

Drainage Reports
Abbreviated Water & Sewer Need Reports
Water Study
Wastewater Study
Stormwater Waiver Application



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To: Andrew Biskind
 Wood Partners

From: Jamie Blakeman, PE, PTOE

Job Number: 18.1102.001

RE: Residence at 90th Street and San Victor Drive
 Traffic Impact & Mitigation Analysis

Date: June 4, 2018



EXPIRES 6-30-19

INTRODUCTION

J2 Engineering and Environmental Design (J2) has prepared a Traffic Impact and Mitigation Analysis (TI&MA) for the proposed Residence at 90th Street and San Victor Drive development located on the northeast corner of 90th Street and San Victor Drive in Scottsdale, Arizona. See **Figure 1** for the vicinity map.

The proposed Residence at 90th Street and San Victor Drive development will be comprised of 179 units. See **Attachment A** and **Figure 2** for the site plan.

The objective of this Traffic Impact and Mitigation Analysis is to analyze the traffic related impacts to the adjacent roadway network.

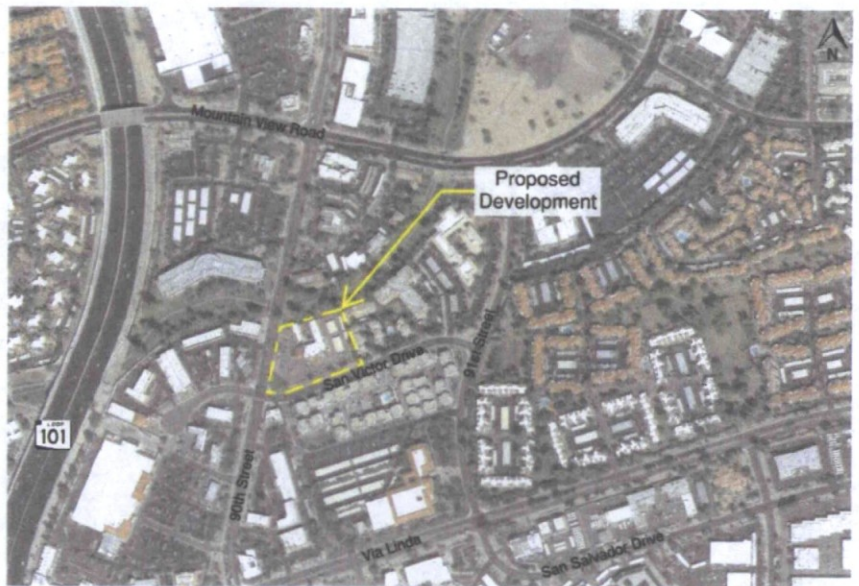


Figure 1 - Vicinity Map

7-ZN-2018
06/07/18



EXISTING CONDITIONS

According to the Maricopa County Assessor, the proposed site currently contains 28,380 square feet (SF) of office and medical office space. See **Attachment B** for detailed parcel information.

The parcel is bordered by 90th Street to the west and San Victor Drive to the south. To the north is an office complex, to the south and east are residential developments, and retail is located to the west.

90th Street is a north-south urban minor arterial as classified in the 2016 City of Scottsdale *Transportation Master Plan*. 90th Street borders the west side of the proposed development. Within the vicinity of the site, 90th Street provides two (2) through lanes in each direction of travel with a two way left turn lane. There is a posted speed limit of 40 mph. The City of Scottsdale's *2016 Average Daily Segment Traffic (ADT) Volumes* map reports an ADT of 21,100 vehicles per day along 90th Street, between Mountain View Road and Via Linda.

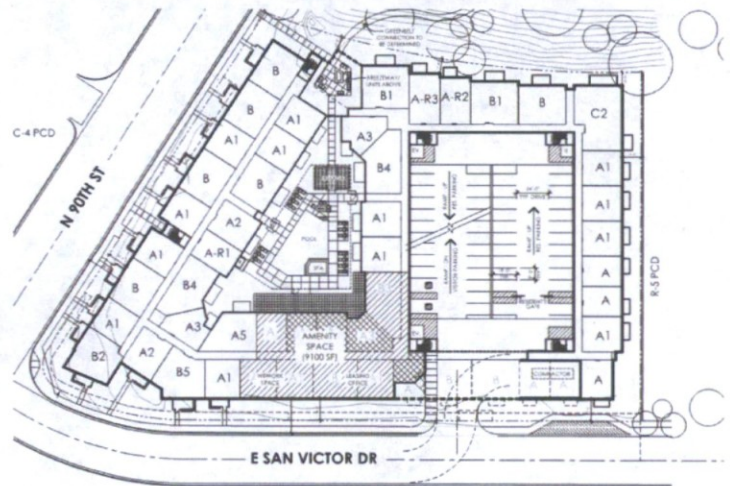


Figure 2 - Site Plan

San Victor Drive is an east-west roadway that borders the south side of the proposed Residence at 90th Street and San Victor Drive development. It provides one (1) through lane for each direction of travel and has a posted speed limit of 25 mph. Within the study area, San Victor Drive begins approximately 450 feet west of 90th Street in a cul-de-sac and terminates approximately one-third of a mile east at 91st Street.

A local traffic data collection firm, Field Data Services of Arizona, Inc., collected 24-hour bi-directional tube counts in 15-minute intervals along San Victor Drive east of 90th Street on Wednesday, April 11, 2018. See **Attachment C** for detail count data.

The daily traffic volume along San Victor Drive was 1,282 vehicles per day. The AM peak hour occurred from 7:45 am to 8:45 am, with 43 (45%) eastbound and 53 (55%) westbound vehicles. The PM peak hour occurred from 4:00 pm to 5:00 pm, with 96 (64%) eastbound and 55 (36%) westbound vehicles.

91st Street is a north-south roadway that provides one (1) through lane for each direction of travel, with a two way left turn lane. There is a posted speed limit of 30 mph. 91st Street begins approximately 890 feet north of San Victor Drive and terminates approximately 825 feet south of San Victor Drive where it aligns with San Salvador Drive





On Wednesday, April 11, 2018, 24-hour bi-directional tube counts in 15-minute intervals were collected along 91st Street, north of Via Linda. The daily traffic volume along 91st Street was 2,810 vehicles per day. The AM peak hour occurred from 7:30 am to 8:30 am, with 94 (50%) northbound and 93 (50%) southbound vehicles. The PM peak hour occurred from 4:00 pm to 5:00 pm, with 151 (50%) northbound and 150 (50%) southbound vehicles.

CRASH HISTORY

The most recent 3-year collision history (April 2015 – April 2018) was obtained from the City of Scottsdale for the intersections of 90th Street and San Victor and 91st Street and San Victor. See **Attachment D** for detailed crash data.

90th Street and San Victor Drive

During the three-year period, there were five (5) collisions, of which one (1) resulted in a non-incapacitating injury, one (1) possible injury, with the remaining property damage only. There were 2 angle, 1 single vehicle, 1 left turn, and 1 sideswipe same direction crashes.

91st Street and San Victor Drive

During the most recent 3-years there were no collisions recorded at this intersection.

90th Street and Via Linda

During the three-year period, there were 41 collisions, of which four (4) resulted in non-incapacitating injuries, seven (7) possible injuries, with the remaining property damage only. There were sixteen (16) rear ends, nine (9) angle, four (4) left turn, four (4) side swipe same direction, two (2) single vehicle, two (2) head-on, two (2) rear to side, one (1) other, and one (1) unknown crashes.

91st Street and Via Linda

During the three-year period, there were 21 collisions, of which one (1) resulted in an incapacitating injury, four (4) non-incapacitating injuries, two (2) possible injuries, with the remaining property damage only. There were eleven (11) rear ends, six (6) angle, and four (4) left turn crashes.

Collision Rates

The City of Scottsdale’s 2016 *Traffic Volume and Collision Rate Data* report provides collision rate and traffic volume information on major roadway segments and at major intersections within the City. Segment collisions are collisions that occur on a major street more than 100 feet from the major intersections that define the segment, including at minor intersections within the segment. Intersection collisions are collisions that occur at or within 100 feet of a major intersection.

The collision rates and city-wide rankings for the studied roadway segments and intersection are shown in **Table 1** and **Table 2**.



Table 1 - Collision Rates - Study Roadway Segments

Segment	From	To	Collision Rate	Rank
90th Street	Via Linda	Mountain View Road	1.66	108
2016 City of Scottsdale Average Segment Collision Rate			1.50	

Table 2 - Collision Rates - Study Intersections

Intersection	Collision Rate	Rank
90th Street and Via Linda	0.80	70
2016 City of Scottsdale Average Intersection Collision Rate	0.65	

PROPOSED DEVELOPMENT

The proposed Residence at 90th Street and San Victor Drive development will consist of 179 units. Of the proposed 179 units, 112 will be one (1) bedroom units, 58 will be two (2) bedroom units and the remaining nine (9) units will be three (3) bedroom units. One access point to the internal parking garage will be provided located off of San Victor Drive, approximately 400 feet to the east of 90th Street, approximately at the location of the existing driveway. The existing driveway along 90th Street will be removed to provide a continuous sidewalk along the east side of 90th Street. See **Figure 2** and **Attachment A** for a detailed site plan.

TRIP GENERATION (EXISTING DEVELOPMENT)

The trip generation for the existing office space was calculated utilizing the Institute of Transportation Engineers (ITE) publication entitled *Trip Generation, 10th Edition*. The ITE rates are based on studies that measured the trip generation characteristics for various types of land uses. The rates are expressed in terms of trips per unit of land use type. This publication is considered to be the standard for the transportation engineering profession.

According to the Maricopa County Assessor’s website, the site is currently comprised of one (1) parcel consisting of 108,900 square feet with a 28,380 square foot building. With the primary uses for medical offices, ITE Land Use 720 Medical-Dental Office Building was utilized. The total trip generation for the existing site was calculated and is shown in **Table 3** below. See **Attachment E** for detailed trip generation calculations.

Table 3 - Trip Generation - Existing Development (28,380 SF Medical-Dental Office)

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Medical-Dental Office Building	720	28.38	1000 SF GLA	1,003	73	57	16	98	28	70





TRIP GENERATION (EXISTING ZONING)

The existing parcel is currently zoned for Commercial Office (C-O) with the Planned Community District (PCD) Overlay land use. Therefore, it is reasonable and appropriate to assume a general office development on this parcel. A maximum floor to area ratio (FAR) of 0.8 is allowed. Therefore, for a 108,900 square foot lot, an 87,120 square foot medical-dental office building was assumed.

Utilizing the ITE Land Use 720 Medical-Dental Office Building, the total trip generation for the existing C-O– PCD zoning is shown in

Table 4 below. See **Attachment E** for detailed trip generation calculations.

Table 4 – Trip Generation – Existing Zoning (87,120 SF Medical-Dental Office Building)

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Medical-Dental Office Building	720	87.12	1000 SF GLA	3,260	198	155	43	297	84	213

TRIP GENERATION (PROPOSED DEVELOPMENT)

The proposed Residence at 90th Street and San Victor development includes 179 residential units. Therefore, ITE Land Use 221 – Multifamily Housing (Mid-Rise) was used to calculate the trips generated by the proposed development. The total trip generation for the proposed Residence at 90th Street and San Victor development is shown in

Table 5 below. Detailed trip generation calculations are provided in **Attachment E**.

Table 5 – Trip Generation - Proposed Residence at 90th Street and San Victor Development

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	974	64	17	47	79	49	30
Total				974	64	17	47	79	49	30

TRIP GENERATION COMPARISON

A trip generation comparison between the trips generated by the existing land use under current C-O zoning (28,380 SF Medical-Dental Office Building) versus the proposed R-5 land use (179 residential units) is shown in **Table 6**.

Table 6 – Trip Generation Comparison (Existing Land Use vs. Proposed Development)



Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Medical-Dental Office Building	720	28.38	1000 SF GLA	1,003	73	57	16	98	28	70
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	974	64	17	47	79	49	30
Difference				-29	-8	-40	32	-19	21	-40

Table 6 indicates that the proposed Residence at 90th Street and San Victor development is expected to generate 29 fewer weekday total trips, 8 fewer trips during the AM peak hour, and 19 fewer trips during the PM peak hour, than the existing medical-dental office building.

Additionally, a trip generation comparison between trips generated by the potential land use under current C-O zoning (87,120 SF medical-dental office building) versus the proposed R-5 land use (179 residential units) is shown below. **Table 7** compares the existing zoning with the proposed 179 residential units.

Table 7 - Trip Generation Comparison (Existing Zoning vs. Proposed Development)

Land Use	ITE Code	Qty	Unit	Weekday	AM Peak Hour			PM Peak Hour		
				Total	Total	In	Out	Total	In	Out
Medical-Dental Office Building	720	87.12	1000 SF GLA	3,260	198	155	43	297	84	213
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	974	64	17	47	79	49	30
Difference				-2,286	-133	-138	5	-219	-35	-184

Table 7 indicates that with the build out under the existing zoning, the proposed Residence at 90th Street and San Victor development is expected to generate 2,286 fewer weekday total trips, 133 fewer trips during the AM peak hour, and 219 fewer trips during the PM peak hour.

SUMMARY

With the existing development generating 1,003 weekday trips, the build out under the existing zoning of an 87,120 square foot medical-dental office is anticipated to generate 3,260 weekday trips, which would be a weekday trip generation increase of 325%.

