

Drainage Reports

Abbreviated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application

Luxian Villas on Camelback

Water and Sewer Basis of Design Reports

6500 E. Camelback Road
Scottsdale, AZ 85254

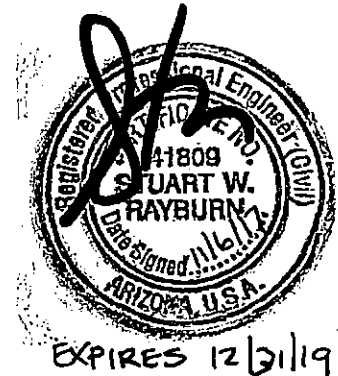


Developer:

Luxian Villas on Camelback
Attn: Mr. Gary Arnold
11340 W. Bell Road, Suite 114
Surprise, AZ 85378

Prepared By:

RCC Design Group, LLC
4505 E. Chandler Blvd., Suite 265
Phoenix, AZ 85048
480.598.0270



Date: May 10, 2017

Revised November 6, 2017

Luxian Villas on Camelback

Water Basis of Design Report

6500 E. Camelback Road
Scottsdale, AZ 85254



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 - b. Existing and Proposed Uses and Site Zoning
- B. Design Documentation**
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- C. Existing Conditions**
 - a. Existing Zoning and Land Use
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- D. Proposed Conditions**
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 - c. Maintenance Responsibilities
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 - a. Water Demands (Figure 6.1-2)
 - b. Water System Analysis
- F. Summary**
 - a. Design Standards have been met
 - b. Project Schedule
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 - a.
 - b. Vicinity Map
 - c. Existing and Proposed Utilities Map
 - d. Proposed Site Plan

A. Introduction

a. Legal Description

Lots 28, 29, 30 of Camelback Club Estates. Being a portion of the Northwest quarter of Section 22, Township 2 North, Range 4 East, of the Gila and Salt River Base and Meridian, Maricopa County Arizona

b. Existing and Proposed Uses and Site Zoning

The existing site is zoned R-4, with stipulations per Ordinance No. 8082. The existing use is vacant residential.

B. Design Documentation

a. Design Procedures Discussion

A new 8" public main will be looped through the site and connected at two points to the existing 12" ACP main in Camelback Road. A new fire hydrant will be installed within the limits of the property.

C. Existing Conditions

a. Existing Zoning and Land Use

The existing site is zoned R-4. The existing use is vacant residential lots. The property was rezoned to R-4 in 2009, Scottsdale Zoning Case #8-ZN-2009.

b. Existing Site Conditions

The existing site is currently vacant residential lots adjacent to the Phoenician Golf Course. A portion of the site is designated as golf course easement and maintained by the Phoenician Golf Course. That easement will be modified as necessary for the proposed development.

c. Existing Utilities Discussion

There is an existing 12" ACP water main in Camelback Road that will be tapped in 2 locations and a new 8" public main looped through the site.

d. Flow Test Results

A flow test was performed on October 10, 2017 and found 4,150 GPM at 20 psi, with static pressure of 88 psi and residual pressure of 76 psi. Flow test report included

D. Proposed Conditions

a. Site Plan

The site plan for the proposed development is included at the back of this report. The project includes 14 luxury residential units in a resort style setting.

b. Proposed Connections to City Water System

A new 8" public water main loop is proposed through the site. The connections to the main will be made at opposite ends of the project.

c. Maintenance Responsibility

Since the new line will be a public line, there will be an easement over the line and the line will be constructed per City of Scottsdale requirements and the easement dedicated to the City. All maintenance of the new line will be the responsibility of the City of Scottsdale.

