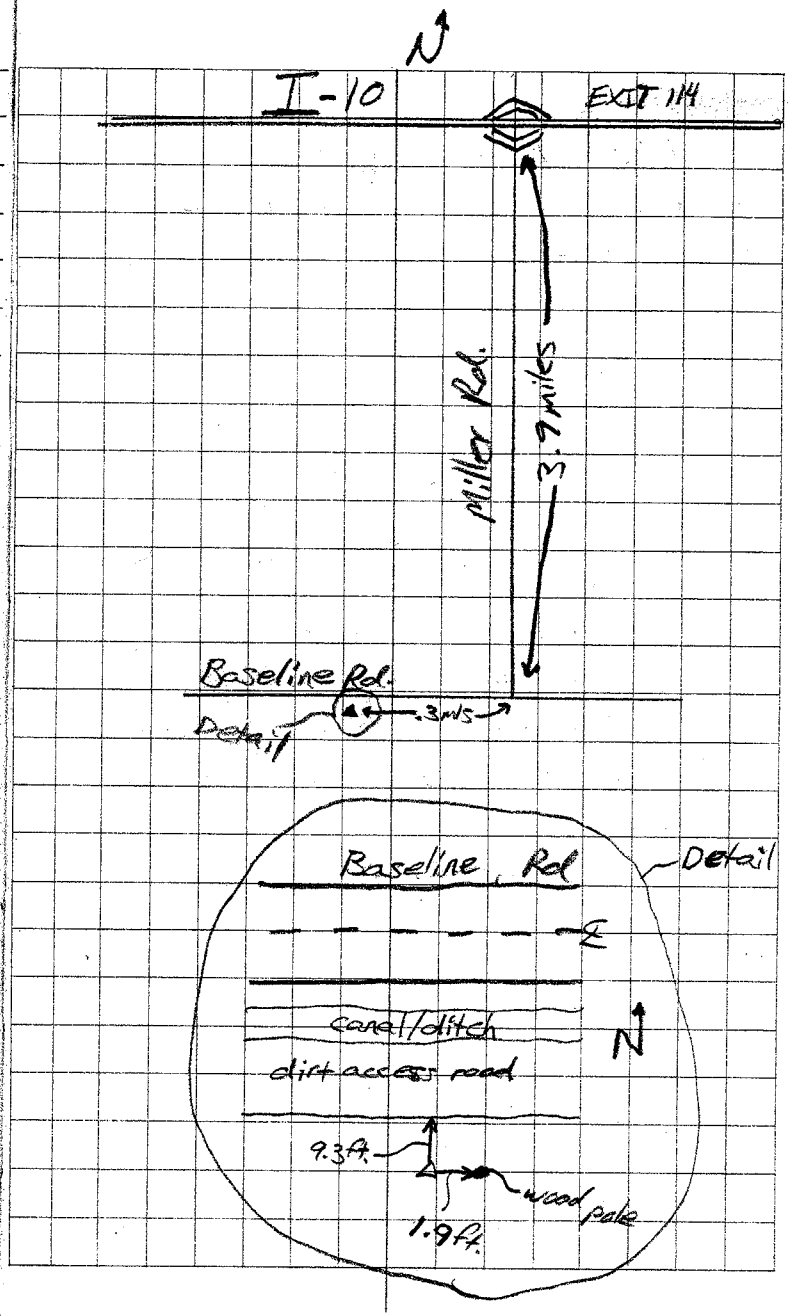
USCGS# X-321 ERM #5

Location T1S R3W S6 G+SR BL+M

Sketch B. Malmos Company Hutt Zollars Inc.

Date 5/31/02

Desc. 4" cap Flush with grnd. Stamp "X-321 1952" Exit I-10 @ exit 114 (miller Rd) Go South 3.9 miles to Baseline Rd Go to dirt road directly South of baseline Rd. Go West along canal/ditch .3 mile to RC point.



ERM #6

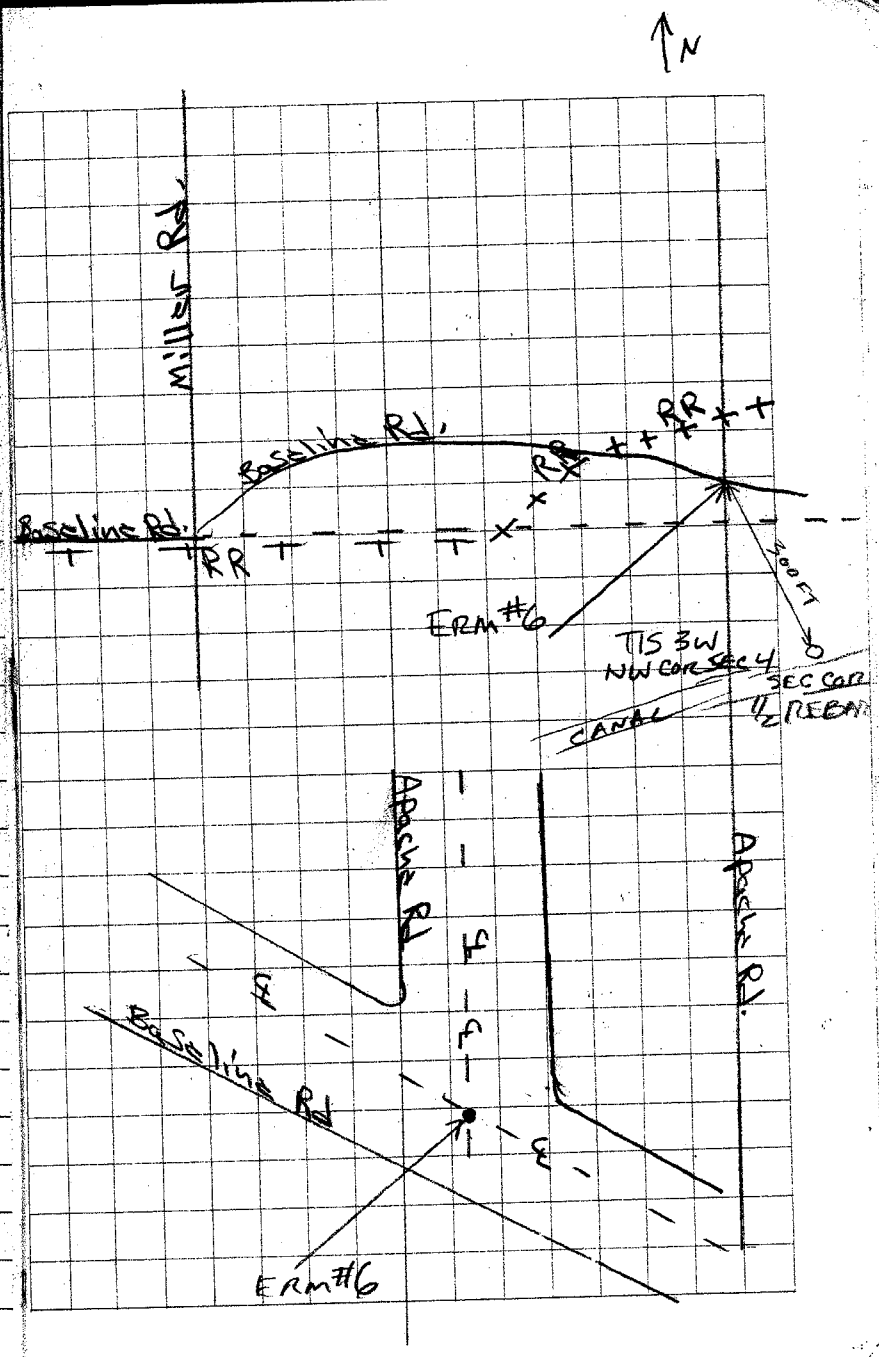
Location at the ℄ of intersection Apache-Rd. and Baseline T1S R3W SEC 4 APPROXIMATELY

Sketch by Matt Ross Hwitt Zollars

Date 9-26-02

Discription: 3" Brass cap in concrete stamped Maricopa County Hwy Dept Center punched

GO TO: I-10 and Miller Road, Then South 3.6 miles to Baseline Road, Then East 1 mile to intersection ℄ Baseline and Apache Road



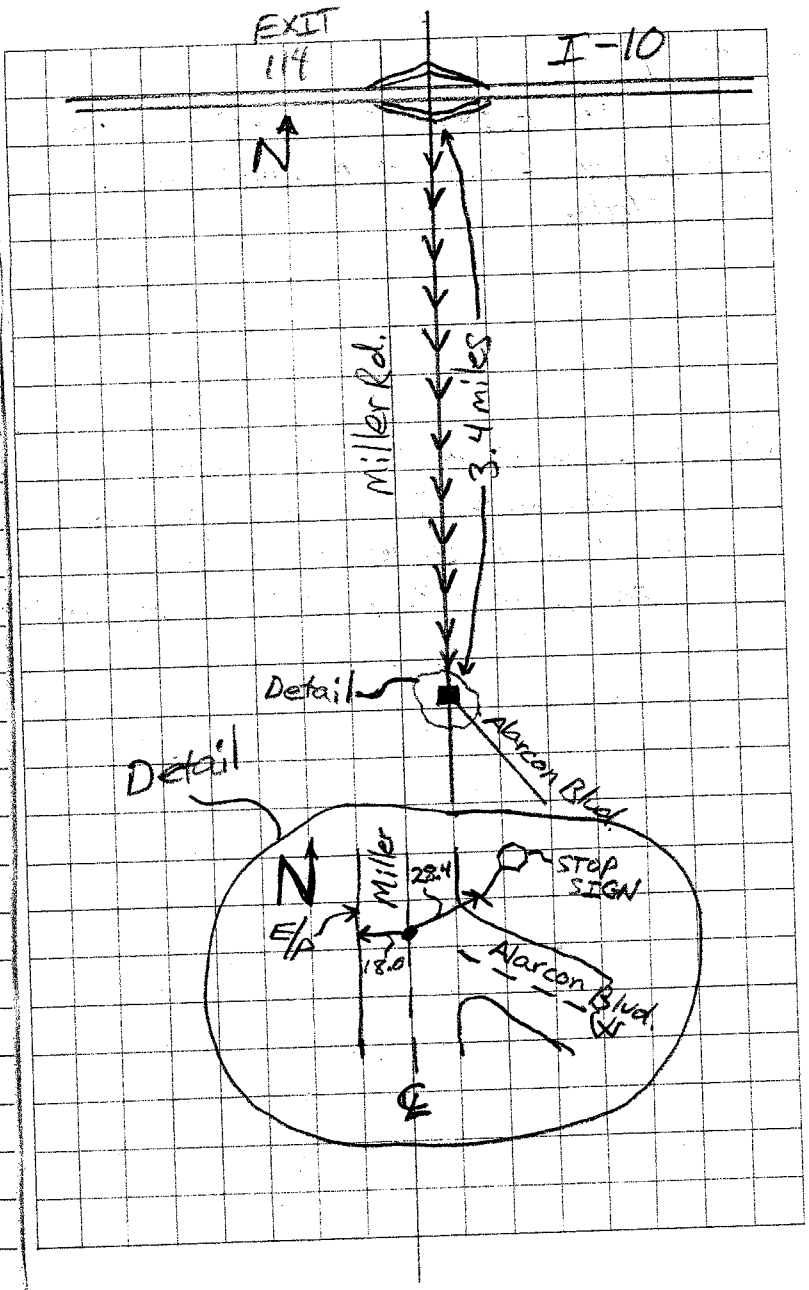
ERM# 7

Location T/N R3W S31,32 G+SR BL+M

Sketch B. Malmos Company Huitt Zollers Inc.

Date 5/14/02

Description; 3 inch BCH MC Hwy Dept.
single punch Down . 50 No stamp
Exit I-10 @ exit 114 (Miller Rd)
Go South 3.4 miles to Alarcon Blvd.



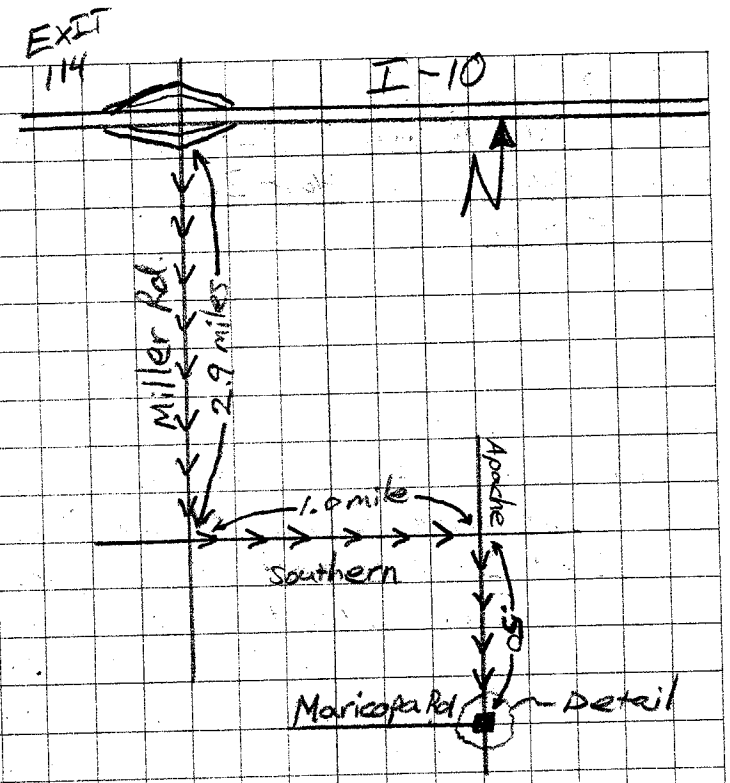
ERM# 8

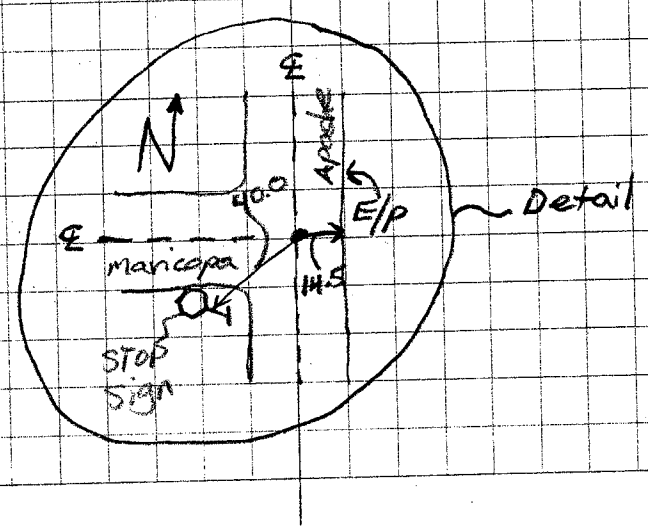
Location T1N R3W S32 G+SR B&M

Sketch B. Malmos Company Hunt Zollars Inc.

Date 5/14/02

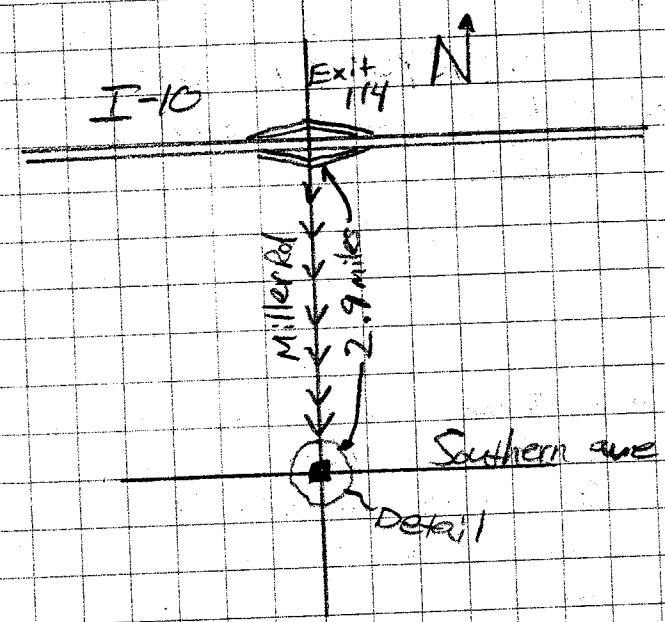
Description; 3 inch BCH MC Hwy Dept.
No markings Down .50, single punch
Exit I-10 @ exit 114 (Miller Rd)
Go South 2.9 miles to Southern
Go East 1.0 mile to Apache Rd.
Go South .50 mile to Maricopa Rd.