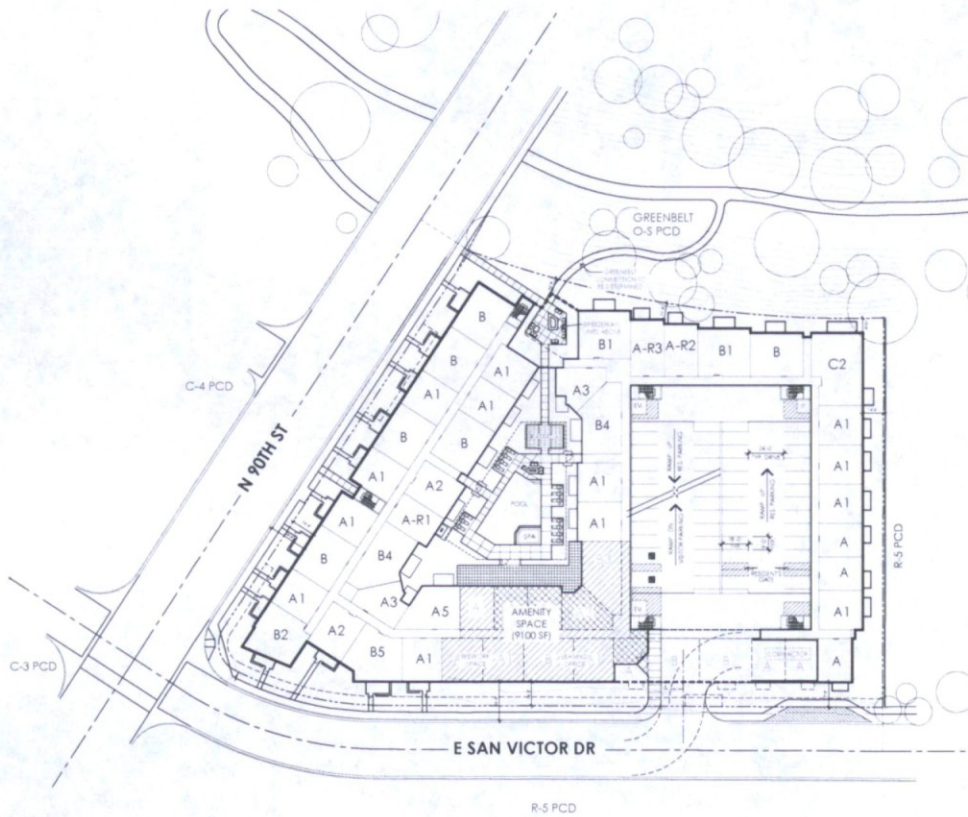
The proposed development is anticipated to generate 974 weekday trips while the existing development generates 1,003 weekday trips. The 2016 ADT along 90th Street, from Via Linda to Mountain View Road, is 21,100 vehicles per day. Assuming all trips from the existing as well as the proposed development utilize 90th Street, the change in weekday trips would be negligible with a decrease of 29 trips, or 0.14%.

Therefore, the proposed Residence at 90th Street and San Victor development is anticipated to have minimal impact to the traffic operation of the adjacent roadway network.





Attachment A – Proposed Site Plan



SITE DATA

GROSS SITE AREA +/- 3.14 AC
 NET SITE AREA +/- 2.50 AC
 EXISTING ZONING C-O PCD OVERLAY
 PROPOSED ZONING R-5 / PCD OVERLAY (R-5 DEVELOPMENT STANDARDS WILL NEED TO BE AMENDED)

DWELLING UNITS 179 D.U.

PROPOSED SETBACKS:
 FRONT (90TH ST): 11'
 SOUTH (SAN VICTOR): 11'
 EAST PROPERTY LINE: 9'
 NORTH PROPERTY LINE: 4'

UNIT TYPE	FLOOR					TOTAL
	1	2	3	4	5	
A	3	4	6	3	0	16
A-R1	1	1	1	1	1	5
A-R2	1	1	1	1	1	5
A-R3	1	1	1	1	1	5
A1	13	15	12	7	4	51
A2	2	2	2	1	1	8
A3	2	2	3	3	2	12
A4	0	1	1	1	1	4
A5	1	1	1	1	0	4
TOTAL 1 BED RM						112 42.8%
B	6	7	9	5	2	29
B1	2	2	2	2	0	10
B2	1	1	1	0	0	3
B3	0	1	1	1	1	4
B4	2	2	2	2	1	9
B5	1	1	1	0	0	3
TOTAL 2 BED RM						58 32.4%
C	0	0	2	1	0	3
C1	0	0	1	1	0	2
C2	1	1	1	0	0	4
TOTAL 3 BED RM						9 5.0%
TOTAL	37	44	49	32	17	179 100%

CONCEPTUAL SITE PLAN

RESIDENCE AT 90TH ST. & SAN VICTOR

SCALE 1" = 30'-0"
 0 15' 30' 60'



TODD & ASSOCIATES, INC.
 ARCHITECTURE PLANNING LANDSCAPE ARCHITECTURE
 482.752.8980 www.toddassoc.com

Scottsdale, Arizona
 CONSULTANT COORDINATION
 Project No. 17-2031-01 Date 05-25-18





Attachment B - Maricopa County Assessor

217-36-343E Commercial Parcel

This is a commercial parcel located at 9449 N 90TH ST SCOTTSDALE 85258, and the current owner is SAN VICTOR LLC. Its current year full cash value is \$3,807,400.

Property Information

9449 N 90TH ST SCOTTSDALE 85258

MCR #

Description: COM SW COR E2 NE4 SEC 30 NWLY ALG CUR TO L 386.97 F NW 413.23F SWLY ALG CUR TO R 54.67F WLY ALG CUR TO R 1045.09F SWLY 55F SWLY ALG CUR TO R 806.70F SWLY ALG CUR TO R 72.29F TPOB S 21D E 267.13F S 68D W 342.56F ALG CUR TO R 103.83F NWLY ALG CUR TO R 33.42F N 11D E 308.50F NELY ALG CUR TO L 288.59F M/L TO TPOB

Lat/Long 33.57231041 | -111.88669181

Lot Size 108,900 sq ft.

Zoning C-O

Lot #

High School District SCOTTSDALE UNIFIED #48

Elementary School District SCOTTSDALE UNIFIED SCHOOL DISTRICT

Local Jurisdiction SCOTTSDALE

S/T/R 30 3N 5E

Market Area/Neighborhood 05/019

Subdivision (0
Parcels)

Owner Information

SAN VICTOR LLC

Mailing Address 30600 N PIMA RD STE 75, SCOTTSDALE, AZ 85266

Deed Number 130502722

Last Deed Date 05/31/2013

Sale Date n/a

Sale Price n/a

Valuation Information

We provide valuation information for the past 5 years. For mobile display, we only show 1 year of valuation information. Should you need more data, please look at our [data sales](#).

The Valuation Information displayed below may not reflect the taxable value used on the tax bill due to any special valuation relief program. [CLICK HERE TO PAY YOUR TAXES OR VIEW YOUR TAX BILL](#)

Tax Year	2019	2018	2017	2016	2015
Full Cash Value	\$3,807,400	\$3,580,600	\$3,535,900	\$3,393,200	\$2,974,200
Limited Property Value	\$2,871,633	\$2,734,889	\$2,604,656	\$2,480,625	\$2,362,500
Legal Class	1	1	1	1	1
Description	COMMERCIAL / OTHER R/P	COMMERCIAL / OTHER R/P	COMMERCIAL / OTHER R/P	COMMERCIAL / OTHER R/P	COMMERCIAL / OTHER R/P
Assessment Ratio	18%	18%	18%	18%	18.5%
Assessed FCV	n/a	n/a	n/a	n/a	n/a
Assessed LPV	\$516,894	\$492,280	\$468,838	\$446,513	\$437,063
Property Use Code	1512	1512	1512	1512	1512
PU Description	Office	Office	Office	Office	Office
Tax Area Code	481400	481400	481400	481400	481400
Valuation Source	Notice	Notice	Notice	Notice	Notice

Additional Property Information

Additional commercial property data.

Description	Imp #	Model	Rank	CCI	Age	Sq Ft.
Office Building	000101	344	2	C	28	7,532
Medical Office	000201	341	2	C	28	14,084
Office Building	000301	344	2	C	28	6,764
Site Improvements	000401	163	2	D	33	1

Similar Parcels

Parcels that are similar to this one (known as the reference parcel) are displayed below.

APN	Address	Sale Info	FCV	Size	Livable Sq Ft	Year Built	Pool	Foreclosed
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No similar parcels found.



Attachment C – Traffic Count Data

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Wednesday, April 11, 2018

City: Scottsdale

Project #: 18-1170-005

Location: San Victor Dr. Approx 300' east of 90th St.

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			1	0	12:00			13	13			
00:15			0	0	12:15			17	7			
00:30			0	0	12:30			12	9			
00:45			0	1	0	0	1	17	59	13	42	101
01:00			0	0	13:00			17	11			
01:15			0	0	13:15			19	5			
01:30			0	0	13:30			17	14			
01:45			0	0	0	0	0	23	76	13	43	119
02:00			0	0	14:00			10	13			
02:15			0	0	14:15			11	5			
02:30			0	1	14:30			19	7			
02:45			0	0	0	1	1	14	54	13	38	92
03:00			0	0	15:00			13	11			
03:15			0	0	15:15			20	17			
03:30			1	0	15:30			13	7			
03:45			0	1	0	0	1	16	62	15	50	112
04:00			0	0	16:00			21	13			
04:15			2	1	16:15			23	18			
04:30			1	1	16:30			16	12			
04:45			0	3	0	2	5	36	96	12	55	151
05:00			0	0	17:00			23	8			
05:15			1	2	17:15			20	3			
05:30			5	1	17:30			16	9			
05:45			3	9	2	5	14	16	75	2	22	97
06:00			3	4	18:00			8	3			
06:15			6	2	18:15			6	7			
06:30			4	14	18:30			13	3			
06:45			8	21	4	24	45	3	30	0	13	43
07:00			6	6	19:00			4	2			
07:15			6	10	19:15			0	1			
07:30			7	14	19:30			7	2			
07:45			11	30	21	51	81	8	19	0	5	24
08:00			9	11	20:00			4	3			
08:15			11	8	20:15			3	1			
08:30			12	13	20:30			2	1			
08:45			13	45	12	44	89	1	10	1	6	16
09:00			12	19	21:00			2	1			
09:15			15	4	21:15			2	1			
09:30			9	4	21:30			2	1			
09:45			11	47	9	36	83	0	6	0	3	9
10:00			9	9	22:00			0	0			
10:15			7	7	22:15			2	1			
10:30			18	7	22:30			1	1			
10:45			14	48	14	37	85	0	3	0	2	5
11:00			15	16	23:00			0	1			
11:15			15	17	23:15			1	0			
11:30			13	9	23:30			2	0			
11:45			12	55	7	49	104	0	3	0	1	4

Total Vol. 260 249 **509** 493 280 **773**

GPS Coordinates: 33.571947, -111.885771

Daily Totals				
NB	SB	EB	WB	Combined
		753	529	1282

Split %	AM			PM		
	51.1%	48.9%	39.7%	63.8%	36.2%	60.3%
Peak Hour	10:30	07:15	10:30	16:15	15:45	16:00
Volume	62	56	116	98	58	151
P.H.F.	0.86	0.67	0.91	0.68	0.81	0.79

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Wednesday, April 11, 2018

City: Scottsdale

Project #: 18-1170-006

Location: 91st St. approx 350' north of Via Linda

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	0	1			12:00	27	22		
00:15	0	0			12:15	21	27		
00:30	0	0			12:30	27	23		
00:45	0	0	0	1	12:45	31	106	28	100
01:00	0	0			13:00	24	32		
01:15	0	0			13:15	21	28		
01:30	0	0			13:30	38	25		
01:45	0	0	0	0	13:45	29	112	25	110
02:00	0	0			14:00	26	23		
02:15	0	0			14:15	24	22		
02:30	1	0			14:30	27	39		
02:45	1	2	0	0	14:45	33	110	19	103
03:00	0	1			15:00	31	35		
03:15	0	0			15:15	30	39		
03:30	0	1			15:30	27	38		
03:45	0	0	0	2	15:45	28	116	47	159
04:00	1	0			16:00	41	35		
04:15	0	1			16:15	53	42		
04:30	3	3			16:30	28	32		
04:45	3	7	3	7	16:45	29	151	41	150
05:00	4	2			17:00	31	35		
05:15	2	3			17:15	15	40		
05:30	3	13			17:30	21	28		
05:45	7	16	10	28	17:45	17	84	18	121
06:00	15	6			18:00	18	13		
06:15	20	13			18:15	15	12		
06:30	29	9			18:30	15	11		
06:45	28	92	18	46	18:45	9	57	8	44
07:00	17	22			19:00	11	13		
07:15	18	17			19:15	5	5		
07:30	25	29			19:30	7	6		
07:45	32	92	24	92	19:45	10	33	9	33
08:00	18	20			20:00	11	11		
08:15	19	20			20:15	4	5		
08:30	19	34			20:30	4	4		
08:45	28	84	24	98	20:45	8	27	5	25
09:00	41	21			21:00	7	5		
09:15	28	26			21:15	5	3		
09:30	20	22			21:30	4	3		
09:45	21	110	21	90	21:45	2	18	0	11
10:00	15	19			22:00	3	1		
10:15	20	19			22:15	1	2		
10:30	25	19			22:30	2	0		
10:45	28	88	26	83	22:45	1	7	0	3
11:00	22	29			23:00	3	1		
11:15	20	23			23:15	3	1		
11:30	21	22			23:30	2	3		
11:45	20	83	21	95	23:45	0	8	1	6

Total Vol. 574 542 **1116** 829 865 **1694**

GPS Coordinates: 33.571269, -111.883735

Daily Totals

NB	SB	EB	WB	Combined
1403	1407			2810

AM

PM

Split %	51.4%	48.6%	39.7%	48.9%	51.1%	60.3%
Peak Hour	08:45	08:30	08:30	16:00	15:30	15:30
Volume	117	105	221	151	162	311
P.H.F.	0.71	0.77	0.89	0.71	0.86	0.82