E. Computations

a. Water Demands (Figure 6.1-2)

Based on Figure 6.1-2, the required demands for this type of development is 248.2 gallons per day per unit and a peaking factor of 4.

b. Water System Analysis

Project: Luxian Villas on Camelback

Date: May 3, 2017

Prepared by: Julie S. Rayburn, P.E./RCC Design Group, LLC

Project Description: 14 new luxury residences

Location: 6500 E. camelback Road, Scottsdale, AZ, A Portion of the NW Quarter of Section 22, T2N, R4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona

Existing Conditions: The site is currently composed of 3 vacant residential lots

Zoning: City Zone Code R-4

Domestic Water Demand Calculations:

Average Daily Flow:

$$\underline{\text{Residential: } 248.2 \text{ gpd / unit} = 248.2 \text{ gpd} \times 14 \text{ units} = 3,475 \text{ gpd}}$$

$$\text{Total} = 3,475 \text{ gpd}$$

Maximum Daily Flow:

$$3,475 \text{ gpd} \times 4.0 \text{ (peak factor)} = 13,900 \text{ gpd}$$

$$\text{Peak demand} = 13,900 \text{ gpd} / 24 \text{ hr/day} / 60 \text{ min/hr} = 9.65 \text{ gpm peak}$$

Water service for this site is provided by the new 8" public main looped through the site and connected to the existing 12" main in Camelback Road at two points.

F. Summary

- a. Design Standards have been met

The new line will be designed and constructed in accordance with the requirements and specifications of the City of Scottsdale and the Maricopa Association of Governments (MAG) as appropriate.

- b. Project Schedule

Construction to begin on or before December 1, 2017, and last approximately 12 months.

G. Supporting Maps / Documentation

- a. Vicinity Map
- b. Existing and Proposed Utilities Map
- c. Proposed Site Plan
- d. Flow Test Report

Luxian Villas on Camelback

Sewer Basis of Design Report

6500 E. Camelback Road

Scottsdale, AZ 85254



Developer:

Luxian Villas on camelback

Attn: Mr. Gary Arnold

11340 W. Bell Road, Suite 114

Surprise, AZ 85378

Prepared By:

RCC Design Group, LLC

4505 E. Chandler Blvd., Suite 265

Phoenix, AZ 85048

480.598.0270

Date: May 10, 2017

Revised November 6, 2017

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- E. Computations**
 - a. Sewer Demands (Figure 7.1-2)
 - b. Sewer System Analysis
- F. Summary**
 - a. Design Standards have been met
 - b. Project Schedule
- G. Supporting Maps**
 - a. Vicinity Map
 - b. Existing and Proposed Utilities Map
 - c. Proposed Site Plan

A. Introduction

a. Legal Description

Lots 28, 29, 30 of Camelback Club Estates. Being a portion of the Northwest quarter of Section 22, Township 2 North, Range 4 East, of the Gila and Salt River Base and Meridian, Maricopa County Arizona

b. Existing and Proposed Uses and Site Zoning

The existing site is zoned R-4, with stipulations per Ordinance No. 8082. The property was rezoned to R-4 in 2009 per City of Scottsdale Case #8-ZN-2009. The existing use is vacant residential lots. Currently each of the 3 lots has a sewer stub to the lot. This line will be abandoned.

B. Design Documentation

a. Design Procedures Discussion

Best engineering practices will be used to bring new sewer from the nearest existing sewer to the site. All City of Scottsdale and MAG requirements and specifications will be used for the design and construction of the new line.

C. Existing Conditions

a. Existing Zoning and Land Use

The existing site is zoned R-4. The existing use is vacant residential lots.

b. Existing Site Conditions

The existing site is composed of vacant residential lots just south of the Phoenician Golf Course, and fronting Camelback Road. There are 3 existing sewer stubs to the property, one to each existing lot.

c. Existing Utilities Discussion

There is an existing 8" sewer main to the west of the property and an existing manhole approximately 58' west of the site that will be used as the connection point for the line that will be extended to the site.

D. Proposed Conditions

a. Site Plan

The site plan for the proposed development is included at the back of this report.

b. Proposed Connections to City Sewer System

A new public 8" sewer line will be extended from the existing manhole west of the site to the west entrance and then onto the site to serve the new units. The new sewer line will share the utility easement onsite that will contain both the new water and sewer lines.

