

# Memorandum

**JE Fuller/ Hydrology & Geomorphology, Inc.**

**DATE:** February 11, 2003

**TO:** Hasan Mushtaq, Ph.D., P.E.  
City of Phoenix  
Street Transportation Department  
200 West Washington Street, 5<sup>th</sup> Floor  
Phoenix, Arizona 85003-1611

**FROM:** W. Scott Ogden, P.E.

**RE:** 7<sup>th</sup> Street Armored Mini Storage  
LOMR-F Request Package

**CC:** Gene Cox  
Randall Andrus



Property of  
Flood Control District of MC Library  
Please Return to  
2801 W. Durango  
Phoenix, AZ 85009

The following memorandum is a summary of the documentation and data supporting a request for a Letter of Map Revision based on Fill for the Armored Mini Storage (AMS) at 7<sup>th</sup> Street south of Hearn Road. This memorandum is comprised of the following subsections and pertinent attachments:

1. Project Location
2. Project History
3. Site Description
4. As-Built Survey Results
5. Basis for LOMR-F Request
6. FEMA MT-1 Forms and Attachments

## **1. Project Location**

The Armored Mini Storage (AMS) is a commercial business that rents storage space within an environmentally controlled building. The business is located within the City of Phoenix, Arizona and is situated on the east side of 7<sup>th</sup> Street, approximately 500 feet south of Hearn Road. The building's street address is 13845 North 7<sup>th</sup> Street, Phoenix, Arizona, 85022. The property is situated in a portion of the Southeast  $\frac{1}{4}$  of Section 9, Township 3 North, Range 3 East, Gila and Salt River Base, Maricopa County, Arizona.

Currently, the extreme northeast corner of the AMS building is located within a Zone AE 100-year SFHA of the North Branch of Moon Valley Wash, as indicated by the FEMA Flood Insurance Rate Map (FIRM) Panel 04013C1655 dated July 19, 2001. Figure 1 depicts the limits of the SFHA overlaying the site.

## **2. Project History**

The AMS property was developed beginning in late 1996, with the completion of the building occurring in December, 1997. During the design phase of the project, the existing SFHA was incorrectly plotted on the grading and drainage plans prepared by

**A026.925**

# Memorandum

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## 1. Project Location

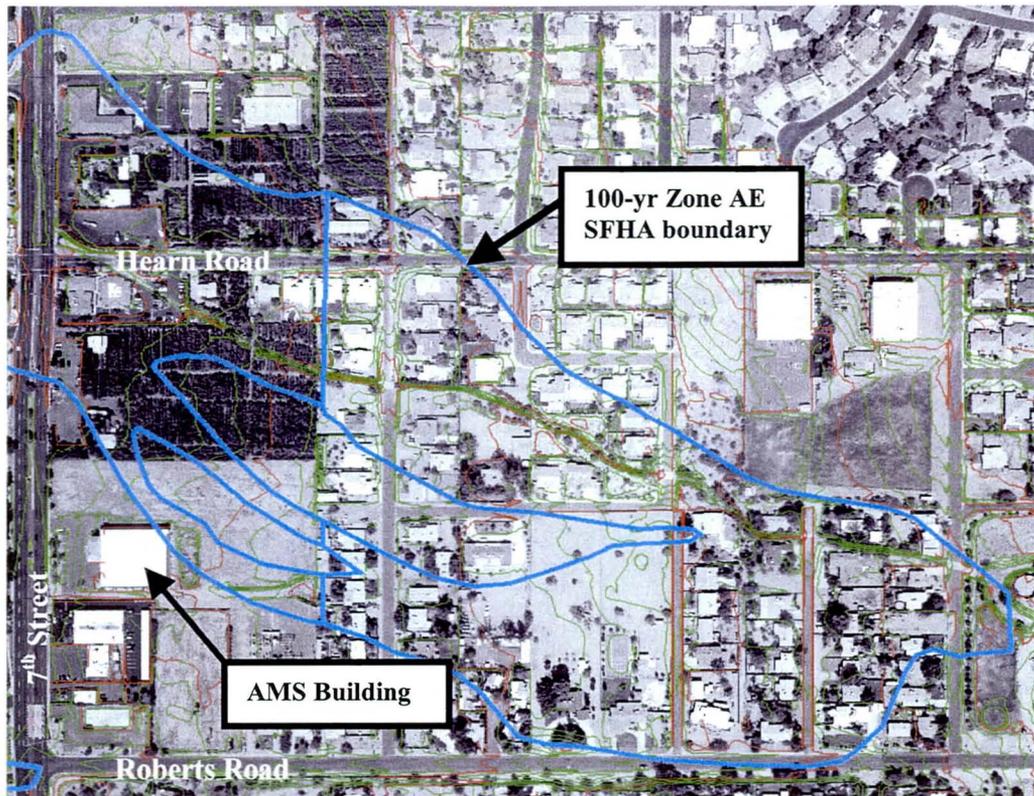
The Armored Mini Storage (AMS) is a commercial business that rents storage space within an environmentally controlled building. The business is located within the City of Phoenix, Arizona and is situated on the east side of 7<sup>th</sup> Street, approximately 500 feet south of Hearn Road. The building's street address is 13845 North 7<sup>th</sup> Street, Phoenix, Arizona, 85022. The property is situated in a portion of the Southeast  $\frac{1}{4}$  of Section 9, Township 3 North, Range 3 East, Gila and Salt River Base, Maricopa County, Arizona.

Currently, the extreme northeast corner of the AMS building is located within a Zone AE 100-year SFHA of the North Branch of Moon Valley Wash, as indicated by the FEMA Flood Insurance Rate Map (FIRM) Panel 04013C1655 dated July 19, 2001. Figure 1 depicts the limits of the SFHA overlaying the site.

## 2. Project History

The AMS property was developed beginning in late 1996, with the completion of the building occurring in December, 1997. During the design phase of the project, the existing SFHA was incorrectly plotted on the grading and drainage plans prepared by

others for the project. Consequently, the project design continued through the development process and the site improvements and building was constructed. The



**Figure 1 – FEMA SFHA Overlay**

floodplain delineation error was discovered in late 2000 and the building owners have since been required to carry flood insurance. JEF was hired in mid 2002 to investigate the possibility of pursuing a Letter of Map Revision based on Fill.

### **3. Site Description**

As stated previously, only the extreme northeast corner of the building is located within a FEMA delineated SFHA. The only penetration through the building exterior at this location is an emergency exit doorway. The remaining portions of the building within the SFHA are all effectively impermeable. An existing strip of pavement parallels the building on the north side and a temporary storm water detention basin is located at a 20 foot offset along the eastern edge of the building. Both serve to direct and store runoff away from the building.

At this time, the property<sup>1</sup> surrounding the AMS building on the north and east is currently being engineered for development. JEF is also assisting that developer with managing the floodplain on their site, and we currently have a CLOMR-F package

<sup>1</sup> Moon Valley Corporate Center – development by Phoenix Scottish Rite.

submitted to FEMA for review. The improvements proposed for that site will further protect the AMS building.

#### 4. As-Built Survey Results

The building's finished floor elevations and surrounding adjacent grades were surveyed on June 24, 2002 by a sub-consultant to JEF (ProjectDesign Consultants, Inc.). The surveyor also tied into a monument at Roberts and 7<sup>th</sup> Street. In a previous study conducted by JEF for the property immediately north of the AMS site, a level loop bench survey was performed to establish a FEMA datum elevation at the Roberts Road and 7<sup>th</sup> Street monument<sup>2</sup>. According to that survey, the FEMA elevation for that monument is 1368.67 feet. The project datum for the same point obtained from the City of Phoenix is 1368.31 feet. The resultant equation for adjusting Project Datum to FEMA Datum is:

$$\text{FEMA Datum} = \text{Project Datum} + 0.36 \text{ feet}$$

The results of the 2002 as-built survey are included in Appendix A. For the purposes of this memorandum, all elevations discussed herein will be referenced to the FEMA Datum unless clearly indicated otherwise. The ground level finished floor (FF) elevation is 1369.66 feet and the basement FF elevation is 1360.34 feet. The lowest adjacent grade to the building within the SFHA is 1368.5 feet. The maximum FEMA base flood elevation at the point where the building is in the floodplain, is published as 1366.1 feet. Accordingly, the ground level FF and lowest adjacent grade are 3.5 and 2.4 feet above the published FEMA base flood elevation. The basement FF is 5.6 feet below the base flood elevation.

#### 5. Basis for LOMR-F Request

According to Title 44 of the U.S. Code of Federal Regulations, Section 60.3(c)(3), any community participating in the National Flood Insurance Program (NFIP) must<sup>3</sup>:

*“Require that all new construction and substantial improvements of **non-residential structures** within Zones A1 -A30, AE, and AH on the community's FIRM (i) have the lowest floor (including basement) elevated to or above the base flood level, or (ii) together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.”*

Additionally, Section 60.3(c)(4) requires that any floodproofing design be certified in the following manner:

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<sup>2</sup> JEF, 2001, *Floodplain Analysis and Two-Dimensional Model Study for Phoenix Scottish Rite Property, Phoenix, Arizona.*

<sup>3</sup> Excerpts taken from FEMA Technical Bulletin 3-93 entitled: *Non-Residential Floodproofing - Requirements and Certification for Buildings Located in Special Flood Hazard Areas in Accordance with the National Flood Insurance Program.*

*“Provide that where a non-residential structure is intended to be made watertight below the base flood level, (i) a registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with the accepted standards of practice for meeting the applicable provisions of paragraphs (c)(3)(ii) or (c)(8)(ii) of this section, and (ii) a record of such certificates which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained with the official designated by the community...”*

Additionally, the City of Phoenix makes provision for the construction of non-residential structures within the floodplain<sup>4</sup>.

FEMA has recently developed and released a new technical bulletin<sup>5</sup> that provides guidelines and criteria to local floodplain managers for assessing what structures and improvements are considered to be “reasonably safe from flooding.” The bulletin especially deals with the development of structures with basements that are to be located within floodplains or flood fringe areas previously removed from the SFHA by a Letter of Map Revision Based on Fill (LOMR-F).

The following information and analyses have been investigated and researched to demonstrate that the AMS building is “reasonably safe from flooding” as defined by FEMA.

***Certified Compaction Densities*** – The certified compaction density reports for the soils surrounding the building basement and pad fill areas were obtained from the geotechnical engineer responsible for monitoring those activities during the construction of the site improvements. Copies of the pertinent compaction certifications are provided in Appendix B

***Depth to Groundwater*** – Typically, most floodplains adjacent to perennial watercourses have groundwater elevations that are relatively close to the ground surface. During flood events, the groundwater levels can rise in the floodplain areas resulting in increased hydrostatic loading and buoyancy pressures on structures located within the floodplain area. The North Branch of Moon Valley Wash is an ephemeral wash and only flows during significant flooding events. Groundwater elevations within the areas surrounding the wash are significantly deep and are not expected to create any significant buoyancy pressures under the basement of the AMS. Depth to groundwater records for wells existing within the vicinity of the subject property were obtained from drilling logs and well registration forms on file

<sup>4</sup> City of Phoenix, March 2002, *Policies and Standards for Storm Water*, Section 3.5.1, pp 3-3 to 3-4.