Attachment D - Crash Data

REPORT #	YMMOD	HHMM	NS ST	NS SF	EW ST	EW SF	DIR FROM	DIST FROM	INJ SEV 1	INJ SEV 2	PHYSICAL COND 1	PHYSICAL COND 2	VIOL 1	VIOL 2	ACTION 1	ACTION 2	TRAVEL DIR 1	TRAVEL DIR 2	MANNER OF COLLISION	COMMENTS
15-24626	151205	1526	90	ST	SAN VICTOR	DR	AT		1	1	0	0	20	1	4	2	EB	SB	3	
16-21213	160921	1334	90	ST	SAN VICTOR	DR	AT		1	1	0	0	20	1	1	1	WB	SB	2	MULTI VEH 3
16-17006	160729	1739	90	ST	SAN VICTOR	AT	AT		1	1	0	0	15	1	5	5	SB	SB	6	
15-05052	150302	1039	90	ST	SAN VICTOR	DR	AT		1	1	0	0	20	1	4	1	EB	NB	2	
16-20089	160907	1216	90	ST	SAN VICTOR	DR	S	300	2	2	0	0	20	1	4	1	NB	SB	2	MULTI VEH 3
16-16211	160718	1549	90	ST	VIA LINDA	DR	AT		1	1	0	0	20	1	4	1	SB	NB	5	
16-05844	160311	0813	90	ST	VIA LINDA	AT	AT		1	1	0	0	12	1	8	1	NB	NB	6	
16-19480	160830	1653	90	ST	VIA LINDA	AT	AT		1		99	0	99	1	1	14			99	HIT AND RUN
15-19930	150911	1609	90	ST	VIA LINDA	AT	AT		1	1	0	0	1	1	3		WB	WB	4	
15-18825	150828	0542	90	ST	VIA LINDA	AT	AT		1	3	0	0	99	99	1	97	WB	WB	6	CAR/BICYCLE
15-16877	150801	1903	90	ST	VIA LINDA	AT	AT		2	1	0	0	1	20	1	4	EB	WB	2	
16-20449	160911	2112	91	ST	VIA LINDA	AT	AT		1	3	0	0	1	1	1	3	WB	WB	4	
15-02918	150203	1337	90	ST	VIA LINDA	AT	AT		2	1	0	0	7	1	4	1	NB	WB	3	
15-15696	150716	1330	91	ST	VIA LINDA	AT	AT		1	1	0	0	20	1	5	1	NB	NB	2	
16-22106	161002	2213	90	ST	VIA LINDA	AT	AT		1	3	0	0	6	1	1	1	WB	NB	2	
16-23500	161021	1652	91	ST	VIA LINDA	AT	AT		1	3	0	0	6	1	1	1	EB	NB	2	
16-24057	161028	1216	90	ST	VIA LINDA	AT	AT		1	1	0	0	2	1	5	3	SB	SB	4	
15-12396	150601	0725	90	ST	VIA LINDA	AT	AT		1	1	0	0	1	1	1	3	NB	NB	4	MULTI VEH 3
15-12099	150527	2042	90	ST	VIA LINDA	AT	AT		1	1	4	0	7	1	5	1	NB	NB	2	DUI
15-11670	150522	1210	90	ST	VIA LINDA	AT	AT		1	1	0	0	12	1	7	4	SB	WB	2	
15-11175	150515	1509	90	ST	VIA LINDA	AT	AT		1	1	0	0	2	1	1	3	WB	WB	4	
15-10488	150506	1611	90	ST	VIA LINDA	AT	AT		1	2	99	0	4	1	1	1	WB	WB	4	
16-24589	161103	1813	90	ST	VIA LINDA	AT	AT		1	1	99	0	12	1	8	1	NB	NB	6	HIT AND RUN
16-24715	161105	1539	90	ST	VIA LINDA	AT	AT		1	1	0	0	2	1	97	3	NB	NB	4	
15-01835	150123	1350	91	ST	VIA LINDA	AT	AT		1	1	0	0	6	1	1	1	WB	NB	2	
16-21097	160920	0823	90	ST	VIA LINDA	AT	AT		1	1	0	0	2	1	1	4	WB	SB	4	
16-12941	160604	2139	90	ST	VIA LINDA	AT	AT		1	1	4	0	2	1	1	1	WB	WB	4	DUI
16-05240	160303	1714	90	ST	VIA LINDA	AT	AT		1	2	0	0	20	1	4	1	EB	WB	2	
16-04800	160227	1110	90	ST	VIA LINDA	AT	AT				0	0	1	16	14		WB	SB	8	MULTI VEH 3
16-04700	160226	1044	90	ST	VIA LINDA	AT	AT		1	99	99	0	1	2	1	1	SB	SB	4	LTI VEH 3, HIT AND RUN
16-03184	160208	1023	90	ST	VIA LINDA	AT	AT		2		0	0	1		1		WB		1	
15-01651	150121	1251	91	ST	VIA LINDA	AT	AT		1	1	0	99	20	1	4	1	NB	WB	3	
16-18748	160821	1729	90	ST	VIA LINDA	AT	AT		1	1	0	0	13	1	5	1	SB	SB	6	
16-08926	160416	1026	90	ST	VIA LINDA	AT	AT		1	1	0	0	6	1	1	4	NB	WB	3	
16-13372	160610	1004	90	ST	VIA LINDA	AT	AT		1	2	0	0	2	1	1	1	WB	WB	4	
16-13844	160616	0750	91	ST	VIA LINDA	AT	AT		3	3	0	0	2	1	1	3	WB	WB	4	MULTI VEH 3
15-06325	150318	0621	90	ST	VIA LINDA	AT	AT		1	1	0	0	6	1	1	4	SB	SB	6	
15-03665	150212	1809	91	ST	VIA LINDA	AT	AT		1	2	0	0	6	1	1	3	WB	SB	3	
15-27368	151214	1148	90	ST	VIA LINDA	AT	AT		1	1	0	0	99	1	4	4	SB	SB	3	
16-27280	161206	1642	91	ST	VIA LINDA	E	75	1	1	0	0	0	4	1	2	3	WB	WB	4	
16-21109	160920	1101	91	ST	VIA LINDA	S	100	1	1	0	0	0	2	1	15	14	SB	99	6	
16-15545	160708	2236	91	ST	VIA LINDA	S	109	1	1	4	0	0	13		99		SB	SB	1	DUI
16-02314	160129	1642	91	ST	VIA LINDA	W	145	1	1	0	0	0	2	1	1	3	EB	EB	4	
16-14850	160629	0803	90	ST	VIA LINDA	E	150	1	1	0	0	0	12	1	8	1	EB	EB	6	
15-28488	151230	1129	90	ST	VIA LINDA	N	150	1	1	0	0	0	97	1	10	3	SB	SB	97	
16-14290	160622	0852	90	ST	VIA LINDA	S	150	1	2	0	0	0	2	1	1	3	NB	NB	4	
16-14285	160622	0637	90	ST	VIA LINDA	S	165	1		0	0	0	2		4		SB		1	
15-05313	150305	1544	91	ST	VIA LINDA	E	200	1	1	0	0	0	1	1	1	3	WB	WB	4	MULTI VEH 3
15-03965	150216	1543	90	ST	VIA LINDA	S	200	1	1	0	0	0	7	1	8	1	NB	NB	6	
16-06760	160321	1630	91	ST	VIA LINDA	W	200	1	2	0	0	0	3	1	1	3	EB	EB	4	
15-27534	151216	1631	91	ST	VIA LINDA	W	200	1	1	0	0	0	2	1	1	2	WB	WB	4	
16-02296	160129	1217	91	ST	VIA LINDA	W	200	1	1	0	0	0	97	1	10	1	WB	WB	8	
16-03601	160213	1144	90	ST	VIA LINDA	E	250	1	1	0	0	0	2	1	1	3	WB	WB	4	
16-02563	160201	1443	90	ST	VIA LINDA	N	269	1	1	0	0	0	2	1	1	3	SB	SB	4	
16-10172	160502	1500	90	ST	VIA LINDA	E	300	1	1	0	0	0	2	1	1	2	WB	WB	4	
16-20782	160916	0747	90	ST	VIA LINDA	E	300	1	3	0	0	0	20	1	4	1	WB	WB	5	
15-26024	151128	1501	90	ST	VIA LINDA	W	300	2	1	0	0	0	20	1	4	1	SB	WB	3	
16-00320	160105	0724	91	ST	VIA LINDA	W	300	1	2	0	0	0	2	1	1	2	WB	WB	4	MULTI VEH 4
15-04623	150225	0805	90	ST	VIA LINDA	S	459	1	3	0	0	0	2	1	1	3	NB	NB	4	
15-03663	150212	1759	90	ST	VIA LINDA	E	460	1	1	0	0	0	2	1	1	3	WB	WB	4	MULTI VEH 3
15-20810	150923	1320	90	ST	VIA LINDA	E	500	1	3	0	0	0	20	1	4	1	EB	SB	3	
16-13758	160615	0137	90	ST	VIA LINDA	E	500	1		3	0	0	13		1		EB		1	
16-25054	161110	1321	90	ST	VIA LINDA	W	530	1	2	0	0	0	20	1	1	1	SB	EB	2	
16-06458	160318	0812	90	ST	VIA LINDA	E	540	1	1	0	0	0	20	1	4	1	NB	WB	3	
16-21242	160921	1540	90	ST	VIA LINDA	W	825	99		99	0	0	99	1	99	14	EB	NB	99	HIT AND RUN
16-23486	161021	1412	90	ST	VIA LINDA	E	1168	1	3	0	0	0	20	1	4	1	WB	WB	2	

REPORT #	YYMMDD	HHMM	NS ST	NS SF	EW ST	EW SF	DIR FROM	DIST FROM	INU SEV 1	INU SEV 2	PHYSICAL COND 1	PHYSICAL COND 2	VIOL 1	VIOL 2	ACTION 1	ACTION 2	TRAVEL DIR 1	TRAVEL DIR 2	MANNER OF COLLISION	COMMENTS
1724859	171108	1551	90	ST	AN VICTO	DR	AT		2	1	0	0	13	1	17	5	SB	NB	2	
1704409	170222	2028	90	ST	AN VICTO	DR	AT		3	1	99	0	99	1	1		SB		1	
1701814	170123	1941	90	ST	VIA LINDA		AT		3	1	0	0	20	1	4	1	SB	NB	3	
1721889	171003	1242	90	ST	VIA LINDA	DR	AT		1	1	0	0	20	1	1	1	NB	EB	2	
1706444	170321	1427	90	ST	VIA LINDA		AT		1	2	0	0	1	1	10	20	EB	99	97	
1806294	180320	1205	90	ST	VIA LINDA		AT		1	1	0	0	2	1	1	3	NB	NB	4	MULTI VEH 3
1803201	180209	1257	90	ST	VIA LINDA	DR	AT		2	1	0	0	7	1	6	1	NB	SB	3	
1724997	171110	1324	90	ST	VIA LINDA		AT		1	1	0	0	1	1	1	1	SB	SB	8	
1803485	180213	0949	90	ST	VIA LINDA	DR	AT		1	1	0	0	20	1	4	1	NB	SB	2	
1724913	171109	1134	90	ST	VIA LINDA		AT		1	1	0	0	20	1	4	4	SB	NB	2	
1724040	171030	0724	90	ST	VIA LINDA		N	20	1	1	0	0	3	1	2	3	SB	SB	4	
1728113	171220	1021	90	ST	VIA LINDA		N	40	1	1	0	0	2		1	3	SB	SB	4	
1713822	170621	1401	90	ST	VIA LINDA		S	40	1	3	4	0	2	1	97	3	NB	NB	4	
1804765	180302	1402	90	ST	VIA LINDA	DR	E	50	1	1	0	0	20	1	6	1	WB	WB	5	DUI
1710451	170508	1529	90	ST	VIA LINDA		S	52	1	1	0	0	2	1	5	3	NB	NB	4	
1722343	171009	0813	90	ST	VIA LINDA	DR	E	60	1	1	0	0	2	1	1	3	WB	WB	4	
1722596	171012	1412	90	ST	VIA LINDA	AV	S	100	1		0	0	2		5		WB		1	
1710947	170515	0835	90	ST	VIA LINDA		S	100	1	1	0	0	12	1	8	1	NB	NB	2	
1704383	170222	1538	90	ST	VIA LINDA		S	150	1	2	0	0	20	1	4	1	WB	SB	3	
1707125	170327	0757	90	ST	VIA LINDA		S	200	99	2	0	0	99	99	1	99	NB	NB	4	
1725397	171116	0840	90	ST	VIA LINDA		E	300	1	1	0	0	2	1	1	3	WB	WB	4	
1703172	170208	0731	90	ST	VIA LINDA		E	300	1	2	0	0	7	1	4	1	NB	WB	3	
1722999	171017	1704	90	ST	VIA LINDA		E	300	1	1	0	0	2	1	1	3	WB	WB	4	
1804150	180222	1511	90	ST	VIA LINDA	DR	E	300	1	3	0	0	20	1	4	1	EB	WB	5	
1806418	180320	1220	90	ST	VIA LINDA		S	360	1		0	0			1		NB		1	
1802302	180131	0848	90	ST	VIA LINDA		E	450	3	3	0	0	2	1	1	3	WB	WB	4	MULTI VEH 4
1702389	170130	1345	90	ST	VIA LINDA		W	500	1	1	0	0	2	1	1	14	WB	NB	2	MULTI VEH 3
1709468	170426	1732	90	ST	VIA LINDA		E	545	1	1	0	0	20	1	4	1	EB	WB	3	
1704626	170225	1908	90	ST	VIA LINDA		W	560	1	1	0	0	99	1	4	1	SB	EB	3	
1720842	170920	1707	91	ST	VIA LINDA	DR	AT		1	1	0	0	4	1	1	3	EB	EB	4	
1806975	180328	1714	91	ST	VIA LINDA		AT		1	2	0	0	7	1	4	1	NB	WB	3	
1702200	170128	0839	91	ST	VIA LINDA	AV	AT		1	1	99	0	7	1	6	1	NB	EB	2	
1706184	170316	1509	91	ST	VIA LINDA		AT		1	1	0	0	20	1	4	1	NB	WB	3	
1707934	170406	0748	91	ST	VIA LINDA		AT		1	1	0	0	99	99	1	4	WB	NB	3	
1725439	171116	1607	91	ST	VIA LINDA		AT		1	1	0	0	2	1	1	3	WB	WB	4	
1712775	170607	1525	91	ST	VIA LINDA		AT		1	1	0	0	6	1	1	1	WB	NB	2	
1713005	170610	1707	91	ST	VIA LINDA		AT		1	1	4	0	6	1	1	4	EB	NB	2	DUI
1724251	171101	1720	91	ST	VIA LINDA		AT		1	1	0	0		1	1	3	WB	WB	4	
1724087	171030	1723	91	ST	VIA LINDA		AT		4	3	0	0	6	1	1	1	WB	SB	2	
1722998	171017	1719	91	ST	VIA LINDA		AT		1	1	0	0	4	1	1	3	WB	WB	4	
1722648	171013	0814	91	ST	VIA LINDA		AT		1	1	0	0	20	1	4	1	NB	WB	3	
1727054	171207	0855	91	ST	VIA LINDA		E	45	1	1	0	0	2	1	1	2	WB	WB	4	MULTI VEH 3
1707886	170405	1505	91	ST	VIA LINDA		W	95	1	1	0	0	2	1	1	3	WB	WB	4	
1721779	171002	0739	91	ST	VIA LINDA	DR	E	100	3	3	0	0	2	1	1	3	WB	WB	4	
1705574	170309	1442	91	ST	VIA LINDA		W	100	2	2	0	0	2	1	1	3	WB	WB	4	
1800661	180110	0759	91	ST	VIA LINDA		W	150	1	1	0	0	2	1	1	2	WB	WB	4	
1807378	180402	1608	91	ST	VIA LINDA		W	150	1	1	0	0	2	1	1	3	WB	WB	4	



