

APPENDIX H
TOPOGRAPHIC SURVEY REPORT

**SITE INVESTIGATION
OF
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO
FOR
SCIENCE APPLICATIONS INTERNATIONAL CORPORATION**

PREPARED:

September, 1996

BY:

ADAMS CRAFT HERZ WALKER, INC.

ARCHITECTS-ENGINEERS-PLANNERS-SURVEYORS

OAK RIDGE, TENNESSEE

ACHW PROJECT NO. 95756

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NARRATIVE

NARRATIVE:

Field work for the Ravenna Army Ammunition Plant, located in Trumbull County - 15 to 20 miles east of Akron, Ohio - commenced on the 19th Day of August, 1996 by ADAMS CRAFT HERZ WALKER, Inc. (ACHW).

First objective was to establish horizontal and vertical control at each of the sites, six total, utilizing Global Positioning Systems (GPS) technology. The GPS services were provided by Continental Aerial Surveys, Inc. of Alcoa, Tennessee.

Based upon evaluation of each site, Continental provided two to six control monuments using Trimble 4000SSE L1/L2 code receivers. Each of the monuments were supplied with a geodetic coordinate system value for X, Y and Z and translated to the North American Datum of 1927 SPCS Lambert in the zone Ohio North.

From the supplied monumentation ACHW commenced with the field locations of six monitoring wells, five test pits (trenches) and seventeen soil bore holes (temporary well points). This task was accomplished by using a conventional total station, Topcon GTS-300 Series, and electronic field book powered by Tripod Data Systems.

Each traverse was run to close back on itself and checked for precision. All Traverse loops closed within specified parameters of 1:5000. Elevations were applied by using conventional spirit level methods, Lietz spirit level and fiberglass level rod, and recorded manually in a field/transit book. All level loops closed on itself and checked for precision of closure. All level loops meet specified parameters of ± 0.01 .

The project was completed on the 26th day of August, 1996, with little complications and good weather.

A copy of the electronic field book is attached.

A copy of the level loops is attached.

A copy of the GPS covariate data is attached.



John Roberson, RLS, Georgia #2669
Ohio Temp. Permit No. 1996-0820
Expiration Date: October 20, 1996

SOIL BOREHOLE/MONITORING WELL DATA

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SITE INSPECTION INVESTIGATIONS RAVENNA ARMY AMMUNITION PLANT RAVENNA, OHIO

ACHW PROJECT NO: 95756
 STATE PLANE ZONE: OHIO NORTH ZONE
 CONTROL MONUMENT DATA
 FURNISHED BY: CONTNENTAL AERIAL SURVEYS, INC.
 STEPHEN L. HOWARD PE, RLS

SOIL BOREHOLE / MONITORING WELL DATA

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
3	562089.1305	2399724.2400	968.48	WP-012
10	564767.4440	2390110.1432	1030.83	WP-021
11	564577.6070	2390268.8672	1031.11	TR-002
12	564781.3611	2390215.9634	1028.61	TR5-001A
13	564784.4861	2390220.8768	1028.22	TR-001B
14	564916.6480	2389918.7942	1029.72	WP-022
15	564600.2115	2390408.2079	1025.19	WP-019
16	564537.9212	2390135.6427	1027.19	TR-004
17	564501.2371	2390143.8440	1021.78	TR-003
18	564370.2546	2390144.0648	1019.30	TR-005
19	564650.7157	2390266.0632	1030.46	WP-020
22	554554.5077	2396864.4907	976.46	WP-060
23	554666.7420	2396924.4781	978.12	WP-061
31	557856.7308	2399765.9480	976.97	WP-057
32	557728.2822	2399676.2814	975.36	WP-058
42	558018.0515	2406756.7884	967.52	WP-058
43	557973.6892	2406907.7186	964.33	H+T-059
44	557975.2600	2406906.0700	966.67	MW-059
45	557948.7809	2407205.3253	958.93	H+T-060
46	557945.9758	2407205.6872	961.57	MW-060
52	561878.6136	2411894.5742	980.36	WP-067
54	560886.0198	2411914.8757	941.53	H+T-065
55	560886.0942	2411912.5162	944.41	MW-065
57	559892.8581	2411855.0063	937.67	WP-069
62	562592.2902	2411852.0331	931.15	WP-068

