Water
Basis of Design Report
For
URBIS 77

Southwest Corner of 78th Street & Camelback Road

Scottsdale, AZ

Project #-
Job No.: 06-065

Prepared for:

Silo Urban Homes

Prepared by:

Christopher J. Wilson. PE

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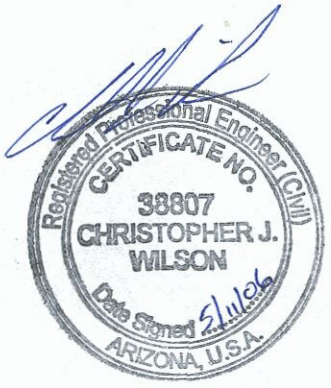


84-DR-2005
REV: 5/11/2006

Water and Sewer Basis of Design Report
FOR
URBIS 77
Scottsdale, Arizona

1.0 WATER INTRODUCTION

The proposed project is located at the southwest corner of Camelback Road and 78th Street in the City of Scottsdale. The site is situated within the Southeast Quarter of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, The site is bordered to the west by Parkway Avenue, to the east by 78th Street, to the north by camelback Road and to the south by Fireside West apartments and Adobe Villas Condominiums

The proposed and existing site are condominiums and are zoned Residential

There is an existing 8" water main located in 78th Street and an existing 6" water main located in Parkway Avenue This project will utilize both the existing 8 and 6" waterlines. The site will be served by an 8" line in both phase I and Phase II. The estimated maximum daily domestic demand is 131,098 GPD, see calculations below

A fire hydrant flow test was completed on April 28, 2006 (See attached flow test summary in Exhibit 6 2) The static pressure was 101 psi, residual pressure was 99 psi

2.0 WATER ANALYSIS

Multi-Family Development

288 units

Average Daily Demand	227 60 gpd (See figure 6 2)
Average Daily Water Demand	227 60x288= 65,549 gpd= 45 52 gpm
Max Demand Peaking Factor	2
Max Daily Demand	227 6x2x288=131,098gpd=91.04 gpm
Peak Hourly Demand Peaking Factor	3 5
Peak Hourly Demand	65,549 gpdx3 5=229,422 gpd=159 32 gpm
Max Daily demand with fire flow	91 04 gpm + 1500 gpm = 1591.04 gpm

The City of Scottsdale design requirement for this water system is to maintain 50 psi minimum system pressure to the highest finish floor and to maintain 30 psi system pressure to the highest finish floor under fire flow conditions

This site lies within pressure zone 1 of the City of Scottsdale water system. Based on the furthest run from the existing water main and considering it not be looped, the furthest remote location pressure at the building would be approximately 70 psi. The existing water system should have adequate pressure to serve the site both under normal operations as well as under fire flow conditions.

3.0 WATER CALULATIONS

Flow Test Summary

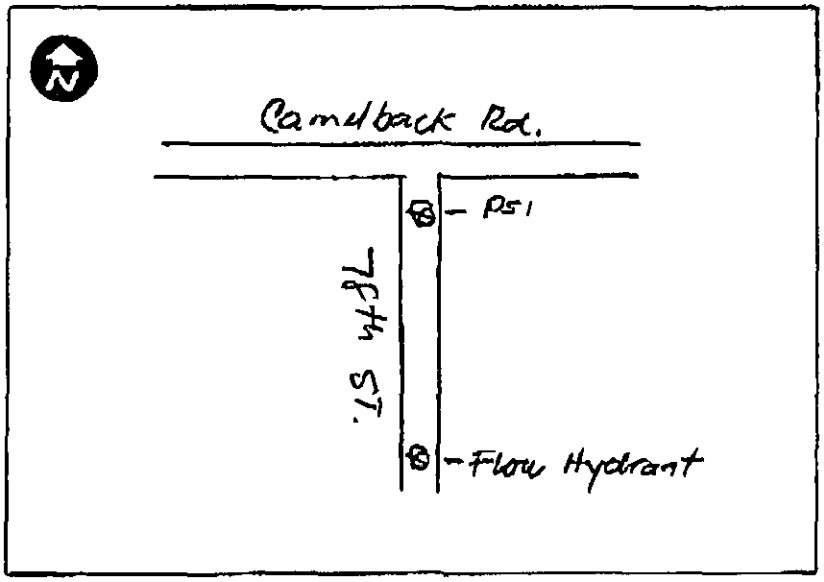
Prior to conducting test you must contact Inspection Services at 480-312-6760 to activate permit and schedule test date and inspection.