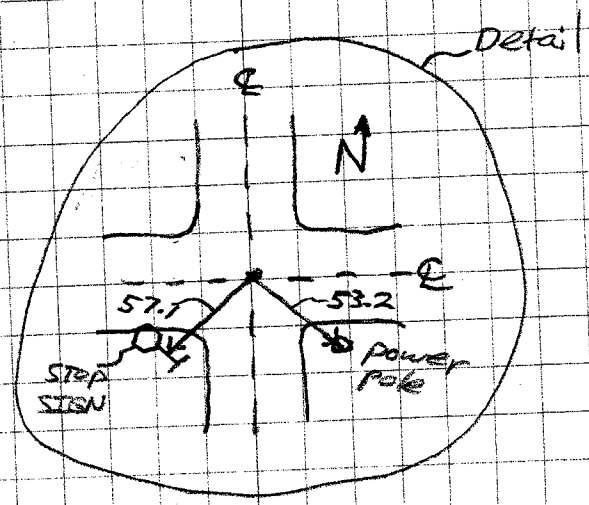




ERM#	9			
Location	T1N	R3W	S31	G+SR B&M
Sketch	B. Malmos	Company	Huitt Zollars Inc.	
Date	5/14/02			

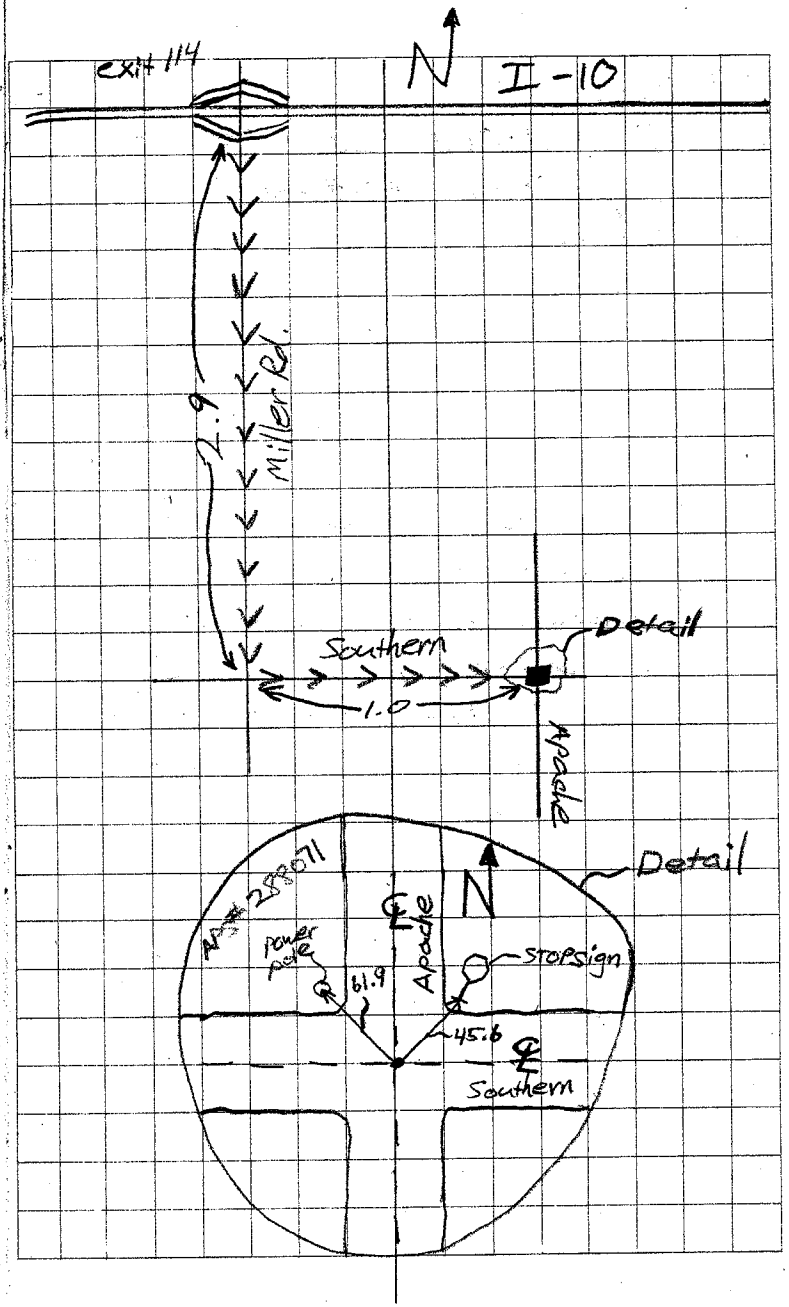
Description; 3 inch BCH MC Hwy Dept.
Single punch Down .50 No stamp
Exit I-10 @ exit 114 (Miller Rd)
Go South 2.9 miles to Southern Ave.





HZ #	2044	ERM# 10	
Location	T1N	R3W	S 28,29,32,33 G+SR B&M
Sketch	B. Malmos	Company	Huitt Zollars Inc.
Date	5/14/02		

Description; 3 inch RCH MC Hwy. Dept. Down .55, No markings, center punch, section monument @ intersection of Southern + Apache. Exit I-10 @ exit 114 (Miller Rd) Go South 2.9 miles to Southern. Go East 1.0 mile to Apache Rd.



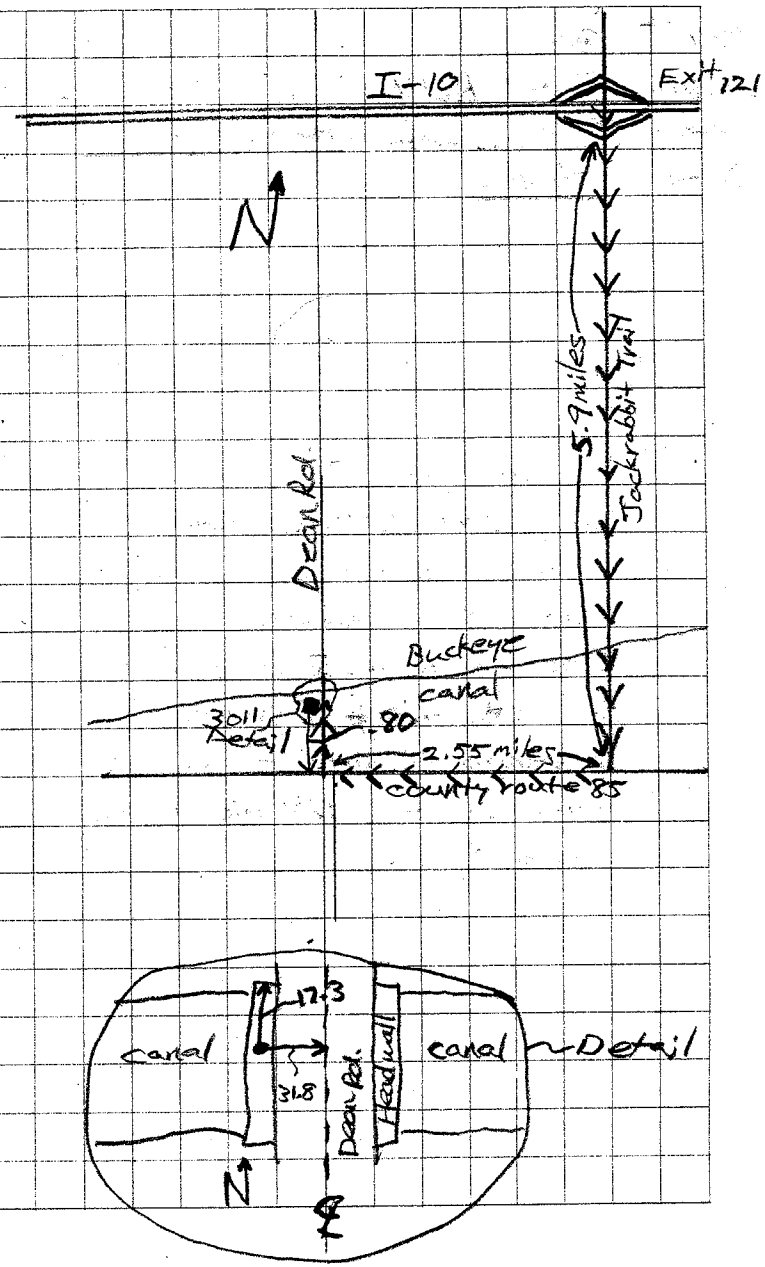
ERM# 3011

Location T1N R3W S35 G&SR BL&M

Sketch B. Malmos Company Huitt-Zollars Inc.

Date 5/13/02

Description; 3 inch BC ADOT STA 43+38 33 EL= 89.93, 1982 stamped, Flush with top/west headwall on west side of Dean Rd. on Buckeye canal bridge, 2.8 ft above ground. Exit I-10 @ exit 121 (Jackrabbit Trail). Go South 5.9 miles on Jackrabbit Trail to County Route 85. Go west 2.55 miles to Dean Rd. Go North .80 miles to Buckeye Canal brige.



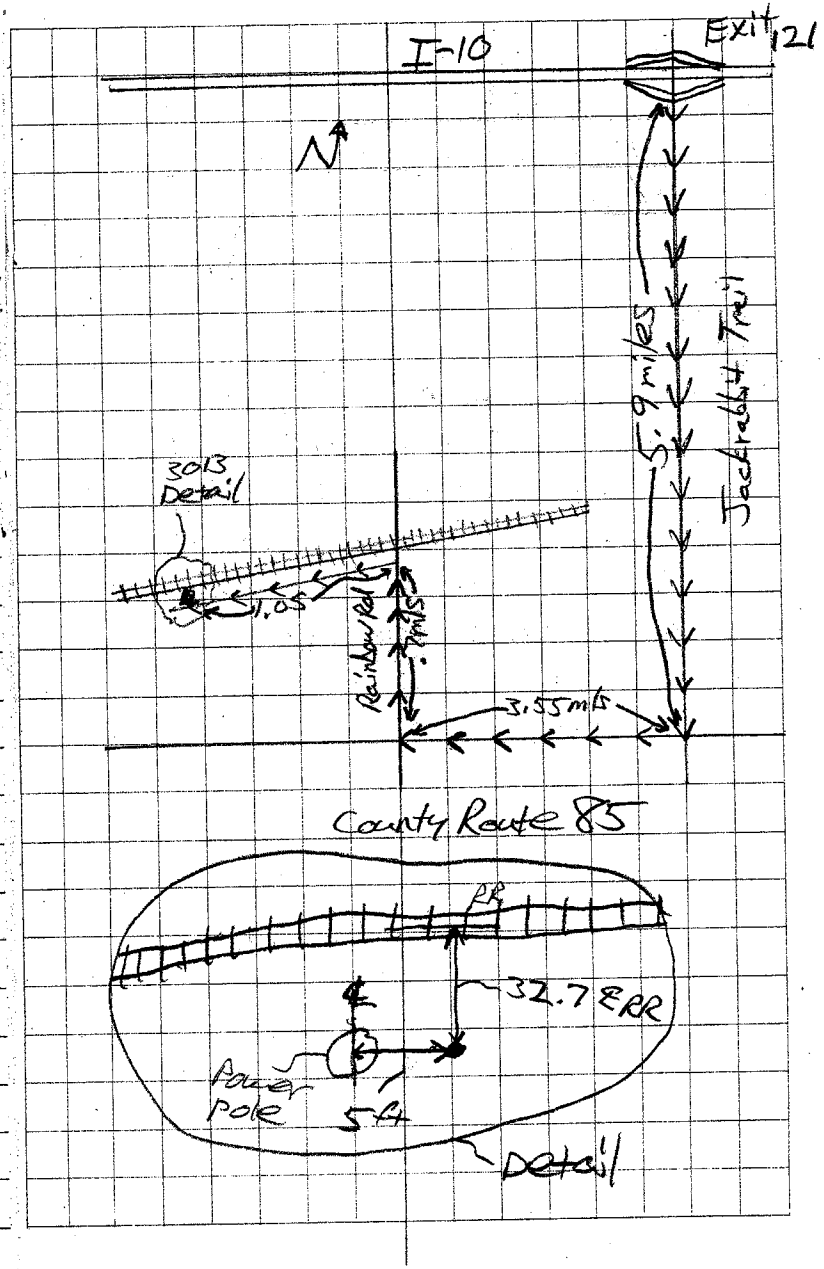
ERM# 3013

Location T1N R3W S33,34 G+SR RL+M

Sketch B. Malmos Company Huitt Zollars Inc.

Date 5/13/02

Description; 3 inch BC FCDMC Flush with ground, 32.7 ft. south of ℄ of RR tracks. 5.0 East of power pole Exit I-10 @ exit 121 (Jackrabbit Trail) Go South 5.9 miles to County Route 85. Go west 3.55 miles to Rainbow Rd. Go North .7 miles to dirt road south side of RR tracks Go West 1.05 miles on dirt road to BC.



ERM# 15

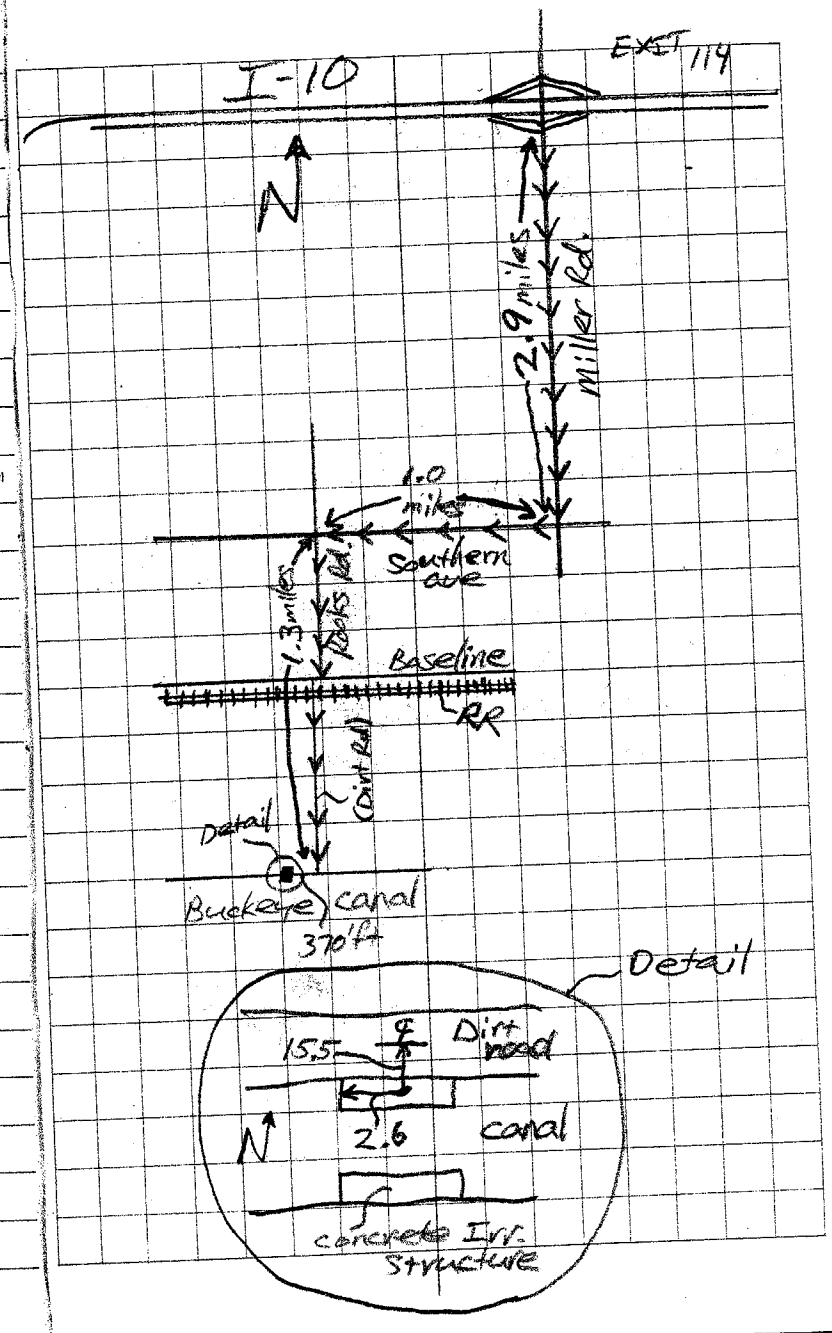
Location T1N R4W S1. G+SR B&M

Sketch B. Malmos Company Hutt Zollars Inc.

Date 5/14/02

Description; 3 inch BC Flush with concrete in northside Irrigation structure. Stamp "ERM 15"

Exit I-10 @ exit 114 (Miller Rd) Go South 2.9 miles to Southern ave. Go West 1.0 mile to Rooks Rd. Go South 1.3 miles to Buckeye canal. Go West 370'ft. to Irr. structure.



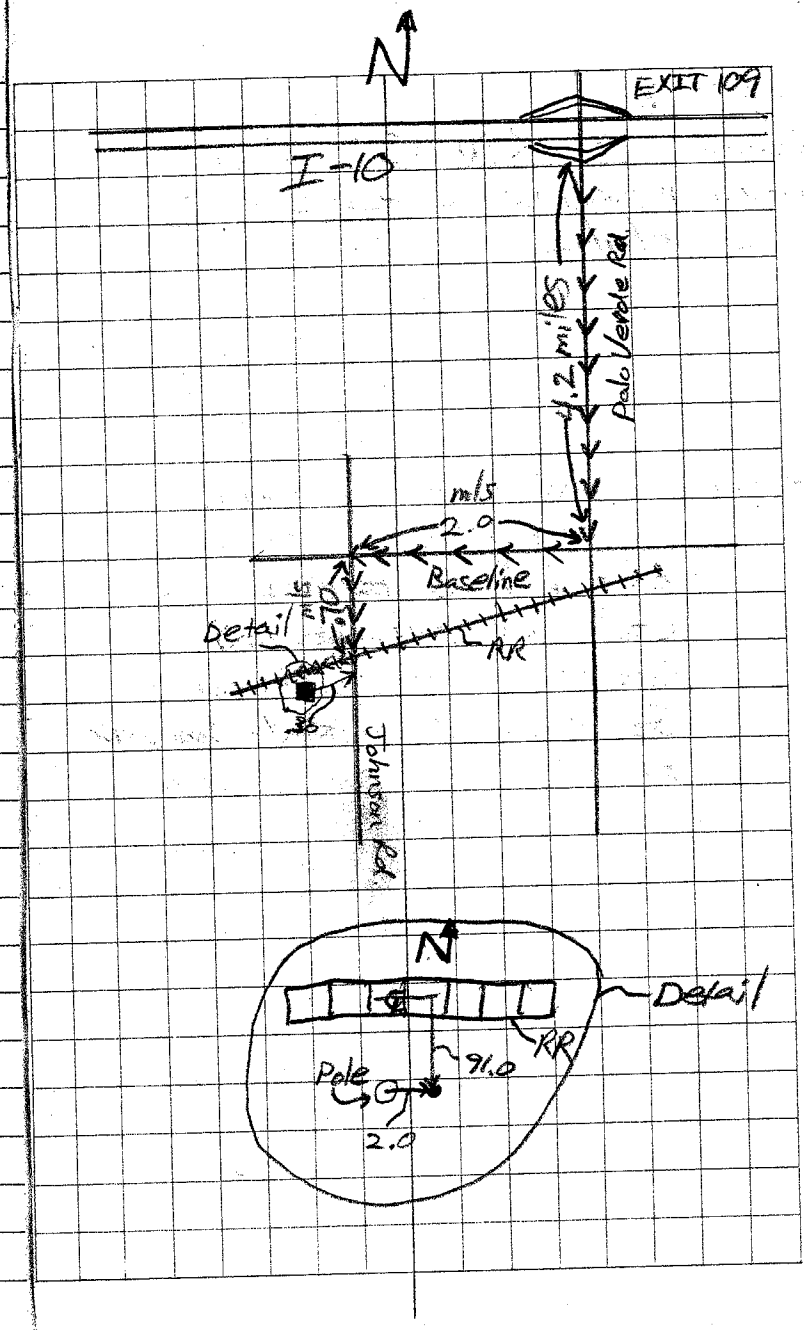
ERM# 23

Location T1N R4W S1 G&SR B&M

Sketch B. Malmas Company Hall & Zollars Inc.