E. Computations

a. Sewer Demands (Figure 7.1-2)

The sewer demands used for the calculations are from Figure 7.1-2. For this type of use, the demand is 140 gallons per day per unit with a 4.5 peaking factor.

b. Sewer System Analysis

Project: Luxian Villas on Camelback
Date: May 3, 2017
Prepared by: Julie S. Rayburn, P.E./RCC Design Group, LLC

Project Description: 14 new luxury residences

Location: 6500 E. Camelback Road, Scottsdale, AZ, A Portion of the NE Corner of Section 22, T3N, R4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona

Existing Conditions: Currently 3 vacant residential lots

Zoning: City Zone Code R-4

Sanitary Sewer Demand Calculations:

Average Daily Flow:

$$\text{Residences: } 100 \text{ gpcpd} \times 2.5 \text{ persons / unit} = 140 \times 14 = 3,500 \text{ gpd}$$

$$\text{Total} = 3,500 \text{ gpd}$$

Maximum Daily Flow:

$$3,500 \text{ gpd} \times 4 \text{ (peak factor)} = 14,000 \text{ gpd}$$

Sanitary sewer service for this site is provided by a new 8" public extension in Camelback Road to the site and the new public line onto the site.

F. Summary

- a. Design Standards have been met

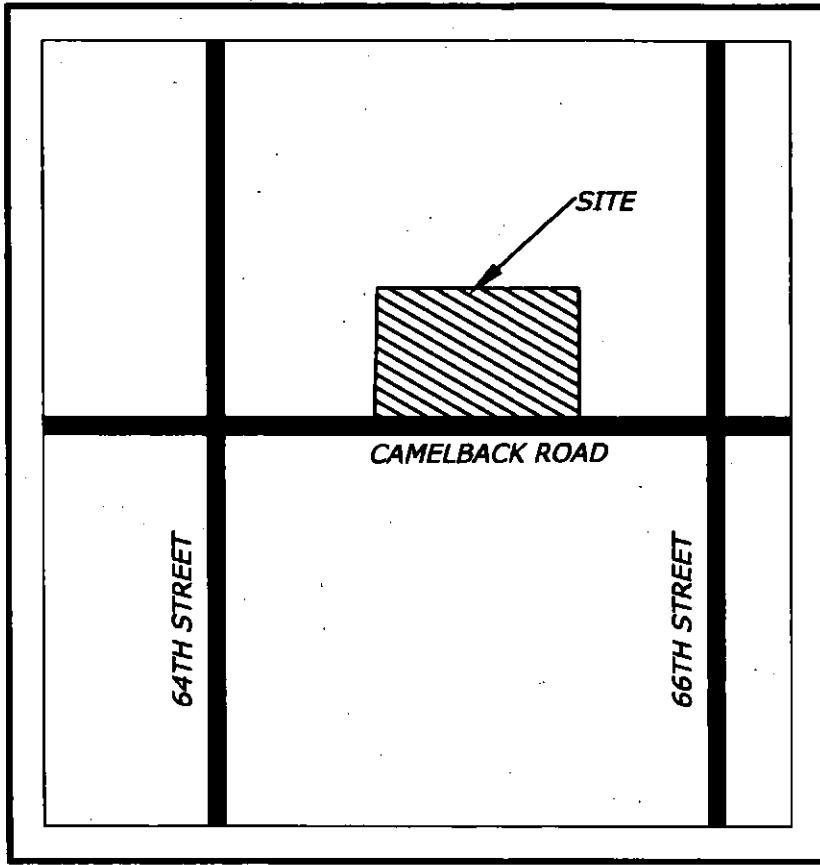
The new line will be designed and constructed in accordance with the requirements and specifications of the City of Scottsdale and the Maricopa Association of Governments (MAG) as appropriate.

- b. Project Schedule

Construction to begin on or before December 1, 2017, and last approximately 12 months.

G. Supporting Maps / Documentation

- a. Vicinity Map
- b. Existing and Proposed Utilities Map
- c. Proposed Site Plan



VICINITY MAP
NOT TO SCALE

Fire Hydrant Line

Project: Luxian Villas
Project Number: 16-023-50

Static Pressure (psi)	72	Fire Flow (gpm)	1500
Residual Pressure (psi)	60	Domestic Flow (gpm)	10
Hydrant Flow (gpm)	1880	Flow at 20 psi (gpm)	4149.94