Project Address. SW Corner 78th St. & Camelback

Encroachment Permit No. C30486 **Date of Test:** 4/28/06 **Time of Test:** 12:00 PM

Test requires using two (2) hydrants on the water system

1. Attach water quarter section map identifying (#1) pressure and (#2) flow hydrant used to conduct the test OR
2. Show location of pressure hydrant and flow hydrant with cross streets and distance between hydrants and main size tested below



Test Data

Static pressure:	101	psi
Residual pressure	99	psi
Pitot reading:	65	psi
Flow GPM	1350	gpm
Hydrant orifice Diameter	2½	
Coefficient of Discharge:	.9	

Conducted By:

Testing to be witnessed and certified by a NICET Level III or IV (Fire Sprinkler) OR a Civil/Fire Protection Engineer licensed within the State of Arizona.

Witnessed By (print name). Frank Martinez

NICET Certification # or Engineers seal & signature:

Registered Professional Engineer
CERT. FIRE NO.
38607
CHRISTOPHER J. WILSON
Expires 2/3/06
ARIZONA, U.S.A.

Planning & Development Services Department
7447 E Indian School Road, Suite 100, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7088

MAY-2-2006 02:14P FROM:

HEADLOSS Version 2 0

INITIAL FLOW	FLOW STEP	FLOW UNITS	FLOW CONV	C	DIA INCHES	LENGTH FEET
0	100	gpm	1	100	8	1000

Table of Velocity, Velocity Head and Loss of Head

Flow		Velocity (fps)		Velocity Head		Loss of Head (ft)		Loss of Head (psi)
0		0 00		0 00		0 00		0
100		0 64		0 01		0 42		0 18
200		1 28		0 03		1 50		0 65
300		1 91		0 06		3 15		1 36
400		2 55		0 10		5 33		2 31
500		3 19		0 16		8 02		3 47
600		3 83		0 23		11 20		4 85
700		4 47		0 31		14 85		6 43
800		5 11		0 40		18 96		8 21
900		5 74		0 51		23 52		10 18
1000		6 38		0 63		28 52		12 35
1100		7 02		0 77		33 96		14 70
1200		7 66		0 91		39 82		17 24
1300		8 30		1 07		46 10		19 96
1400		8 94		1 24		52 80		22 86
1500		9 57		1 42		59 90		25 93
1600		10 21		1 62		67 41		29 18
1700		10 85		1 83		75 32		32 61
1800		11 49		2 05		83 62		36 20
1900		12 13		2 28		92 32		39 97
2000		12 77		2 53		101 41		43 90
2100		13 40		2 79		110 88		48 00
2200		14 04		3 06		120 73		52 26
2300		14 68		3 35		130 96		56 69
2400		15 32		3 64		141 57		61 29
2500		15 96		3 95		152 55		66 04
2600		16 60		4 28		163 90		70 95
2700		17 23		4 61		175 62		76 03
2800		17 87		4 96		187 71		81 26
2900		18 51		5 32		200 16		86 65
3000		19 15		5 69		212 97		92 19

HYDFLOW Version 2 0
Hydrant Flow Test Calculations Template

Situation Urbis 77 Condominiums Date 05/11/06
78th Street & Camelback Road

HYDRANT FLOW CALCULATIONS

Supply Pressure	101 00	
Supply Elevation	1252 00	
Test Point Static Pressure	101 00	(No Hydrant Flow)
Test Point Elevation	1250 00	
Test Point Residual Pressure	99 00	(Hydrant Flowing)

a	Supply HGL	1485 31
b	Test Point Static HGL	1483 31
c	Test Point Residual HGL	1478 69

Static Head Loss (a-b)	2
Residual Head Loss(a-c)	6 62

	Hydrant #1	#2	#3
Flow Pressure in PSI	65 00	0 00	0 00
Nozzle Diameter in Inches	2 50	2 50	2 50
Calculated Flow in GPM	1353 2	0 0	0 0