<sup>5</sup> Federal Emergency Management Agency, Mitigation Directorate, 2001, *Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding in Accordance with the National Flood Insurance Program*, Technical Bulletin 10-01, FIA-TB-10.

with the Arizona Department of Water Resources. A summary of the that data and accompanying location map are provided in Appendix C. In summary, the depths to groundwater measured nearest to the AMS ranged between 130 to 190 feet in depth.

The building is located approximately 450 feet away from the main channel, and the flows reported to be conveyed in the left (southern) overbank are less than 10 percent of the entire 100-year discharge. The duration of overbank flooding along this watercourse will likely be very short, and in most cases will be less than one-hour. This time period is not adequate to fully saturate the ground. Accordingly, it is not expected that buoyancy resulting from elevated groundwater levels will significantly impact the AMS building.

***Watertight Certification of Building*** – A visual observation of the interior perimeter basement walls was conducted by the architect of record who designed the original building on November 6, 2002, to check for indications or signs of historic water infiltration and or waterproofing of the facilities penetrating the basement wall below the main level finished floor elevation. A completed and certified Floodproofing Certificate (FEMA Form 81-65) and an attached qualification statement pertaining to those inspections, are included in Appendix D.

***Hydrostatic and Hydrodynamic Loading*** – The structural engineer of record for the design of the building's basement walls was contacted to analyze the AMS building's ability to withstand the potential hydrostatic loading. Hydrodynamic loading is not an issue since the building and adjacent ground are elevated above the 100-year flood elevation. A completed and certified Floodproofing Certificate and attached qualification letter dated January 10, 2003, summarize the hydrostatic loading findings. Both documents are included in Appendix E. The qualification letter notes that as long as no vehicular traffic is allowed next to the building, the existing walls will have adequate capacity to withstand a saturated soil condition. It should be noted that the new site plan developed for the parcel surrounding the AMS site (Moon Valley Corporate Center) will eliminate all traffic from having access to the area immediately adjacent to the building.

In summary, the research and analyses documented in the previous paragraphs indicate that the AMS building, including its basement and attendant utilities, is found to be reasonably safe from flooding, as defined by FEMA.

#### **6. FEMA MT-1 Forms and Attachments**

The required MT-1 forms and attachments for a LOMR-F are included in Appendix F.

## **APPENDIX A**

### **SURVEY DATA**



**PROJECT DESIGN CONSULTANTS**  
PLANNING • ENVIRONMENTAL • ENGINEERING • SURVEY/GPS

JUNE 27, 2002

W. SCOTT OGDEN, P.E.  
JE FULLER/HYDROLOGY & GEOMORPHOLOGY, INC.  
6101 S. RURAL ROAD, SUITE 110  
TEMPE, ARIZONA 85283

I, MICHAEL T. MCKENNA, HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR IN THE STATE OF ARIZONA, THAT THE SURVEY INFORMATION PROVIDED WAS OBTAINED BY A FIELD SURVEY DONE UNDER MY DIRECT SUPERVISION DURING THE MONTH OF JUNE, 2002, AND IS ACCURATE BASED UPON INFORMATION PROVIDED ME BY W. SCOTT OGDEN, P.E. OF JE FULLER/HYDROLOGY & GEOMORPHOLOGY, INC.

MICHAEL T. MCKENNA, R.L.S.  
ARIZONA REGISTRATION #19835





**PROJECT DESIGN CONSULTANTS**  
 PLANNING • ENVIRONMENTAL • ENGINEERING • SURVEY/GPS

<u>Name</u>	<u>Northing</u>	<u>Easting</u>	<u>Elevation</u>	<u>Code</u>	
1	950976.967	456413.21	1379.501	BCF	
<b>1A</b>	<b>950977.092</b>	<b>456413.233</b>	<b>1379.65</b>	<b>BCF</b>	<b>SUPPLIED BY J.E. FULLER</b>
2	950577.465	456412.898	1379.641	BCF	
<b>2A</b>	<b>950577.465</b>	<b>456412.994</b>	<b>1379.641</b>	<b>BCF</b>	<b>SUPPLIED BY J.E. FULLER</b>
ALTERNATE	950576.9	457071.835	1385.855	BCF	
<b>ALTERNATE-A</b>	<b>950576.9</b>	<b>457071.739</b>	<b>1385.842</b>	<b>BCF</b>	<b>SUPPLIED BY J.E. FULLER</b>
3	949913.276	454930.152	1368.31	BCH	7th ST. & Roberts
4	949913.737	454930.156	1368.629	P	7th ST. & Roberts
104	950510.744	455080.142	1369.255	BLFF	
105	950510.968	455078.808	1369.298	THRESHOLD	
106	950510.961	455081.236	1369.304	THRESHOLD	
107	950516.54	455080.072	1369.163	SW	
108	950516.727	455080.048	1368.561	EP	
109	950541.133	455080.165	1368.416	P	
110	950510.918	455055.865	1368.524	SW	
111	950510.852	455055.693	1368.044	EP	
112	950511.509	455037.867	1367.578	P	
113	950523.519	455235.164	1359.981	BASEMENT FF	
114	950528.736	455230.204	1369.297	BLFF	
115	950528.992	455228.901	1369.322	THRESHOLD	
116	950528.983	455231.174	1369.332	THRESHOLD	
117	950535.902	455229.746	1368.934	BOC	
118	950536.192	455229.754	1368.436	EP	
119	950549.403	455229.649	1368.657	EP	
120	950549.659	455229.662	1369.156	BOC	
121	950558.969	455229.629	1367.995	GRD	
122	950531.107	455249.727	1369.069	GRD	
123	950529.711	455276.718	1368.141	GRD	
124	950512.977	455065.697	1368.688	GRD	
125	950529.269	455221.466	1370.61	VENT	
126	950529.306	455217.767	1370.589	VENT	
127	950529.285	455212.071	1370.63	VENT	
128	950529.296	455208.491	1370.605	VENT	
129	950529.26	455121.544	1370.708	VENT	
130	950529.278	455117.994	1370.674	VENT	
131	950529.255	455112.238	1370.711	VENT	
132	950529.265	455108.645	1370.662	VENT	

LEGEND

- |                       |                        |
|-----------------------|------------------------|
| BLFF -- FINISH FLOOR  | P -- PAVEMENT          |
| BOC -- BACK OF CURB   | SW -- EDGE OF SIDEWALK |
| EP -- EDGE OF PAEMENT | GRD -- GROUND          |