Date 5/14/02

Description: 3 in BC set in concrete post. USCGS stamp K322, 1952 above ground. 80 Exit I-10 @ exit 109 (Palo Verde Rd) Go South 4.2 miles to Baseline Go west 2.0 miles to Johnson Rd. Go South .70 mile to RR tracks Go West on dirt road/southside .30 mile to BC



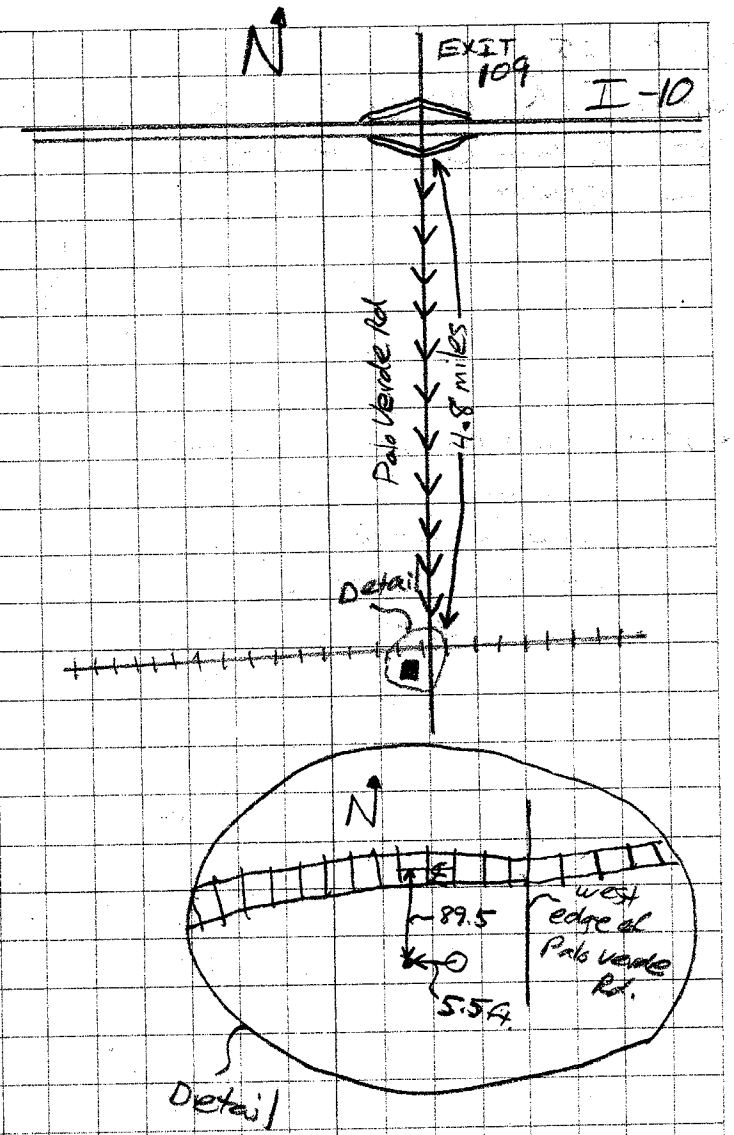
ERM# 25

Location T1N R4W S5 G+SR BL+M

Sketch B. Malmos Company Huitt Zollars Inc.

Date 5/14/02

Description 3 inch BC Flush with ground, FCDMC stamp "ERM 25" set in concrete. Exit I-10 @ exit 109 (Palo Verde Rd.) Go South 4.8 miles to RR tracks.



USCGS D-322 ERM# 26

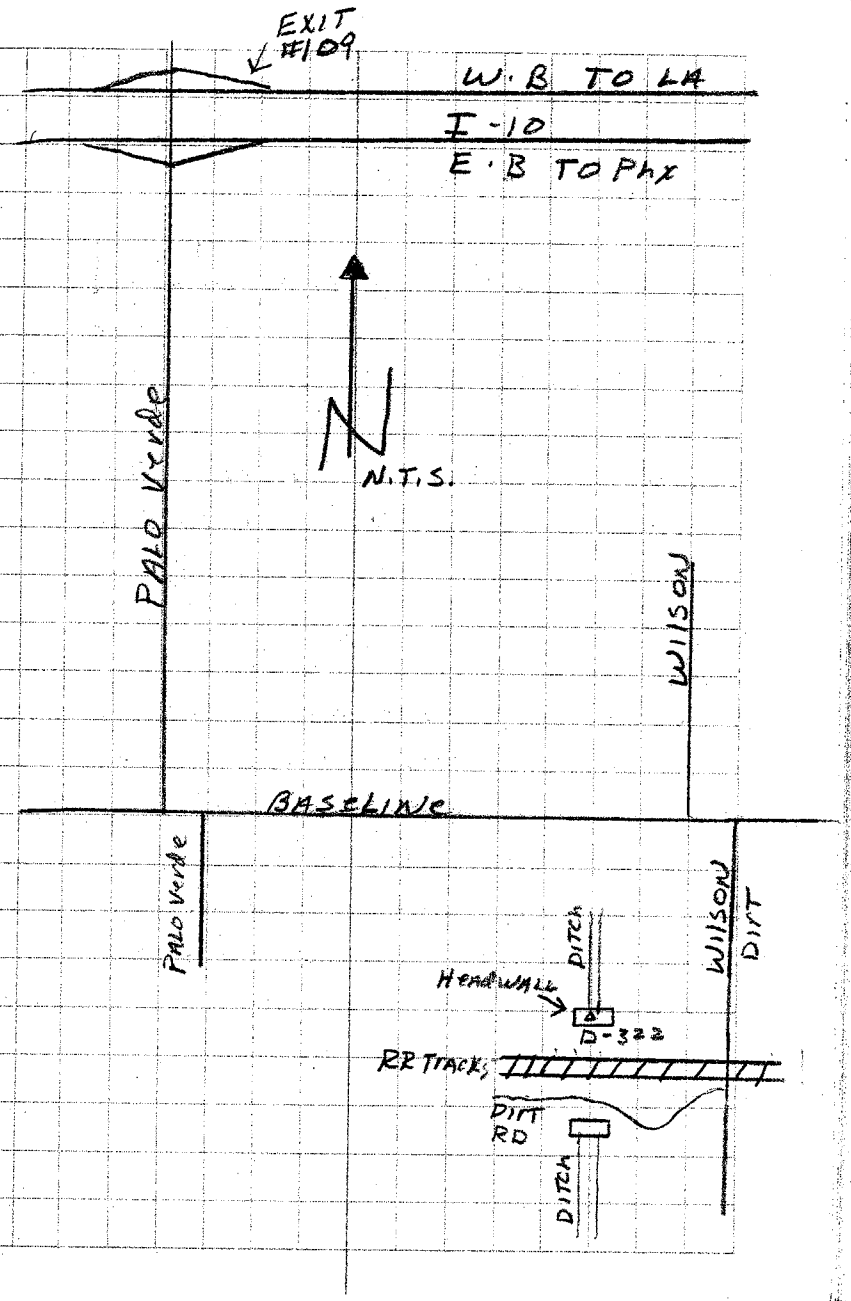
LOCATION: T1S R4W S4

Sketch By Greg Frary / Hulit-Zollars

DATE 5-31-02

DESCRIPTION 3½" Bronze CAP STAMPED D-322 1952 ON Headwall OF Ditch.

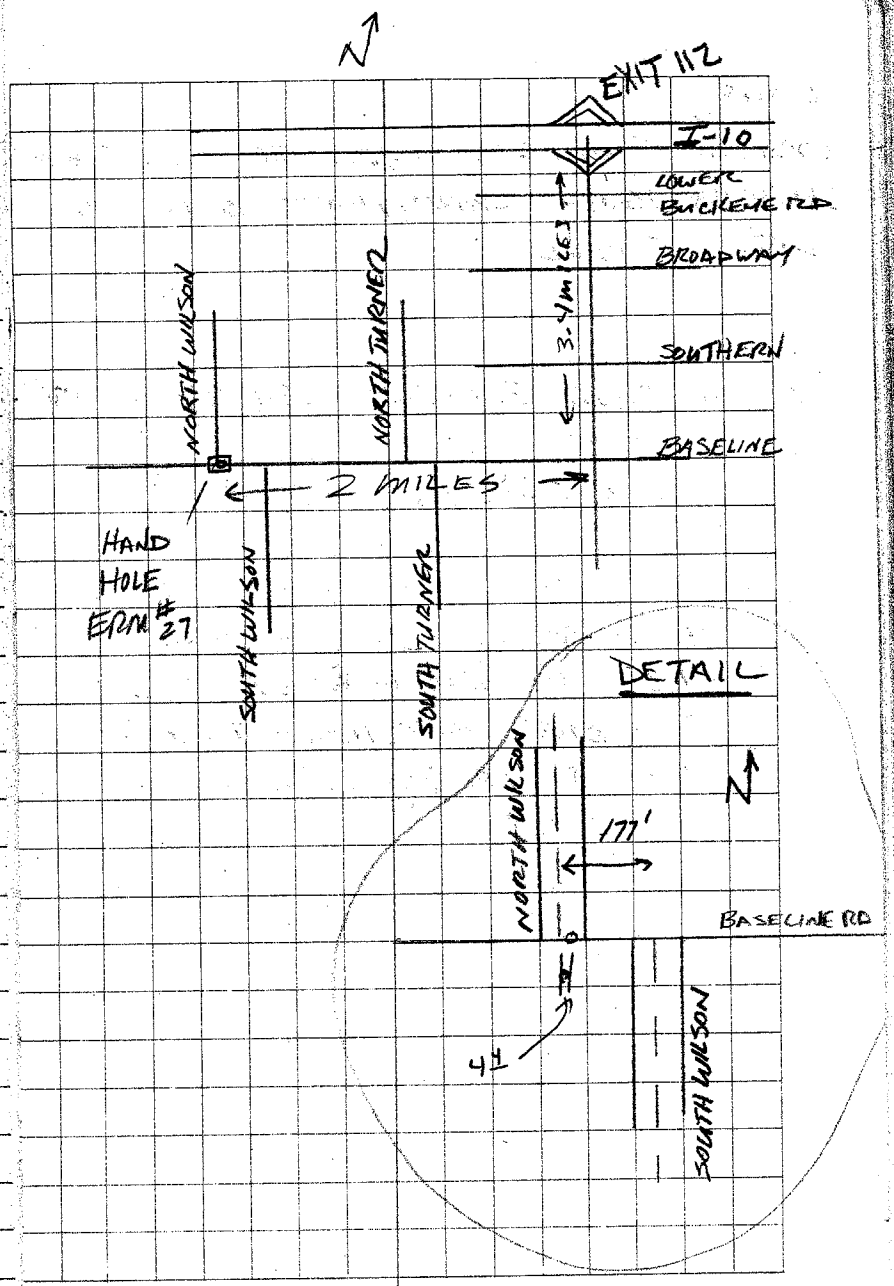
EXIT #109 Palo Verde Rd
Go South 4.21 miles to Baseline Rd, Then Go East 1.0 mile to South Wilson Rd. Then Go South 0.3 mile to Dirt Rd Just South of RR Tracks. Then Go West 0.5 mile to a Dirt Rd Running North + South to Station on Rt. 1 Mark is 24.0'± North of ℄ of RR Tracks on Head Wall of Concrete Ditch Running North + South.



ERM# 27
LOCATION T1N, R4W, SE COR SEC 33 G&SRB&M
SKETCH BY RANDY KARRY / HUITT-ZOLLARS INC
DATE 5/15/02

DESCRIPTION: 3 INCH BC, MARICOPA COUNTY HWY DEPT, SINGLE PUNCH NO DATE DOWN 0.55'.

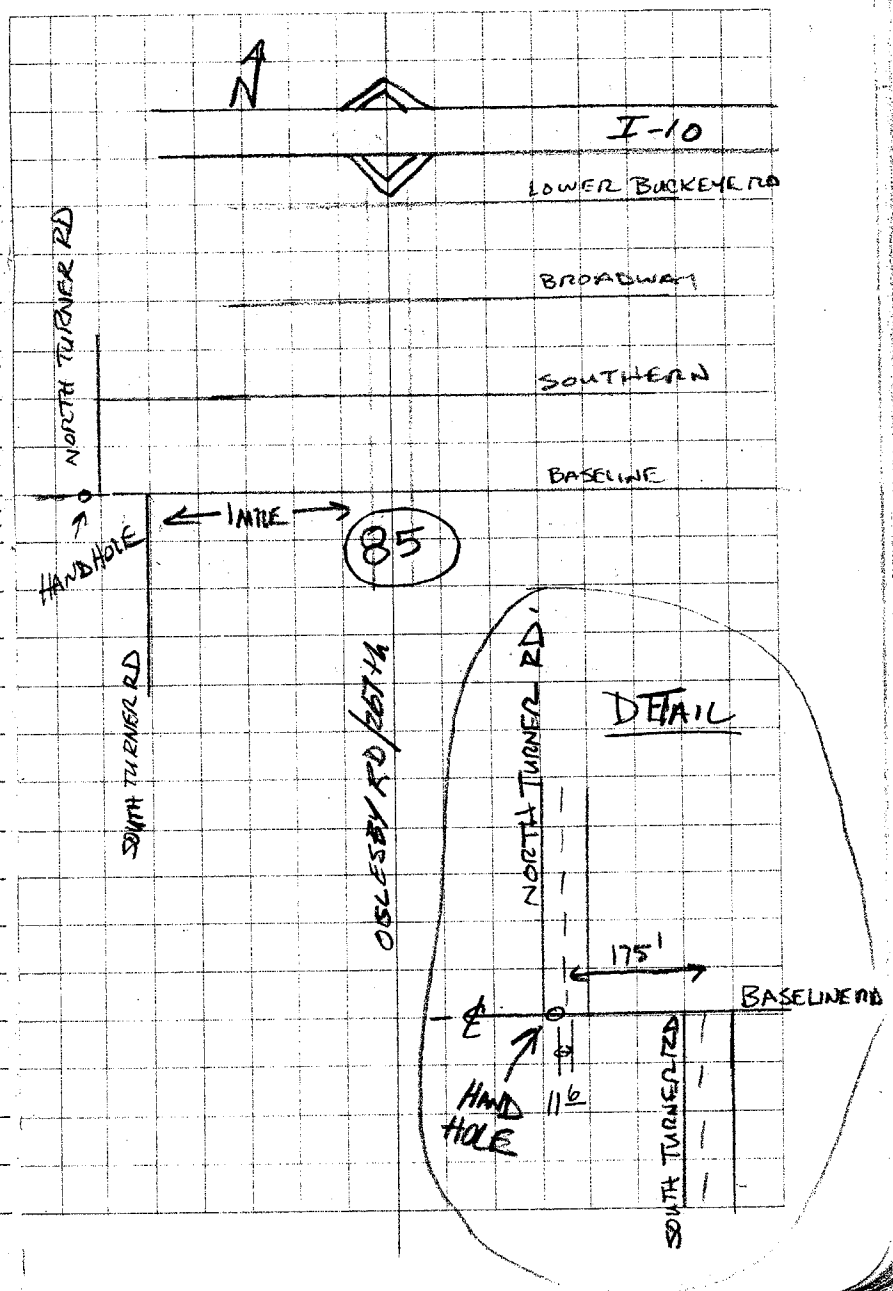
GO TO: EXIT 112 & I-10 SOUTH 3.4 MILES TO BASELINE RD. TURN RIGHT 2 MILES TO NORTH WILSON RD. 4.4 FT EAST OF ℄ NORTH WILSON RD, 0.0 FT ℄ BASELINE RD.



ERM #28
LOCATION T1N R4W SE COR SEC 34 G&SRBM
SKETCH BY: RANDY KARRY / HUITT-ZOLLARS INC
DATE 5/15/02

DESCRIPTION: 3 INCH BC, MARICOPA COUNTY HIGHWAY DEPT., SINGLE PUNCH, DOWN 0.45 IN HAND HOLE

GO TO: EXIT 112 I-10 SOUTH 3.4 MILE TO BASELINE TURN WEST 1 MILE TO TURNER RD. 11' WEST OF NORTH TURNER RD AND 0.0 FT ON ℄ BASELINE.