Total Hydrant Flows in GPM	1353 2

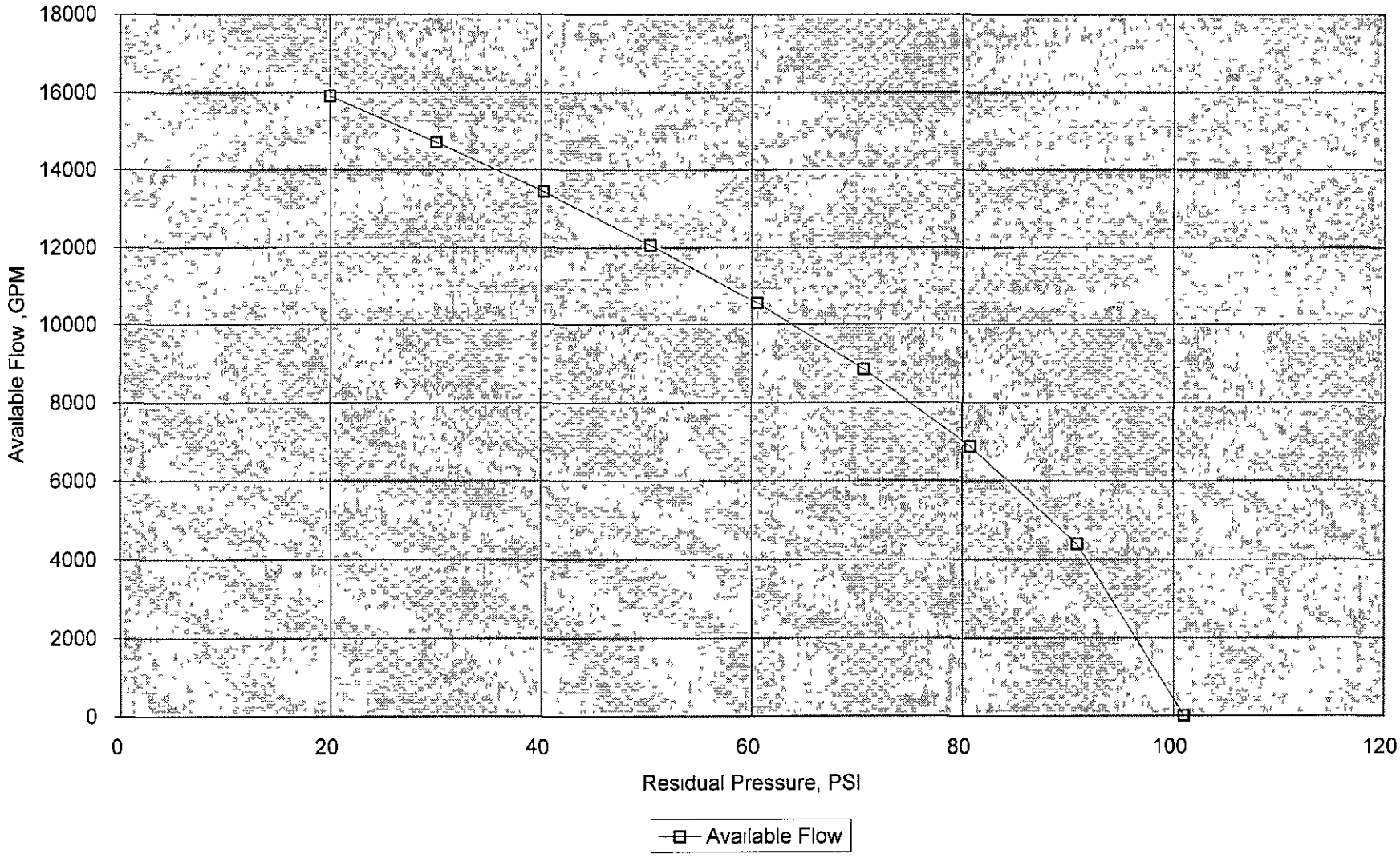
System Equivalent Base Flow in GPM	1489 4