6. 24. 2002



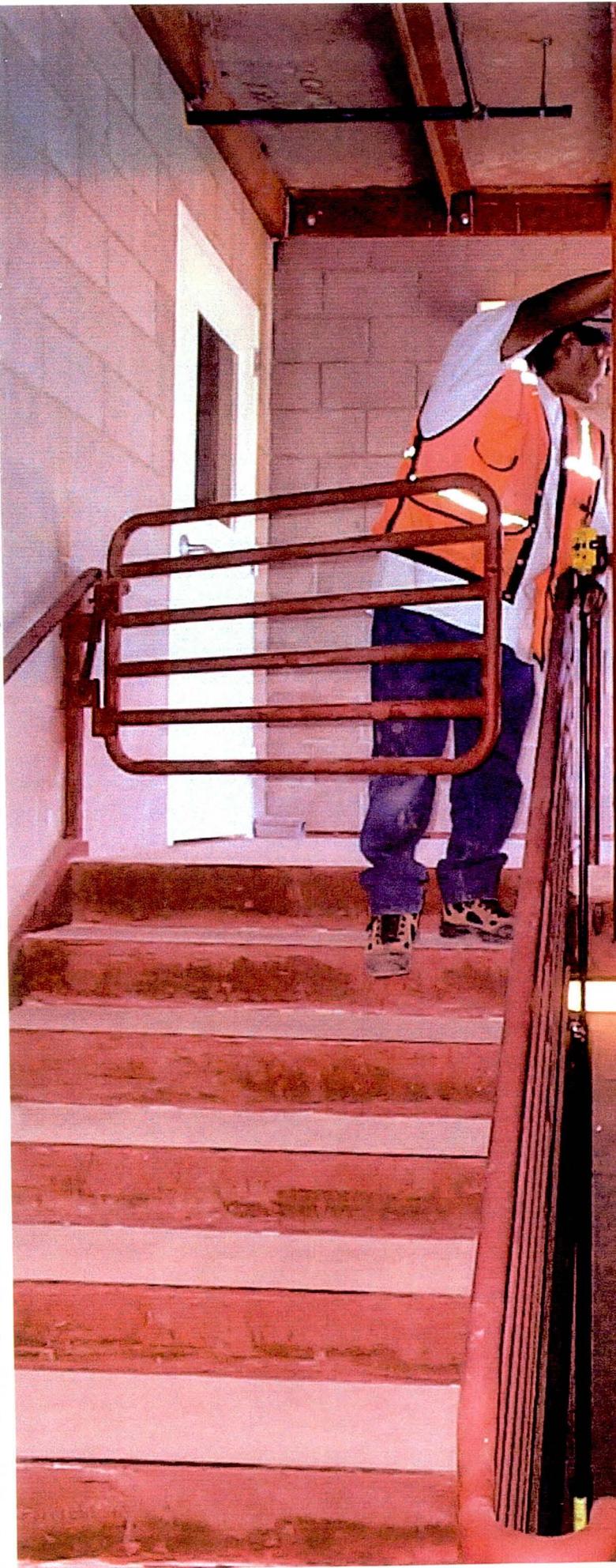


6.24.2002



6. 24. 2002

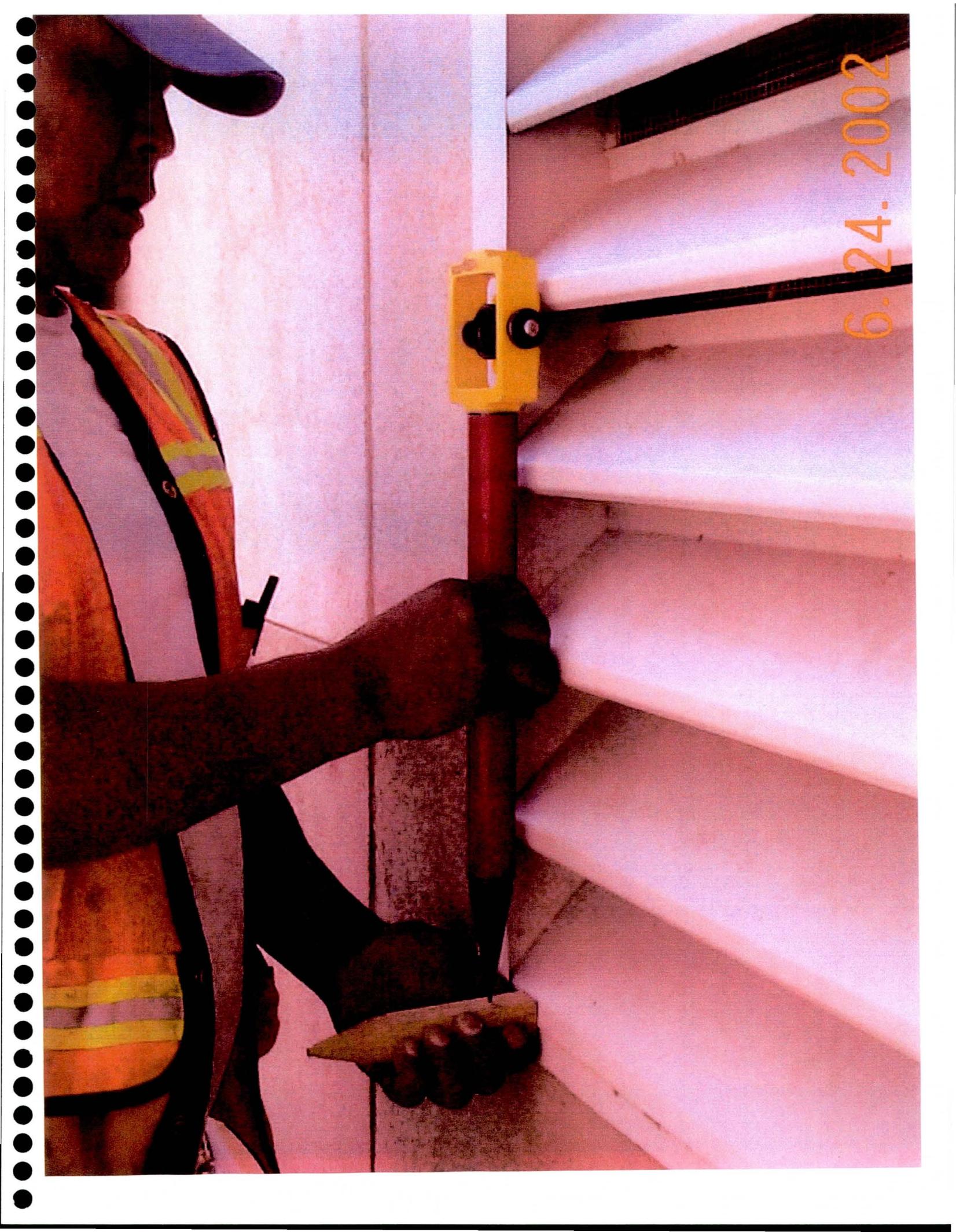
6.24.2002



6.24.2002

HOLMANS







## **APPENDIX B**

### **Compaction Density Reports**

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	May 14, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer arrived on site to perform a footing inspection.

The proposed building basement had been excavated, as well as all continuous wall footing. The excavated footing appeared to have smooth vertical walls that were free of sloughing. The bearing surface was flat and level with no loose slough or debris and appeared to be bearing on suitable material.

ENG./TECH.

David W. Simpson

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	May 29, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	C. Standley

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer arrived on site and performed four in-place density tests on the underslab base course at representative locations. All test results met project requirements.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

Craig Standley

TABULATION OF FIELD DENSITY TESTS

Year 1997

Sheet 1 of

Project 7th St. & Hearn Mini Storage  
 Location 13837 N. 7th St.  
 Client WESPAC

Project No. 970301TA

Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
<b>Underslab (ABC)</b>												
1	FG	10'E,20'N/o SWC/o Bldg	AB-1	5.0	135.0	4.2	129.6	96.0	95.0	A	05-29	CS
2	FG	8'E,15'S/o NWC/o Bldg	AB-1	5.0	135.0	4.1	129.2	95.7	95.0	A	05-29	CS
3	FG	20'E,25'N/o SWC/o Bldg	AB-1	5.0	135.0	4.6	130.1	96.4	95.0	A	05-29	CS
4	FG	22'E,20'S/o NWC/o Bldg	AB-1	5.0	135.0	4.4	130.7	96.8	95.0	A	05-29	CS

NA - Not Approved  
 A - Approved

\*\* Sand Cone Method  
 \* Rock/Moisture Corrected Value

### DAILY FIELD REPORT

PROJECT	7th St. & Hearn Mini Storage	DATE	June 24, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site to perform soil density testing. Gun Sight Contracting was active with cast in place basement wall backfill. Stock piled material was processed with moisture placed in one foot lifts and mechanically compacted.

The writer performed several nuclear field density tests on each compacted lift. Areas that did not conform to project specifications were brought to the contractor's attention and resolved before continuing with backfill operations. Final recorded test results indicated conformance to project specifications.

For specific test data, please refer to the attached tabulation sheet.

David W. Simpson

ENG./TECH.

**DAILY FIELD REPORT**

PROJECT 7th St. & Hearn Mini Storage  
LOCATION 13837 N. 7th St.  
CONTRACTOR

DATE June 25, 1997  
WEATHER Clear/calm  
ENG./TECH. D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer arrived on site to perform soil density testing. Gun Sight Contracting was active with cast in place basement wall backfill. Stock piled material was processed with moisture placed in one foot lifts and mechanically compacted.

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David W. Simpson

ENG./TECH.

### DAILY FIELD REPORT

PROJECT 7th St. & Hearn Mini Storage  
LOCATION 13837 N. 7th St.  
CONTRACTOR

DATE June 26, 1997  
WEATHER Clear/calm  
ENG./TECH. D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site to perform soil density testing. Gun Sight Contracting was active with cast in place basement wall backfill. Stock piled material was processed with moisture placed in one foot lifts and mechanically compacted.

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David W. Simpson

ENG./TECH.

### DAILY FIELD REPORT

PROJECT 7th St. & Hearn Mini Storage  
LOCATION 13837 N. 7th St.  
CONTRACTOR

DATE June 27, 1997  
WEATHER Clear/calm  
ENG./TECH. D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site to perform soil density testing. Gun Sight Contracting was active with cast in place basement wall backfill. Stock piled material was processed with moisture placed in one foot lifts and mechanically compacted.

The writer performed several nuclear field density tests on each compacted lift. Areas that did not conform to project specifications were brought to the contractor's attention and resolved before continuing with backfill operations. Final recorded test results indicated conformance to project specifications.

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David W. Simpson

ENG./TECH.

### DAILY FIELD REPORT

PROJECT 7th St. & Hearn Mini Storage  
LOCATION 13837 N. 7th St.  
CONTRACTOR

DATE July 14, 1997  
WEATHER Clear/calm  
ENG./TECH. R. Stinebaugh

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

At the request of our client, the writer arrived on site to observe the bearing surface soil conditions on the footings for the office building. The writer noted that the two footings, north and south, which run west of the mini storage basement wall, are to be slurried with a two sack mix. Considering the footings are within the backfill zone of the basement wall, the structural engineer requested that the footings bear on native undisturbed material; therefore, the slurry extends from the bottom of the basement and benches west into the native soil until the footing line is no longer in the zone of backfill.

After reviewing the Soils Report on the remaining footings of the office building, it was determined that the footings are to bear on two feet of engineered fill 18 inches below the finished grade. Since the footings were not bearing on engineered fill and had not been previously over-excavated, the writer recommended to Wespac to over-excavate two feet below the bottom of the already excavated footings and to replace with a two sack slurry mix; therefore, all of the footings on the office building will be bearing on at least two feet of slurry. Superintendent will schedule to verify over excavation elevation.

ENG./TECH.

Ray Stinebaugh

TABULATION OF FIELD DENSITY TESTS

Year 1997

Sheet 1 of

Project 7th St. & Hearn Mini Storage  
 Location 13837 N. 7th St.  
 Client WESPAC

Project No. 970301TA

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3	FG	20'E,25'N/o SWC/o Bldg	AB-1	5.0	135.0	4.6	130.1	96.4	95.0	A	05-29	CS
4	FG	22'E,20'S/o NWC/o Bldg	AB-1	5.0	135.0	4.4	130.7	96.8	95.0	A	05-29	CS
<b>Basement Wall Backfill</b>												
5	FS-9.0'	120'E,3'N/o NWC/o N Wall	B-1	7.2*	132.1*	11.7	129.0	97.7	95.0+	A	06-24	DWS
6	FS-9.0'	40'E,4'N/o NWC/o N Wall	B-1	7.2*	132.1*	10.9	128.6	97.4	95.0+	A	06-24	DWS
7	FS-9.0'	30'S,3'W/o NWC/o W Wall	B-1	7.2*	132.1*	10.3	126.4	95.7	95.0+	A	06-24	DWS
8	FS-9.0'	110'S,5'W/o NWC/o W Wall	B-1	7.2*	132.1*	11.1	127.3	96.4	95.0+	A	06-24	DWS
9	FS-9.0'	25'E,3'S/o SWC/o S Wall	B-1	7.2*	132.1*	9.8	129.3	97.9	95.0+	A	06-24	DWS
10	FS-9.0'	100'E,5'S/o SWC/o S Wall	B-1	7.2*	132.1*	10.4	126.0	95.4	95.0+	A	06-24	DWS
11	FS-9.0'	16'N,3'E/o SEC/o E Wall	B-1	7.2*	132.1*	10.1	128.2	97.0	95.0+	A	06-24	DWS
12	FS-9.0'	75'N,2'E/o SEC/o E Wall	B-1	7.2*	132.1*	10.7	127.9	96.8	95.0+	A	06-24	DWS
13	FS-7.0'	50'E,2'N/o NWC/o N Wall	B-1	7.2*	132.1*	8.8	127.1	96.2	95.0+	A	06-25	DWS
14	FS-7.0'	100'E,4'N/o NWC/o N Wall	B-1	7.2*	132.1*	9.2	126.3	95.6	95.0+	A	06-25	DWS

NA - Not Approved  
 A - Approved

\*\* Sand Cone Method  
 \* Rock/Moisture Corrected Value

TABULATION OF FIELD DENSITY TESTS

Year 1997

Sheet 2 of

Project 7th St. & Hearn Mini Storage  
 Location 13837 N. 7th St.  
 Client WESPAC