FIRM #29

LOCATION T1N R4W S 35|36 / 2|1 G&SRBLM

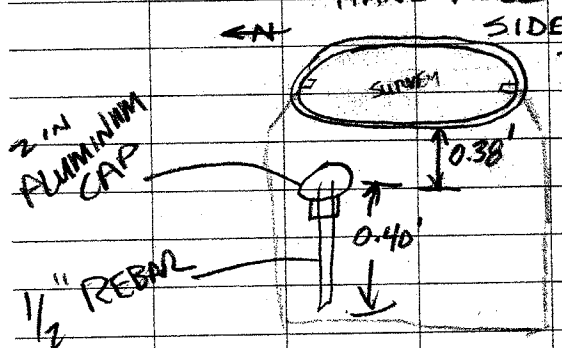
SKETCH BY: RANDY KARRY COMPANY: HUITT-ZOLLARS INC

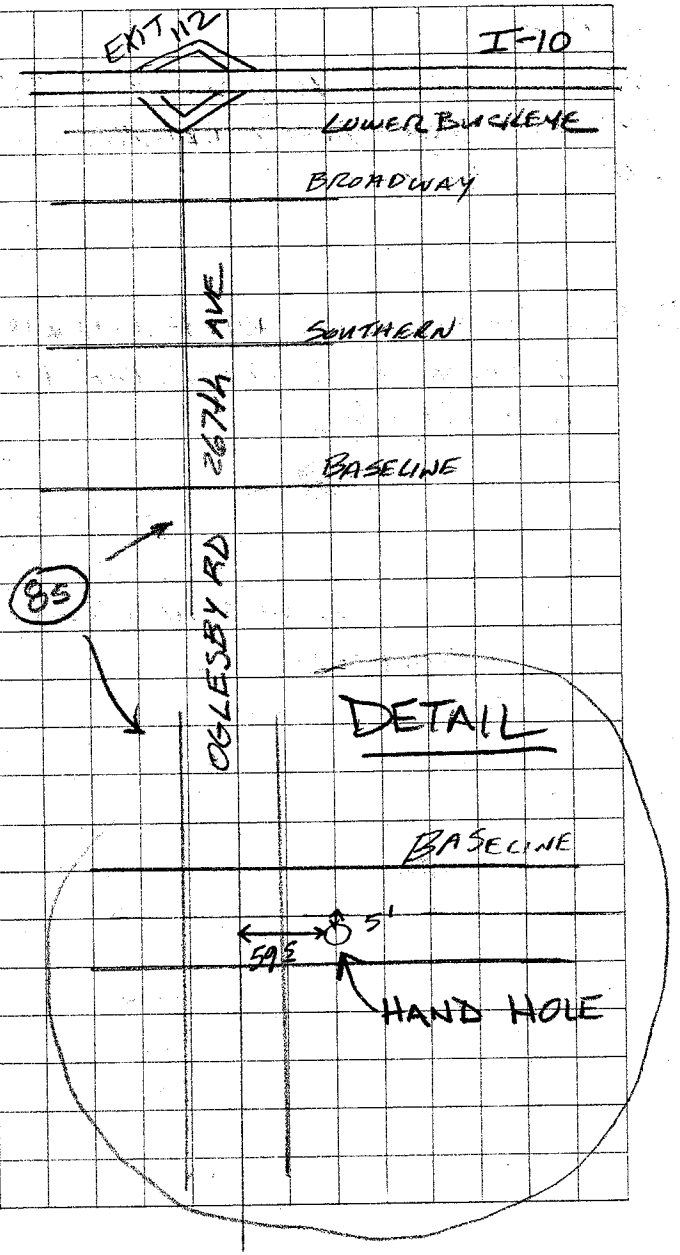
DATE 5/15/02

DESCRIPTION: 2 INCH ALUMINUM CAP, UP 0.40 ON ½ REBAR, INSIDE HAND HOLE, DOWN 0.38 FROM PAVEMENT SURFACE, MARKINGS RLS 22268 STAMPED T1S R4W 2|1

GO TO: EXIT 112 ON I-10 SOUTH 3.4 MILES TO BASELINE ROAD
HAND HOLE 6 FT SOUTH OF ℄ OF BASELINE AND 59' EAST OF ℄ OGLESBY RD OR 26TH AVE

HAND HOLE DETAIL
SIDE VIEW (EAST)





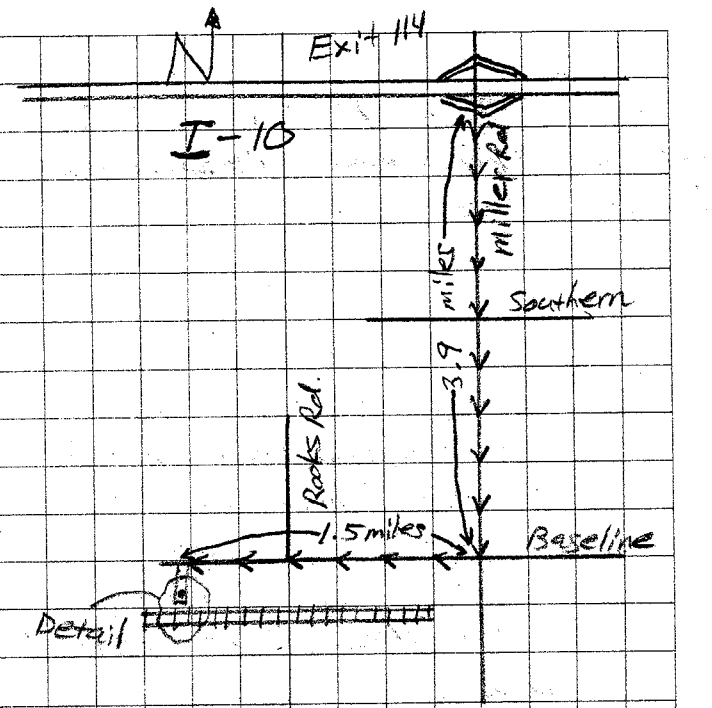
ERM# 30 USGGS# Y-321

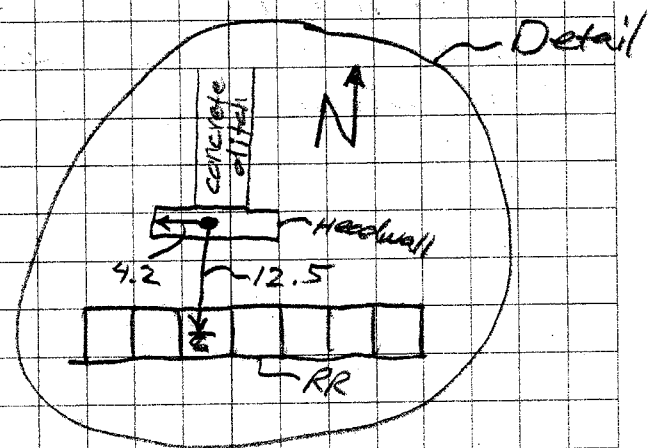
Location T1N R4W S1 G+SR BL+M

Sketch B. Mahos Company Heitt Zollers Inc.

Date 5/14/62

Description; 4 inch BC USGS Flush with top of headwall stamped "Y321 1952" Exit I-10 @ exit 114 (Miller Rd) Go South 3.9 miles to Baseline. Go West 1.5 miles to concrete ditch. BC is 12.5 North of centerline of RR tracks and 4.24 East of westside of Headwall Headwall is @ south end of concrete ditch.





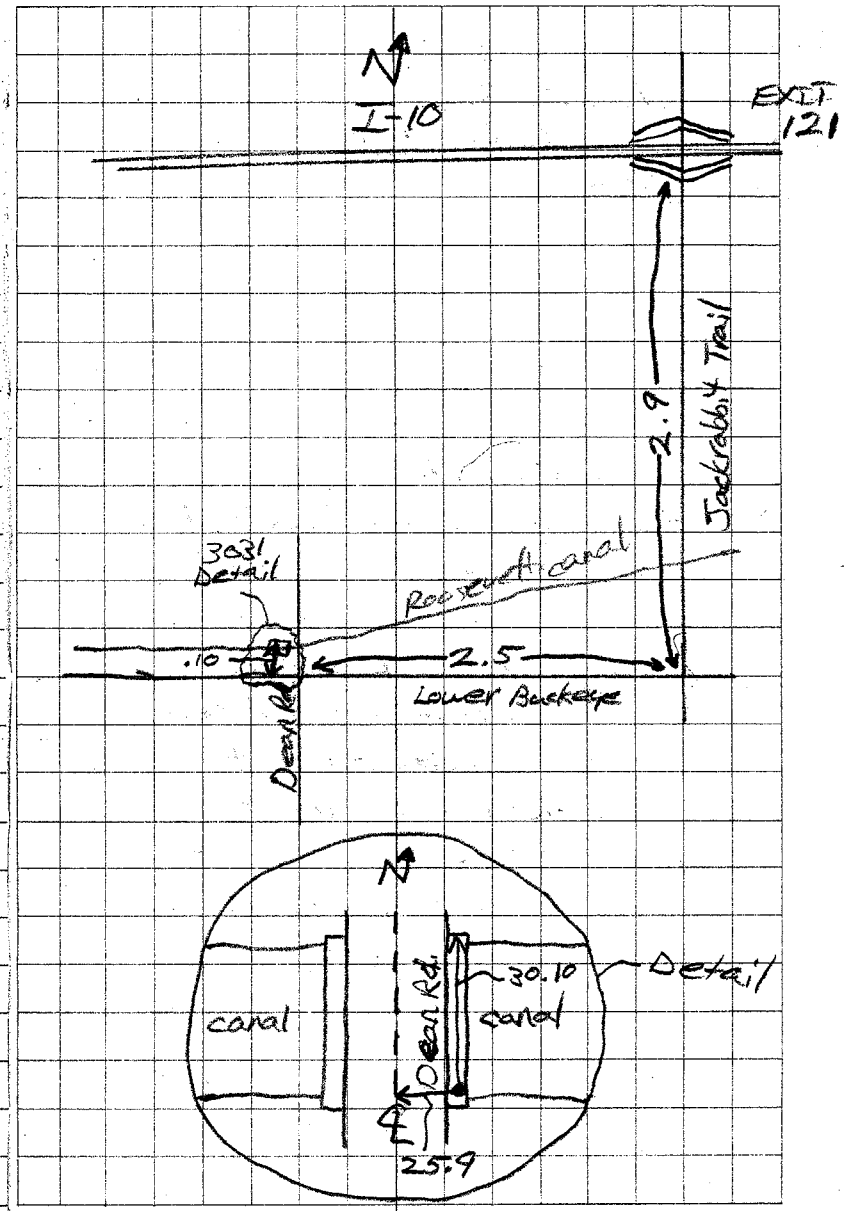
ERM# 3031

Location T1N R3W S14 G+SR BL+M

Sketch B. Malmas Company Huitt Zollars Inc.

Date 5/13/02

Description; 3 inch BC MC Hwy Dpt. No markings. Flush with top of East headwall on eastside of Dean Rd. on Roosevelt Irr. canal bridge. 2.8 ft. above ground. Exit I-10 @ exit 121 (Jackrabbit Trail) Go South 2.9 miles on Jackrabbit Trail to Lower Buckeye. Go West 2.5 miles to Dean Rd. Go North .10 to Roosevelt Irr. canal.



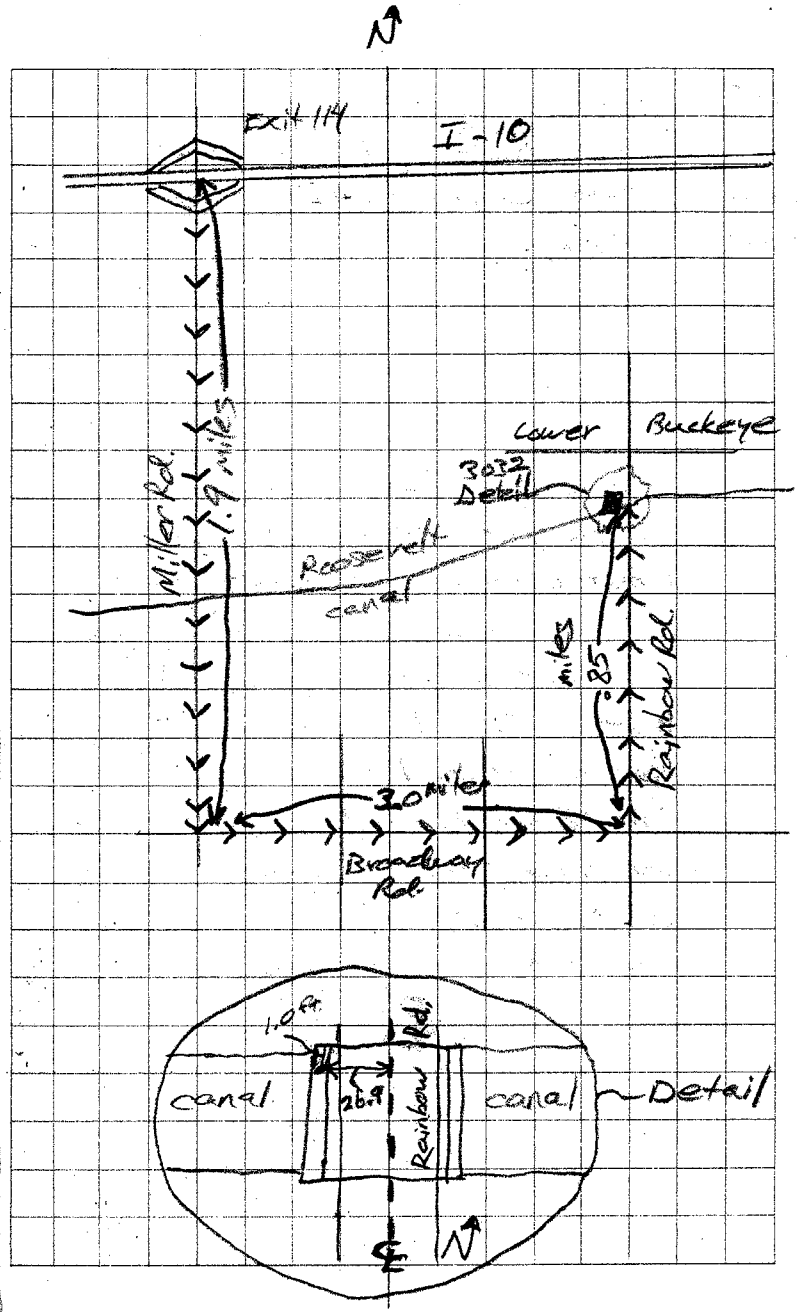
ERM# 3032

Location T1N R3W S22 G&SR B&M

Sketch B. Malmos Company Hoitt Zollars Inc

Date 5/13/02

Description: 3 inch BC MC Hwy Dept.
Damaged - stamp not legable
Flush with top/west headwall
on westside of Rainbow Rd
on Roosevelt District Irr. Canal
bridge. 2.8 ft above ground.
Exit I-10 @ 114 (Miller Rd)
Go South 1.9 miles to Broadway
Go East 3.0 miles to Rainbow Rd.
Go North .85 miles to the
Roosevelt Irr. Canal.



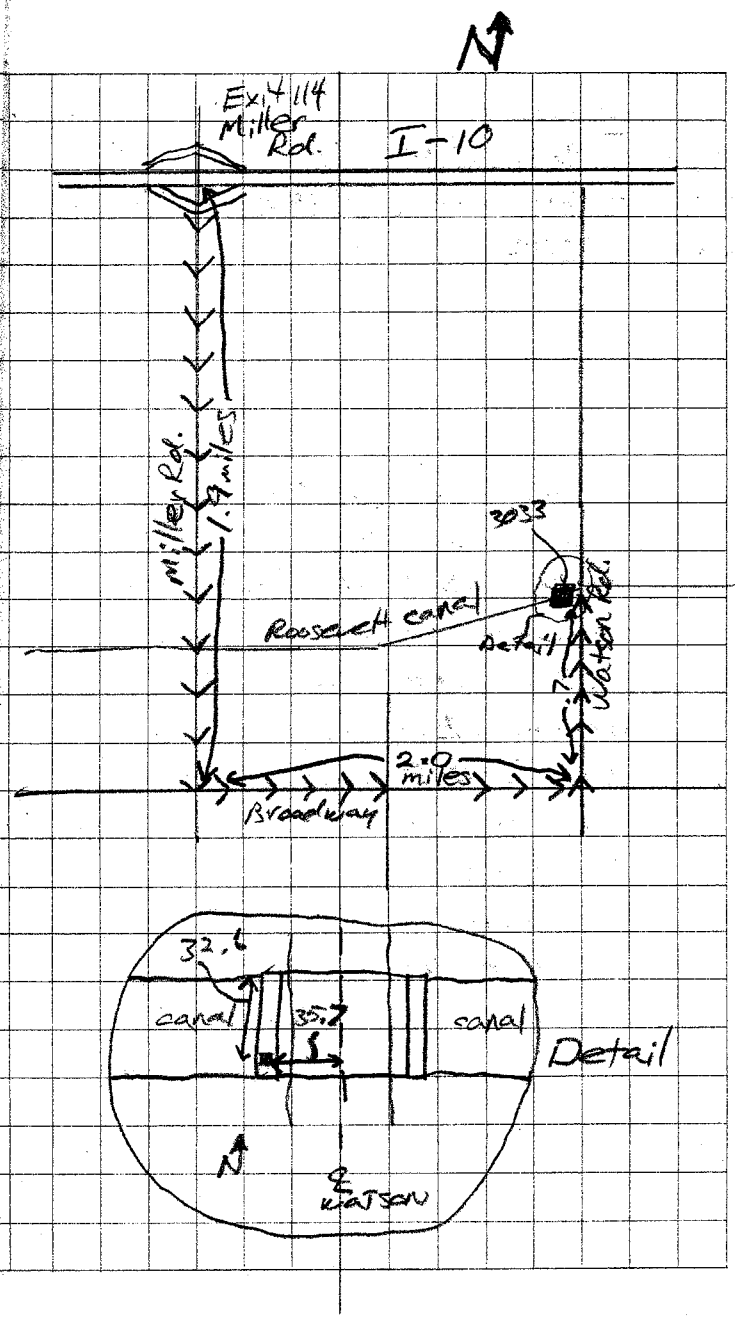
ERM# 3033

Location T1N R3W S21 G+SR B&+m

Sketch: B. Malmos Company: Keith Zollars Inc.