System Base Flow Peaking Factor	1
Source Pressure	101
Source HGL	1485 31

Test Point Available Flow

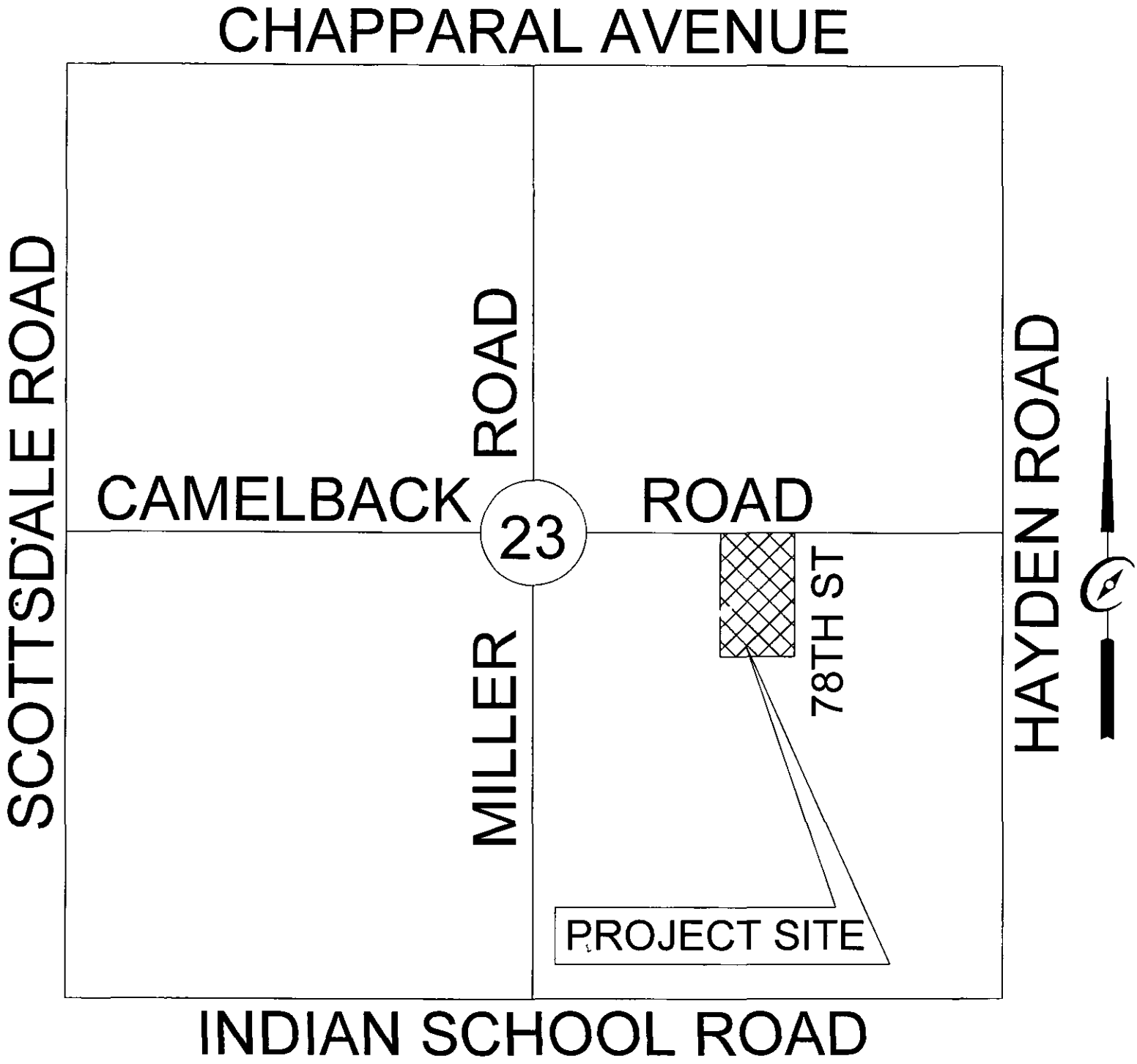
Residual Pressure	HGL	Total Flow	Equiv Base Flow	Available GPM
20	1296	17405	1489	15916
30	1320	16206	1489	14717
40	1343	14927	1489	13437
50	1366	13547	1489	12057
61	1390	12035	1489	10545
71	1413	10340	1489	8851
81	1437	8367	1489	6878
91	1460	5879	1489	4389
101	1483	1488	1489	0