Project No. 970301TA

Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
<b>Basement Wall Backfill</b>												
15	FS-6.5'	75'S,2'W/o NWC/o W Wall	B-1	7.2*	132.1*	10.2	125.9	95.3	95.0+	A	06-25	DWS
16	FS-6.5'	125'S,4'W/o NWC/o W Wall	B-1	7.2*	132.1*	11.8	126.5	95.8	95.0+	A	06-25	DWS
17	FS-7.0'	100'E,4'S/o SWC/o S Wall	B-1	7.2*	132.1*	9.9	127.6	96.6	95.0+	A	06-25	DWS
18	FS-6.5'	120'E,5'S/o SWC/o S Wall	B-1	7.2*	132.1*	10.3	128.1	97.0	95.0+	A	06-25	DWS
19	FS-6.0'	20'E,2'N/o NWC/o N Wall	B-1	7.2*	132.1*	10.2	126.5	95.8	95.0+	A	06-26	DWS
20	FS-6.0'	80'E,4'N/o NWC/o N Wall	B-1	7.2*	132.1*	11.3	125.8	95.2	95.0+	A	06-26	DWS
21	FS-6.0'	50'S,5'W/o NWC/o W Wall	B-1	7.2*	132.1*	9.4	127.2	96.3	95.0+	A	06-26	DWS
22	FS-6.0'	150'S,4'W/o NWC/o W Wall	B-1	7.2*	132.1*	8.7	128.4	97.2	95.0+	A	06-26	DWS
23	FS-6.5'	50'E,5'W/o S Wall	B-1	7.2*	132.1*	10.7	126.4	95.7	95.0+	A	06-26	DWS
24	FS-6.0'	150'E,5'W/o S Wall	B-1	7.2*	132.1*	10.0	126.0	95.4	95.0+	A	06-26	DWS
25	FS-5.0'	50'E,2'N/o NWC/o N Wall	B-1	7.2*	132.1*	9.1	128.3	97.1	95.0+	A	06-27	DWS
26	FS-5.0'	120'S,2'W/o NWC/o W Wall	B-1	7.2*	132.1*	8.5	129.4	98.0	95.0+	A	06-27	DWS
27	FS-5.0'	100'E,5'S/o SWC/o S Wall	B-1	7.2*	132.1*	8.8	127.2	96.3	95.0+	A	06-27	DWS
28	FS-5.0'	50'N,5'E/o SEC/o E Wall	B-1	7.2*	132.1*	9.3	126.9	96.1	95.0+	A	06-27	DWS
29	FS-4.0'	30'W,2'N/o NWC/o N Wall	B-1	7.2*	132.1*	7.9	130.2	98.6	95.0+	A	06-27	DWS
30	FS-4.0'	75'S,3'W/o NWC/o W Wall	B-1	7.2*	132.1*	8.6	126.1	95.1	95.0+	A	06-27	DWS

NA - Not Approved  
 A - Approved

\*\* Sand Cone Method  
 \* Rock/Moisture Corrected Value

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	June 30, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer arrived on site to perform soil density tests. Gunsight Grading was active with basement wall backfill. Stockpiled material was processed with moisture, placed, and compacted.

The writer performed nuclear field density tests on each compacted lift at representative locations. Test results indicated conformance to project specifications.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

David W. Simpson

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	July 1, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer arrived on site to perform soil density tests. Gunsight Grading was active with basement wall backfill. Stockpiled material was processed with moisture, placed, and compacted.

The writer performed nuclear field density tests on each compacted lift at representative locations. Test results indicated conformance to project specifications.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

David W. Simpson

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	July 16, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	C. Standley
CLIENT'S REPRESENTATIVE			
CONTRACTOR'S REPRESENTATIVE			
VISITORS ON SITE			

PROGRESS OF WORK

The writer arrived on site to verify that the contractor had excavated an additional two feet below the footing bottom and a two sack slurry be placed as an alternate to engineered fill. The depth of footing was verified and was found to be free of any loose debris. All footings were at a depth of 3'6". The contractor is to keep a copy of the slurry batch tickets for verification of the mix.

ENG./TECH.

Craig Standley

TABULATION OF FIELD DENSITY TESTS

Year 1997

Sheet 3 of

Project Location Client  
7th St. & Hearn Mini Storage  
13837 N. 7th St.  
WESPAC

Project No. 970301TA  
Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
<b>Basement Wall Backfill</b>												
31	FS-4.0'	50'E,5'N/o NWC/o Wall	B-1	7.5*	132.1*	10.3	126.7	95.9	95.0+	A	06-30	DWS
32	FS-4.0'	75'S,3'W/o NWC/o Wall	B-1	7.5*	132.1*	8.8	125.5	95.0	95.0+	A	06-30	DWS
33	FS-4.0'	40'N,5'E/o SEC/o Wall	B-1	7.5*	132.1*	9.7	128.4	97.2	95.0+	A	06-30	DWS
34	FS-4.0'	50'W,3'S/o SEC/o Wall	B-1	7.5*	132.1*	10.1	125.8	95.2	95.0+	A	06-30	DWS
35	FS-3.0'	25'E,3'N/o NWC/o Wall	B-1	7.5*	132.1*	7.7	129.6	98.1	95.0+	A	06-30	DWS
36	FS-3.0'	100'S,5'W/o NWC/o Wall	B-1	7.5*	132.1*	8.3	126.6	95.8	95.0+	A	06-30	DWS
37	FS-3.0'	75'N,8'W/o SEC/o Wall	B-1	7.5*	132.1*	7.1	128.5	97.3	95.0+	A	06-30	DWS
38	FS-3.0'	100'W,5'S/o SEC/o Wall	B-1	7.5*	132.1*	9.1	127.1	96.2	95.0+	A	06-30	DWS
39	FS-2.0'	30'S,5'W/o NWC/o Wall	B-1	7.5*	132.1*	7.0	129.6	98.1	95.0+	A	07-01	DWS
40	FS-2.0'	45'E,2'N/o NWC/o Wall	B-1	7.5*	132.1*	7.8	128.1	97.0	95.0+	A	07-01	DWS
41	FS-2.0'	75'W,8'N/o SEC/o Wall	B-1	7.5*	132.1*	6.9	130.4	98.7	95.0+	A	07-01	DWS
42	FS-2.0'	100'N,5'W/o SEC/o Wall	B-1	7.5*	132.1*	8.1	126.9	96.1	95.0+	A	07-01	DWS
43	FS-1.0'	75'E,8'N/o NWC/o Wall	B-1	7.5*	132.1*	6.6	131.8	99.7	95.0+	A	07-01	DWS
44	FS-1.0'	40'S,5'W/o NWC/o Wall	B-1	7.5*	132.1*	8.3	127.4	96.4	95.0+	A	07-01	DWS
45	FS-1.0'	10'W,5'S/o SEC/o Wall	B-1	7.5*	132.1*	7.3	128.0	96.9	95.0+	A	07-01	DWS

NA - Not Approved  
A - Approved

\*\* Sand Cone Method  
\* Rock/Moisture Corrected Value

Project Location Client 7th St. & Hearn Mini Storage  
 13837 N. 7th St.  
 WESPAC

Project No. 970301TA

Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
46	FS-1.0'	<b>Basement Wall Backfill</b> 30'N,2'W/o SEC/o Wall	B-1	7.5*	132.1*	8.2	126.8	96.0	95.0+	A	07-01	DWS

NA - Not Approved  
 A - Approved

\*\* Sand Cone Method  
 \* Rock/Moisture Corrected Value

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	July 24, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The plumbing contractor had completed backfill of the placed utility within the utility room. The writer arrived on site and performed one nuclear density test on the backfill. Test results indicated that the backfill was not properly compacted resulting in non-conformance to project specifications. For specific test data, please refer to the attached tabulation sheet.

The writer was notified that a re-test would be scheduled for 7-25-97.

ENG./TECH.

David W. Simpson

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	July 25, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	D. W. Simpson
CLIENT'S REPRESENTATIVE			
CONTRACTOR'S REPRESENTATIVE			
VISITORS ON SITE			

PROGRESS OF WORK

The plumbing contractor had re-compacted the backfill within the utility room. The writer arrived on site and performed one nuclear density re-test on the recompacted backfill. Test results indicated conformance to project specifications.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

David W. Simpson

### DAILY FIELD REPORT

PROJECT	7th St. & Hearn Mini Storage	DATE	August 12, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/calm
CONTRACTOR		ENG./TECH.	C. Schott, Jr.

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site and performed one nuclear density test on the backfill of the electrical line trench. Test results indicated that density has been achieved.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

Charles Schott, Jr.

Project Location Client 7th St. & Hearn Mini Storage  
 13837 N. 7th St.  
 WESPAC

Project No. 970301TA  
 Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
46	FS-1.0'	<b>Basement Wall Backfill</b> 30'N,2'W/o SEC/o Wall	B-1	7.5*	132.1*	8.2	126.8	96.0	95.0+	A	07-01	DWS
47	FS±	<b>Plumbing Trench Within Utility Room</b> 5'S/o Cleanouts	B-1	7.5*	132.1*	12.4	112.3	85.0	95.0+	NA	07-24	DWS
48	FS±	Retest of No. 47	B-1	7.5*	132.1*	8.8	125.8	95.2	95.0+	A	07-25	DWS
49	FS±	<b>Electrical Line Trench @ S Entrance</b> 50'E/o 7th St.	B-1	11.9	120.9	7.7	110.2	91.1	90.0	A	08-12	CSJR

NA - Not Approved  
 A - Approved

\*\* Sand Cone Method  
 \* Rock/Moisture Corrected Value

### DAILY FIELD REPORT

PROJECT 7th St. & Hearn Mini Storage  
LOCATION 13837 N. 7th St.  
CONTRACTOR

DATE October 14, 1997  
WEATHER Clear/calm  
ENG./TECH. C. Standley

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site and performed in-place density tests on the parking lot, both of which failed to meet project requirements. The contractor was informed and is to schedule a retest.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

Craig Standley

**DAILY FIELD REPORT**

PROJECT	7th St. & Hearn Mini Storage	DATE	October 15, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear/cool
CONTRACTOR		ENG./TECH.	A. Waggerby

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

PROGRESS OF WORK

The writer was requested to retest the parking lot area. The writer used a nuclear density gauge to determine the compaction level. Test results indicated that acceptable compaction and moisture content was obtained.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

Alan Waggerby

### DAILY FIELD REPORT

PROJECT	7th St. & Hearn Mini Storage	DATE	October 20, 1997
LOCATION	13837 N. 7th St.	WEATHER	Clear
CONTRACTOR		ENG./TECH.	D. W. Simpson

CLIENT'S REPRESENTATIVE  
CONTRACTOR'S REPRESENTATIVE  
VISITORS ON SITE

#### PROGRESS OF WORK

The writer arrived on site to perform field density tests. The contractor was active with grading and compacting operations of aggregate base course in the parking lot and drive areas. The writer performed nuclear density tests at representative areas on the compacted grade. Test results indicated conformance to project specifications.

For specific test data, please refer to the attached tabulation sheet.

ENG./TECH.