Attachment E - Trip Generation



Apartments - NEC of 90th Street and San Victor Drive
Wood Partners

Completed: 16 3/22/2018
Checked: JAB 3/23/2018

Trip Generation Calculations

Proposed Development

2.2.1 Mid-Rise (Three to Ten Levels)

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out	
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	5.44	50%	50%	0.36	26%	74%	0.44	61%	39%	974	487	487	64	17	47	79	49	30	Average
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	1.27	50%	50%	0.06	26%	74%	0.15	61%	39%	227	114	113	11	3	8	27	17	10	Minimum
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	12.50	50%	50%	1.61	26%	74%	1.11	61%	39%	2,238	1119	1119	288	75	213	199	122	77	Maximum
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			
Multifamily Housing (Mid-Rise)	221	179	Dwelling Units	Equation			Equation			Equation			Equation			Equation			Equation			Equation
				$T=5.45(X)-1.75$	50%	50%	$\ln(T)=0.98\ln(X)-0.98$	26%	74%	$\ln(T)=0.96\ln(X)-0.63$	61%	39%	974	487	487	61	16	45	77	48	29	
Standard Deviation				2.03			0.19			0.19												
Number of Studies				27			53			60												
Average Size				205			207			208												



Apartments - NEC of 90th Street and San Victor Drive
Wood Partners

Computer ID: 5/23/2018
Client: JF: 4/28/2018

TRIP GENERATION AND ENVIRONMENTAL DESIGN
Trip Generation Calculations

Existing Development

720 - Medical-Dental Office Building

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			Average	
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out		
Medical-Dental Office Building	720	28.38	1000 SF GLA	34.80	50%	50%	2.78	78%	22%	3.46	28%	72%	988	494	494	79	62	17	98	28	70	Average	
Medical-Dental Office Building	720	28.38	1000 SF GLA	9.14	50%	50%	0.85	78%	22%	0.25	28%	72%	259	130	129	24	19	5	7	2	5	Minimum	
Medical-Dental Office Building	720	28.38	1000 SF GLA	100.75	50%	50%	14.3	78%	22%	8.86	28%	72%	2,859	1,430	1,429	406	317	89	251	71	180	Maximum	
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			Equation	
Medical-Dental Office Building	720	28.38	1000 SF GLA	$T=38.42(X)-87.62$	50%	50%	$\ln(T)=-0.89\ln(X)+1.31$	78%	22%	$T=3.39(X)+2.02$	28%	72%	1,003	502	501	73	57	16	98	28	70		
Medical-Dental Office Building				Standard Deviation	9.79			1.28			1.58												
Medical-Dental Office Building				Number of Studies	28			44			65												
Medical-Dental Office Building				Average Size	24			32			28												

Existing Zoning (C-O, PCD Overlay)

720 - Medical-Dental Office Building

Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			Average	
				Rate	% In	% Out	Rate	% In	% Out	Rate	% In	% Out	Total	In	Out	Total	In	Out	Total	In	Out		
Medical-Dental Office Building	720	87.12	1000 SF GLA	34.80	50%	50%	2.78	78%	22%	3.46	28%	72%	3,032	1,516	1,516	242	189	53	301	85	216	Average	
Medical-Dental Office Building	720	87.12	1000 SF GLA	9.14	50%	50%	0.85	78%	22%	0.25	28%	72%	796	399	397	74	58	16	22	7	15	Minimum	
Medical-Dental Office Building	720	87.12	1000 SF GLA	100.75	50%	50%	14.3	78%	22%	8.86	28%	72%	8,777	4,389	4,388	1,246	972	274	772	217	555	Maximum	
Land Use	ITE Code	Qty	Unit	Weekday			AM Peak Hour			PM Peak Hour			Weekday			AM Peak Hour			PM Peak Hour			Equation	
Medical-Dental Office Building	720	87.12	1000 SF GLA	$T=38.42(X)-87.62$	50%	50%	$\ln(T)=-0.89\ln(X)+1.31$	78%	22%	$T=3.39(X)+2.02$	28%	72%	3,260	1,630	1,630	198	155	43	297	84	213		
Medical-Dental Office Building				Standard Deviation	9.79			1.28			1.58												
Medical-Dental Office Building				Number of Studies	28			44			65												
Medical-Dental Office Building				Average Size	24			32			28												

PRELIMINARY DRAINAGE REPORT
Residence at 90th St. & San Victor
9449 N. 90th Street
Scottsdale, AZ 85258

Prepared For:



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Project Number: 180211

Submittal Date: May 29, 2018

Case No.: XX-PA-2018; XX-ZN-2017

Plan Check No.: TBD

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1. INTRODUCTION

This report represents the storm water analysis for a new multi-family apartment building consisting of 5-stories with a total of 179 dwelling units and an internal 5-level parking structure. Additional amenities include a pool with a spa, a ramada and patio internal to the building. The existing two-story buildings and adjacent carports will be demolished. The purpose of this report is to provide the hydrologic and hydraulic analyses, required by the City of Scottsdale, to support the proposed site plan for said development. This report includes discussions and calculations defining the storm water management concepts for collection, conveyance, and detention systems necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018¹, and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I² and Volume II³.

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The project property consists of one parcel of land located in a portion of the NE ¼ of Section 30, Township 3 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona; Parcel ID number is 217-36-343E. The parcel area is 137,649.6 SF (3.16 gross acres) and 108,900 SF net (2.50 net acres).

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

2.2 EXISTING AND PROPOSED DEVELOPMENTS SURROUNDING THE SITE:

Existing site context related to surrounding developments is as follows:

- North: To the immediately north an approximate 133 feet wide green belt and drainage corridor zoned as O-S PCD. Beyond is a commercial office development zoned C-O PCD.
- West: N. 90th Street is immediately adjacent to the project site. Beyond is Ranch Auto Center, a commercial development zoned C-4 PCD.
- South: San Victor Drive is immediately adjacent to the project site. Beyond is 91 San Victor, a condominium development zoned R-5 PCD.
- East: To the east is Tuscany at McCormick Ranch a condominium development zoned R-5 PCD. Beyond is bound by N. 91st Street.

2.3 EXISTING SITE DESCRIPTION:

Land ownership, as defined by Maricopa County Assessor mapping is office commercial development on the parcel. City of Scottsdale zoning map designates this parcel as C-O PCD.

The parcel is developed with two 2-story office buildings with a combined 18,339 square feet or 0.42+/- acres footprint, customer parking along the west and south side and employee covered parking along the east side of the buildings. The topography along the perimeter of the site generally slopes from north to south and east to west with the northeast elevation being 1354.28+/- and the southwest elevation being

1352.02 +/- with a change in elevation of approximately two (2) feet. An existing three-foot-high perimeter walls along the west and south sides of the project site sit approximately 1.25 feet above the top of curb at the southwest corner of the site. Internal to the perimeter walls, the site flows from the south to the north as it splits around the existing building east and west.

2.4 PROPOSED SITE DEVELOPMENT:

The proposed development consists of demolition of the existing 2 story office building and car port structures and the construction of a new multi-family apartment building consisting of 5-stories with a total of 179 dwelling units and an internal 5-level parking structure. Additional amenities include a pool with a spa, a ramada and patio internal to the building.

Refer to **APPENDIX III** for Preliminary Grading and Drainage.

2.5 FLOOD HAZARD ZONE:

As defined by the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona, and incorporated areas, Community number 045012, Panel number 1760 of 4425, as shown on Map Number 04013C1760L dated October 16, 2013 this site is designated as **Zone "X" Shaded**. As such, it is defined areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Refer to **FIGURE 3** for the FIRM.

3. EXISTING DRAINAGE CONDITIONS

3.1 OFF-SITE DRAINAGE PATTERNS:

This site is bound as follows:

- By 90th Street on the west which is an improved street section with 6" curb and gutter and improved sidewalk. There is no offsite flow from 90th Street as the existing project site is bermed up from the street at approximately 2 feet higher than the existing curb plus there is an existing 3-foot-high wall surrounding the parking area.
- By San Victor Drive on the south which is an improved street section with 6" vertical curb and gutter and improved sidewalk. There is no offsite flow from San Victor Drive as the existing project site is bermed up from the street at approximately 2 feet higher than the existing curb plus there is an existing 3-foot-high wall surrounding the parking area.
- By Tuscany at McCormick Ranch condominiums to the east. There is a varying five to six-foot-high CMU wall that separates the two properties on the east property line. There are no offsite flows from this direction.
- By an open green belt and drainage channel to the north. There is no wall along the north property line. There is no offsite flow from the north as the existing green belt/drainage channel is approximately 11 feet deep from the channel bottom to the top of bank. The existing building finished floors are approximately six inches higher than the top of bank and is approximately sixteen inches higher than the top of curb over the channels culvert crossing on 90th Street.

Refer to the Existing Conditions Drainage Area Map in **Appendix II**.

3.2 ON-SITE DRAINAGE:

The existing site is covered by approximately 65% asphalt parking and existing parking structures over some of the eastern parking lot. Approximately 20% of the site is covered by existing two story commercial office buildings. The remainder of the site, approximately 15% is covered by landscaping that fronts both streets and is south and west of the existing 3' high perimeter wall.

Existing internal site run off is overland flow, which drains in two directions around the existing buildings towards the north property line. The building roof drains exit at grade. The eastern building and the east parking lot sheet flow to an existing catch basin at the north end of the east parking lot and outlets via a pipe into the green belt. The western building and parking lot sheet flow to the northern end of the west parking lot and exit in a curb cut and flow directly into the greenbelt/drainage channel.

There is no retention or detention basins on site. Rain fall on the site is being sheet flowed to the green belt/drainage channel to the north side of the property. The landscape area west and south of the perimeter wall sheet flow to the surrounding streets.

This flow is calculated as follows, refer to the Existing Conditions Drainage Area Map in **Appendix II**:

Using the Rational Method, $Q=C_{wt}IA$

Where: C_{wt} = The runoff coefficient relating runoff to rainfall
 I = Average rainfall intensity in inches/hour, lasting for T_c (use 7.54 in/hr @ $T_c = 5$ Min.)
 T_c = The time of concentration (minutes)
 A = The contributing drainage area in acres

Drainage area DA-1 is the landscape area and contributes directly to the adjacent streets and the flow is calculated below:

$$\begin{aligned} Q_{100} &= (0.45)*(7.54)*(0.41) \\ &= 1.39 \text{ cfs} \end{aligned}$$

Drainage area DA-2 contributes directly into the drainage channel along the north property line of the project site and the flow is calculated below:

$$\begin{aligned} Q_{100} &= (0.95)*(7.54)*(2.09) \\ &= 14.97 \text{ cfs} \end{aligned}$$

The total pre $Q_{100} = 16.36$ cfs which is 100% run off from the existing site.

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

There is no current on-site retention for existing improvements as the site utilizes the greenbelt/drainage channel located to the north of the site. Landscape areas south east and west of the proposed building will be directed to the adjacent streets as they currently do today. The building itself will collect rainwater

from the roof and parking structure through roof drains. The drains will be routed internally through pipe and routed to a Stormceptor for pretreatment of the first flush volume. As the storm intensity increases, the increase storm water will flow over an internal weir, or Stormceptor insert, and will pass to the systems outlet pipe and into the greenbelt/drainage channel to the north of the property line.

The ultimate outfall remains the historical outlet at the southwest corner of the project site.

Using the Rational Method, $Q=C_{wt}IA$

Where: C_{wt} = The runoff coefficient relating runoff to rainfall
 I = Average rainfall intensity in inches/hour, lasting for T_c (use 7.54 in/hr @ $T_c = 5$ Min.)
 T_c = The time of concentration (minutes)
 A = The contributing drainage area in acres

Drainage area DA-1 is the landscape area and contributes directly to the adjacent streets and the flow is calculated below:

$$\begin{aligned} Q_{100} &= (0.45)*(7.54)*(0.35) \\ &= 1.19 \text{ cfs} \end{aligned}$$

Drainage area DA-2 contributes directly into the drainage channel along the north property line of the project site and the flow is calculated below:

$$\begin{aligned} Q_{100} &= (0.95)*(7.54)*(2.08) \\ &= 14.90 \text{ cfs} \end{aligned}$$

Drainage area DA-3 contributes directly into the drainage channel along the north property line of the project site and the flow is calculated below:

$$\begin{aligned} Q_{100} &= (0.45)*(7.54)*(0.07) \\ &= 0.24 \text{ cfs} \end{aligned}$$

The total post $Q_{100} = 16.33 \text{ cfs} < \text{pre } Q_{100} = 16.36 \text{ cfs}$ (Refer to section 3.2 above)

DA-1 as mentioned in Section 3.2 above is the landscape area that contributes directly to the adjacent streets as well as DA-1 for the proposed design.

Pre DA-1 (1.39 cfs) - Post DA-1 (1.19 cfs) = 0.20 cfs

There is a reduction of 0.20 cfs flowing to the adjacent streets and an increase of 0.17 cfs flowing to the greenbelt/drainage area north of the property line, which is an increase due to landscape area and not impervious area.

Refer to the Proposed Conditions Drainage Area Map in **Appendix II**.

Refer to Section 5 below for a discussion on proposed finished floor elevations. Refer to **Appendix III** for the Preliminary Grading & Drainage Plan.

4.2 DESIGN STORM REQUIREMENTS:

In accordance with City of Scottsdale requirements, storm water storage for the first flush condition is required as the post is less than the pre volumes. In lieu of a retention basin for the first flush, a Stormceptor STC7200 will be utilized to treat all first flush volume requirement before being released to the greenbelt/drainage channel along the north property line.

Refer to the Stormceptor drawing and design information in **Appendix II**.

4.3 OFF-SITE FLOW:

There are no off-site flows entering the site.

4.4 STORMWATER RETENTION:

There will be no storm water retention for the project site. On-site flows will be directed toward the north property line and ultimately into the greenbelt/drainage channel along the north property line. In an investigation of the adjacent properties, those properties storm water is routed internally and directly outfalls to the greenbelt/drainage channel on the north side of those properties.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISHED FLOOR ELEVATIONS

The ultimate outfall for this project is located at the southwest corner of the parcel at an elevation of approximately 1351.93. The lowest conceptual finished floor elevation is 1354.70. All building finished floor elevations will be set a minimum of 14 inches above emergency overflow points, and a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths. All building finished floor elevations will be set a minimum of 14 inches above ultimate outfalls.

6. CONCLUSIONS

6.1 OVERALL PROJECT:

1. The first flush volume will be routed through roof drains for the 5-story building and the parking garage and conveyed to an inline Stormceptor STC7200 for treating first flush requirements.
2. The finish floor elevations will be designed a minimum of 14 inches ultimate outfall
3. Finished floor elevations will be set a minimum of 12" above the adjacent high-water elevations.

6.2 PROJECT PHASING:

This development will be constructed in a single phase.

7. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

8. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – January 2018*
2. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, November 18, 2009 amended through February 10, 2011*
3. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, January 28, 1996*

GRADING & DRAINAGE LANGUAGE

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding. The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the city is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

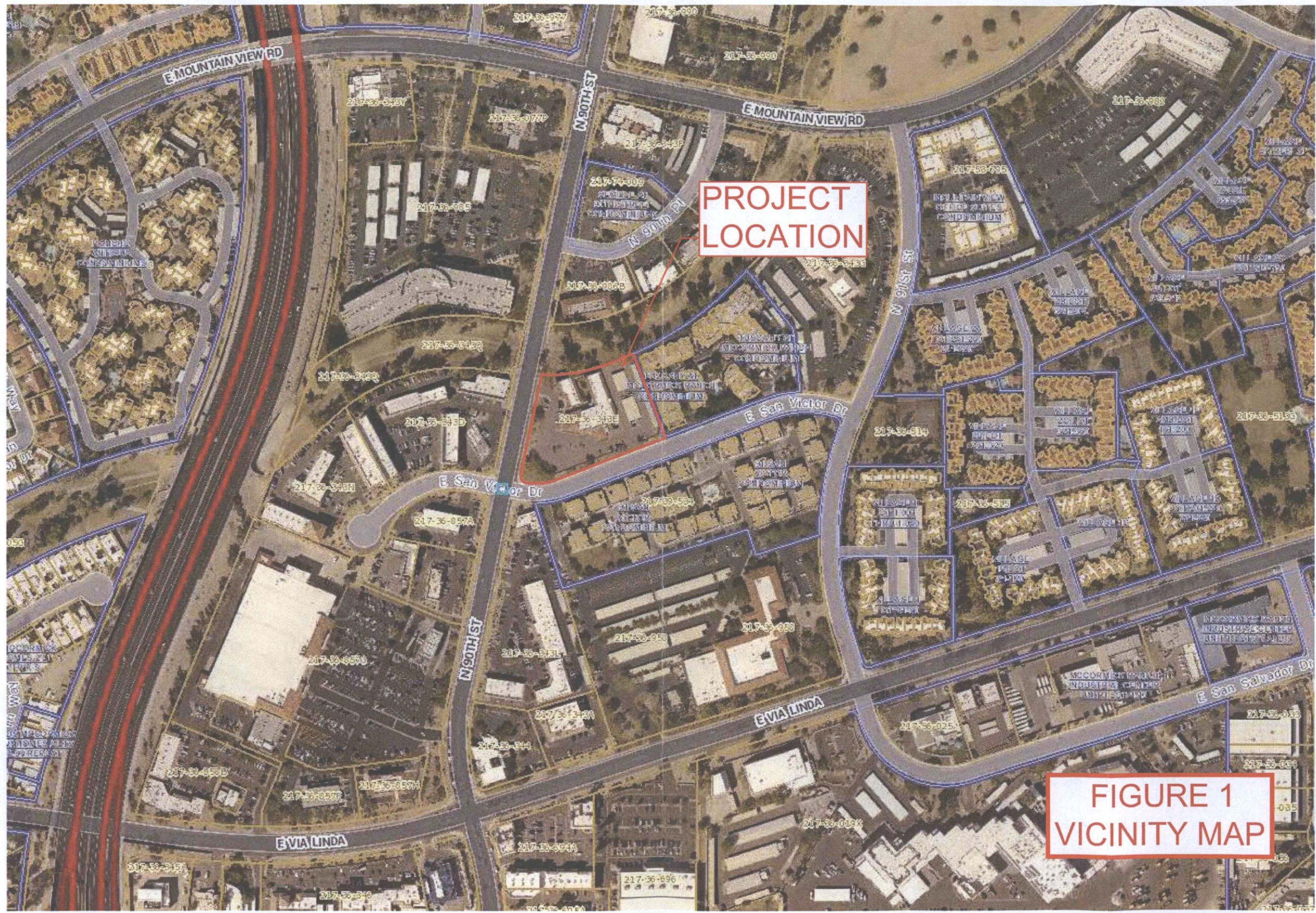
Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

Plan Check #

Owner

Date



PROJECT
LOCATION

FIGURE 1
VICINITY MAP



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The horizontal datum was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>. To obtain information about Geodetic Identification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: <http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm>.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

The profile base line depicted on this map represents the hydraulic modeling baseline that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community, as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM, visit the FEMA Map Service Center (MSC) website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/>.



LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
- The 1% annual chance flood (100-year flood) also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, VE, and V. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
 - ZONE AE** Base Flood Elevations determined.
 - ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
 - ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow or slough terrain); average depths determined. For areas of shallow fan flooding, velocities also determined.
 - ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently deteriorated. Zone AR indicates that the former flood control system is being retained to provide protection from the 1% annual chance or greater flood.
 - ZONE AR0** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
 - ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
 - ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE**
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS**
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS**
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
 - ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
 - 0.2% annual chance floodplain boundary
 - Floodway boundary
 - Zone boundary
 - Zone D boundary
 - CBRS and OPA boundary
 - Boundary delimiting Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
 - Base Flood Elevation line and value; elevation in feet* (EL 887)
 - Base Flood Elevation value where uniform within zone; elevation in feet*
 - * Referenced to the North American Vertical Datum of 1988 (NAVD 88)
 - Cross section line
 - Traverse line
 - Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
 - 1000-meter Universal Transverse Mercator grid ticks, zone 12
 - 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
 - DX5510 Bench mark (see explanation in Notes to Users section of the FIS report)
 - M1.5 River Mile
- MAP REPOSITORIES**
- Refer to Map Repositories list on Map Index.
- EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP**
- April 15, 1998
- EFFECTIVE DATES (OF REVISIONS) TO THIS PANEL**
- July 19, 2001 September 30, 2005
- October 16, 2013 - to incorporate previously issued letters of map revision, to update corporate limits, to change base flood elevations, to add base flood elevation, to add roads and road names, to change floodways, to add special flood hazard areas, to advance suffix, and to add floodway.
- For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.
- To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6439.

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1760L

FIRM FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1760 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	04037	1760	L
PARADISE VALLEY TOWN OF	04049	1760	L
PHOENIX, CITY OF	04051	1760	L
SCOTTSDALE, CITY OF	04512	1760	L

FIGURE 3

Notes 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 04013C1760L

MAP REVISED OCTOBER 16, 2013

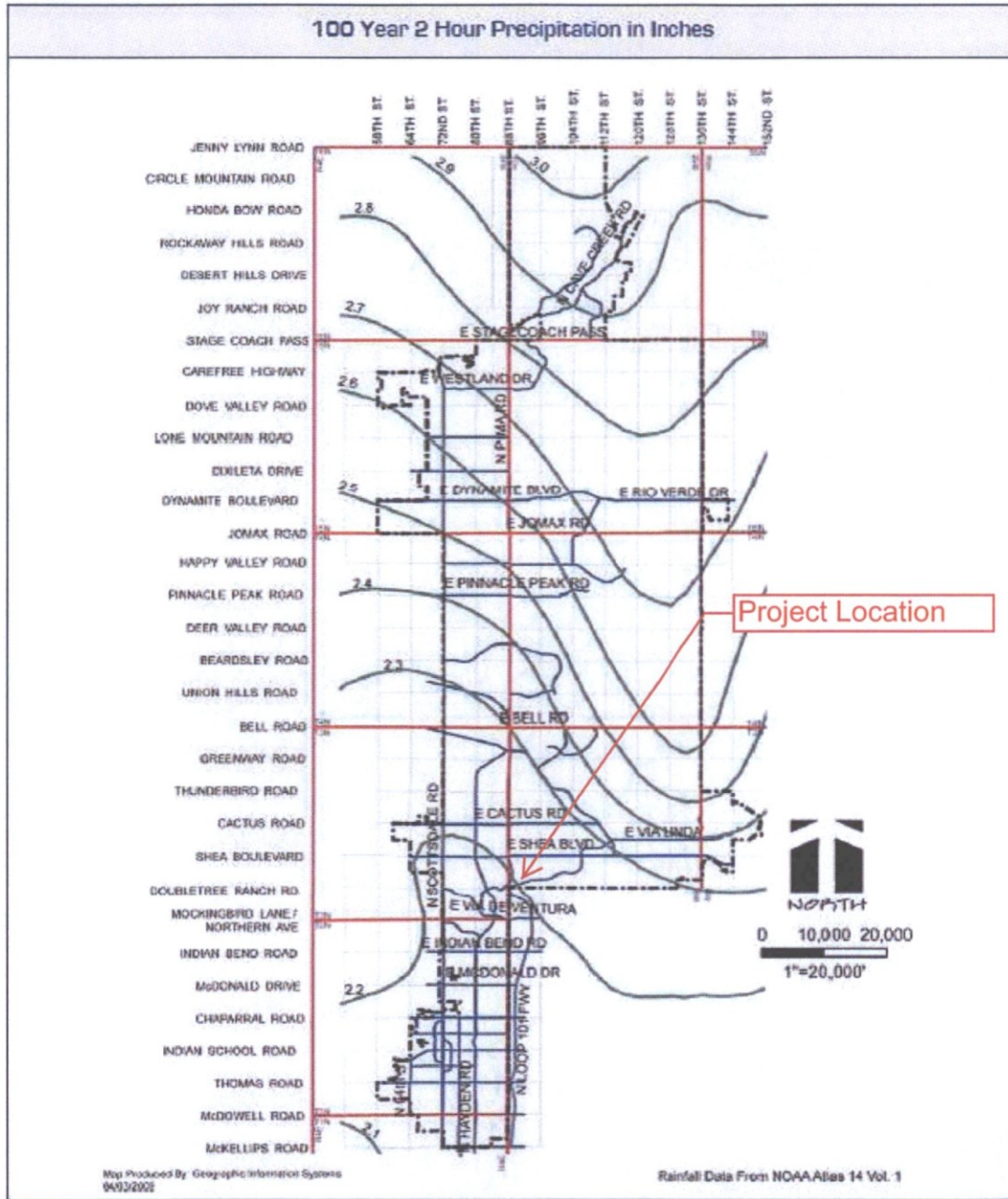
Federal Emergency Management Agency



"LEED®ing and Developing Smart Projects"

APPENDIX I
Rainfall Data

ISOPLUVIALS





NOAA Atlas 14, Volume 1, Version 5
 Location name: Scottsdale, Arizona, USA*
 Latitude: 33.5825°, Longitude: -111.8828°
 Elevation: 1374.41 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.26 (1.87-2.77)	2.94 (2.46-3.61)	3.98 (3.29-4.87)	4.78 (3.94-5.83)	5.86 (4.74-7.13)	6.68 (5.35-8.08)	7.54 (5.93-9.08)	8.40 (6.49-10.1)	9.56 (7.20-11.5)	10.4 (7.70-12.6)
10-min	1.72 (1.43-2.11)	2.24 (1.87-2.75)	3.03 (2.51-3.71)	3.64 (2.99-4.44)	4.46 (3.61-5.42)	5.09 (4.07-6.14)	5.74 (4.51-6.92)	6.39 (4.94-7.69)	7.28 (5.48-8.76)	7.95 (5.87-9.58)
15-min	1.42 (1.18-1.74)	1.85 (1.55-2.28)	2.50 (2.07-3.06)	3.00 (2.47-3.67)	3.68 (2.98-4.48)	4.20 (3.36-5.08)	4.74 (3.73-5.72)	5.28 (4.08-6.36)	6.01 (4.53-7.24)	6.57 (4.85-7.92)
30-min	0.954 (0.792-1.17)	1.25 (1.04-1.53)	1.69 (1.39-2.06)	2.02 (1.67-2.47)	2.48 (2.01-3.02)	2.83 (2.27-3.42)	3.19 (2.51-3.85)	3.56 (2.75-4.28)	4.05 (3.05-4.87)	4.42 (3.26-5.33)
60-min	0.591 (0.491-0.725)	0.771 (0.645-0.948)	1.04 (0.863-1.28)	1.25 (1.03-1.53)	1.53 (1.24-1.87)	1.75 (1.40-2.12)	1.98 (1.55-2.38)	2.20 (1.70-2.65)	2.51 (1.89-3.02)	2.74 (2.02-3.30)
2-hr	0.346 (0.292-0.415)	0.448 (0.378-0.538)	0.596 (0.501-0.714)	0.710 (0.590-0.850)	0.866 (0.714-1.03)	0.984 (0.800-1.17)	1.11 (0.884-1.31)	1.23 (0.966-1.46)	1.40 (1.07-1.65)	1.53 (1.15-1.81)
3-hr	0.256 (0.215-0.313)	0.328 (0.277-0.404)	0.429 (0.360-0.524)	0.509 (0.423-0.618)	0.621 (0.508-0.750)	0.710 (0.573-0.853)	0.803 (0.636-0.964)	0.900 (0.701-1.08)	1.03 (0.781-1.24)	1.14 (0.842-1.37)
6-hr	0.154 (0.132-0.184)	0.195 (0.168-0.232)	0.249 (0.213-0.295)	0.293 (0.247-0.345)	0.351 (0.293-0.412)	0.397 (0.326-0.465)	0.445 (0.360-0.519)	0.494 (0.393-0.578)	0.561 (0.434-0.655)	0.613 (0.464-0.718)
12-hr	0.085 (0.074-0.100)	0.107 (0.093-0.126)	0.136 (0.117-0.159)	0.158 (0.135-0.184)	0.188 (0.159-0.219)	0.210 (0.176-0.245)	0.234 (0.193-0.272)	0.258 (0.210-0.299)	0.290 (0.230-0.338)	0.315 (0.245-0.370)
24-hr	0.050 (0.044-0.057)	0.063 (0.056-0.073)	0.082 (0.072-0.094)	0.096 (0.085-0.111)	0.117 (0.102-0.134)	0.133 (0.115-0.152)	0.149 (0.128-0.171)	0.167 (0.142-0.190)	0.191 (0.160-0.218)	0.209 (0.173-0.240)
2-day	0.027 (0.024-0.031)	0.034 (0.030-0.039)	0.045 (0.039-0.051)	0.053 (0.047-0.061)	0.065 (0.056-0.074)	0.074 (0.064-0.085)	0.084 (0.072-0.096)	0.094 (0.080-0.108)	0.109 (0.091-0.125)	0.120 (0.099-0.138)
3-day	0.019 (0.017-0.022)	0.025 (0.022-0.028)	0.032 (0.028-0.037)	0.038 (0.034-0.044)	0.047 (0.041-0.054)	0.054 (0.047-0.062)	0.062 (0.053-0.070)	0.069 (0.059-0.079)	0.080 (0.067-0.092)	0.089 (0.074-0.102)
4-day	0.015 (0.014-0.018)	0.020 (0.017-0.022)	0.026 (0.023-0.030)	0.031 (0.027-0.035)	0.038 (0.033-0.043)	0.044 (0.038-0.050)	0.050 (0.043-0.057)	0.057 (0.048-0.065)	0.066 (0.056-0.075)	0.074 (0.062-0.084)
7-day	0.010 (0.009-0.011)	0.013 (0.011-0.014)	0.017 (0.015-0.019)	0.020 (0.017-0.023)	0.025 (0.021-0.028)	0.028 (0.024-0.032)	0.032 (0.028-0.037)	0.037 (0.031-0.042)	0.043 (0.036-0.049)	0.047 (0.039-0.054)
10-day	0.007 (0.007-0.009)	0.010 (0.008-0.011)	0.013 (0.011-0.014)	0.015 (0.013-0.017)	0.019 (0.016-0.021)	0.021 (0.018-0.024)	0.024 (0.021-0.027)	0.027 (0.023-0.031)	0.032 (0.027-0.036)	0.035 (0.029-0.040)
20-day	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.011 (0.010-0.013)	0.013 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.014-0.018)	0.018 (0.015-0.020)	0.019 (0.016-0.022)
30-day	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.012)	0.012 (0.011-0.014)	0.014 (0.012-0.016)	0.015 (0.013-0.017)
45-day	0.003 (0.002-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.011 (0.010-0.013)
60-day	0.002 (0.002-0.003)	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.007 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)