HYDFLOW
Timmons Engineering Software



4.0 EXHIBITS

4.1 VICINITY MAP



VICINITY MAP

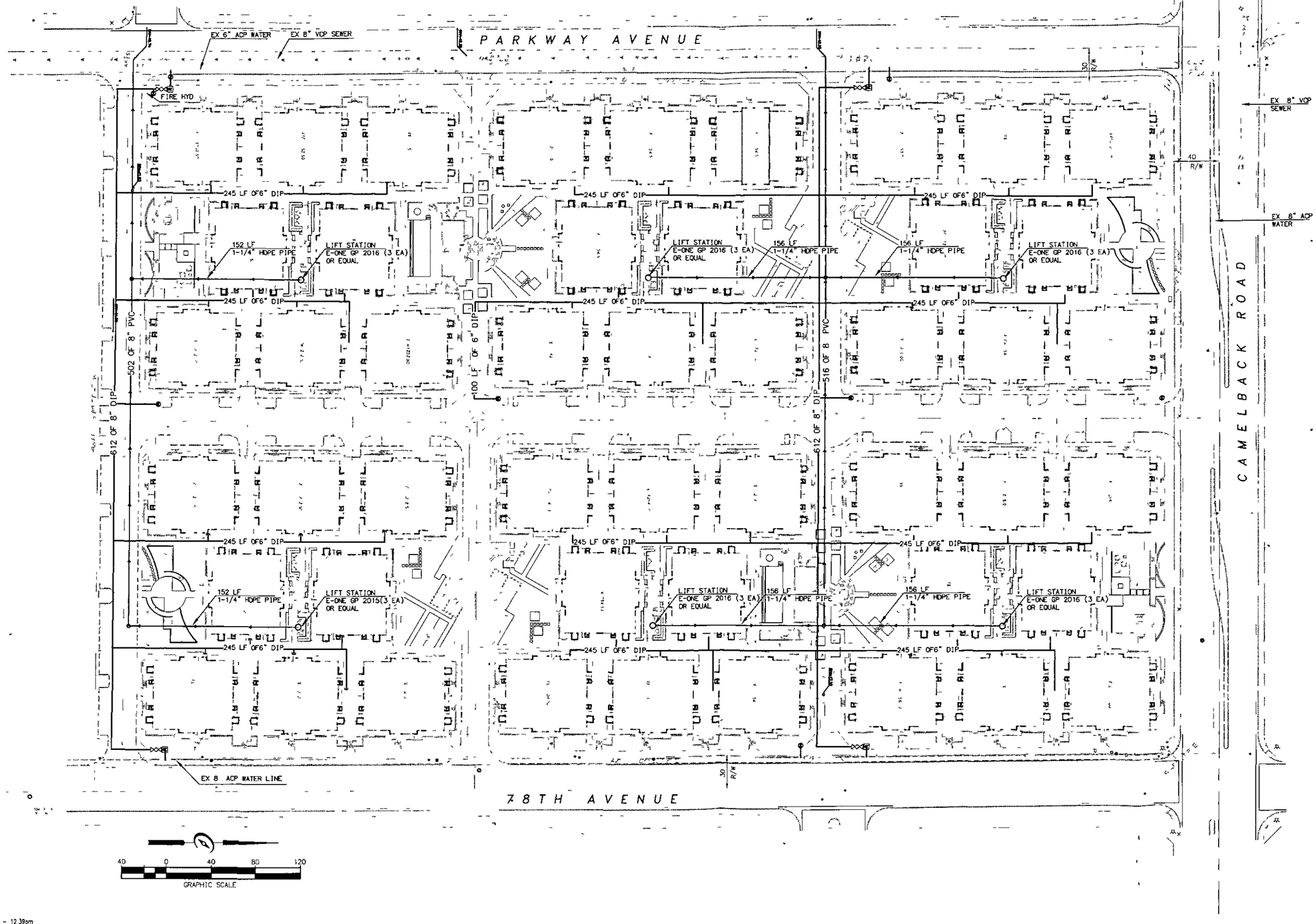
NTS

4.2 PRELIMINARY UTILITY PLAN

PRELIMINARY QUANTITIES

6" WATER METER	4 EA
8" PRV	4 EA
8" DIP WATER LINE	1 310 LF
6" DIP WATER LINE	3 150 LF
1-1/4" HDPE SEWER	912 LF
8" TS&V&VBC	3 EA
6" TS&V&VBC	3 EA
LIFT STATION(6000 GPD)	18 EA
5 DIA MANHOLE	4 EA
FIRE HYDRANT	7 EA