8" line from main to hydrant tee

Pipe Size (in)	8	Pressure at Node 0 (psi)	73.24
Length of Run (ft)	196	Flow (gpm)	10.00
Eq. Length of Fittings (ft)	32.5	Friction Losses (psi)	0.00
Hazen Williams 'C'	120	Elevation Losses (psi)	-0.48
Elev. Node 0 (ft)	1302.3	Pressure at Node 1 (psi)	72.76
Elev. Node 1 (ft)	1303.4	Meter Losses / B.P. (psi)	0
		Demand (gpm)	1500

6" line from tee to hydrant

Pipe Size (in)	6	Flow (gpm)	1500.00
Length of Run (ft)	16	Friction Losses (psi)	-2.66
Eq. Length of Fittings (ft)	17.6	Elevation Losses (psi)	0.00
Haz. Will. C	120	Pressure at Node 2 (psi)	70.10
Elev. Node 1 (ft)	1303.4		
Elev. Node 2 (ft)	1303.4		

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name: Luxian Villas
Project Address: 6500 East Camelback Road, Scottsdale, Arizona, 85251
Arizona Flow Testing Project No.: 17222
Client Project No.: 16-023-50
Flow Test Permit No.: C53533
Date and time flow test conducted: October 10, 2017 at 7:30 AM
Data is current and reliable until: April 10, 2018
Conducted by: Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by: Phil Cipolla – City of Scottsdale-Inspector (602-828-0847)

Raw Test Data

Static Pressure: **88.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **76.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **25.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One (4 inch)
(Measured in inches)

Coefficient of Diffuser: .7875 Hose Monster

Flowing GPM: **1,880 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **4,797 GPM**

Data with 16 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **60.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 580 Feet

Main size: Not Provided

Flowing GPM: **1,880 GPM**

GPM @ 20 PSI: **4,150 GPM**

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Flow Test Location

North ↑

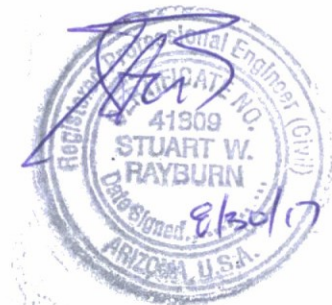


Preliminary
Hydrology Study
For



Luxian Villas on Camelback
6500 E. Camelback Road
Scottsdale, AZ

Prepared by:



Expires 12/31/19

4505 E. Chandler Blvd., Suite 265
Phoenix, Arizona 85048
480.598.0270
480.598.0273 fax

May 10, 2017
Revised August 30, 2017

Stormwater Review By:
Alex Menez

Phone: 480-312-7278

Fax: 480-312-9103

e-mail: amenez@ScottsdaleAZ.gov

Review Cycle 2 Date 9/15/17

25-DR-2017
08/30/17

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- Appendix B Retention Requirements

1.0 Introduction

The site for the development of the proposed Luxian Villas on Camelback is 3 undeveloped residential lots at 6500 E. Camelback Road in Scottsdale, Arizona. The combined area of the 3 lots is 3.03 acres. The proposed development will be 14 luxury residential units. The property is surrounded by the Phoenician Golf Course with Camelback Road to the south. A portion of the site is designated as golf course easement.

2.0 Location

The site is located at 6500 E. Camelback Road in Scottsdale, Arizona. The site is described as a portion of the northwest quarter of Section 22, Township 2N, Range 4E of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

3.0 Site Description

Currently, the site is vacant and has no structures on it. The site slopes gently to the southeast corner of the site and drains into a large grated drainage structure that ties to the large storm drainage main at the centerline of Camelback Road. The property is surrounded by the Phoenician Golf Course and Camelback Road. A large portion of the site is dedicated golf course easement and is maintained by the Phoenician Golf Course.

4.0 FEMA Floodplain Classification

According to FEMA Flood Insurance Rate Maps, Map Number 04013C1765L, dated October 16, 2013, the subject property is located in Zone X. Zone X is defined as "Areas of 500-year flood; Areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. See Figure 3-1 for the FEMA Map.