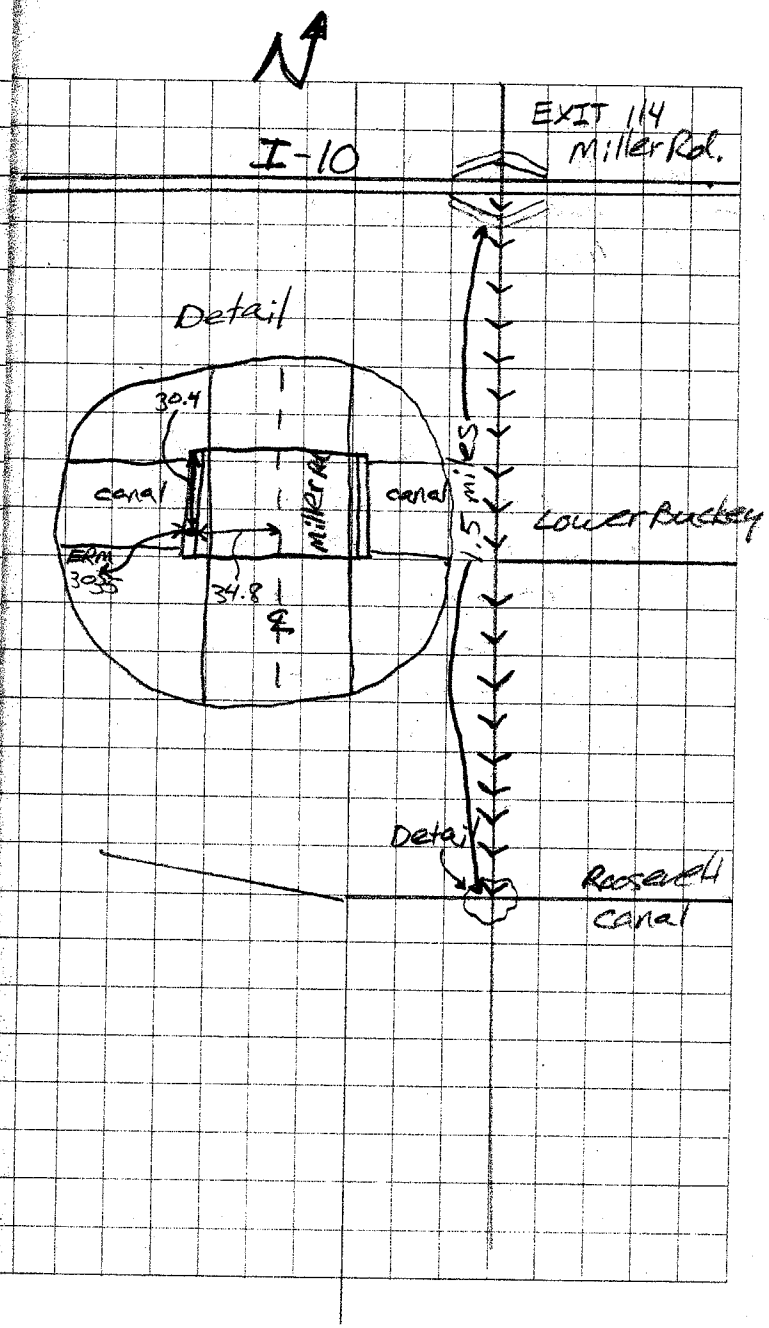
Date 5/13/02

Description; 3 inch BC MC Hut Dept. stamped "1998, EL.=1001.89" Flush w/Top of headwall west on westside of Watson Rd. on Roosevelt District Irr. Canal bridge. 2.8 ft. above ground. Exit I-10 @ exit 114 (Miller Rd). Go South 1.9 miles to Broadway Rd. Go East 2.0 miles to Watson Rd. Go North .7 miles to Roosevelt District Irr. Canal.



ERM# 3035
Location T1N R3W 19-20 G+SR BL+M
Sketch B. Malmos Company Hurt & Zolkers, Inc.
Date 5/13/02

Description; 3" - MC HWY. DPT. RC
Stamped "1996, EL.= 998.45"
Flush with Top/west headwall
on westside of Miller Rd
on Roosevelt Irr. District Canal,
2.8 ft. above ground.
Exit I-10 @ exit 114 (Miller Rd)
Head South 1.5 miles to
canal



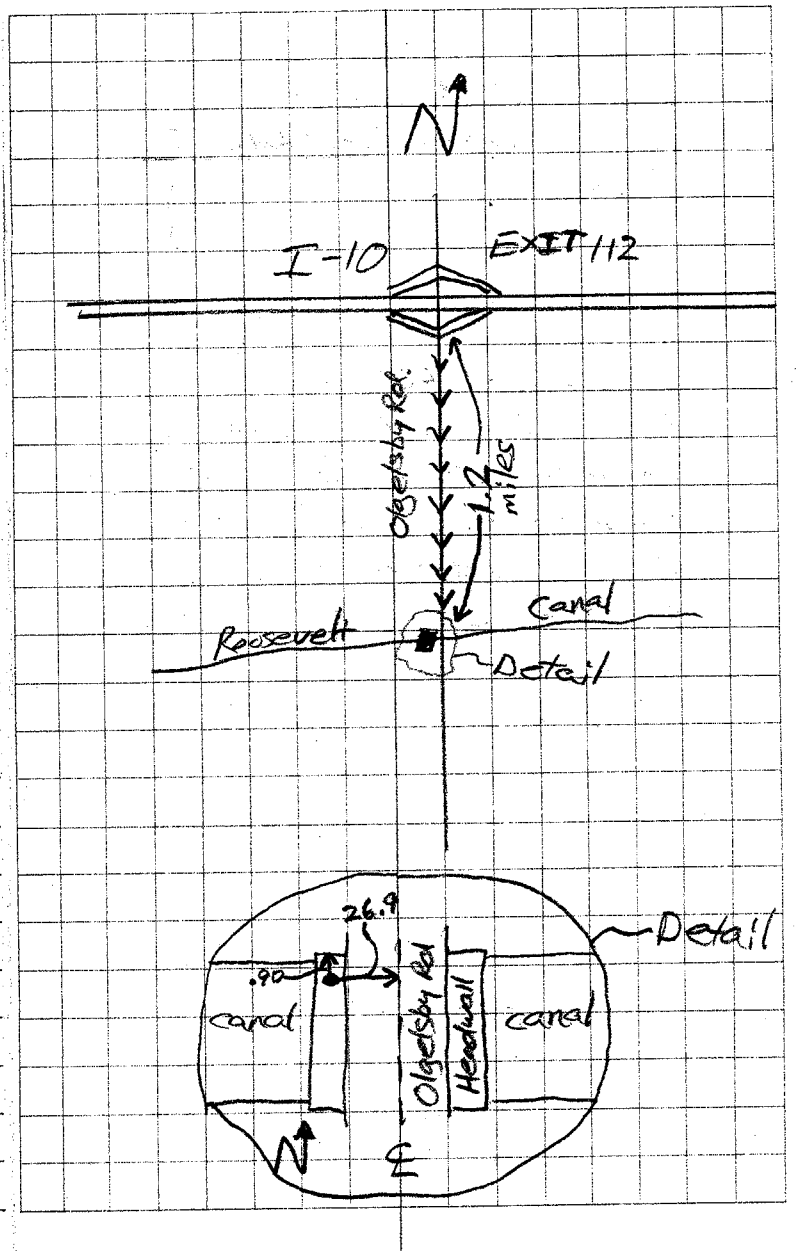
ERM# 37

Location T1N R4W S28 G+SR B&M

Sketch B. Malmos Company Hulit Zollars Inc

Date 5/13/02

Descriptions; 3 inch BC ADOT No stamp
Flush with T/west headwall
on westside of Ogelsby (85) Rd
on Roosevelt canal bridge.
2.70 above ground. Exit I-10
@ exit 112 (Olgelsby) Go South
1.2 miles to Roosevelt Canal
bridge.



ERM# 39 ACP# 1017

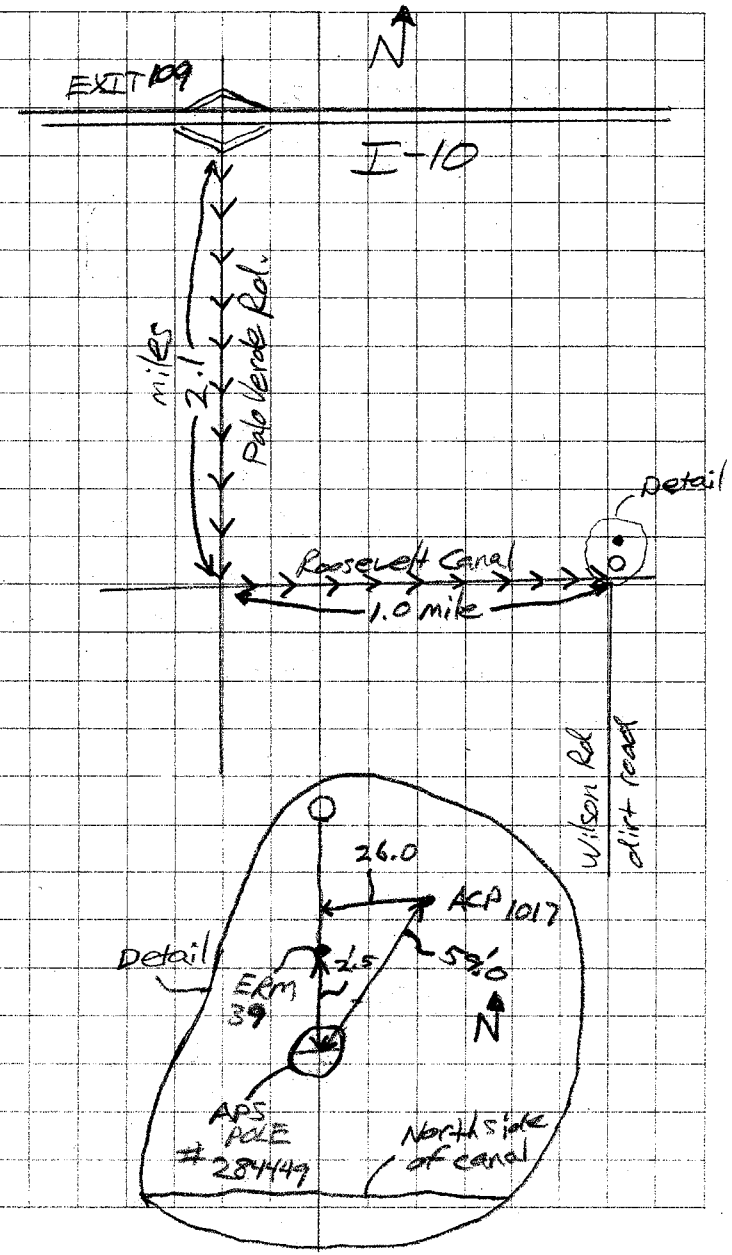
Location T1N R4W S27 G+SR B&+m

Sketch B. Malmas Company Hewitt Zollars Inc.

Date 5/13/02

Desc. 1/2" rebar with HZ ref. cap

Description; 3 in BC FCDMC stamp "ERM 39" Flush with ground. 2.5 ft North of APS pole# 284449. on North side of Roosevelt Canal. Exit I-10 @ exit 109 (Palo Verde Rd) Go South 2.1 miles to Roosevelt Canal bridge. Go East 1.0 to APS power pole.



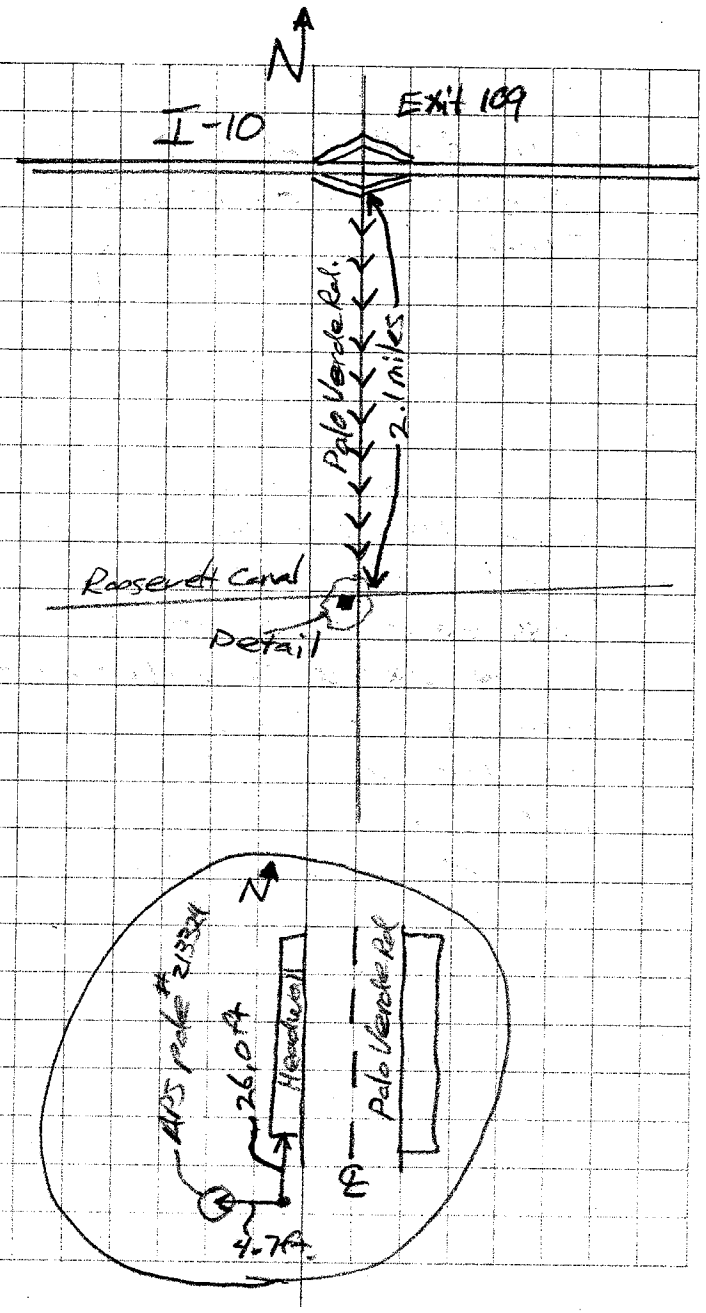
ERM# 40

Location T1N R4W S20 G&SR B&M

Sketch B. Malmos Company: Hutt Zollars Inc.

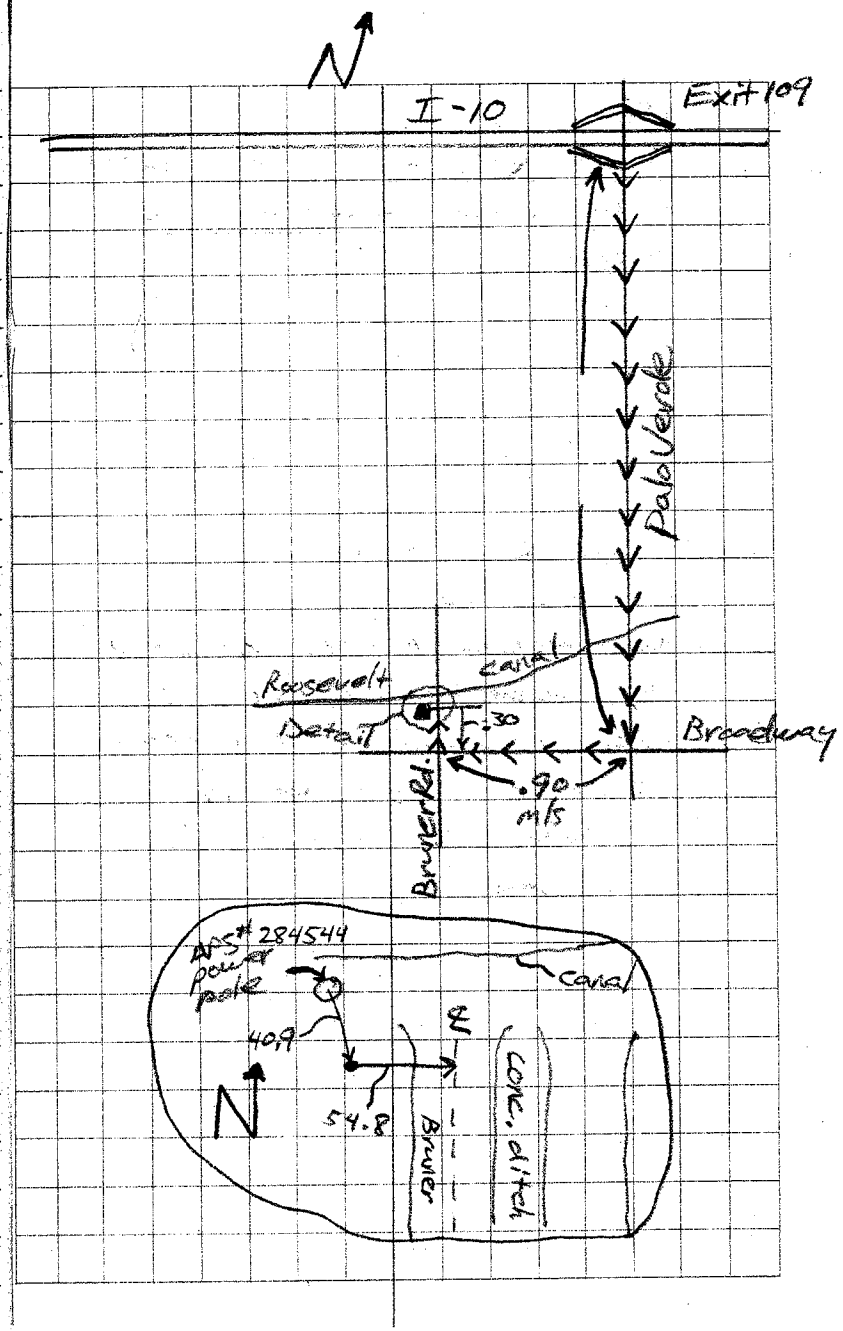
Date 5/13/02

Description; 3in BCF in concrete FCDMC stamp ERM 40, 4.7 east of APS pole # 213324, 26.0 ft South of south end of west headwall on Palo Verde Rd. @ Roosevelt canal bridge. Exit I-10 @ exit 109 (Palo Verde Rd) Go South 2.1 miles on P.V. Rd to South side of Roosevelt canal bridge