PRELIMINARY UTILITY PLAN
URBIS 77 CONDOMINIUMS
78TH STREET & CAMELBACK ROAD SCOTTSDALE, AZ



DATE	DESCRIPTION
	REVISIONS

URBIS 77 CONDOMINIUMS
CAMELBACK ROAD AND 78TH ST
SCOTTSDALE, ARIZONA

Metro/Land Consultants, LLC
1850 N CENTRAL AVE SUITE 525 PHOENIX AZ 85004 PH 602-393-2030 FAX 602-393-2031

PRELIMINARY UTILITY PLAN

DESIGN CJW	DRAFTING VF/CW
CHECKED CJW	DATE MAY 3, 2006

SEAL
38807 CHRISTOPHER J WILSON
ARIZONA U.S.A.
NOT FOR CONSTRUCTION

602-263-1100 Blue Stake Center CALL COLLECT

JOB NO 06-065
U-1
1 OF 1

May 11 2006 - 12:39pm
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SILO URBAN HOMES

BASIS OF DESIGN REPORT FOR WATER

PREPARED FOR·

URBAN SILO HOMES DEVELOPMENT CORPORATION
7530 E Main Street #105
Scottsdale, Arizona 85251

Christopher G Patton, P.E

SEPTEMBER 26, 2005

Prepared By

RICK ENGINEERING COMPANY
6150 North 16th Street
Phoenix, Arizona 85016-1705
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JOB NUMBER 3503

TABLE OF CONTENTS

1 0 INTRODUCTION

The purpose of this report is to address the basis of design for water service to the proposed Silo Urban Homes Condominiums The new condominiums will contain 288 units

2 0 SITE LOCATION

Silo Urban Homes project is located in a portion of the Southeast Quarter of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Meridian, Maricopa County, Arizona The site is bounded by 78th Street to the east, Camelback Road to the north, Parkway Avenue to the west and Fireside West Apartments and Adobe Villas Condominiums to the south See Vicinity Map in Appendix A

3 0 EXISTING WATER INFRASTRUCTURE

There is an existing 6" water line in Parkway Avenue and an existing 8" water line in 78th Street that services the current Madeira Apartments (332 units) The water system is owned and operated by City of Scottsdale