H+T = Hub & Tack = Ground Level, MW = River Pipe Elevation
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SITE INSPECTION INVESTIGATIONS
RAVENNA ARMY AMMUNITION PLANT
RAVENNA, OHIO

ACHW PROJECT NO: 95756
STATE PLANE ZONE: OHIO NORTH ZONE
CONTROL MONUMENT DATA
FURNISHED BY: CONTNENTAL AERIAL SURVEYS, INC.
STEPHEN L. HOWARD PE, RLS

SOIL BOREHOLE / MONITORING WELL DATA				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
63	563087.2153	2411749.7933	932.32	H+T-064
64	563087.8760	2411747.5001	935.10	MW-064
67	563621.2401	2408302.5415	992.20	H+T-063
68	563619.6536	2408301.9408	994.84	MW-063
71	565172.1011	2408007.2267	977.55	H+T-067
72	565170.2815	2408005.8884	980.36	MW-067
N/A	562612.6679	2399225.7670	963.12	WP-011
N/A	562740.1317	2399259.2915	959.39	WP-013
N/A	558279.9114	2406804.1363	971.41	WP-057
N/A	555066.2319	2396746.5114	982.57	WP-059

LOCAL/UNADJUSTED COORDINATES

JOB: 95756.CR5

TIME: 15:51 DATE: 09-10-1996

Point	Northing	Easting	Elevation	Note
1	5000.000000	5000.000000	100.000	N-CH 29-002
2	5000.000000	5400.205000	105.050	N-CH 29-001
3	5078.749888	4999.387214	96.000	CPCWP 29-012
10	5000.000000	5000.000000	100.000	19-001 LNWWP-021
11	5247.449803	5000.000000	100.288	19-002 TR002
12	5057.200500	4909.890576	97.924	LNWTR-001
13	5057.954686	4904.116701	97.506	LNWTR-001
14	4762.795870	5051.092779	98.941	LNWWP-022
15	5319.486853	4878.602055	94.184	LNWWP-019
16	5192.440361	5127.662344	96.284	19-003 LNWTR-004
17	5225.844052	5144.901224	94.664	LNWTR-003
18	5326.472046	5228.749087	92.046	LNWTR-005
19	5189.564168	4955.256414	99.633	LNWWP-020
20	5000.000000	5000.000000	100.000	11-002
21	5279.978986	5000.000000	104.907	11-003
22	4928.601914	4978.247093	96.389	LNWWP-061
23	4801.753726	4988.472757	94.798	LNWWP-060
30	5000.000000	5000.000000	100.000	12-002
31	5179.833935	5000.000000	101.239	12-001 LNWWP-057
32	5033.290423	5055.273981	98.492	LNWWP-058
40	5000.000000	5000.000000	100.000	9-002
41	5205.530530	5000.000000	106.316	9-001
42	5116.028803	5060.590363	102.485	LL2-058
43	4964.930598	5016.803487	99.270	LL2MW-59 H+T
44	4962.673198	5017.268270	101.608	LL2MW-059
45	4667.231191	4993.029487	93.862	LL2MW-060 H+T
46	4666.858528	4990.225748	96.504	LL2MW-060
50	5000.000000	5000.000000	100.000	8-001
51	5489.531633	5000.000000	98.834	8-002
52	4926.036806	4981.200472	100.704	LL1WP-067
53	3939.654029	5003.778432	109.544	N-CH 1
54	3933.235601	4981.682059	109.829	LL1MW-065 H+T
55	3933.357015	4979.324561	112.719	LL1MW-065
56	2983.359142	4999.373965	107.241	N-CH 2
57	2941.466987	4901.997527	106.285	LL1WP-069
58	4281.557079	5007.713419	107.201	N-CH 3
59	4999.945953	5000.068280	99.930	CLS TO 50
60	5000.000000	5000.000000	100.000	8-003
61	5551.963143	5000.000000	99.018	8002
62	5394.266804	5010.783319	99.676	LL1WP-068
63	4889.534974	4985.296248	100.839	LL1MW-064 H+T
64	4888.318946	4987.349590	103.622	LL1MW-064
65	5000.000000	5000.000000	100.000	8004
66	5080.282160	5000.000000	101.465	8005
67	4968.222431	5003.065274	99.994	LL1MW-063 H+T
68	4967.993407	5004.746144	102.650	LL1MW-063
69	5000.000000	5000.000000	100.000	8006
70	5091.384546	5000.000000	100.868	8007
71	5004.619823	5068.278204	98.705	LL1MW-067 H+T
72	5002.831495	5066.898487	101.521	LL1MW-067