David W. Simpson

**TABULATION OF FIELD DENSITY TESTS**

Year 1997  
Sheet 5 of

Project Location Client  
7th St. & Hearn Mini Storage  
13837 N. 7th St.  
WESPAC

Project No. 970301TA  
Contractor

Test Number	Test Elevation Feet	Test Location	Material	Optimum Moisture Content %	Maximum Dry Density PCF	In-place Moisture Content %	In-place Dry Density PCF	Percent Compaction %	Specified Percent Compaction %	Remarks	Date	Eng./Tech.
<b>Parking Lot Subgrade</b>												
50	FS	35'E, 60'N/o SWC/o Lot	B-1	9.2*	127.9*	7.9	119.3	93.3	95.0	NA	10-14	CS
51	FS	40'E, 70'N/o SWC/o Lot	B-1	9.2*	127.9*	6.0	119.1	93.1	95.0	NA	10-14	CS
<b>Parking Lot Subgrade - Retests</b>												
52	FS	120'N, 40'E/o SWC/o Lot	B-1	7.5*	132.1*	10.3	130.5	98.8	95.0	A	10-15	AW
53	FS	60'N, 20'E/o SWC/o Lot	B-1	7.5*	132.1*	6.5	128.6	97.4	95.0	A	10-15	AW
54	FS	100'E, 30'N/o SWC/o Lot	B-1	7.5*	132.1*	8.9	128.0	96.9	95.0	A	10-15	AW
<b>Parking Lot Aggregate Base Course</b>												
55	FG	45'E, 50'N/o SW Entrance	B-2	5.9*	136.2*	5.2	137.1	100+	100.0	A	10-20	DWS
56	FG	25'S, 45'E/o NW Entrance	B-2	5.9*	136.2*	4.3	136.3	100+	100.0	A	10-20	DWS
57	FG	N Drive, 45'E/o NWC/o Bldg	B-2	5.9*	136.2*	5.0	137.0	100+	100.0	A	10-20	DWS

NA - Not Approved  
A - Approved

\*\* Sand Cone Method  
\* Rock/Moisture Corrected Value

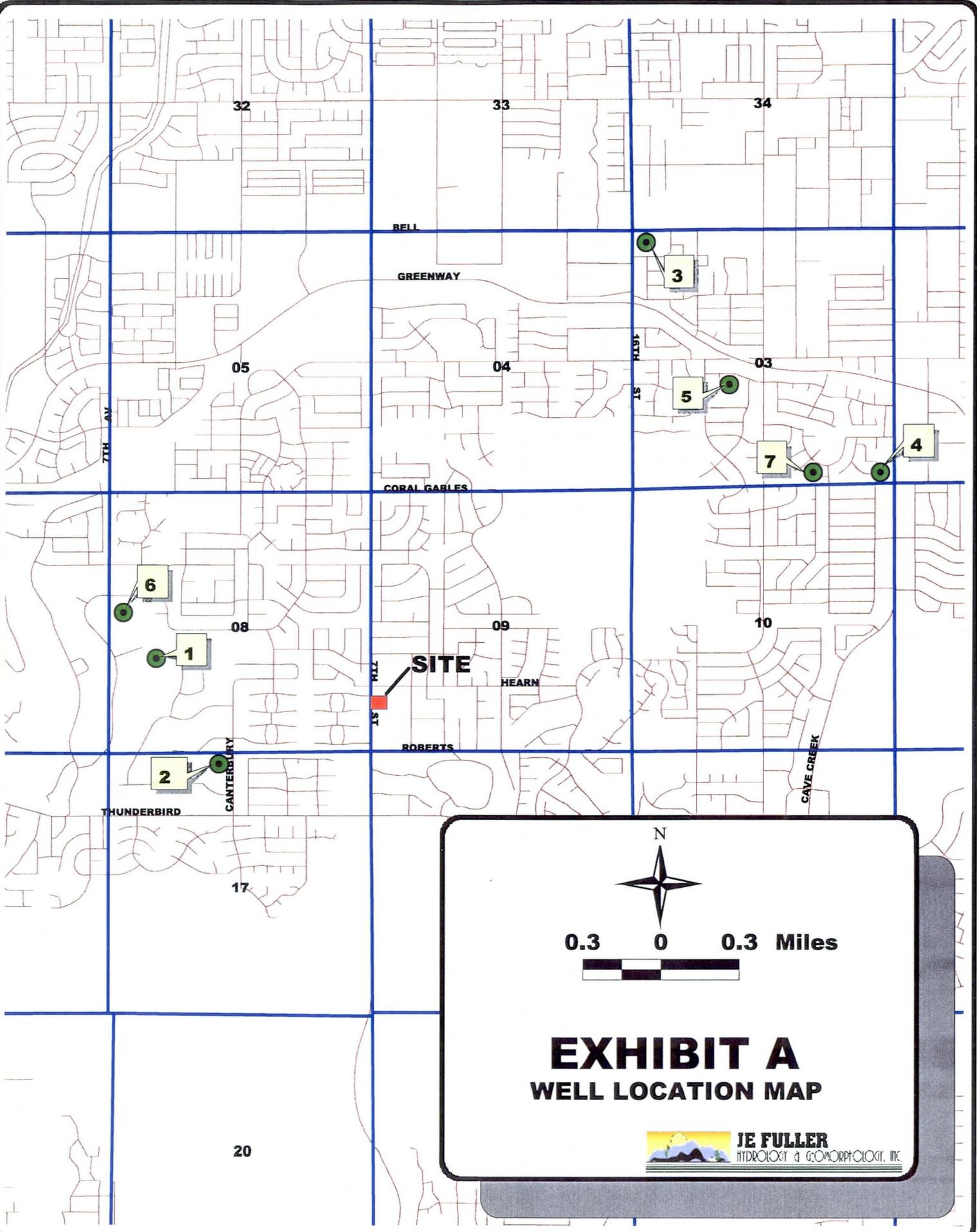
## **APPENDIX C**

### **Depth to Groundwater Data**

**Table C-1**  
**Depth to groundwater for various well locations**

<b>JEF ID No.</b>	<b>ADWR Reference ID</b>	<b>Well Location</b>	<b>Depth to Groundwater</b>	<b>Comments</b>
1	55-522622	A-3-0-3-0-8CBD	190 feet	
2	55-522623	A-3-0-3-0-17BAA	140 feet	
3	55-554087 - 55-554096	A-3-0-3-0-3BBB	45 feet	
4	55-562197	A-3-0-3-0-3DDD	>200 feet	Well hole was dry at 200 feet in depth.
5	55-805269	A-3-0-3-0-3CA	290 feet	
6	55-522246	A-3-0-3-0-8BCC	215 feet	
7	55-640012	A-3-0-3-0-3DCD	130 feet	

NOTE: See the map on Exhibit A for well proximities to the AMS property.



N



0.3    0    0.3 Miles



**EXHIBIT A**  
**WELL LOCATION MAP**

 **JE FULLER**  
HYDROLOGY & GEOMORPHOLOGY, INC.

## **APPENDIX D**

**Floodproofing Certificate**  
**Architect (Qk4)**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
NATIONAL FLOOD INSURANCE PROGRAM

**FLOODPROOFING CERTIFICATE**  
FOR NON-RESIDENTIAL STRUCTURES

The floodproofing of non-residential buildings may be permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not alter a community's floodplain management elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design complies with the local floodplain management ordinance.

BUILDING OWNER'S NAME  
**Moon Valley Mini Storage, LLC**

STREET ADDRESS (Including Apt., Unit, Suite, and/or Bldg. Number) OR P.O. ROUTE AND BOX NUMBER  
**13845 North 7<sup>th</sup> Street**

OTHER DESCRIPTION (Lot and Block Numbers, etc.)  
**Lot 2 of Andrus Heights, Book 440, Page 29, MCR, Maricopa County, Arizona**

FOR INSURANCE COMPANY USE
POLICY NUMBER
COMPANY NAIC NUMBER

CITY  
**Phoenix**

STATE  
**Arizona**

ZIP CODE  
**85022-4301**

SECTION I FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Provide the following from the proper FIRM:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION (In AO Zones, Use Depth)
040051	1655	J	July 19, 2001	AE	1366.10 feet

SECTION II FLOODPROOFING INFORMATION (By a Registered Professional Engineer or Architect)

Floodproofing Design Elevation Information:

Building is floodproofed to an elevation of 1369.66 feet NGVD. (Elevation datum used must be the same as that on the FIRM.)

Height of floodproofing on the building above the lowest adjacent grade is 1.7 feet.

(NOTE: for insurance rating purposes, the building's floodproofed design elevation must be at least one foot above the Base Flood Elevation to receive rating credit. If the building is floodproofed only to the Base Flood Elevation, then the building's insurance rating will result in a higher premium.)

SECTION III CERTIFICATION (By Registered Professional Engineer or Architect)

Non-Residential Floodproofed Construction Certification:

I certify that, based upon development and/or review of structural design, specifications, and plans for construction, the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions:

The structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation indicated above, with walls that are substantially impermeable to the passage of water. see attached Qualification Statement

~~All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.~~

I certify that the information on this certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

CERTIFIER'S NAME <b>Robert Brown</b>	LICENSE NUMBER (or Affix Seal) <b>25628</b>		
TITLE <b>Architect</b>	COMPANY NAME <b>Qk4 fka Presnell Group fka Westar Arch. Group</b>		
ADDRESS <b>425 S. 48<sup>th</sup> St., Suite. 101</b>	CITY <b>Tempe</b>	STATE <b>AZ</b>	ZIP CODE <b>85281</b>
SIGNATURE 	DATE <b>1/28/03</b>	PHONE <b>480.377.2222</b>	

Copies should be made of this Certificate for: 1) community official, 2) Insurance agent/company, and 3) building owner.



Architecture  
Engineering  
Construction

January 28, 2002

Re: Moon Valley Mini Storage, LLC  
aka 7<sup>th</sup> Street Armored Mini Storage  
13845 N. 7<sup>th</sup> Street  
Phoenix, Arizona  
Architects Project No. 96031 / 03251

#### QUALIFICATION STATEMENT

This letter shall serve as qualification to the Floodproofing Certification attached hereto.

Qk4 has been requested to certify the building referenced above as watertight, being substantially impermeable to the passage of water. Our execution of said certification is based upon information and belief derived from records and the visual observation conducted November 6, 2002. However, our investigation was limited due to the records and observations available.

#### Record As-Built Drawings:

The above referenced building construction documents prepared by Qk4, formerly Westar Architectural Group, Inc., issued 02/06/97, indicate the basement walls, from top of wall footing and extending up to the first floor elevation to receive a water-proofing membrane with 2 inch protection fiber board.

Review of the As-Built Drawings prepared by the contractor (Wespac Construction) and copy received 11/4/02, do not indicate this intended waterproofing had been deleted during construction. Therefore, Qk4 has no reason to believe the waterproofing was not installed.