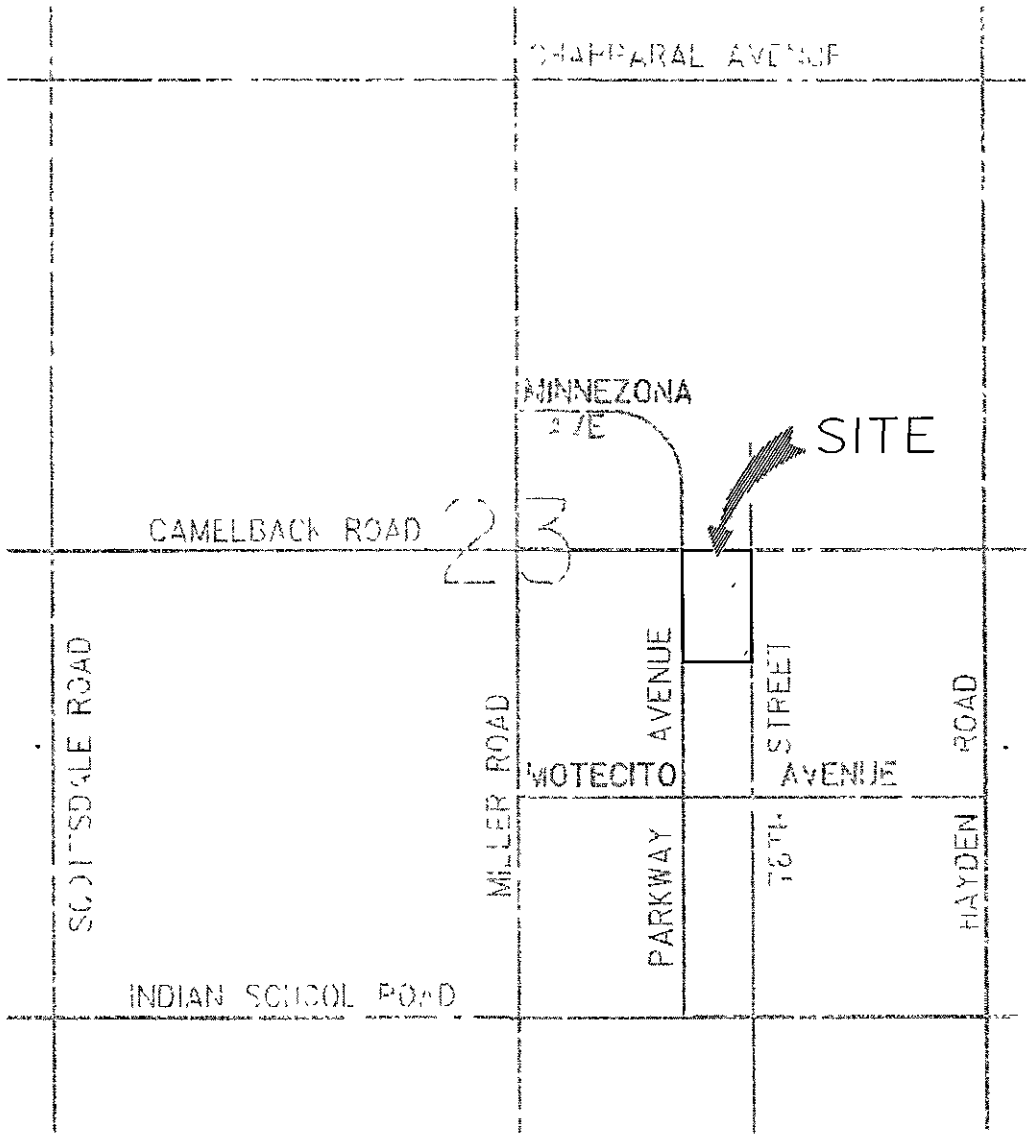
4 0 PROPOSED WATER SYSTEM

We propose to loop an 8" public water line through the site from the existing stubs off Parkway Avenue and 78th street The estimated domestic demand is calculated in the Silo Urban Homes Abbreviated Water Needs Report in Appendix B The system will adequately provide the peak water demand and a fire flow of 1500 g p m as demonstrated in Appendix C

5 0 CONCLUSION

The proposed and existing water system is adequate to serve the proposed 288 condominium units and is consistent with the City of Scottsdale guidelines

APPENDIX A



SILO URBAN HOMES

VICINITY MAP

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rickengineering.com
Tucson San Diego Riverside Orange Sacramento

JOB NUMBER	PREPARED BY	DATE PREPARED
3503	MJ	2e-SEP-2015

APPENDIX B

RICK™
ENGINEERING COMPANY

SILO URBAN HOMES
ABBREVIATED WATER NEEDS REPORT
RICK ENGINEERING JOB NUMBER 3503

AUGUST 2005

Silo Urban Homes project is a Multi family residential development located in a portion of the Southeast Quarter of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Meridian, Maricopa County, Arizona The site is bounded by 78th Street to the east, Camelback Road to the north, Parkway Avenue to the west and Fireside West Apartments and Adobe Villas Condominiums to the south

DESIGN CRITERIA

As required by the City of Scottsdale Design Standards and Policies Manual and Average daily water demand per dwelling unit (gpd) per City of Scottsdale Design Standards and Policies Manual, Section 4 1, Figure 4 1-3

Type of development	Multiple-family residential
Number of dwelling units	288
City of Scottsdale Pressure Zone Location	Zone 1
Pressure Zone 1 boundary ground elevation range	1180-1280 ft
Minimum system pressure (under fire flow conditions)	50 psi (30 psi)
Maximum system pressure	120 psi

Average daily water demand per D U (residential 12-22 DU per acre) = 227 60 gpd

Average daily water demand = 288 x 227 60 = 65,549 gpd = 45 52 gpm

Maximum demand peaking factor = 2

Maximum daily demand = 65,549 x 2 = 131,038 gpd = 91 00 gpm

Peak hourly demand peaking factor = 3 5

Peak hourly demand = 65,549 x 3 5 = 229,317 gpd = 159 32 gpm

Maximum daily demand + fire flow = 159 32 gpm + 1,500 gpm = 1,659 32 gpm

Registered Professional Engineer (Civil) CERTIFICATE NO 41208 CHRISTOPHER G PATTON Date Signed 8/30/05 ARIZONA, U.S.A.

SUMMARY

The public water system through Silo Urban Homes has been designed in accordance with City of Scottsdale design requirements

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