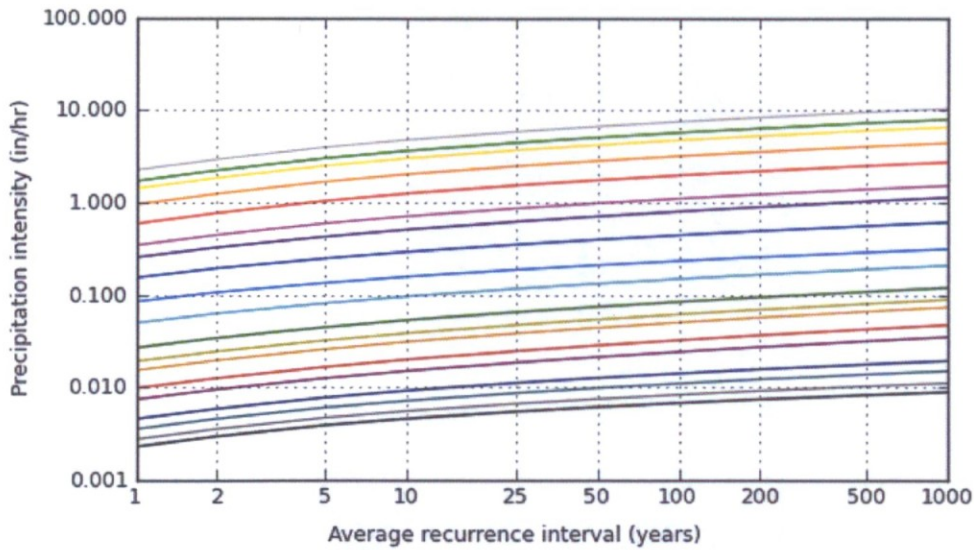
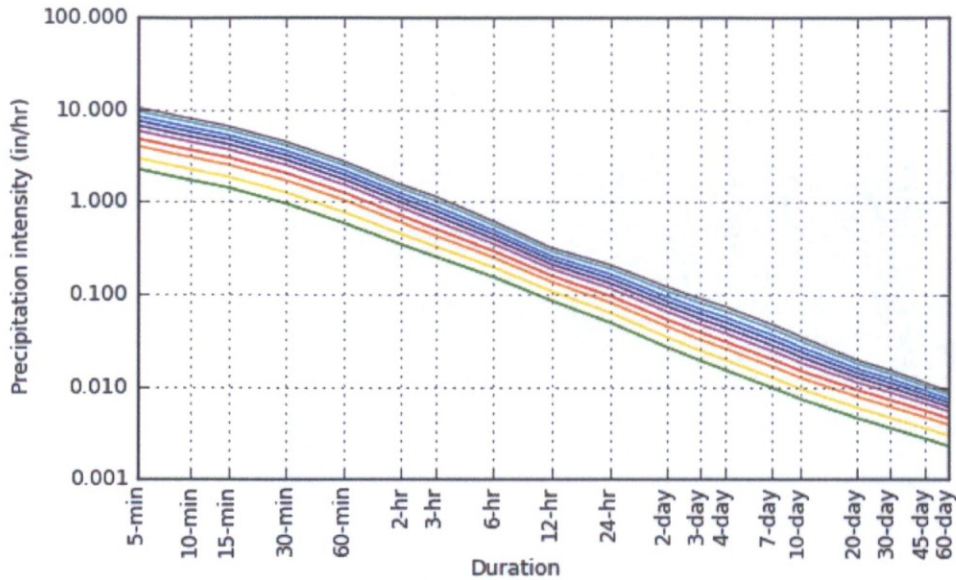
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based intensity-duration-frequency (IDF) curves

Latitude: 33.5825°, Longitude: -111.8828°



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Maps & aerials

Small scale terrain

Precipitation Frequency Data Server



Large scale terrain



Large scale map



Large scale aerial



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[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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NOAA Atlas 14, Volume 1, Version 5
 Location name: Scottsdale, Arizona, USA*
 Latitude: 33.5825°, Longitude: -111.8828°
 Elevation: 1374.41 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aeriels](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.188 (0.156-0.231)	0.245 (0.205-0.301)	0.332 (0.274-0.406)	0.398 (0.328-0.486)	0.488 (0.395-0.594)	0.557 (0.446-0.673)	0.628 (0.494-0.757)	0.700 (0.541-0.842)	0.797 (0.600-0.959)	0.870 (0.642-1.05)
10-min	0.286 (0.238-0.351)	0.373 (0.312-0.459)	0.505 (0.418-0.618)	0.606 (0.499-0.740)	0.743 (0.602-0.903)	0.848 (0.679-1.02)	0.956 (0.752-1.15)	1.07 (0.823-1.28)	1.21 (0.913-1.46)	1.33 (0.978-1.60)
15-min	0.355 (0.295-0.435)	0.463 (0.387-0.569)	0.626 (0.518-0.766)	0.751 (0.618-0.917)	0.921 (0.746-1.12)	1.05 (0.841-1.27)	1.19 (0.932-1.43)	1.32 (1.02-1.59)	1.50 (1.13-1.81)	1.64 (1.21-1.98)
30-min	0.477 (0.396-0.586)	0.623 (0.521-0.766)	0.843 (0.697-1.03)	1.01 (0.833-1.23)	1.24 (1.00-1.51)	1.42 (1.13-1.71)	1.60 (1.25-1.92)	1.78 (1.37-2.14)	2.03 (1.52-2.44)	2.21 (1.63-2.67)
60-min	0.591 (0.491-0.725)	0.771 (0.645-0.948)	1.04 (0.863-1.28)	1.25 (1.03-1.53)	1.53 (1.24-1.87)	1.75 (1.40-2.12)	1.98 (1.55-2.38)	2.20 (1.70-2.65)	2.51 (1.89-3.02)	2.74 (2.02-3.30)
2-hr	0.693 (0.583-0.830)	0.895 (0.756-1.08)	1.19 (1.00-1.43)	1.42 (1.18-1.70)	1.73 (1.43-2.06)	1.97 (1.60-2.34)	2.22 (1.77-2.62)	2.46 (1.93-2.91)	2.80 (2.14-3.31)	3.05 (2.29-3.63)
3-hr	0.769 (0.647-0.941)	0.985 (0.831-1.21)	1.29 (1.08-1.58)	1.53 (1.27-1.86)	1.87 (1.53-2.25)	2.13 (1.72-2.56)	2.41 (1.91-2.90)	2.70 (2.11-3.24)	3.10 (2.35-3.72)	3.43 (2.53-4.11)
6-hr	0.925 (0.793-1.10)	1.17 (1.00-1.39)	1.49 (1.27-1.77)	1.75 (1.48-2.06)	2.10 (1.76-2.47)	2.38 (1.95-2.78)	2.67 (2.16-3.11)	2.96 (2.35-3.46)	3.36 (2.60-3.92)	3.67 (2.78-4.30)
12-hr	1.03 (0.887-1.21)	1.29 (1.12-1.52)	1.63 (1.41-1.91)	1.90 (1.62-2.22)	2.26 (1.91-2.63)	2.54 (2.12-2.95)	2.82 (2.32-3.27)	3.11 (2.53-3.61)	3.49 (2.77-4.08)	3.80 (2.95-4.45)
24-hr	1.20 (1.06-1.38)	1.52 (1.34-1.75)	1.96 (1.73-2.26)	2.31 (2.03-2.65)	2.80 (2.44-3.21)	3.19 (2.75-3.64)	3.59 (3.08-4.10)	4.00 (3.40-4.57)	4.57 (3.83-5.23)	5.03 (4.16-5.77)
2-day	1.29 (1.14-1.48)	1.65 (1.45-1.89)	2.16 (1.89-2.47)	2.56 (2.24-2.93)	3.13 (2.71-3.57)	3.57 (3.08-4.08)	4.05 (3.45-4.63)	4.54 (3.84-5.19)	5.22 (4.36-5.99)	5.76 (4.76-6.63)
3-day	1.38 (1.22-1.58)	1.77 (1.55-2.02)	2.32 (2.04-2.65)	2.77 (2.42-3.16)	3.40 (2.96-3.87)	3.90 (3.37-4.44)	4.44 (3.80-5.05)	5.00 (4.25-5.71)	5.79 (4.86-6.61)	6.43 (5.33-7.36)
4-day	1.47 (1.30-1.68)	1.88 (1.66-2.15)	2.49 (2.19-2.83)	2.98 (2.61-3.39)	3.67 (3.20-4.17)	4.23 (3.66-4.80)	4.83 (4.15-5.48)	5.46 (4.66-6.22)	6.36 (5.35-7.23)	7.09 (5.91-8.08)
7-day	1.65 (1.45-1.90)	2.11 (1.85-2.42)	2.80 (2.45-3.20)	3.35 (2.92-3.83)	4.13 (3.58-4.72)	4.76 (4.11-5.43)	5.44 (4.65-6.20)	6.15 (5.22-7.02)	7.16 (6.00-8.18)	7.97 (6.61-9.13)
10-day	1.79 (1.57-2.04)	2.29 (2.01-2.61)	3.02 (2.65-3.44)	3.61 (3.16-4.11)	4.44 (3.86-5.04)	5.11 (4.42-5.79)	5.81 (4.99-6.59)	6.56 (5.59-7.44)	7.60 (6.40-8.63)	8.44 (7.04-9.60)
20-day	2.20 (1.95-2.51)	2.84 (2.50-3.22)	3.75 (3.30-4.25)	4.44 (3.89-5.03)	5.37 (4.69-6.07)	6.08 (5.30-6.88)	6.81 (5.90-7.72)	7.55 (6.51-8.57)	8.55 (7.31-9.72)	9.32 (7.90-10.6)
30-day	2.58 (2.27-2.93)	3.32 (2.93-3.77)	4.38 (3.86-4.96)	5.19 (4.56-5.86)	6.27 (5.48-7.08)	7.10 (6.19-8.01)	7.96 (6.90-8.97)	8.82 (7.61-9.95)	9.99 (8.56-11.3)	10.9 (9.26-12.3)
45-day	3.00 (2.65-3.39)	3.86 (3.42-4.37)	5.09 (4.51-5.75)	6.01 (5.30-6.78)	7.21 (6.34-8.13)	8.11 (7.11-9.16)	9.03 (7.87-10.2)	9.95 (8.63-11.3)	11.2 (9.61-12.7)	12.1 (10.3-13.7)
60-day	3.31 (2.95-3.74)	4.28 (3.81-4.83)	5.64 (5.00-6.35)	6.62 (5.86-7.46)	7.90 (6.98-8.89)	8.85 (7.79-9.97)	9.80 (8.59-11.1)	10.7 (9.37-12.1)	12.0 (10.4-13.5)	12.9 (11.1-14.6)

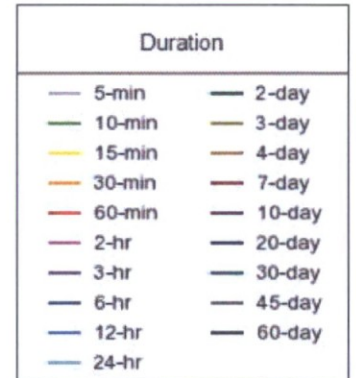
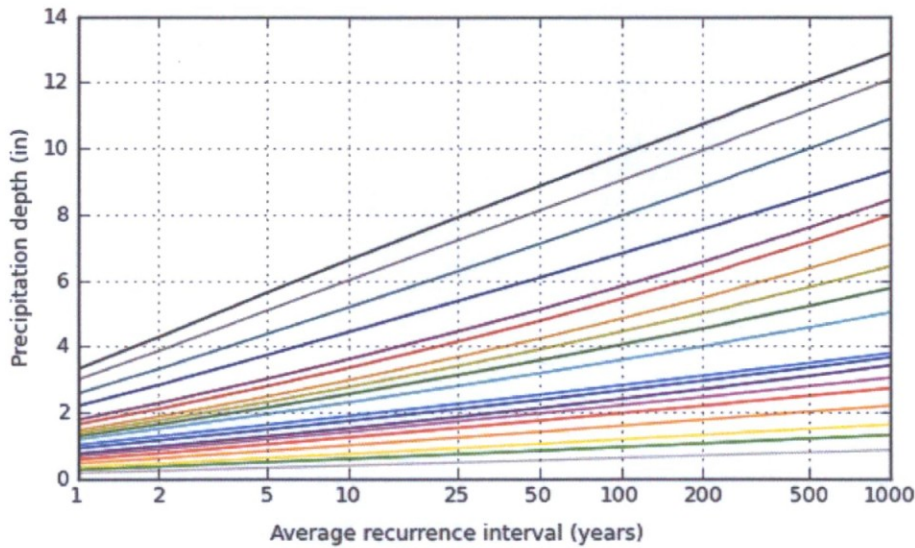
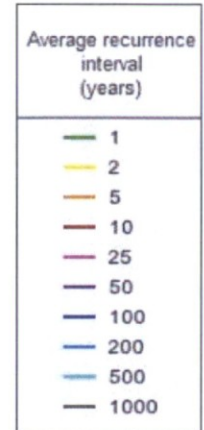
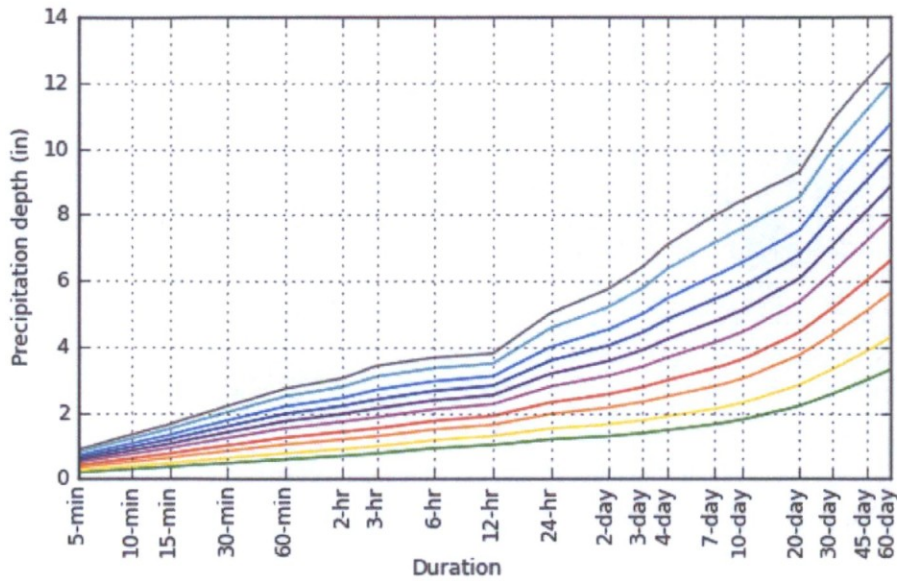
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PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 33.5825°, Longitude: -111.8828°