5.0 Off-site Drainage

There is drainage from Camelback Road that drains across the site frontage and into a scupper at the southeast corner of the property and promptly dumps into an existing drainage structure and enters the Camelback Road system. With the development of the site, this structure will be required to be relocated behind the proposed deceleration lane. It is possible that this structure could change configuration depending on the changes made at the Phoenician Golf Course. Coordination has begun with the team that is designing the golf course, and will continue through the construction document phase.

5.1 Background

According to the Lower Indian Bend Wash ADMP, there is drainage that comes from 64th Street, through the golf course, and enters two inlets along Camelback Road. One inlet is at the SEC of the Luxian site, and the 2nd inlet is east of the Luxian east property line. The Phoenician Golf Course is currently undergoing a re-design that will have a direct effect on the runoff that currently drains to the inlet at the SEC of the Luxian site. There is an existing grated drainage inlet that will be removed and replaced further to the east the final design of that structure will not be known until the engineering for the golf course redesign is complete. This will be addressed in detail prior to construction documents.

5.2 Proposed Offsite Flow Management

As the Luxian design progresses, coordination will continue with the golf course team and a satisfactory solution to the runoff issue will be implemented on the construction documents. Runoff is currently flowing across the eastern portion of the property. This flow will be re-routed with the modifications to the golf course and directed to the new graded inlet.

6.0 On-site Drainage

The site is designed to direct the water from the parking and building areas to the retention facilities via a combination of overland flow and storm drain inlets. The building roof drainage is discharged to the auto court and flows to the underground retention basin. The retention is designed to retain the runoff for no more than 36 hours and drains via gravity into the Camelback Road system. The retention was sized based on the City of Scottsdale requirements. Since this site was previously developed with residential homes in the past, the retention volume will be calculated using a pre versus post model. Complete calculations can be found in the Appendix.

7.0 Retention Requirements

The City of Scottsdale requires that this site retention be sized based on pre versus post development since 2 of the 3 lots have been developed as residential lots previously. There is a portion of the lots that drains back to the golf course, and that area is not included in the calculations for retention.

The 100-year 2-hour Isopluvial Map is used to derive the rainfall depth for the proposed project site. Removing the portion of the site that drains to the golf course leaves 1.9 acres that we are required to provide retention for using the pre versus post runoff coefficient. First flush volume of ½" is less than the pre-vs. post volume and will therefore be handled in the proposed underground retention system.

All developments shall be designed to have positive outfall to adjacent streets once the on-site stormwater storage basins are filled. This site will gravity drain to the Camelback Road system via the onsite drainage structure at the southeast corner of the site. The site discharge will be controlled by an outlet control orifice which will provide for the necessary routing of the multiple storm events. A backwater valve will be used to prevent stormwater from within the City system from backing up into the on-site underground retention system.

Runoff coefficients are derived from Table 3.2 in the Drainage Design Manual for Maricopa County.

The volume required to be retained in the retention basin is determined by the following equation:

$V_{req'd} = C (P/12) A$ where;

C=runoff coefficient (pre versus post)

P=depth of water generated by the 100-year 2-hour storm

A=size of the drainage area

The retention volume is required to be drained within a time period of 36 hours, but not less than 24 hours, following a storm event. Disposal of retention will be accomplished through one of the following means:

- Infiltration
- Controlled bleed off
- Discharge Pump
- Drywells

The maximum bleedoff rate will be limited to predevelopment rates.

The finish floor elevation of structures must be at least 0.5 feet above the overflow water surface elevation at the crest of the emergency spillway. Finished floor elevations of structures shall be a minimum of one foot above the 100-year water surface of the stormwater storage facility for the 2-hour storm event.

For this site, the high-water elevation in the underground basin is approximately 1298.00 based on the preliminary grading plan, and the finished floor elevation of the buildings range from 1304.00 to 1304.70.

A stormwater pollution prevention plan will be required for this project.

8.0 Finished Floor Elevations

The finished floor elevation for the new residences was determined to be 1304.00 and 1304.70. This number was based on the grades surrounding the facility and the connection grades at the entrances from the street. Acceptable grades were calculated to accomplish proper drainage while attempting to balance earthwork quantities. The finish floor grade is at least 12.0 inches above the high water elevation in the retention facilities.

9.0 References

City of Scottsdale DS&PM, most recent edition.