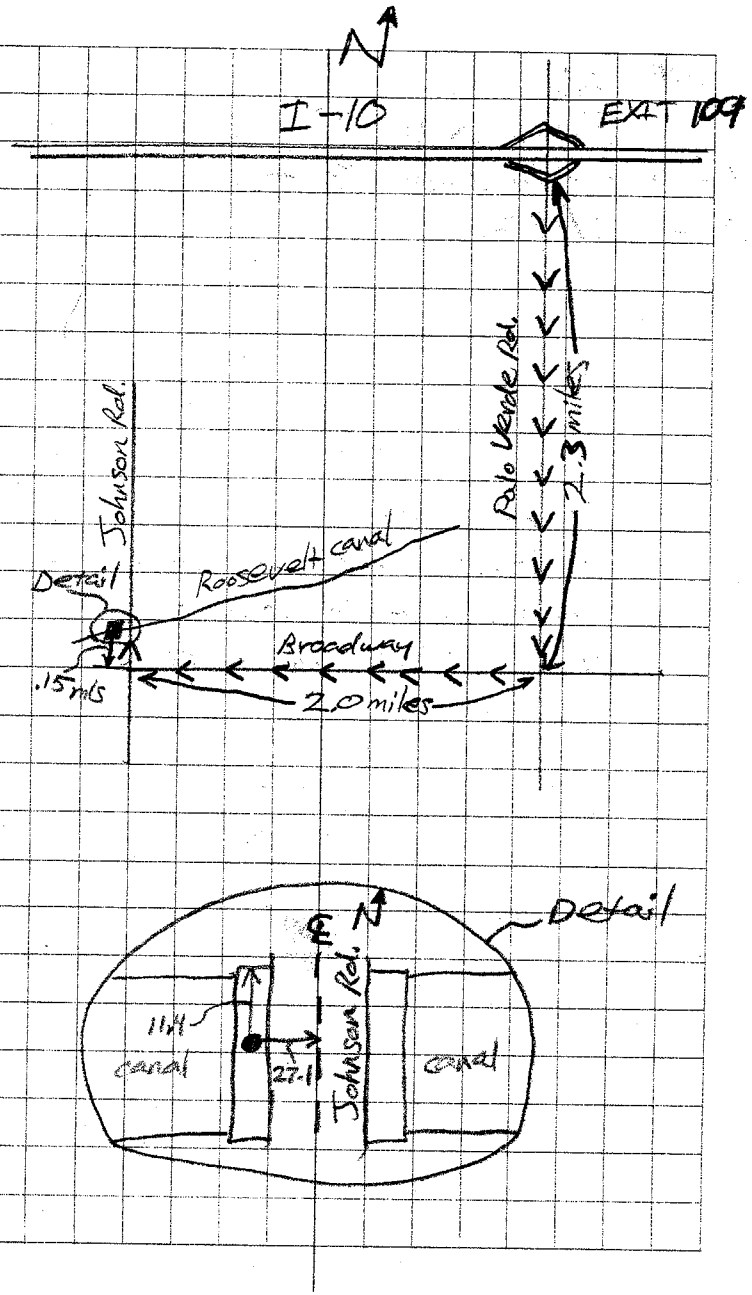
ERM# 41
Location T1N R4W S19 G+SR B&M
Sketch B. Malmos Company Hulitt Zollars Inc.
Date 5/14/02

Description: 3 inch BC Flush with ground FCDMC Stamp "ERM 41" set in concrete. Exit I-10 @ exit 109 (Palo Verde Rd) Go South 2.3 miles to Broadway, Go West .90 miles to Bruner Rd. Go North to Roosevelt Canal (Pump Station)



ERM# 42
Location T1N R4W S24 G&SR BL+M
Sketch B. Malmas Company Hutt Zollars Inc
Date 5/13/02

Description; 3 inch BC Flush with T/west headwall on westside of Johnson Rd. @ Roosevelt Canal Bridge. Exit I-10 @ Palo Verde Rd (exit 109) Go South 2.3 miles to Broadway Go west 2.0 to Johnson Rd/ 307 ave. Go North .15 miles to Roosevelt Canal, Above ground 2.9 ft No stamp or markings



ERM COORDINATE
&
ELEVATION INFORMATION

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ERM COORDINATE & ELEVATION INFO
7/23/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG 88 EL	DESC	ERM #
3013	867557.9118		504840.7272		889.745		BCF	
3013CHK	867557.9980		504840.7140		889.723		BCF	
3013E	867557.8951		504840.7147		889.903		BCF	
6013E	867557.9071	867557.9280	504840.7068	504840.7157	889.782	889.788	BCF	13
3011	869790.1480		515362.4435		893.914		BCF	
7011	869790.2747	869790.2114	515362.3674	515362.4055	893.908	893.911	BCF	11
3035	878284.6526		494244.3085		1000.487		ACF	
3035CHK	878284.6480		494244.3380		1000.510		ACF	
3035E	878284.6519	878284.6508	494244.3433	494244.3299	1000.610	1000.536	ACF	35
3033	879576.5027		504789.7462		1003.284		BCF	
3033CHK	879576.4870	879576.4949	504789.7680	504789.7571	1003.302	1003.293	BCF	33
3032	880538.9807		510079.8741		1004.066		BCF	
3032CHK	880539.0010	880538.9909	510079.8610	510079.8676	1004.100	1004.083	BCF	32
3031	882007.8767		515437.6058		1006.848		BCF	
7031	882007.9135	882007.8951	515437.5796	515437.5927	1006.727	1006.788	BCF	31

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ERM COORDINATE & ELEVATION INFO
7/24/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG 88 EL	DESC	ERM #
3039	876120.3349		473159.5714		989.782		BCF	
7039	876120.2243	876120.2796	473159.5571	473159.5643	990.069	989.926	BCF	39
3040	877412.3774		467876.2111		987.172		BCF	
7040	877412.2790	877412.3282	467876.2090	467876.2101	987.097	987.135	BCF	40
3037	877416.2903		483672.8644		996.337		ACF	
7037	877416.2403		483672.8533		996.081		ACF	
3037E	877416.3006		483672.7932		996.253		ACF	
3037CK-E	877416.2680	877416.2748	483672.8080	483672.8297	996.256	996.2318	ACF	37
3041	877895.5260		462572.8339		982.287		BCF	
7041	877895.4856		462572.8212		982.075		BCF	
3041D	877895.5338		462572.8732		982.061		BCF	
3041CK-D	877895.5300	877895.5189	462572.8470	462572.8438	982.001	982.1061	BCF	41

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ERM COORDINATE & ELEVATION INFO
7/24/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG 88 EL	DESC	ERM #
3042	877265.4305		457269.6997		988.403		ACF	
3042CHK	877265.4660	877265.4483	457269.7100	457269.7049	988.389	988.396	ACF	42
3023	861962.6086		455695.3665		879.330		GBCF	
7023	861962.6095	861962.6091	455695.4095	455695.3880	879.247	879.288	GBCF	23
3025	863332.8089		467852.9653		891.935		BCF	
3025CHK	863332.8010	863332.8050	467853.0110	467852.9882	892.032	891.983	BCF	25
4202	863756.1118		470601.2989		893.796		GBCF	
4202CHK	863756.0670	863756.0894	470601.2930	470601.2960	893.757	893.776	GBCF	26

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ERM COORDINATE & ELEVATION INFO
7/25/02

POINT	NORTH	AVG N	EAST	AVG E	ELEV	AVG 88 EL	DESC	ERM
3007	868202.0156		494213.1890		907.740		BCH	
3007CHK	868202.0810	868202.0483	494213.1660	494213.1775	907.680	907.7101	BCH	7
3029	865645.6949	865645.6949	483814.0071	483814.0071	895.875	895.875	FIP	29
3030	865529.0726		486389.0699		893.213		GBCF	
3030CHK	865529.1070	865529.0898	486389.0750	486389.0725	893.235	893.2241	GBCF	30
3015	863656.5690		488559.6335		882.009		BCF	
3015CHK	863656.5760	863656.5725	488559.6260	488559.6298	882.025	882.0171	BCF	15
3178	865631.0804		492450.4339		890.439		GBCF	
3178CHK	865631.0750	865631.0777	492450.5100	492450.4720	890.423	890.4308	GBCF	5
3068	865779.1773	865779.1773	499511.3481	499511.3481	884.695	884.695	BCH	6

FEET TO METER CONVERSIONS

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ERM GRID COORDINATES- FEET TO METER CONVERSIONS
7/24/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
3013	867557.9280	504840.7157	889.788	789.688	-100.101	264431.6565	153875.4501	271.207	240.697	-30.511
3011	869790.2114	515362.4055	893.911	793.959	-99.952	265112.0564	157082.4612	272.464	241.999	-30.465
3035	878284.6508	494244.3299	1000.536	900.502	-100.034	267701.1616	150645.6718	304.963	274.473	-30.490
3033	879576.4949	504789.7571	1003.293	903.444	-99.849	268094.9156	153859.9180	305.804	275.370	-30.434
3032	880538.9909	510079.8676	1004.083	904.307	-99.776	268388.2844	155472.3436	306.044	275.633	-30.412
3031	882007.8951	515437.5927	1006.788	907.089	-99.698	268836.0064	157105.3783	306.869	276.481	-30.388

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ERM GRID COORDINATES- FEET TO METER CONVERSIONS
7/24/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
3039	876120.2796	473159.5643	989.926	889.398	-100.527	267041.4612	144219.0352	301.729	271.089	-30.641
3040	877412.3282	467876.2101	987.135	886.522	-100.613	267435.2776	142608.6688	300.879	270.212	-30.667
3037	877416.2748	483672.8297	996.232	895.968	-100.264	267436.4806	147423.4785	303.651	273.091	-30.560
3041	877895.5189	462572.8438	982.106	881.421	-100.685	267582.5541	140992.2028	299.346	268.657	-30.689

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ERM GRID COORDINATES- FEET TO METER CONVERSIONS
7/24/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H. (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
3042	877265.4483	457269.7049	988.396	887.642	-100.754	267390.5086	139375.8060	301.263	270.553	-30.710
3023	861962.6091	455695.3880	879.288	778.204	-101.084	262726.2032	138895.9543	268.007	237.197	-30.811
3025	863332.8050	467852.9882	891.983	791.112	-100.872	263143.8389	142601.5908	271.877	241.131	-30.746
4202	863756.0894	470601.2960	893.776	792.962	-100.814	263272.8560	143439.2750	272.423	241.695	-30.728

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ERM GRID COORDINATES- FEET TO METER CONVERSIONS
7/25/02

POINT	NORTH (IF)	EAST (IF)	O.H. (IF)	E.H. (IF)	G.H (IF)	NORTH (M)	EAST (M)	O.H. (M)	E.H. (M)	G.H. (M)
3007	868202.0483	494213.1775	907.710	807.465	-100.245	264627.9843	150636.1765	276.670	246.115	-30.555
3029	865645.6949	483814.0071	895.875	795.364	-100.511	263848.8078	147466.5094	273.063	242.427	-30.636
3030	865529.0898	486389.0725	893.224	792.767	-100.457	263813.2666	148251.3893	272.255	241.635	-30.619
3015	863656.5725	488559.6298	882.017	781.577	-100.440	263242.5233	148912.9751	268.839	238.225	-30.614
3178	865631.0777	492450.4720	890.431	790.105	-100.326	263844.3525	150098.9039	271.403	240.824	-30.579
3068	865779.1773	499511.3481	884.695	784.505	-100.190	263889.4932	152251.0589	269.655	239.117	-30.538

NOTES
NORTHINGS AND EASTINGS ARE ON THE NAD83 (1992) DATUM.
ORTHOMETRIC (O.H.), ELLIPSOID (E.H.), AND GEOID (G.H.) HEIGHTS ARE BASED ON USING THE NAVD88 DATUM.

VERTCON CALCULATIONS

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ERM VERTCON CALCULATIONS
7/24/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
3011	33 23 22.28750	112 31 17.74095	272.464	-0.642	271.822	891.804
3013	33 22 59.57991	112 33 21.67267	271.207	-0.640	270.567	887.689
3031	33 25 23.17006	112 31 17.69182	306.869	-0.641	306.228	1004.685
3032	33 25 08.32448	112 32 20.80187	306.044	-0.641	305.403	1001.980
3033	33 24 58.48438	112 33 23.14487	305.804	-0.641	305.163	1001.190
3035	33 24 45.04451	112 35 27.45667	304.963	-0.641	304.322	998.433

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ERM VERTCON CALCULATIONS
7/24/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
3037	33 24 35.75800	112 37 32.09882	303.651	-0.640	303.011	994.132
3039	33 24 22.21028	112 39 36.00995	301.729	-0.639	301.090	987.829
3040	33 24 34.61529	112 40 38.44375	300.879	-0.639	300.240	985.038
3041	33 24 39.00770	112 41 41.04703	299.346	-0.638	298.708	980.013

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ERM VERTCON CALCULATIONS
7/25/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
3023	33 22 00.86209	112 43 00.73235	268.007	-0.631	267.376	877.218
3025	33 22 15.31904	112 40 37.50451	271.877	-0.632	271.245	889.910
3042	33 24 32.37750	112 42 43.54880	301.263	-0.636	300.627	986.310
4202	33 22 19.70412	112 40 05.13459	272.423	-0.633	271.790	891.700

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ERM VERTCON CALCULATIONS
7/25/02

POINT	LATITUDE (N)	LONGITUDE (W)	NAVD88 (M)	SHIFT (M)	NGVD29 (M)	NGVD29 (IF)
3007	33 23 05.28939	112 35 27.05372	276.670	-0.638	276.032	905.617
3015	33 22 19.95120	112 36 33.37106	268.839	-0.636	268.203	879.930
3029	33 22 39.31497	112 37 29.48874	273.063	-0.636	272.427	893.789
3030	33 22 38.33355	112 36 59.11365	272.255	-0.636	271.619	891.137
3068	33 22 41.65339	112 34 24.39040	269.655	-0.639	269.016	882.598
3178	33 22 39.73982	112 35 47.64386	271.403	-0.637	270.766	888.341

NOTES

LATITUDES AND LONGITUDES OBTAINED USING ADJUSTED COORDINATES AND **SPCS83** PROGRAM PROVIDED THROUGH NGS WEBSITE

DATUM SHIFT AND NGVD29 ELEVATIONS OBTAINED USING NAVD88 ELEVATIONS OBTAINED THROUGH GPS AND **VERTCON** PROGRAM PROVIDED THROUGH NGS WEBSITE.

FINAL ERM COORDINATE
&
ELEVATION INFORMATION
(BY AREA)

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
FINAL ERM COORDINATE & ELEVATION INFO
7/24/02

ERM	POINT	83 N (IF)	83 E (IF)	88 EL (IF)	29 EL (IF)	REC EL (IF)	EL DIF
10	2044	870797.4882	499471.6769	926.274	924.178	924.341	-0.163
11	3011	869790.2114	515362.4055	893.911	891.804	892.095	-0.291
12			ERM NOT FOUND- ASSUMED DESTROYED				
13	3013	867557.9280	504840.7157	889.788	887.689	887.808	-0.119
31	3031	882007.8951	515437.5927	1006.788	1004.685	1004.911	-0.226
32	3032	880538.9909	510079.8676	1004.083	1001.980	1002.197	-0.217
33	3033	879576.4949	504789.7571	1003.293	1001.190	998.503	2.687
34			ERM FOUND DISTURBED				
35	3035	878284.6508	494244.3299	1000.536	998.433	996.549	1.884

NOTES
GRID COORDINATES AND NAVD88 ELEVATION OBTAINED BY USING GPS RTK METHODS.
NAVD88 ELEVATION CONVERTED TO NGVD29 USING VERTCON PROGRAM
PROVIDED THRU NGS WEBSITE.
RECORD ELEVATIONS OBTAINED FROM VALERIE SWICK WITH FCDMC.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
FINAL ERM COORDINATE & ELEVATION INFO
7/24/02

ERM	POINT	83 N (IF)	83 E (IF)	88 EL (IF)	29 EL (IF)	REC EL (IF)	EL DIF
36			ERM NOT FOUND- ASSUMED DESTROYED				
37	3037	877416.2748	483672.8297	996.232	994.132	994.139	-0.007
38			ERM NOT FOUND- ASSUMED DESTROYED				
39	3039	876120.2796	473159.5643	989.926	987.829	987.813	0.016
40	3040	877412.3282	467876.2101	987.135	985.038	984.963	0.075
41	3041	877895.5189	462572.8438	982.106	980.013	979.887	0.126

NOTES

GRID COORDINATES AND NAVD88 ELEVATION OBTAINED BY USING GPS RTK METHODS.
NAVD88 ELEVATION CONVERTED TO NGVD29 USING **VERTCON** PROGRAM
PROVIDED THRU NGS WEBSITE.
RECORD ELEVATIONS OBTAINED FROM VALERIE SWICK WITH FCDMC.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
FINAL ERM COORDINATE & ELEVATION INFO
7/25/02

ERM	POINT	83 N (IF)	83 E (IF)	88 EL (IF)	29 EL (IF)	REC EL (IF)	EL DIF
22			ERM NOT FOUND- ASSUMED DESTROYED				
23	3023	861962.6091	455695.3880	879.288	877.218	877.351	-0.133
24			ERM NOT FOUND- ASSUMED DESTROYED				
25	3025	863332.8050	467852.9882	891.983	889.910	889.954	-0.044
26	4202	863756.0894	470601.2960	893.776	891.700	891.744	-0.044
27	1000	865737.5637	473093.0284	906.280	904.199	904.253	-0.054
42	3042	877265.4483	457269.7049	988.396	986.310	986.360	-0.050
43			ERM NOT FOUND- ASSUMED DESTROYED				

NOTES

GRID COORDINATES AND NAVD88 ELEVATION OBTAINED BY USING GPS RTK METHODS.
NAVD88 ELEVATION CONVERTED TO NGVD29 USING VERTCON PROGRAM
PROVIDED THRU NGS WEBSITE.
RECORD ELEVATIONS OBTAINED FROM VALERIE SWICK WITH FCDMC.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
FINAL ERM COORDINATE & ELEVATION INFO
7/26/02

ERM	POINT	83 N (IF)	83 E (IF)	88 EL (IF)	29 EL (IF)	REC EL (IF)	EL DIF
5	3178	865631.0777	492450.4720	890.431	888.341	888.364	-0.023
6	3068	865779.1773	499511.3481	884.695	882.598	882.635	-0.037
7	3007	868202.0483	494213.1775	907.710	905.617	905.682	-0.065
8	2043	868175.8380	499491.6761	902.587	900.491	900.570	-0.079
9	2042	870838.0340	494194.9143	929.085	926.992	927.067	-0.075
15	3015	863656.5725	488559.6298	882.017	879.930	879.941	-0.011
28	2008	865698.0650	478383.2202	904.012	901.929	901.991	-0.062
29	3029	865645.6949	483814.0071	895.875	893.789	893.794	-0.005
30	3030	865529.0898	486389.0725	893.224	891.137	891.212	-0.075

NOTES

GRID COORDINATES AND NAVD88 ELEVATION OBTAINED BY USING GPS RTK METHODS.
NAVD88 ELEVATION CONVERTED TO NGVD29 USING VERTCON PROGRAM
PROVIDED THRU NGS WEBSITE.
RECORD ELEVATIONS OBTAINED FROM VALERIE SWICK WITH FCDMC.
THE BRASS CAP AT **ERM 29** HAS BEEN REMOVED, LEAVING ONLY CAP STEM BEHIND.