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Maps & aerials

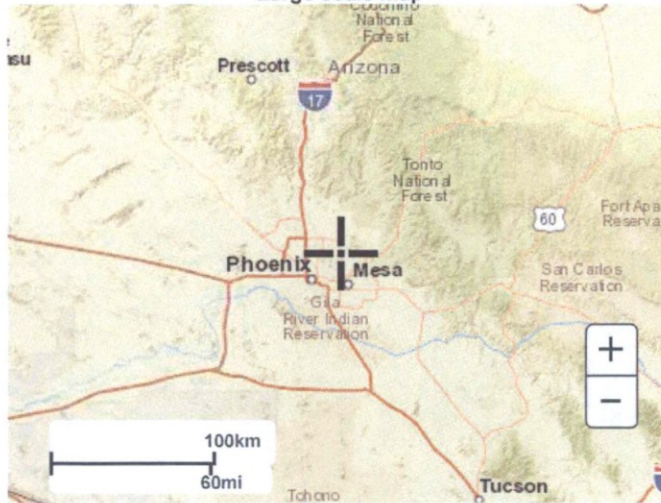
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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APPENDIX II

Calculations

BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN IS BASED ON THE MONUMENT LINE OF SAN VICTOR DRIVE AS SHOWN ON THE PLAT OF DEDICATION OF RIGHT-OF-WAY FOR STREETS, RECORDED IN BOOK 250, PAGE 46, MCR, USING A BEARING OF NORTH 86°56'00" EAST

LEGAL DESCRIPTION

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 3 NORTH, RANGE 5' EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 30, SAID POINT BEING THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 00 DEGREES 02 MINUTES 33 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 29 DEGREES 33 MINUTES 44 SECONDS, FOR A DISTANCE OF 386.97 FEET;

THENCE NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST, A DISTANCE OF 413.23 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 823.50 FEET, THE CENTER OF WHICH BEARS NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 03 DEGREES 48 MINUTES 13 SECONDS, FOR A DISTANCE OF 54.67 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 56 DEGREES 35 MINUTES 30 SECONDS WEST;

THENCE WESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 59 DEGREES 52 MINUTES 46 SECONDS, FOR A DISTANCE OF 1045.09 FEET;

THENCE SOUTH 03 DEGREES 17 MINUTES 16 SECONDS WEST, A DISTANCE OF 55.00 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 74 DEGREES 49 MINUTES 09 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46 DEGREES 13 MINUTES 13 SECONDS, FOR A DISTANCE OF 806.70 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 28 DEGREES 35 MINUTES 56 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 05 DEGREES 31 MINUTES 22 SECONDS, FOR A DISTANCE OF 72.29 FEET TO THE TRUE POINT OF BEGINNING;

THENCE SOUTH 21 DEGREES 04 MINUTES 00 SECONDS EAST, A DISTANCE OF 267.13 FEET;

THENCE SOUTH 68 DEGREES 56 MINUTES 00 SECONDS WEST, A DISTANCE OF 342.56 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT, HAVING A RADIUS OF 220.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 27 DEGREES 02 MINUTES 27 SECONDS, FOR A DISTANCE OF 103.83 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET, THE CENTER OF WHICH BEARS NORTH 05 DEGREES 58 MINUTES 27 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 95 DEGREES 44 MINUTES 21 SECONDS, FOR A DISTANCE OF 33.42 FEET;

THENCE NORTH 11 DEGREES 42 MINUTES 48 SECONDS EAST, A DISTANCE OF 308.50 FEET TO THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 01 DEGREES 01 MINUTES 45 SECONDS WEST;

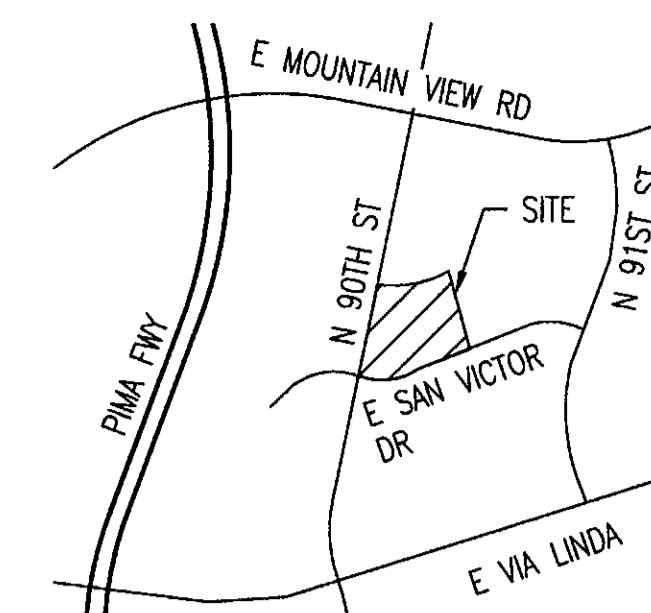
THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 22 DEGREES 02 MINUTES 49 SECONDS, FOR A DISTANCE OF 288.59 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT ALL MINERALS AS RESERVED TO THE UNITED STATES OF AMERICA IN PATENT TO SAID LAND.

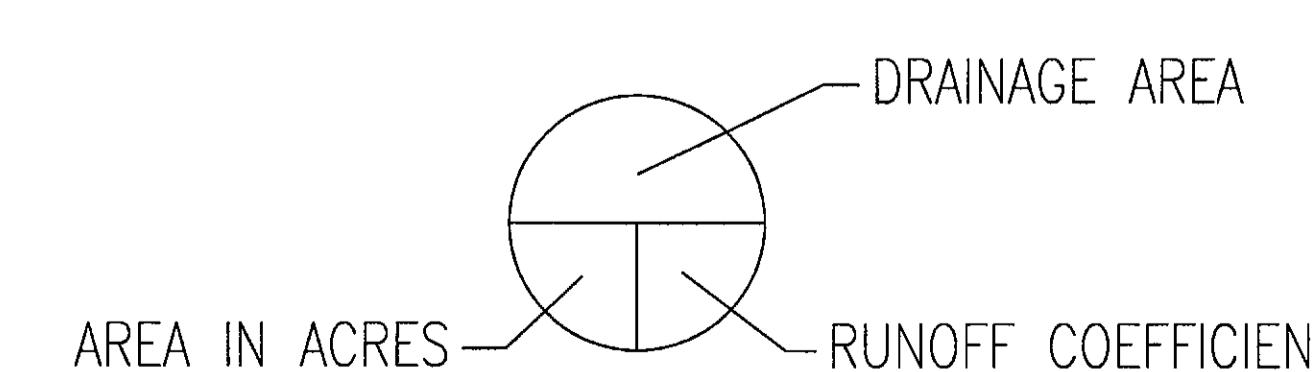
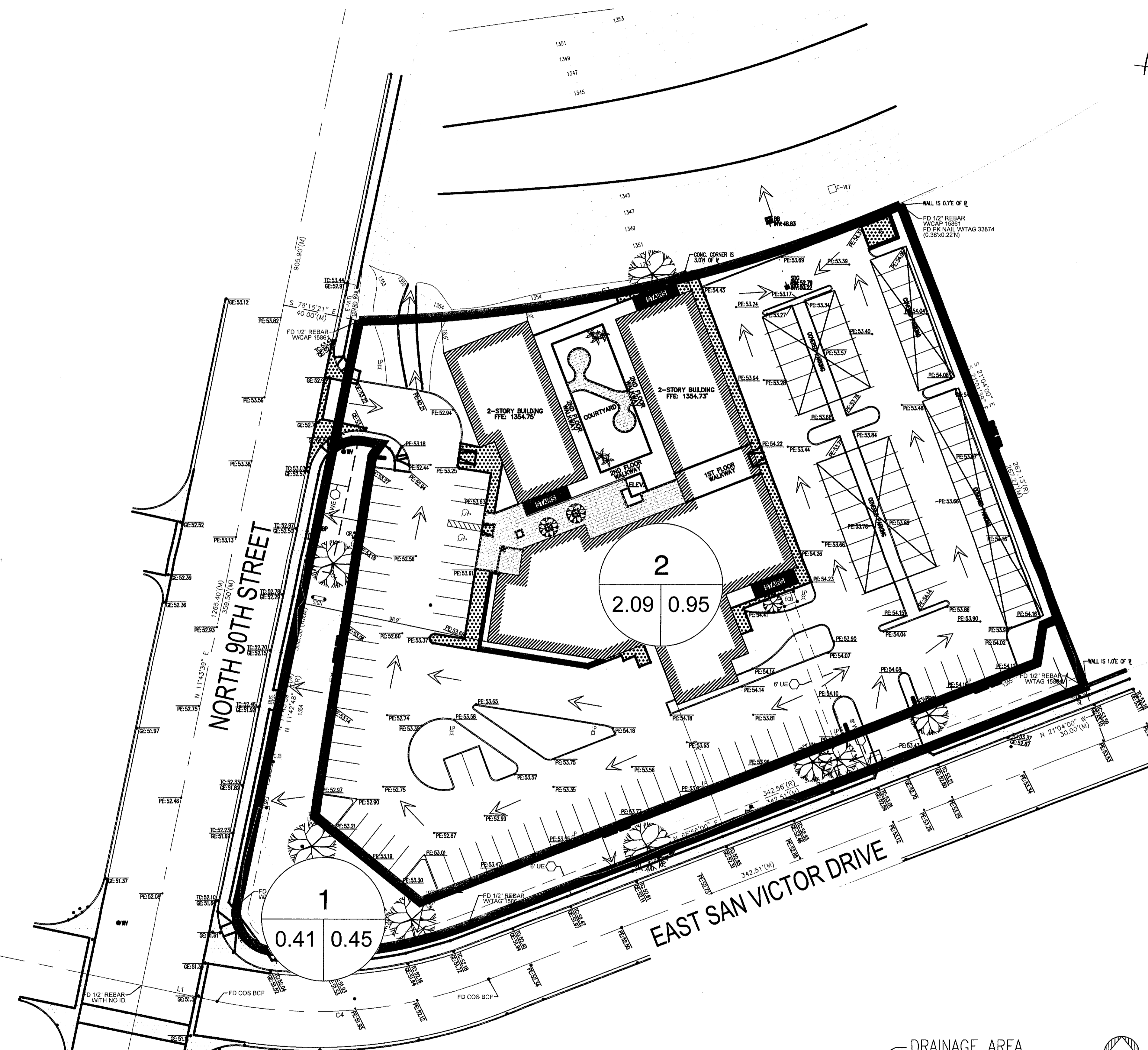
**EXISTING CONDITION DRAINAGE AREA MAP
RESIDENCE AT 90TH ST. AND SAN VICTOR
SCOTTSDALE, ARIZONA**

DEVELOPER / PROPERTY OWNER
WOOD PARTNERS
8777 E. VIA DE VENTURA, SUITE #201
SCOTTSDALE, ARIZONA 85258
PHONE: 480-607-0622
ATTN: CLAY RICHARDSON

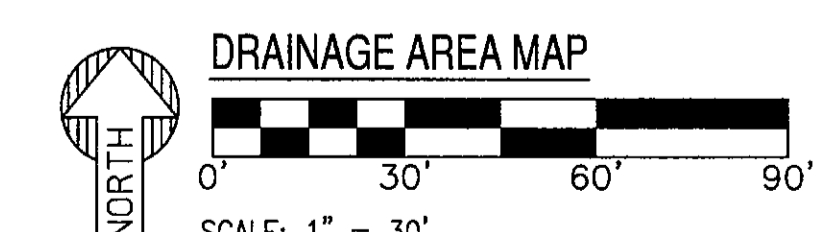
ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR. SUITE #101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH



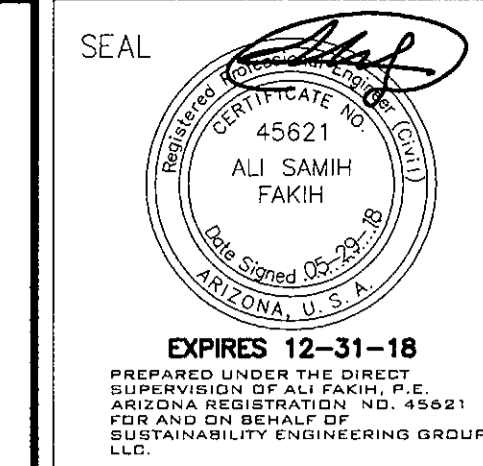
VICINITY MAP
SCALE: NTS



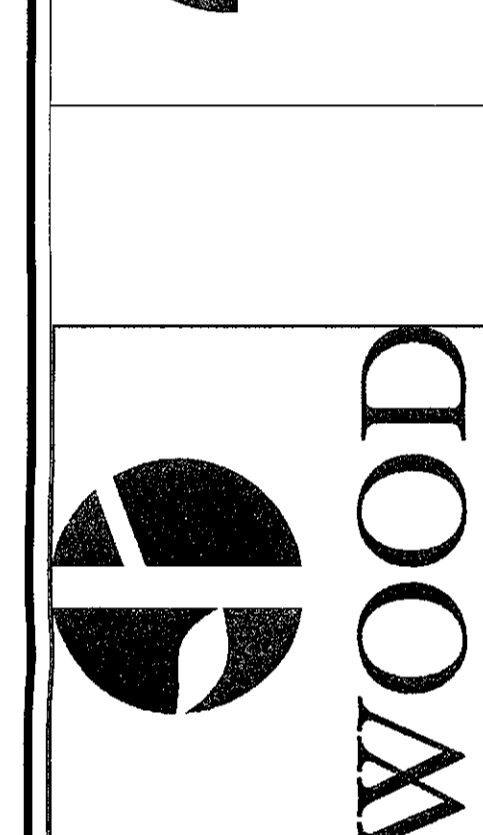
DRAINAGE AREA KEY



Call at least two full working days before any begin construction.
ARIZONA
Professional Engineer
No. 8-1-1 or 1-800-782-4247 (Toll-Free)
in Maricopa County (602) 263-1100