Flood Control District of Maricopa County Drainage Design Manual, Hydrology, 2003 Edition.

Lower Indian Bens Wash ADMS

APPENDIX A – PEAK FLOW CALCULATIONS

Area of Site = 1.9 Acres

Runoff Coefficient = 0.90

Intensity (100-year) = 7.8 in. per hour (5 minute toc)

$$Q = CIA = 0.90 \times 7.8 \times 1.9 = 13.34 \text{ cfs}$$

APPENDIX B – RETENTION REQUIREMENTS

Total Site Area = 3.03 Acres

Area used to determine retention volume:

1.90 Acres (area not a part of the golf course easement)

$$P = 2.8''$$

$$C_{pre} = 0.6, C_{post} = 0.95$$

$$\text{Volume Required} = (P/12) \times A \times C$$

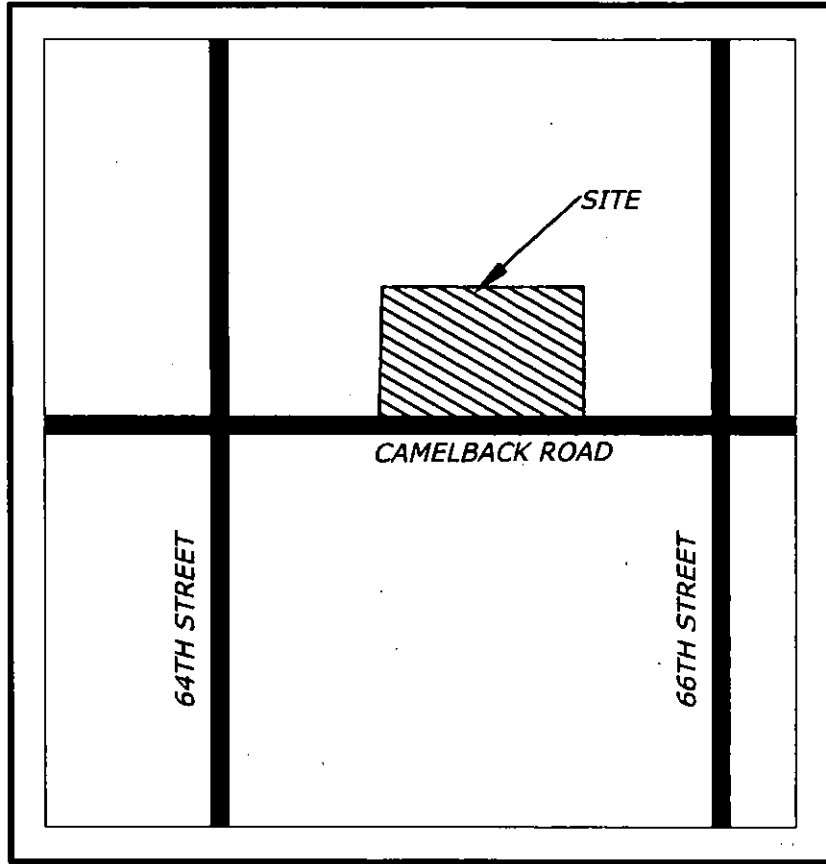
$$\text{Volume Required} = (2.8/12) (1.9) (0.95-0.6) = 0.1552 \text{ ac.ft or } 6,759 \text{ c.f.}$$

$$V_r = 6,785 \text{ c.f.}$$

Volume Provided:

Need 135'-96" cmp

Underground Retention Basin Provides = 6,785 c.f.



VICINITY MAP
NOT TO SCALE



Map





MAP SCALE 1" = 1000'



NFIP

PANEL 1765L

NATIONAL FLOOD INSURANCE PROGRAM

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

PANEL 1765 OF 4425
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1765	L
PARADISE VALLEY, TOWN OF	040049	1765	L
PHOENIX, CITY OF	040051	1765	L
SCOTTSDALE, CITY OF	045012	1765	L

Notice: This map was reissued on July 31, 2015 to make a correction. This version replaces any previous versions. See the Notice-to-User Letter that accompanied this correction for details.

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.



MAP NUMBER
04013C1765L
MAP REVISED
OCTOBER 16, 2013

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

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