POSITIONAL ACCURACY CERTIFICATION

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ERM POSITIONAL ACCURACY CERTIFICATION
7/24/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DELTA Z**	**SUM SQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3RD ORD ALER - M**
4BF1	883294.5619		504822.9876		1034.106								
3013	867557.9118	-15736.650	504840.7272	17.740	889.745	-144.361	247663311.0	15737.3222	4796.7358		0.005		
3013CHK	867557.9980	-15736.564	504840.7140	17.726	889.723	-144.383	247660604.1	15737.2362	4796.7096		-0.021		
3013E	867557.8951	-15736.667	504840.7147	17.727	889.903	-144.203	247663790.8	15737.3375	4796.7405		0.010		
6013E	867557.9071	-15736.655	504840.7068	17.719	889.782	-144.324	247663447.7	15737.3266	4796.7371	4796.7308	0.006	4.7967308	0.482
3011	869790.1480	-13504.414	515362.4435	10539.456	893.914	-140.192	293468979.3	17130.9363	5221.5094		0.022		
7011	869790.2747	-13504.287	515362.3674	10539.380	893.908	-140.198	293463954.9	17130.7897	5221.4647	5221.4870	-0.022	5.2214870	0.525
3035	878284.6526	-5009.909	494244.3085	-10578.679	1000.487	-33.619	137008772.9	11705.0747	3567.7068		0.006		
3035CHK	878284.6480	-5009.914	494244.3380	-10578.650	1000.510	-33.596	137008193.3	11705.0499	3567.6992		-0.002		
3035E	878284.6519	-5009.910	494244.3433	-10578.644	1000.610	-33.496	137008035.4	11705.0432	3567.6972	3567.7010	-0.004	3.5677010	0.360
3033	879576.5027	-3718.059	504789.7462	-33.241	1003.284	-30.822	13826019.2	3718.3355	1133.3487		-0.002		
3033CHK	879576.4870	-3718.075	504789.7680	-33.220	1003.302	-30.804	13826133.4	3718.3509	1133.3534	1133.3510	0.002	1.1333510	0.124
3032	880538.9807	-2755.581	510079.8741	5256.887	1004.066	-30.040	35228985.8	5935.4011	1809.1102		0.003		
3032CHK	880539.0010	-2755.561	510079.8610	5256.873	1004.100	-30.006	35228734.2	5935.3799	1809.1038	1809.1070	-0.003	1.8091070	0.188
3031	882007.8767	-1286.685	515437.6058	10614.618	1006.848	-27.258	114326421.3	10692.3534	3259.0293		0.005		
7031	882007.9135	-1286.648	515437.5796	10614.592	1006.727	-27.379	114325777.1	10692.3233	3259.0201	3259.0247	-0.005	3.2590247	0.330

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4BF1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4BF1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K
COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N
COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ERM POSITIONAL ACCURACY CERTIFICATION
7/24/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DELTA Z**	**SUM SQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3RD ORD ALER - M**
4BH4	885553.0936		477391.9038		1128.31								
3039	876120.3349	-9432.7587	473159.5714	-4232.3324	989.782	-138.5293	106908764.6	10339.67	3151.531		-0.016		
7039	876120.2243	-9432.8693	473159.5571	-4232.3467	990.069	-138.2416	106910892.6	10339.77	3151.563	3151.5469	0.016	3.1515469	0.319
3040	877412.3774	-8140.7162	467876.2111	-9515.6927	987.172	-141.1391	156839588.1	12523.56	3817.181		-0.010		
7040	877412.2790	-8140.8146	467876.2090	-9515.6948	987.097	-141.2137	156841251.2	12523.63	3817.202	3817.1916	0.010	3.8171916	0.385
3037	877416.2903	-8136.8033	483672.8644	6280.9606	996.337	-131.9740	105675451.1	10279.86	3133.300		0.002		
7037	877416.2403	-8136.8533	483672.8533	6280.9495	996.081	-132.2300	105676193.0	10279.89	3133.311		0.013		
3037E	877416.3006	-8136.7930	483672.7932	6280.8894	996.253	-132.0577	105674411.2	10279.81	3133.285		-0.013		
3037CK-E	877416.2680	-8136.8256	483672.8080	6280.9042	996.256	-132.0550	105675126.9	10279.84	3133.295	3133.2980	-0.003	3.1332980	0.317
3041	877895.5260	-7657.5676	462572.8339	-14819.0699	982.287	-146.0237	278264497.2	16681.26	5084.449		0.001		
7041	877895.4856	-7657.6080	462572.8212	-14819.0826	982.075	-146.2359	278265554.3	16681.29	5084.458		0.011		
3041D	877895.5338	-7657.5598	462572.8732	-14819.0306	982.061	-146.2502	278263279.1	16681.23	5084.437		-0.010		
3041CK-D	877895.5300	-7657.5636	462572.8470	-14819.0568	982.001	-146.3100	278264131.3	16681.25	5084.445	5084.4474	-0.002	5.0844474	0.511

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4BH4.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4BH4 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO

BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ERM POSITIONAL ACCURACY CERTIFICATION
7/25/02

A	B	C	D	E	F	G	H	I	J	K	L	M	N
POINT	**NORTH**	**DELTA N**	**EAST**	**DELTA E**	**ELEV**	**DELTA Z**	**SUM SQ**	**SQRT (IF)**	**SQRT (M)**	**MEAN (M)**	**DIFF (M)**	**MEAN (KM)**	**3RD ORD ALER - M**
4AI1	865867.8438		457205.2421		920.775								
3042	877265.4305	11397.5867	457269.6997	64.4576	988.403	67.628	129913711.0	11397.9696	3474.101		-0.005		
3042CHK	877265.4660	11397.6222	457269.7100	64.4679	988.389	67.614	129914519.6	11398.0051	3474.112	3474.107	0.005	3.4741065	0.351
3023	861962.6086	-3905.2352	455695.3665	-1509.8756	879.330	-41.445	17532304.0	4187.1594	1276.246		0.002		
7023	861962.6095	-3905.2343	455695.4095	-1509.8326	879.247	-41.528	17532174.0	4187.1439	1276.241	1276.244	-0.002	1.2762438	0.137
3025	863332.8089	-2535.0349	467852.9653	10647.7232	891.935	-28.840	119801243.0	10945.3754	3336.15		-0.007		
3025CHK	863332.8010	-2535.0428	467853.0110	10647.7689	892.032	-28.743	119802250.7	10945.4214	3336.164	3336.157	0.007	3.3361574	0.337
4202	863756.1118	-2111.7320	470601.2989	13396.0568	893.796	-26.979	183914477.7	13561.5072	4133.547		0.000		
4202CHK	863756.0670	-2111.7768	470601.2930	13396.0509	893.757	-27.018	183914510.9	13561.5084	4133.548	4133.548	0.000	4.1335476	0.416

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4AI1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE BETWEEN 4AI1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ERM POSITIONAL ACCURACY CERTIFICATION
7/26/02

A POINT	B NORTH	C DELTA N	D EAST	E DELTA E	F ELEV	G DEL Z	H SUMSQ	I SQRT (IF)	J SQRT (M)	K MEAN (M)	L DIFF (M)	M MEAN (KM)	N 3RD ORD ALER- M
4AG1	865722.8301		488725.1914		892.385								
3007	868202.0156	2479.1855	494213.1890	5487.9976	907.740	15.355	36264714.2	6022.0191	1835.5114		-0.0009		
3007CHK	868202.0810	2479.2509	494213.1660	5487.9746	907.680	15.295	36264784.2	6022.0249	1835.5132	1835.5123	0.0009	1.8355123	0.1902
3029	865645.6949	-77.1352	483814.0071	-4911.1843	895.875	3.490	24125693.2	4911.7912	1497.1140	1497.1140	0.0000	1.4971140	0.1578
3030	865529.0726	-193.7575	486389.0699	-2336.1215	893.213	0.828	5495006.3	2344.1430	714.4948		0.0012		
3030CHK	865529.1070	-193.7231	486389.0750	-2336.1164	893.235	0.850	5494969.2	2344.1351	714.4924	714.4936	-0.0012	0.7144936	0.0872
3015	863656.5690	-2066.2611	488559.6335	-165.5579	882.009	-10.376	4296952.0	2072.9091	631.8227		0.0010		
3015CHK	863656.5760	-2066.2541	488559.6260	-165.5654	882.025	-10.360	4296925.2	2072.9026	631.8207	631.8217	-0.0010	0.6318217	0.0806
3178	865631.0804	-91.7497	492450.4339	3725.2425	890.439	-1.947	13885853.5	3726.3727	1135.7984		-0.0116		
3178CHK	865631.0750	-91.7551	492450.5100	3725.3186	890.423	-1.962	13886421.5	3726.4489	1135.8216	1135.8100	0.0116	1.1358100	0.1241
3068	865779.1773	56.3472	499511.3481	10786.1567	884.695	-7.691	116344410.5	10786.3066	3287.6663	3287.6663	0.0000	3.2876663	0.3325
2008	865698.0384	-24.7917	478383.2341	-10341.9573	903.972	11.587	106956829.7	10341.9935	3152.2396		-0.0042		
6008	865698.0915	-24.7386	478383.2063	-10341.9851	904.053	11.668	106957403.9	10342.0213	3152.2481	3152.2439	0.0042	3.1522439	0.3192
2042	870838.0340	5115.2039	494194.9143	5469.7229	929.085	36.700	56084526.4	7488.9603	2282.6351	2282.6351	0.0000	2.2826351	0.2337
2043	868175.8473	2453.0172	499491.6960	10766.5046	902.636	10.251	121935019.8	11042.4191	3365.7293		0.0066		
2043A	868175.8286	2452.9985	499491.6562	10766.4648	902.538	10.153	121934069.0	11042.3761	3365.7162	3365.7228	-0.0066	3.3657228	0.3403

NOTES

COLUMNS C, E, AND G ARE THE DIFFERENCES IN NORTHINGS, EASTINGS, AND ELEVATIONS (RESPECTIVELY) BETWEEN THE POINT AND THE BASEPOINT 4AG1.

COLUMN H IS THE SUM OF THE SQUARES OF COLUMNS C, E, AND G.

COLUMN I IS THE SQUARE ROOT OF COLUMN H, EFFECTIVELY SOLVING THE PYTHAGORIAN THEOREM TO OBTAIN A SLOPE GRID DISTANCE

BETWEEN 4AG1 AND THE POINT.

COLUMN J CONVERTS COLUMN I TO METERS

COLUMN K IS THE MEAN OF THE TWO MEASUREMENTS FOR THE POINT IN COLUMN J

COLUMN L IS THE DIFFERENCE BETWEEN THE MEASUREMENTS IN COLUMN J AND THEIR MEAN IN COLUMN K

COLUMN M CONVERTS COLUMN K FROM METERS TO KILOMETERS FOR USE IN THE EQUATION IN COLUMN N

COLUMN N IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMN L MUST BE LESS THAN THE NUMBER IN COLUMN N FOR THE MEASUREMENT TO BE CERTIFIED GOOD.

VERTICAL ACCURACY CERTIFICATION

BUCKEYE \ SUN VALLEY ADMP- AREA 'A'
ERM VERTICAL ACCURACY CERTIFICATION
7/24/02

A	B	C	D	E	F	G	H	I	J	K
POINT	**88 EL (M)**	**29 EL (M)**	**PB EL (M)**	**DPEL (M)**	**DEL Z**	**MEAN Z**	**DIFF Z**	**MEAN SD (M)**	**MEAN SD (KM)**	**3RD ORD ALER- M**
4BF1	315.196	314.555								
3013	271.194	270.554	270.604	-0.050	-44.001		-0.013			
3013CHK	271.188	270.548	270.604	-0.056	-44.007		-0.020			
3013E	271.242	270.602	270.604	-0.002	-43.953		0.035			
6013E	271.206	270.566	270.604	-0.038	-43.989	-43.988	-0.002	4796.7308	4.7967308	0.482
3011	272.465	271.823	271.911	-0.088	-42.732		0.001			
7011	272.463	271.821	271.911	-0.090	-42.734	-42.733	-0.001	5221.4870	5.2214870	0.525
3035	304.949	304.308	303.748	0.560	-10.247		-0.015			
3035CHK	304.955	304.314	303.748	0.566	-10.241		-0.008			
3035E	304.986	304.345	303.748	0.597	-10.210	-10.233	0.023	3567.7010	3.5677010	0.360
3033	305.801	305.160	304.344	0.816	-9.395		-0.003			
3033CHK	305.806	305.165	304.344	0.821	-9.390	-9.392	0.003	1133.3510	1.1333510	0.124
3032	306.039	305.398	305.47	-0.072	-9.157		-0.005			
3032CHK	306.050	305.409	305.47	-0.061	-9.146	-9.152	0.005	1809.1070	1.8091070	0.188
3031	306.887	306.246	306.297	-0.051	-8.309		0.019			
7031	306.850	306.209	306.297	-0.088	-8.346	-8.327	-0.019	3259.0247	3.2590247	0.330

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.
COLUMN C IS THE ELEVATION FROM COLUMN B CONVERTED INTO NGVD29 USING THE **VERTCON** PROGRAM PROVIDED BY NGS.
COLUMN D IS THE PUBLISHED ELEVATION AS PROVIDED BY FCDMC.
COLUMN E IS THE DIFFERENCE BETWEEN COLUMN C AND COLUMN D.
COLUMN F IS THE DIFFERENCE IN ELEVATION BETWEEN THE BASE POINT ,4BF1, AND THE POINT AS

LOCATED IN THE FIELD.

COLUMN G IS THE MEAN OF THE CALCULATIONS FOR THE POINT IN COLUMN F.

COLUMN H IS THE DIFFERENCE BETWEEN THE CALCULATED DIFFERENCES IN COLUMN F AND THE MEAN IN COLUMN G.

COLUMN I THE MEAN SLOPE DISTANCE (IN METERS) BETWEEN THE BASE POINT 4BF1 AND THE POINT AS LOCATED IN THE FIELD.

COLUMN J CONVERTS COLUMN I TO KILOMETERS.

COLUMN K IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMNS E AND H MUST BE LESS THAN THE NUMBER IN COLUMN K FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'B'
ERM VERTICAL ACCURACY CERTIFICATION
7/24/02

A	B	C	D	E	F	G	H	I	J	K
POINT	**88 EL (M)**	**29 EL (M)**	**PB EL (M)**	**DPEL (M)**	**DEL Z**	**MEAN Z**	**DIFF Z**	**MEAN SD (M)**	**MEAN (KM)**	**3RD ORD ALER - M**
4BH4	343.909	343.266								
3039	301.685	301.0465	301.085	-0.039	-42.220		-0.044			
7039	301.773	301.1342	301.085	0.049	-42.132	-42.176	0.044	3151.5469	3.1515469	0.319
3040	300.890	300.2510	300.217	0.034	-43.015		0.011			
7040	300.867	300.2283	300.217	0.011	-43.038	-43.026	-0.011	3817.1916	3.8171916	0.385
3037	303.684	303.0435	303.014	0.030	-40.222		0.032			
7037	303.605	302.9655	303.014	-0.049	-40.301		-0.046			
3037E	303.658	303.0180	303.014	0.004	-40.248		0.007			
3037CK-E	303.659	303.0188	303.014	0.005	-40.247	-40.255	0.007	3133.2980	3.1332980	0.317
3041	299.401	298.7632	298.670	0.093	-44.503		0.055			
7041	299.336	298.6985	298.670	0.028	-44.568		-0.009			
3041D	299.332	298.6941	298.670	0.024	-44.572		-0.014			
3041CK-D	299.314	298.6759	298.670	0.006	-44.590	-44.558	-0.032	5084.4474	5.0844474	0.511

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.
COLUMN C IS THE ELEVATION FROM COLUMN B CONVERTED INTO NGVD29 USING THE **VERTCON** PROGRAM PROVIDED BY NGS.
COLUMN D IS THE PUBLISHED ELEVATION AS PROVIDED BY FCDMC.
COLUMN E IS THE DIFFERENCE BETWEEN COLUMN C AND COLUMN D.
COLUMN F IS THE DIFFERENCE IN ELEVATION BETWEEN THE BASE POINT ,4BH4, AND THE POINT AS LOCATED IN THE FIELD.
COLUMN G IS THE MEAN OF THE CALCULATIONS FOR THE POINT IN COLUMN F.
COLUMN H IS THE DIFFERENCE BETWEEN THE CALCULATED DIFFERENCES IN COLUMN F AND THE MEAN IN COLUMN G.
COLUMN I THE MEAN SLOPE DISTANCE (IN METERS) BETWEEN THE BASE POINT 4BH4 AND THE POINT AS LOCATED

IN THE FIELD.

COLUMN J CONVERTS COLUMN I TO KILOMETERS.