OHIO STATE PLANE ADJUSTED COORDINATES

OHIO STATE PLANE
ADJUSTED COORDINATES

Project: 95501

Thu Sep 12 08:48:19 1996

Point statistics:

Starting point number: 1
 Max point number used: 63161
 Min point number used: 1
 Current point number: 4

Current Coordinate Listing (All)				
Point	Northing	Easting	Elevation	Description
1	562016.40	2399694.03	972.25	GPS 29002 N-CH.29-0
2	561860.02	2400062.42	977.30	GPS 29001 N-CH.29-0
3	562089.13	2399724.24	963.12	CPCWP.29-012
10	564767.44	2390110.14	1030.83	GPS 19001 LNWWP-021
11	564577.61	2390268.87	1031.12	GPS 19002 TR002
12	564781.36	2390215.96	1028.75	LNWTR-001
13	564784.49	2390220.88	1028.34	LNWTR-001
14	564916.65	2389918.79	1029.72	LNWWP-022
15	564600.21	2390408.21	1025.19	LNWWP-019
16	564537.92	2390135.64	1027.19	GPS 19003 LNWTR-004
17	564501.24	2390143.84	1021.78	LNWTR-003
18	564370.25	2390144.06	1019.30	LNWTR-005
19	564650.72	2390266.06	1030.46	LNWWP-020
20	554715.04	2396981.38	981.68	GPS 11002
21	554950.56	2397132.77	986.59	GPS 11003
22	554666.74	2396924.48	978.12	LNWWP-061
23	554554.51	2396864.49	976.46	LNWWP-060
30	557755.06	2399617.58	976.97	GPS 12002
31	557856.71	2399765.92	976.97	GPS 12001 LNWWP-057
32	557728.28	2399676.28	975.36	LNWWP-058
40	557957.02	2406872.59	965.07	GPS 9002
41	557957.80	2406667.06	971.37	GPS 9001
42	558018.05	2406756.79	967.52	LL2-058
43	557973.69	2406907.72	964.33	LL2MW-59.H+T
44	557975.26	2406906.07	966.67	LL2MW-059
45	557948.78	2407205.33	958.93	LL2MW-060.H+T
46	557945.98	2407205.69	961.57	LL2MW-060
50	561952.94	2411911.89	931.65	GPS 8001
51	562442.37	2411902.12	930.48	GPS 8002
52	561878.61	2411894.57	932.35	LL1WP-067
53	560892.88	2411936.84	941.19	N-CH.1
54	560886.02	2411914.88	941.53	LL1MW-065.H+T
55	560886.09	2411912.52	944.41	LL1MW-065
56	559936.69	2411951.53	938.89	N-CH.2
57	559892.86	2411855.01	937.67	LL1WP-069
58	561234.79	2411933.95	938.85	N-CH.3
59	561952.88	2411911.96	931.58	CLS.TO.50
60	562976.60	2411763.34	931.49	GPS 8003
61	562442.37	2411902.12	930.48	GPS 8002
62	562592.29	2411852.03	931.15	LL1WP-068
63	563087.22	2411749.79	935.32	LL1MW-064.H+T
64	563087.88	2411747.50	935.10	LL1MW-064
65	563617.09	2408334.20	992.21	GPS 8004
66	563599.06	2408412.43	993.70	GPS 8005

67	563621.24	2408302.54	992.20	LL1MW-063.H+T
68	563619.65	2408301.94	994.84	LL1MW-063
69	565165.91	2407939.07	978.85	GPS 8006
70	565257.27	2407936.97	979.73	GPS 8007
71	565172.10	2408007.23	977.55	LL1MW-067.H
72	565170.28	2408005.89	980.36	LL1MW-067.H
150	567598.14	2418220.53	936.87	GPS X150A
9003	558229.91	2406804.14	971.41	GPS 9003
11001	555066.23	2396746.51	982.57	GPS 11001
29003	562612.67	2399225.77	963.12	GPS 29003
29004	562740.13	2399259.29	959.39	GPS 29004
63161	549621.55	2389389.23	1015.17	GPS 630161