#### Visual Observation:

Qk4 conducted a visual observation on 11/6/02 of the interior perimeter basement walls. The purpose of the observation was to confirm the placement of penetration sealant, to the extent visually evident from the inside, and also to observe, if any, evidence of water infiltration. The following evidences our findings from that observation:

*Based on the As-Built Drawings, and typical systems entering or exiting the basement space, I believe my observation was sufficient to observe any anticipated penetrations and are listed below.*

- 1) Sprinkler Main entrance into the building at the north basement wall in the NWC appeared to have been sealed. See jpg file P0000711
- 2) Floor Drain from ground floor thru north basement wall near NWC of basement appeared to have been sealed. See jpg file P0000712
- 3) Floor Drain from ground floor thru north basement wall near NEC of basement appeared to have been sealed. See jpg file P0000713
- 4) Sprinkler Line into interior stair well at the NEC appeared to have been sealed. See jpg file P0000714
- 5) Sprinkler Line and elect. conduit into exterior stair well at the SWC appeared to have been sealed. See jpg file ---P0000715 & P0000716
- 6) I also observed the building main electric service entrance into the building and likewise service to the basement. The Main conduit entrance into the building occurs on the south wall at the SWC of the building above the 0'-0" FFE and then to the panel. Electrical service to the basement is then from the panel down thru the floor with distribution below the ground floor deck structure. Therefore, no basement wall penetrations would be necessary and likewise probable and should not be an issue.

425 South 48th Street

Suite 101

Tempe, Arizona

85281-2315

Ph. 480-377-2222

Fx. 480-377-2230

www.qk4.com



7) The core slab deck for the ground floor, at the wall did not appear to have been sealed from my interior observation, however, upon return to the office and review of the As-Built Drawings, the core slab deck rests on a shelf at the transition from 12" CMU to 8" CMU, thereby creating no penetration to the outside nor interruption of the membrane waterproofing. Therefore this should not an issue.

Sincerely,  
QK4



Robert Brown, AIA  
Vice President



P0000111



P0000112



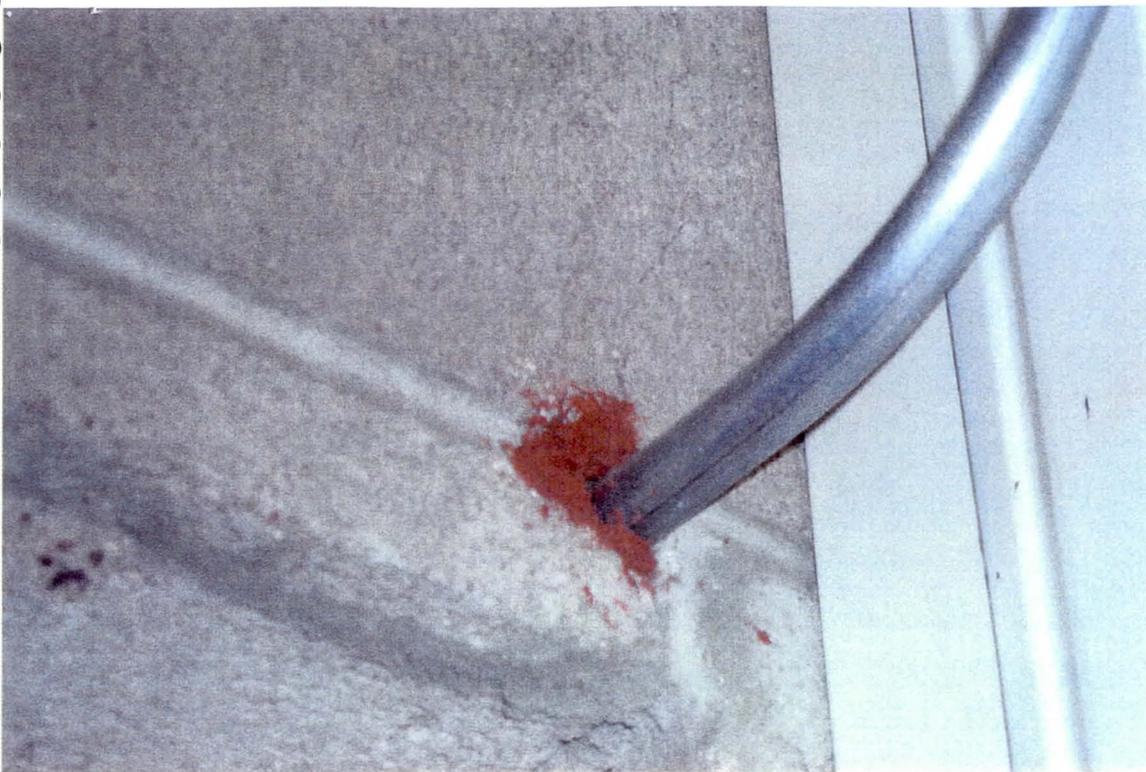
P0000713



P0000714



P0000715



PO000716

## **APPENDIX E**

**Floodproofing Certificate**  
**Structural Engineer – Gervasio & Associates, Inc.**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
NATIONAL FLOOD INSURANCE PROGRAM

**FLOODPROOFING CERTIFICATE**  
FOR NON-RESIDENTIAL STRUCTURES

The floodproofing of non-residential buildings may be permitted as an alternative to elevating to or above the Base Flood Elevation; however, a floodproofing design certification is required. This form is to be used for that certification. Floodproofing of a residential building does not alter a community's floodplain management elevation requirements or affect the insurance rating unless the community has been issued an exception by FEMA to allow floodproofed residential basements. The permitting of a floodproofed residential basement requires a separate certification specifying that the design complies with the local floodplain management ordinance.

BUILDING OWNER'S NAME  
**Moon Valley Mini Storage, LLC**

STREET ADDRESS (Including Apt., Unit, Suite, and/or Bldg. Number) OR P.O. ROUTE AND BOX NUMBER  
**13845 North 7<sup>th</sup> Street**

OTHER DESCRIPTION (Lot and Block Numbers, etc.)  
**Lot 2 of Andrus Heights, Book 440, Page 29, MCR, Maricopa County, Arizona**

FOR INSURANCE COMPANY USE
POLICY NUMBER
COMPANY NAIC NUMBER

CITY **Phoenix** STATE **Arizona** ZIP CODE **85022-4301**

SECTION I FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

Provide the following from the proper FIRM:

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM INDEX	FIRM ZONE	BASE FLOOD ELEVATION (In AO Zones, Use Depth)
040051	1655	J	July 19, 2001	AE	1366.10 feet

SECTION II FLOODPROOFING INFORMATION (By a Registered Professional Engineer or Architect)

Floodproofing Design Elevation Information:

Building is floodproofed to an elevation of 1369.66 feet NGVD. (Elevation datum used must be the same as that on the FIRM.)

Height of floodproofing on the building above the lowest adjacent grade is 1.7 feet.

(NOTE: for insurance rating purposes, the building's floodproofed design elevation must be at least one foot above the Base Flood Elevation to receive rating credit. If the building is floodproofed only to the Base Flood Elevation, then the building's insurance rating will result in a higher premium.)

SECTION III CERTIFICATION (By Registered Professional Engineer or Architect)

Non-Residential Floodproofed Construction Certification:

I certify that, based upon development and/or review of structural design, specifications, and plans for construction, the design and methods of construction are in accordance with accepted standards of practice for meeting the following provisions:  
See attached letter dated January 10, 2003.

~~The structure, together with attendant utilities and sanitary facilities, is watertight to the floodproofed design elevation indicated above, with walls that are substantially impermeable to the passage of water.~~

~~All structural components are capable of resisting hydrostatic and hydrodynamic flood forces, including the effects of buoyancy, and anticipated debris impact forces.~~

I certify that the information on this certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

CERTIFIER'S NAME <b>Joseph A. Gervasio, P.E.</b>	LICENSE NUMBER (or Affix Seal) <b>5700</b>
TITLE <b>President</b>	COMPANY NAME <b>Gervasio &amp; Assoc., Inc.</b>
ADDRESS <b>4527 N. 16<sup>th</sup> St. Suite 200</b>	CITY <b>Phoenix</b> STATE <b>AZ</b> ZIP CODE <b>85281</b>
SIGNATURE 	DATE <b>2-3-03</b> PHONE <b>(602) 285-1720</b>

Copies should be made of this Certificate for: 1) community official, 2) Insurance agent/company, and 3) building owner.

# GERVASIO & ASSOC., INC.

CONSULTING ENGINEERS

(602) 285-1720 • 4527 North 16th Street, Suite 200

PHOENIX, ARIZONA 85016-5344

January 10, 2003

Mr. Robert Brown  
QK4  
425 South 48th Street, Suite 101  
Tempe, AZ 85281

RE: HEARN & 7TH STREET - MINI-STORAGE FACILITY  
Phoenix, Arizona  
G&A Job No. 6084.6 S01

Dear Mr. Brown:

As you requested, we analyzed the existing basement walls for a saturated soil backfill condition. We originally designed the basement walls for dry conditions with outside pavement adjacent to the walls with a truck (surcharge) load and not for flood provisions. This assignment was to check our original wall design for a flood condition without pavement and truck loads, but with saturated soils. We obtained a design saturated soil backfill pressure of 90 psf/ft. from Mr. Randy Marwig, P.E., Soils Engineer with Western Technologies, Inc. See WTI's attached letter.

Based on this information, our calculations show that the existing basement wall can safely resist saturated backfill pressure where there is no pavement and surcharge loads. We understand this was needed because the underground drainage system shown on the Contract Documents was not constructed. Because of this, we recommend that your hydrologist review the water penetration into the soil backfill to confirm the extent hydrostatic pressure will influence the basement walls. Restriction of traffic, where it would cause basement wall surcharge loads, may be required.

If you have questions, please call.

Sincerely,

GERVASIO & ASSOC., INC.

*Marlene Begay Betani*

Marlene Begay Betani, P.E.  
Asst. Dir., Structural Department

Reviewed by:



Joseph A. Gervasio, P.E.  
President

MB/JAG:blm

Enclosure

## **APPENDIX F**

**Letter of Map Revision based on Fill (LOMR-F)**  
**FEMA MT-1 Forms**



In addition to this form (MT-1 Form 1), ALL requests must include the following:

- Copy of the Plat Map for the property (with recordation data and stamp of the Recorder's Office)  
OR
- Copy of the property Deed (with recordation data and stamp of the Recorder's Office), accompanied by a tax assessor's map or other certified map showing the surveyed location of the property relative to local streets and watercourses
- Copy of the effective FIRM panel and/or Flood Boundary and Floodway Map (FBFM) (if applicable) on which the property location has been accurately plotted (property inadvertently located in the NFIP regulatory floodway will require Section B of MT-1 Form 3)
- Form 2 – Elevation Form. If an Elevation Certificate has already been completed for this property, it may be submitted in addition to Form 2.