COLUMN K IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMNS E AND H MUST BE LESS THAN THE NUMBER IN COLUMN K FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'D'
ERM VERTICAL ACCURACY CERTIFICATION
7/25/02

A	B	C	D	E	F	G	H	I	J	K
POINT	**88 EL (M)**	**29 EL (M)**	**PB EL (M)**	**DPEL (M)**	**DEL Z**	**MEAN Z**	**DIFF Z**	**MEAN SD (M)**	**MEAN SD (KM)**	**3RD ORD ALER- M**
4AI1	280.652	280.020								
3042	301.265	300.629	300.642	-0.013	20.609		0.002			
3042CHK	301.261	300.625	300.642	-0.017	20.605	20.607	-0.002	3474.1065	3.4741065	0.351
3023	268.020	267.389	267.417	-0.028	-12.631		0.013			
7023	267.994	267.363	267.417	-0.054	-12.657	-12.644	-0.013	1276.2440	1.2762440	0.137
3025	271.862	271.230	271.258	-0.028	-8.790		-0.015			
3025CHK	271.891	271.259	271.258	0.001	-8.761	-8.775	0.015	3336.1575	3.3361575	0.337
4202	272.429	271.796	271.804	-0.008	-8.224		0.006			
4202CHK	272.417	271.784	271.804	-0.020	-8.236	-8.230	-0.006	4133.5476	4.1335476	0.416

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.
COLUMN C IS THE ELEVATION FROM COLUMN B CONVERTED INTO NGVD29 USING THE **VERTCON** PROGRAM PROVIDED BY NGS.
COLUMN D IS THE PUBLISHED ELEVATION AS PROVIDED BY FCDMC.
COLUMN E IS THE DIFFERENCE BETWEEN COLUMN C AND COLUMN D.
COLUMN F IS THE DIFFERENCE IN ELEVATION BETWEEN THE BASE POINT ,4AI1, AND THE POINT AS LOCATED IN THE FIELD.
COLUMN G IS THE MEAN OF THE CALCULATIONS FOR THE POINT IN COLUMN F.
COLUMN H IS THE DIFFERENCE BETWEEN THE CALCULATED DIFFERENCES IN COLUMN F AND THE MEAN IN COLUMN G.
COLUMN I THE MEAN SLOPE DISTANCE (IN METERS) BETWEEN THE BASE POINT 4AI1 AND THE POINT AS LOCATED IN THE FIELD.
COLUMN J CONVERTS COLUMN I TO KILOMETERS.
COLUMN K IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMNS E AND H MUST BE LESS THAN THE NUMBER IN

COLUMN K FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

BUCKEYE \ SUN VALLEY ADMP- AREA 'E'
ERM VERTICAL ACCURACY CERTIFICATION
7/26/02

A POINT	B 88 EL (M)	C 29 EL (M)	D PB EL (M)	E DPEL (M)	F DEL Z	G MEAN Z	H DIFF Z	I MEAN SD (M)	J MEAN SD (KM)	N 3RD ORD ALER- M
4AG1	271.999	271.363								
3007	276.679	276.041	276.051	-0.010	4.678		0.009			
3007CHK	276.661	276.023	276.051	-0.028	4.660	4.669	-0.009	1835.5123	1.8355123	0.1902
3029	273.063	272.427	272.428	-0.001	1.064	1.064	0.000	1497.1140	1.4971140	0.1578
3030	272.251	271.615	271.641	-0.026	0.252		-0.003			
3030CHK	272.258	271.622	271.641	-0.019	0.259	0.256	0.003	714.4936	0.7144936	0.0872
3015	268.836	268.200	268.206	-0.006	-3.163		-0.002			
3015CHK	268.841	268.205	268.206	-0.001	-3.158	-3.160	0.002	631.8217	0.6318217	0.0806
3178	271.406	270.769	270.773	-0.004	-0.594					
3178CHK	271.401	270.764	270.773	-0.009	-0.599	-0.597	-0.002	1135.8100	1.1358100	0.1241
3068	269.655	269.016	269.027	-0.011	-2.347	-2.347	0.000	3287.6663	3.2876663	0.3325
2008	275.531	274.896	274.927	-0.031	3.533		-0.012			
6008	275.555	274.920	274.927	-0.007	3.557	3.545	0.012	3152.2439	3.1522439	0.3192
2042	283.185	282.547	282.570	-0.023	11.184	11.184	0.000	2282.6351	2.2826351	0.2337
2043	275.123	274.484	274.494	-0.010	3.122		0.015			
2043A	275.094	274.455	274.494	-0.039	3.092	3.107	-0.015	3365.7228	3.3657228	0.3403

NOTES

COLUMN B ARE THE ELEVATIONS OBTAINED FROM GPS RTK MEASUREMENTS.
COLUMN C IS THE ELEVATION FROM COLUMN B CONVERTED INTO NGVD29 USING THE **VERTCON** PROGRAM PROVIDED BY NGS.
COLUMN D IS THE PUBLISHED ELEVATION AS PROVIDED BY FCDMC.

COLUMN E IS THE DIFFERENCE BETWEEN COLUMN C AND COLUMN D.
COLUMN F IS THE DIFFERENCE IN ELEVATION BETWEEN THE BASE POINT ,4AG1, AND THE POINT AS LOCATED IN THE FIELD.
COLUMN G IS THE MEAN OF THE CALCULATIONS FOR THE POINT IN COLUMN F.
COLUMN H IS THE DIFFERENCE BETWEEN THE CALCULATED DIFFERENCES IN COLUMN F AND THE MEAN IN COLUMN G.
COLUMN I THE MEAN SLOPE DISTANCE (IN METERS) BETWEEN THE BASE POINT 4AG1 AND THE POINT AS LOCATED IN THE FIELD.
COLUMN J CONVERTS COLUMN I TO KILOMETERS.
COLUMN K IS THE ALLOWABLE ERROR (AT THE 95% CONFIDENCE LEVEL) FOR THE MEASUREMENT TO BE CERTIFIED THIRD ORDER. THE FORMULA USED IS PROVIDED BY NGS. THE DIFFERENCES IN COLUMNS E AND H MUST BE LESS THAN THE NUMBER IN COLUMN K FOR THE SURVEY TO BE CERTIFIED THIRD ORDER.

FINAL ERM COORDINATES
&
ELEVATION INFORMATION
(ENTIRE PROJECT)

BUCKEYE \ SUN VALLEY ADMP
ERM COORDINATE & ELEVATION INFO FOR ALL AREAS
7/30/02
REVISED: 9/11/02

ERM	POINT	83 N (IF)	83 E (IF)	88 EL (IF)	29 EL (IF)	REC EL (IF)	EL DIF
1			ERM IN PEC AREA				
2			ERM IN PEC AREA				
3			ERM IN PEC AREA				
4			ERM IN PEC AREA				
5	3178	865631.0777	492450.4720	890.431	888.341	888.364	-0.023
6	3068	865779.1773	499511.3481	884.695	882.598	882.635	-0.037
7	3007	868202.0483	494213.1775	907.710	905.617	905.682	-0.065
8	2043	868175.8380	499491.6761	902.587	900.491	900.570	-0.079
9	2042	870838.0340	494194.9143	929.085	926.992	927.067	-0.075
10	2044	870797.4882	499471.6769	926.274	924.178	924.341	-0.163
11	3011	869790.2114	515362.4055	893.911	891.804	892.095	-0.291
12		ERM NOT FOUND- ASSUMED DESTROYED					
13	3013	867557.9280	504840.7157	889.788	887.689	887.808	-0.119
14			ERM IN PEC AREA				
15	3015	863656.5725	488559.6298	882.017	879.930	879.941	-0.011
16			ERM IN PEC AREA				
17			ERM IN PEC AREA				
18			ERM IN PEC AREA				
19			ERM IN PEC AREA				
20			ERM IN PEC AREA				
21			ERM IN PEC AREA				
22		ERM NOT FOUND- ASSUMED DESTROYED					
23	3023	861962.6091	455695.3880	879.288	877.218	877.351	-0.133
24		ERM NOT FOUND- ASSUMED DESTROYED					
25	3025	863332.8050	467852.9882	891.983	889.910	889.954	-0.044
26	4202	863756.0894	470601.2960	893.776	891.700	891.744	-0.044
27	1000	865737.5637	473093.0284	906.280	904.199	904.253	-0.054
28	2008	865698.0650	478383.2202	904.012	901.929	901.991	-0.062
29	3029	865645.6949	483814.0071	895.875	893.789	893.794	-0.005
30	3030	865529.0898	486389.0725	893.224	891.137	891.212	-0.075
31	3031	882007.8951	515437.5927	1006.788	1004.685	1004.911	-0.226
32	3032	880538.9909	510079.8676	1004.083	1001.980	1002.197	-0.217
33	3033	879576.4949	504789.7571	1003.293	1001.190	998.503	2.687
34			ERM FOUND DISTURBED				
35	3035	878284.6508	494244.3299	1000.536	998.433	996.549	1.884
36		ERM NOT FOUND- ASSUMED DESTROYED					
37	3037	877416.2748	483672.8297	996.232	994.132	994.139	-0.007
38		ERM NOT FOUND- ASSUMED DESTROYED					
39	3039	876120.2796	473159.5643	989.926	987.829	987.813	0.016
40	3040	877412.3282	467876.2101	987.135	985.038	984.963	0.075
41	3041	877895.5189	462572.8438	982.106	980.013	979.887	0.126
42	3042	877265.4483	457269.7049	988.396	986.310	986.360	-0.050
43		ERM NOT FOUND- ASSUMED DESTROYED					

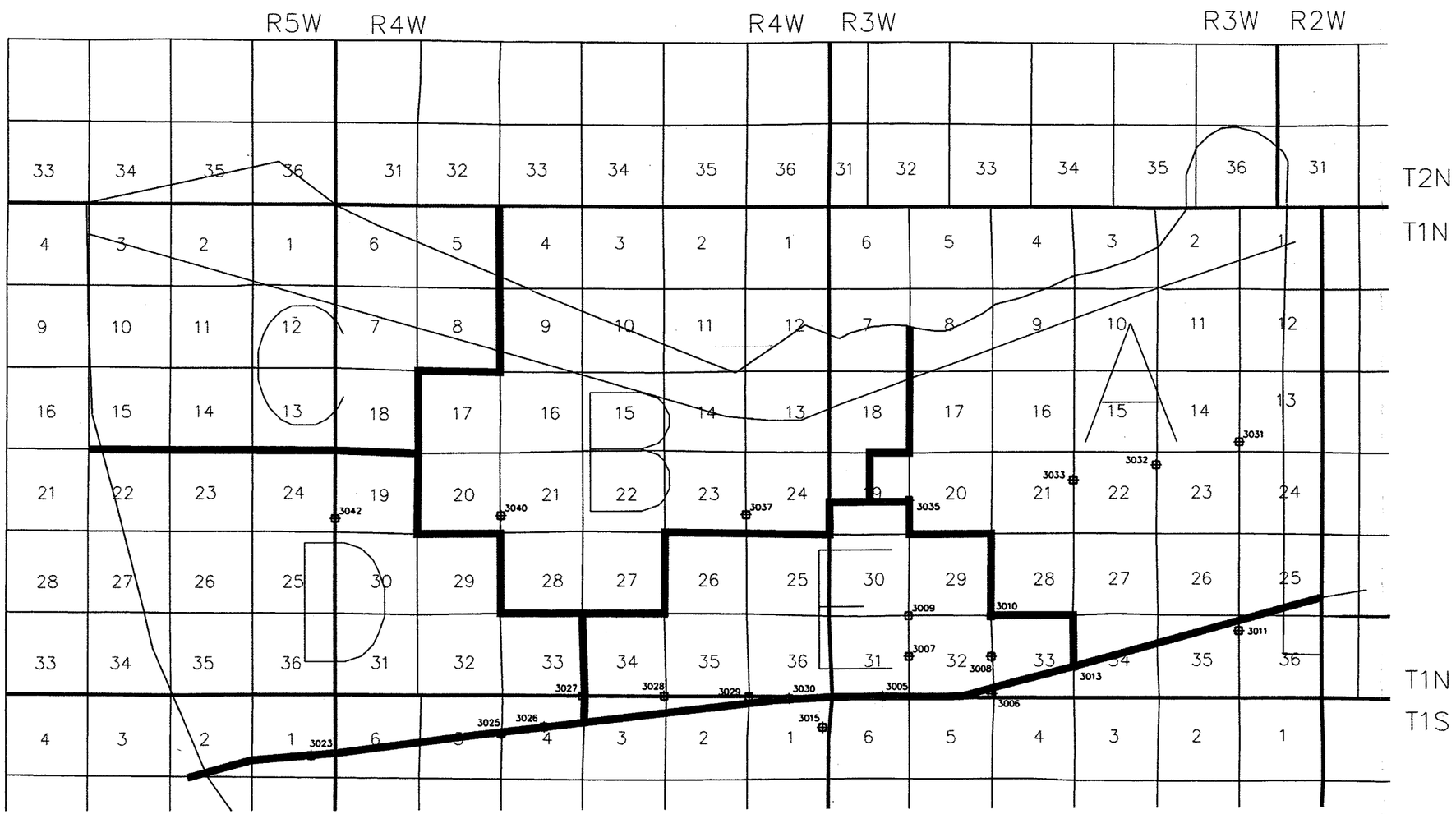
AVERAGE (WO/33,35)	-0.068
SIGMA (WO/33,35)	0.094

NOTES

ERM'S 33 AND 35 ARE LIKELY NOT THE SAME CAPS ORIGINALLY SURVEYED BY FCDMC. EVIDENCE INDICATES NEW BRIDGES ARE IN PLACE AT THESE LOCATIONS.

THE CAP AT ERM 29 HAS BEEN REMOVED AND ONLY A STEM REMAINS. THERE IS ANOTHER CAP ON A REBAR IN THE SAME HANDHOLE, BUT IT IS UNDER THE LIP OF THE HANDHOLE AND IS NOT ACCESIBLE FOR SURVEY.

MAP OF ERM'S



N. T. S.

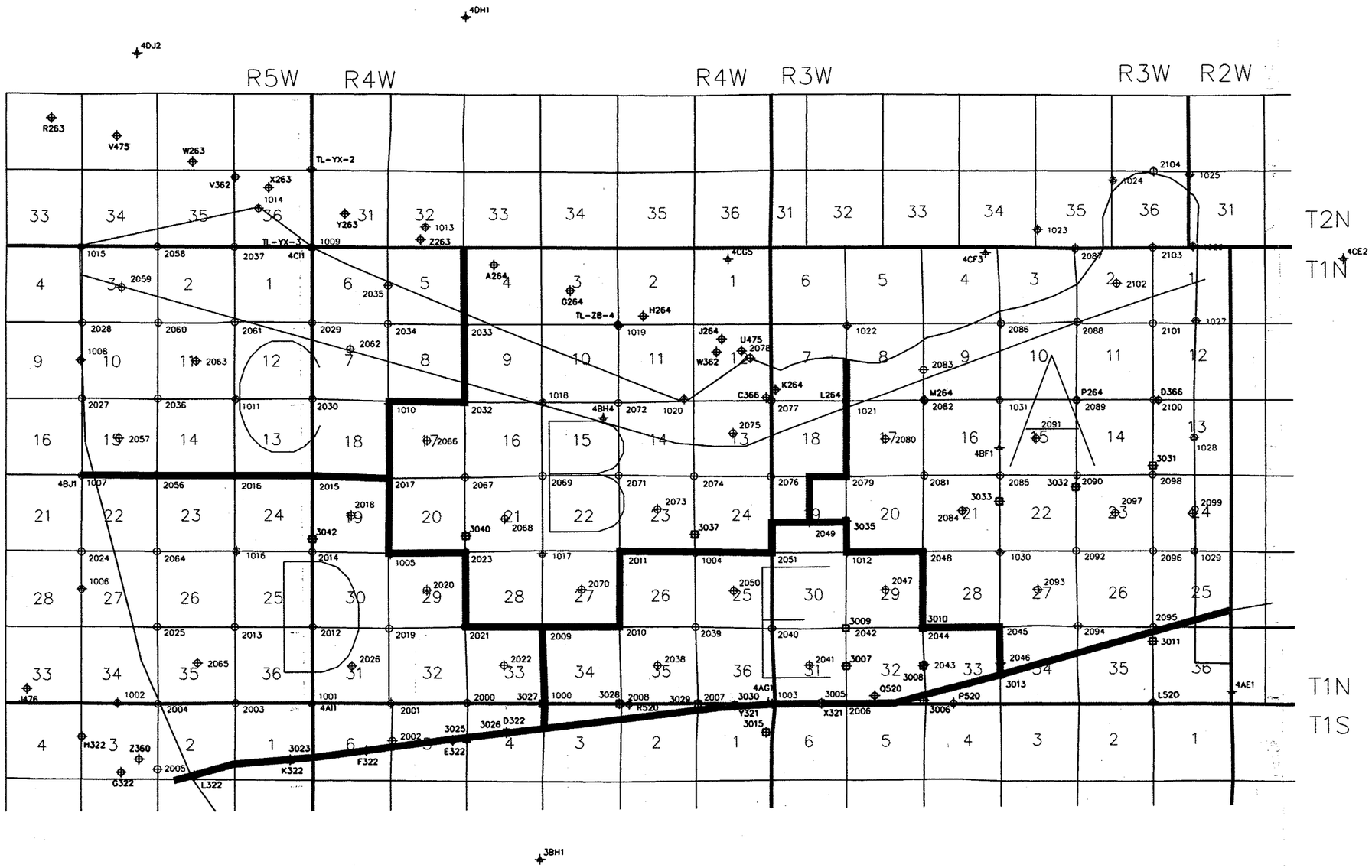
NO.	REVISION	DATE
-	-	-

HUITT-ZOLLARS
Huitt-Zollars, Inc.
4742 North 24th Street, Suite 100
Phoenix, Arizona 85016-4859
Phone (602) 952-9123 Fax (602) 952-9424

RESULTS OF SURVEY

BUCKEYE/SUN VALLEY CONTROL - ERM'S

DATE:	NOV. 07, 2002
DRAWN:	PHIL
DESIGNED:	PHIL
CHECKED:	FRANCETIC
PROJ. NO.:	05-1294-01
FILE:H: \PROJ\05129401\ SURVEY\PHIL\DWGS.DWG	
SHEET:	1 OF 1



N. T. S.

NO.	REVISION	DATE
-		-

HUITT-ZOLLARS
Huitt-Zollars, Inc.
47442 North 24th Street, Suite 100
Phoenix, Arizona 85054-8000
Phone (602) 952-8123 Fax (602) 952-8924

RESULTS OF SURVEY

BUCKEYE/SUN VALLEY CONTROL - ALL POINTS

DATE:	NOV. 07, 2002
DRAWN:	PHIL
DESIGNED:	PHIL
CHECKED:	FRANCETIC
PROJ. NO.:	05-1294-01
FILE:	H:\PROJ\05129401\SURVEY\PHIL\DWG1.DWG
SHEET:	1 OF 1