Please include a map scale and North arrow on all maps submitted.

For LOMR-Fs and CLOMR-Fs, the following must be submitted in addition to the items listed above:

- Form 3 – Community Acknowledgment Form

Processing Fee (see instructions for appropriate mailing address; or, visit [http://www.fema.gov/mit/tsd/frm\\_fees.htm](http://www.fema.gov/mit/tsd/frm_fees.htm) for the most current fee schedule)

Revised fee schedules are published periodically, but no more than once annually, as noted in the Federal Register. Please note: single/multiple lot(s)/structure(s) LOMAs are fee exempt. The current review and processing fees are listed below:

Check the fee that applies to your request:

- \$325 (single lot/structure LOMR-F following a CLOMR-F)
- \$425 (single lot/structure LOMR-F)
- \$500 (single lot/structure CLOMA or CLOMR-F)
- \$700 (multiple lot/structure LOMR-F following a CLOMR-F, or multiple lot/structure CLOMA)
- \$800 (multiple lot/structure LOMR-F or CLOMR-F)

Please submit the Payment Information Form for remittance of applicable fees. Please make your check or money order payable to: National Flood Insurance Program.

All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Applicant's Name: W. Scott Ogden, P.E.  
Please Print or Type

Company: JE Fuller/ Hydrology & Geomorphology, Inc.

Mailing Address: 6101 South Rural Road, Suite 110  
Tempe, Arizona 85283

Daytime Telephone No.: 480-752-2124 Ext 12

E-Mail Address: scott@jefuller.com  
(optional)

Fax No.: 480-839-2193

Date

  
Signature of Applicant (required)

If you have any questions concerning FEMA policy, or the NFIP in general, please contact the FEMA Map Assistance Center toll free at 1-877-FEMA MAP (1-877-336-2627), or visit the Flood Hazard Mapping website at [www.fema.gov/mit/tsd/](http://www.fema.gov/mit/tsd/).

FEDERAL EMERGENCY MANAGEMENT AGENCY  
ELEVATION FORM

O.M.B. NO. 3067-0147  
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0147). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

This form must be completed for requests and must be completed and signed by a registered professional engineer or licensed land surveyor. **A FEMA National Flood Insurance Program (NFIP) Elevation Certificate may be submitted in addition to this form for single structure requests.**

For requests to remove a structure on natural grade OR on engineered fill from the Special Flood Hazard Area (SFHA), submit the lowest adjacent grade (the lowest ground touching the structure), including an attached deck or garage. For requests to remove an entire parcel of land from the SFHA, provide the lowest lot elevation; or, if the request involves an area described by metes and bounds, provide the lowest elevation within the metes and bounds description.

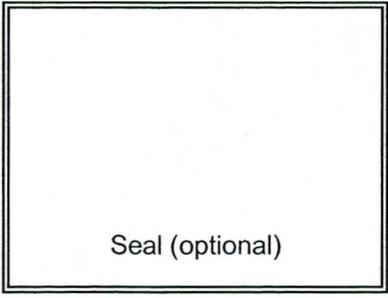
- NFIP Community Number: 040051 Property Name or Address: 13845 North 7<sup>th</sup> Street, Phoenix, Arizona 85022
- Are the elevations listed below based on  existing or  proposed conditions? (Check one)
- What is the elevation datum? NGVD 29 If any of the elevations listed below were computed using a datum different than the datum used for the effective Flood Insurance Rate Map (FIRM) (e.g., NGVD 29 or NAVD 88), what was the conversion factor? N/A  

Local Elevation +/- ft. = FIRM Datum
- For the existing or proposed structures listed below, what are the types of construction? (check all that apply)  
 crawl space  slab on grade  basement/enclosure  other (explain)
- Has FEMA identified this area as subject to land subsidence or uplift? (see instructions)  Yes  No  
If yes, what is the date of the current releveling? / (month/year)

Lot Number	Block Number	Lowest Lot Elevation	Lowest Adjacent Grade To Structure	Base Flood Elevation	For FEMA Use Only
BLDG			1368.0	1366.1	
See	Attached	Flood-	Proofing	Certs.	

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Certifier's Name: W. Scott Ogden, P.E.	License No.: AZ 28857	Expiration Date: March 31, 2004
Company Name: JE Fuller/ Hydrology & Geomorphology, Inc.	Telephone No.: 480-752-2124 Ext. 12	Fax No.: 480-839-2193
Signature: <i>W. Scott Ogden</i>	Date: 2/11/03	





FEDERAL EMERGENCY MANAGEMENT AGENCY  
**COMMUNITY ACKNOWLEDGMENT FORM**

O.M.B. NO. 3067-0147  
 Expires September 30, 2005

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 0.88 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (3067-0147). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

This form must be completed for requests involving the existing or proposed placement of fill (complete Section A) OR to provide acknowledgment of this request to remove a property from the SFHA which was previously located within the regulatory floodway (complete Section B).

This form must be completed and signed by the official responsible for floodplain management in the community. The community number and the subject property address must appear in the spaces provided below.

Community Number: 040051                      Property Name or Address: 13845 North 7<sup>th</sup> Street, Phoenix, Arizona 85022

**A. REQUESTS INVOLVING THE PLACEMENT OF FILL**

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision Based on Fill (LOMR-F) or Conditional LOMR-F request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a Conditional LOMR-F, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination. For LOMR-F requests, we understand that this request is being forwarded to FEMA for a possible map revision.

Community Comments:

Community Official's Name and Title: <i>(Please Print or Type)</i>	Telephone No.:
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Community Name: City of Phoenix, Maricopa County, Arizona	Community Official's Signature: (required)	Date:
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**B. PROPERTY LOCATED WITHIN THE REGULATORY FLOODWAY**

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this request for a LOMA. We understand that this request is being forwarded to FEMA to determine if this property has been inadvertently included in the regulatory floodway. We acknowledge that no fill on this property has been or will be placed within the designated regulatory floodway. We find that the completed or proposed project meets or is designed to meet all of the community floodplain management requirements.

Community Comments:

Community Official's Name and Title: <i>(Please Print or Type)</i>	Telephone No.:
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Community Name:	Community Official's Signature (required):	Date:
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**FINAL PLAT**  
of  
**"ANDRUS HEIGHTS"**  
A SUBDIVISION OF A PORTION OF  
**THE S.W. 1/4, S.W. 1/4, SECTION 9, T.3N., R.3E. OF THE**  
**GILA & SALT RIVER BASE & MERIDIAN, MARICOPA COUNTY, ARIZONA**



**DEDICATION**

STATE OF ARIZONA )  
COUNTY OF MARICOPA ) SS

KNOW ALL MEN BY THESE PRESENTS VERDE REALTY ADVISERS, INC. AN ARIZONA CORPORATION, AS OWNER, HAS SUBDIVIDED UNDER THE NAME OF "ANDRUS HEIGHTS" A PORTION OF SECTION 9, TOWNSHIP 3 NORTH, RANGE 3 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, AS SHOWN PLATTED HEREON AND HEREBY PUBLISHES THIS PLAT AS AND FOR THE PLAT OF "ANDRUS HEIGHTS". AND HEREBY DECLARES THAT SAID PLAT SETS FORTH THE LOCATION AND DIMENSIONS OF THE LOTS, STREET TRACT AND EASEMENTS CONSTITUTING SAME, AND THAT EACH LOT, TRACT AND STREET SHALL BE KNOWN BY THE NUMBER, LETTER OR NAME GIVEN RESPECTIVELY ON SAID PLAT. VERDE REALTY ADVISERS, INC. AS OWNER DEDICATES TO THE PUBLIC THE STREETS, PUBLIC UTILITY, & SIDEWALK EASEMENTS AS SHOWN ON SAID PLAT AND INCLUDED IN THE ABOVE DESCRIBED PREMISES.

IN WITNESS WHEREOF, VERDE REALTY ADVISERS, INC. AN ARIZONA CORPORATION, AS OWNER, HAS HEREBY CAUSED ITS CORPORATION NAME TO BE AFFIXED AND THE SAME TO BE ATTESTED BY THE SIGNATURE OF Barrell Johnson, ITS Vice President HERETOFORE DULY AUTHORIZED THIS 2nd DAY OF April, 1997.

BOOK 440 PAGE 29  
OFFICIAL RECORDS OF  
MARICOPA COUNTY RECORDER  
HELEN PURCELL  
97-0295655  
05/02/97 03 46

"UNSUBDIVIDED"  
N.90°00'00"E. - 659.00'(R)  
N.89°58'50"E. - 659.07'(M)  
613.00'

CORNER OF SUBDIVISION  
FND OLD 1" I.P.

**ACKNOWLEDGMENT**

STATE OF ARIZONA )  
COUNTY OF MARICOPA ) SS

BEFORE ME THIS 2nd DAY OF April, 1997, Barrell Johnson PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, WHO ACKNOWLEDGED HIMSELF TO BE OF VERDE REALTY ADVISERS, INC., THE LEGAL OWNER OF THE PROPERTY PLATTED HEREON AND ACKNOWLEDGE THAT Barrell Johnson AS Vice President EXECUTED THIS INSTRUMENT FOR THE PURPOSES HEREIN CONTAINED.

IN WITNESS WHEREOF, I HERETO SET MY HAND AND OFFICIAL SEAL



**CERTIFICATION**

THIS IS TO CERTIFY THAT THE PLAT IS CORRECT AND ACCURATE, AND THAT THE MONUMENTS DESCRIBED HAVE BEEN LOCATED, OR SET AS INDICATED ON SAID PLAT AND THAT THE SURVEY OF THE PREMISES DESCRIBED HEREON WAS MADE UNDER MY DIRECTION DURING THE MONTH OF MAY, 1996.



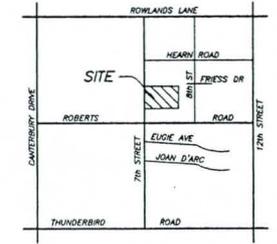
OWNER:  
VERDE REALTY ADVISERS, INC.  
2535 EAST CAMELBACK ROAD  
SUITE 200  
PHOENIX, AZ 85016  
(602)852-8824

REGISTERED LAND SURVEYOR:  
GERMAGIO & ASSOCIATES, INC.  
4577 NORTH 16TH STREET  
SUITE 200  
PHOENIX, AZ 85016  
(602)852-1722

**APPROVALS**

APPROVED BY THE CITY COUNCIL OF THE CITY OF PHOENIX, ARIZONA, THIS 2nd DAY OF April, 1997.

ATTEST: City Clerk  
Toby Neal  
APPROVED BY: J. J. [Signature] 4-3-97  
FOR DEVELOPMENT SERVICES DEPT. DATE



**VICINITY MAP**

N.T.A.  
05 33-29  
D/S P964345  
CASE NO 112-96-3  
FN 48007

G&A #6084B

HEARN ROAD

"HILLCREST EIGHT" BK 182 PG 26 MCR

CORNER OF SUBDIVISION SET BRASS CAP

W LINE - S.W. 1/4 SEC 9 T.3N., R.3E.

"HILLCREST SEVEN" BK 186 PG 1 MCR

CORNER OF SUBDIVISION SET BRASS CAP

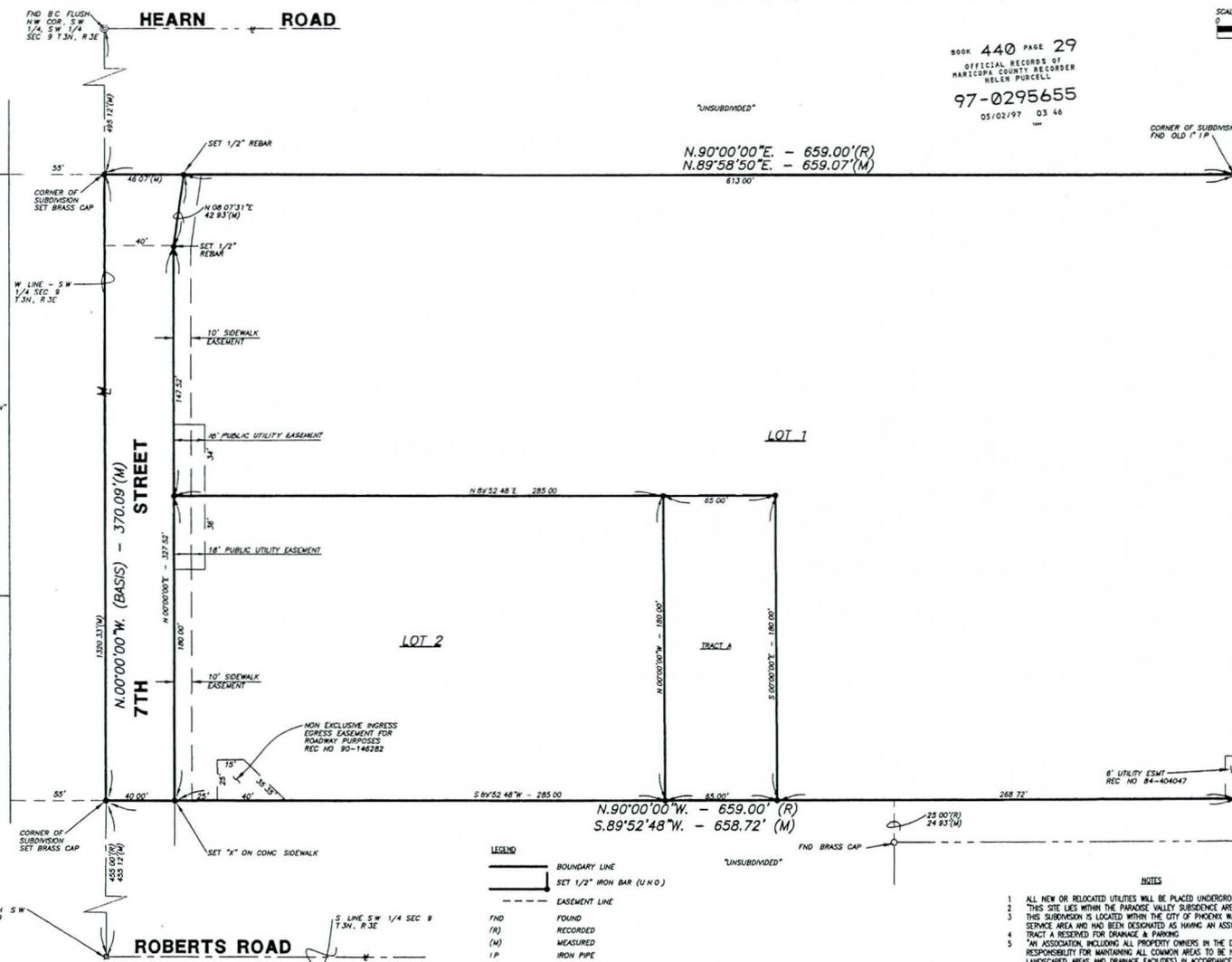
"HILLCREST SIX" BK 176 PG 36 MCR

CORNER OF SUBDIVISION SET BRASS CAP

FND B.C.H.H. S.W. COR SEC 9 T.3N., R.3E.

ROBERTS ROAD

S LINE S.W. 1/4 SEC 9 T.3N., R.3E.



**LEGEND**

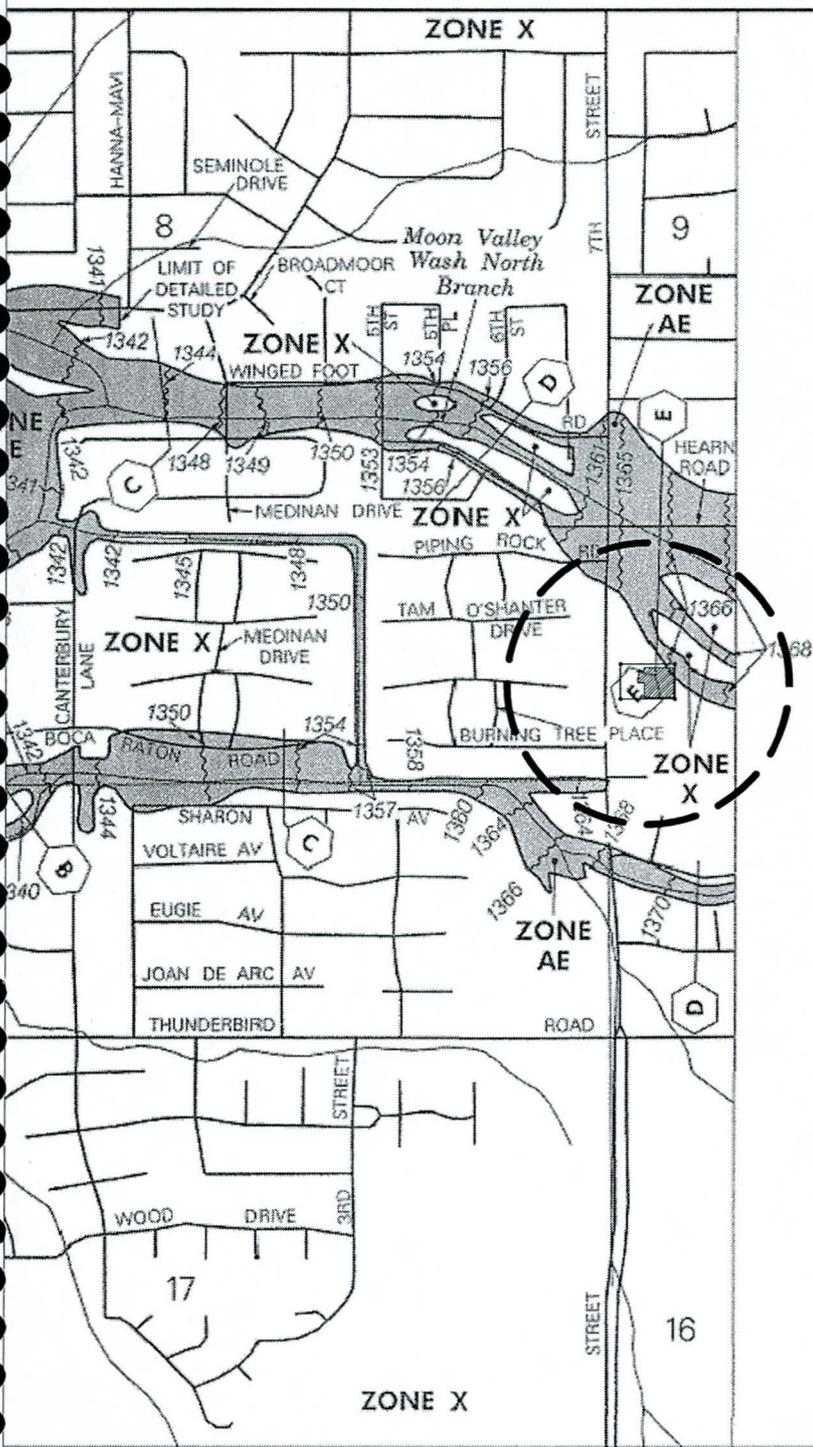
—	BOUNDARY LINE
—	SET 1/2" IRON BAR (UNO)
- - -	EASEMENT LINE
FND	FOUND
(R)	RECORDED
(M)	MEASURED
I/P	IRON PIPE
I.P.	IRON PIPE
■	BRASS CAP
○	IN HAND HOLE

**NOTES**

- 1 ALL NEW OR RELOCATED UTILITIES WILL BE PLACED UNDERGROUND
- 2 THIS SITE LIES WITHIN THE PARADISE VALLEY SUBSIDENCE AREA.
- 3 THIS SUBDIVISION IS LOCATED WITHIN THE CITY OF PHOENIX WATER SERVICE AREA AND HAD BEEN DESIGNATED AS HAVING AN ASSIGNED WATER SUPPLY
- 4 TRACT A RESERVED FOR DRAINAGE & PARKING
- 5 "M" ASSOCIATION, INCLUDING ALL PROPERTY OWNERS IN THE DEVELOPMENT, WILL BE FORMED AND HAVE THE RESPONSIBILITY FOR MAINTAINING ALL COMMON AREAS TO BE NOTED AS "TRACTS" OR EASEMENTS (INCLUDING LANDSCAPED WALKS AND DRAINAGE FACILITIES) IN ACCORDANCE WITH APPROVED PLANS
- 6 NO STRUCTURE OF ANY KIND BE CONSTRUCTED ON, OVER, OR PLACED WITHIN THE SEWER EASEMENTS EXCEPT PAVING NOR ANY PLANTING EXCEPT GRASS. IT SHALL BE FURTHER UNDERSTOOD THAT THE CITY OF PHOENIX SHALL NOT BE REQUIRED TO REPLACE ANY OBSTRUCTIONS OR PLANTING THAT MUST BE REMOVED DURING THE COURSE OF MAINTENANCE, CONSTRUCTION OR RECONSTRUCTION OF CITY UTILITIES.

440-29

S:\PROJECT\USHK\PLAT 114.MXD 12:08:01 22 APR 1997 5:18:42



APPROXIMATE SCALE IN FEET  
 1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
 FLOOD INSURANCE RATE MAP  
 MARICOPA COUNTY,  
 ARIZONA AND  
 INCORPORATED AREAS

PANEL 1655 OF 4350  
 (SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS COMMUNITY	NUMBER	PANEL	SUFFIX
PHOENIX CITY OF	04021	1655	J

MAP NUMBER  
 04013C1655 J

MAP REVISED:  
 JULY 19, 2001



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)