SEG
8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480-588-7226



PROJECT
RESIDENCE AT 90TH ST. & SAN VICTOR

LOCATION
N 90TH ST & E SAN VICTOR DR
SCOTTSDALE, AZ 85258

DRAWN SANTIAGO
DESIGNED SANTIAGO
CHECKED COUNSELL
PROJ. MGR. FAKIH

DATE: 05/29/2018

ISSUED FOR:

REVISION NO.: **DATE:**

JOB NO.: 180211

SHEET TITLE:

**PRE CONDITION
DRAINAGE AREA MAP**

SHEET NO.:

DAM

X:\PROJECTS\WOOD PARTNERS\ALTA SAN VICTOR SCOTTSDALE 180211\11 CAD (SEG)\11.2 ENTITLEMENT-PLANNING\11.2.DWG

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BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN IS BASED ON THE MONUMENT LINE OF SAN VICTOR DRIVE AS SHOWN ON THE PLAT OF DEDICATION OF RIGHT-OF-WAY FOR STREETS, RECORDED IN BOOK 250, PAGE 46, MCR, USING A BEARING OF NORTH 86°56'00" EAST

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THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 03 DEGREES 48 MINUTES 13 SECONDS, FOR A DISTANCE OF 54.67 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 56 DEGREES 35 MINUTES 30 SECONDS WEST;

THENCE WESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 59 DEGREES 52 MINUTES 46 SECONDS, FOR A DISTANCE OF 1045.09 FEET;

THENCE SOUTH 03 DEGREES 17 MINUTES 16 SECONDS WEST, A DISTANCE OF 55.00 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 74 DEGREES 49 MINUTES 09 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46 DEGREES 13 MINUTES 13 SECONDS, FOR A DISTANCE OF 806.70 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 28 DEGREES 35 MINUTES 56 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 05 DEGREES 31 MINUTES 22 SECONDS, FOR A DISTANCE OF 72.29 FEET TO THE TRUE POINT OF BEGINNING;

THENCE SOUTH 21 DEGREES 04 MINUTES 00 SECONDS EAST, A DISTANCE OF 267.13 FEET;

THENCE SOUTH 68 DEGREES 56 MINUTES 00 SECONDS WEST, A DISTANCE OF 342.56 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT, HAVING A RADIUS OF 220.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 27 DEGREES 02 MINUTES 27 SECONDS, FOR A DISTANCE OF 103.83 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET, THE CENTER OF WHICH BEARS NORTH 05 DEGREES 58 MINUTES 27 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 95 DEGREES 44 MINUTES 21 SECONDS, FOR A DISTANCE OF 33.42 FEET;

THENCE NORTH 11 DEGREES 42 MINUTES 48 SECONDS EAST, A DISTANCE OF 308.50 FEET TO THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 01 DEGREES 01 MINUTES 45 SECONDS WEST;

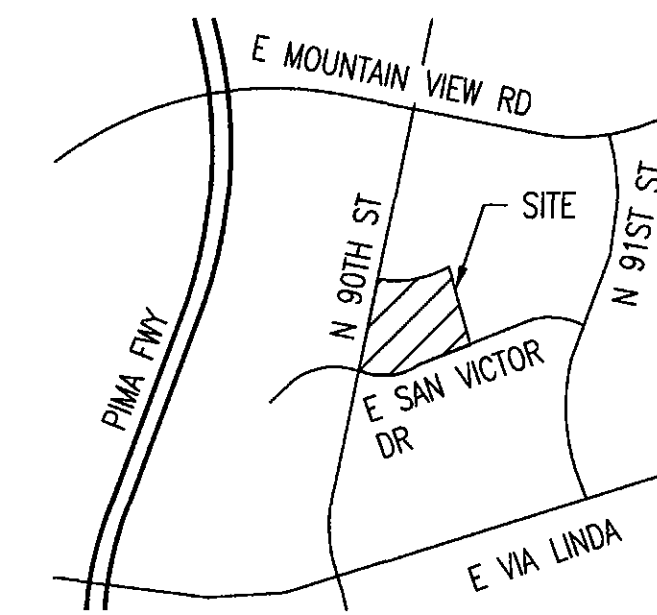
THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 22 DEGREES 02 MINUTES 49 SECONDS, FOR A DISTANCE OF 288.59 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT ALL MINERALS AS RESERVED TO THE UNITED STATES OF AMERICA IN PATENT TO SAID LAND.

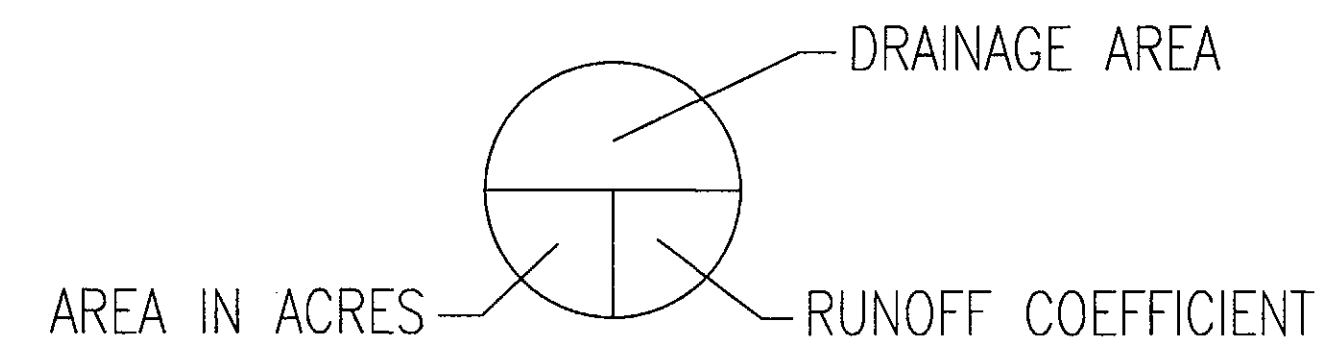
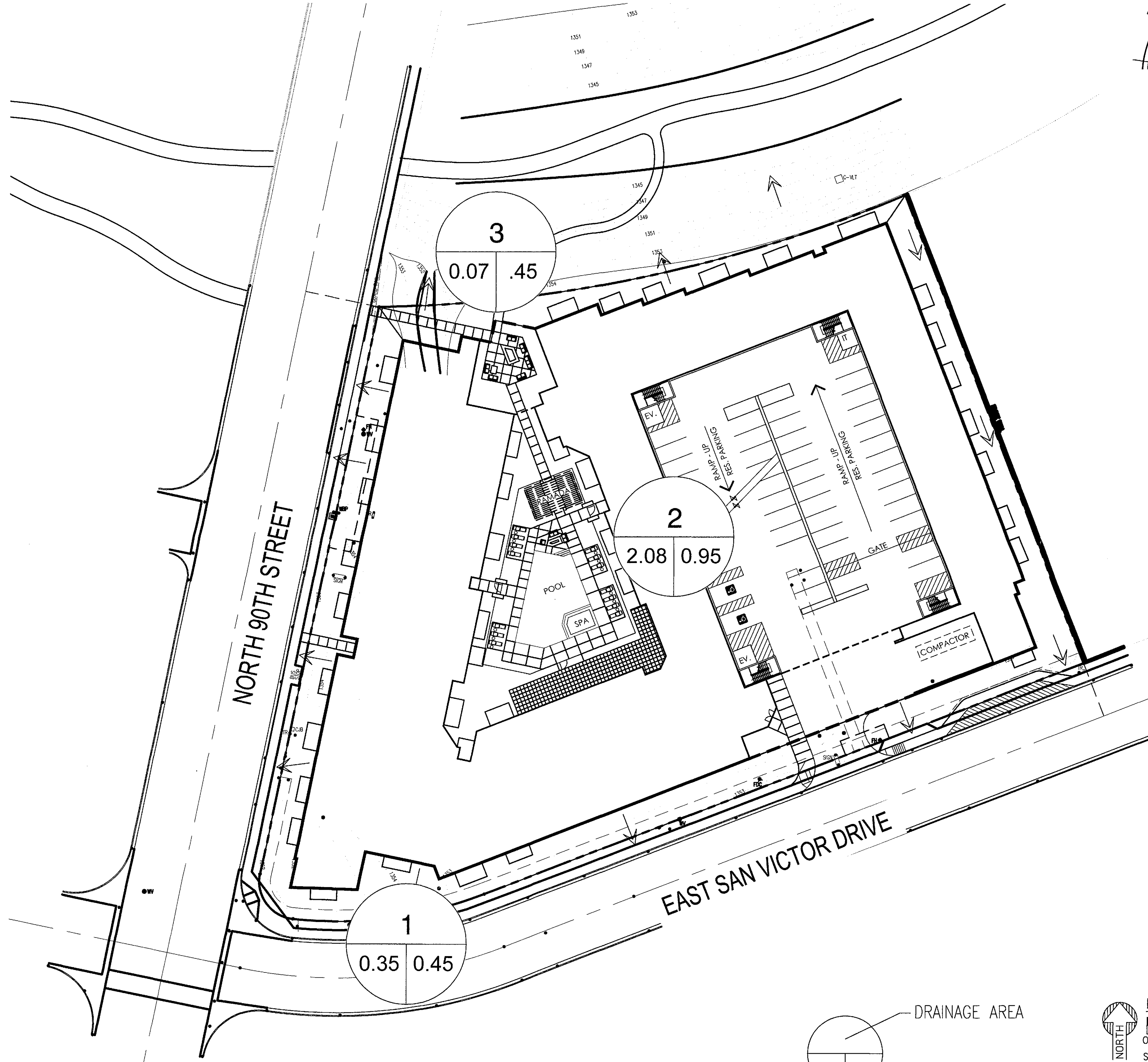
**PROPOSED CONDITION DRAINAGE AREA MAP
RESIDENCE AT 90TH ST. AND SAN VICTOR
SCOTTSDALE, ARIZONA**

DEVELOPER / PROPERTY OWNER
WOOD PARTNERS
8777 E. VIA DE VENTURA, SUITE #201
SCOTTSDALE, ARIZONA 85258
PHONE: 480-607-0622
ATTN: CLAY RICHARDSON

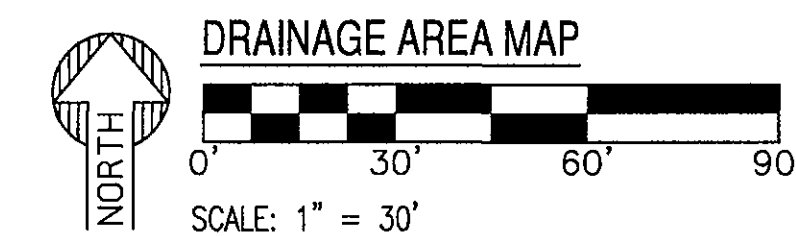
ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR. SUITE #101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH



VICINITY MAP
SCALE: NTS

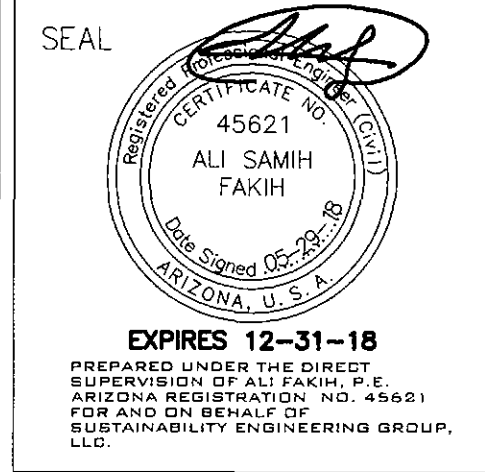


DRAINAGE AREA KEY

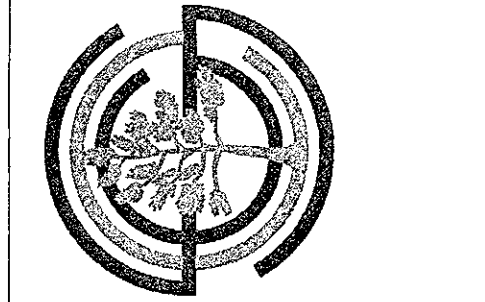


NOTE TO CONTRACTOR
THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE INTENDED TO BE USED IN CONJUNCTION WITH A SET OF CONSTRUCTION SPECIFICATIONS TO BE SUPPLIED BY OWNER. THEY MUST BE READ TO UNDERSTAND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS AS A REQUIREMENT. THE SET INCLUDES "AS-BUILT" CONDITIONS OR WHO, DATE, THE FAILURE OF THIS CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO CONFORM TO ALL APPLICABLE CODES AND TO INFORM THE OWNER/ARCHITECT OF ANY QUESTIONS OR CLARIFICATIONS WHICH ARE DESIRED. CONTRACTORS SHALL ALSO VISIT THE SITE BEFORE BIDDING. CONTRACTORS ARE REQUIRED TO KNOW ALL APPLICABLE CODES AND APPLICABLE CODES.

Call at least two full working days before you begin construction.
ARIZONA811
Arizona 811
Dig 8-1-1 or 1-800-878-2811 (TAS-811)
In Maricopa County: (602) 262-1100



SEG
8280 E. GELDING DR. #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL: 480.988.7226



WOOD
P.A.R.T.N.E.R.S.

PROJECT
RESIDENCE AT 90TH ST. & SAN VICTOR

LOCATION
N 90TH ST & E SAN VICTOR DR
SCOTTSDALE, AZ 85258

DRAWN _____ **SANTIAGO**
DESIGNED _____ **SANTIAGO**
CHECKED _____ **COUNSELL**
PRJ. MGR. _____ **FAKIH**

DATE: 05/29/2018
ISSUED FOR:

REVISION NO.:	DATE:

JOB NO.: 180211

SHEET TITLE:

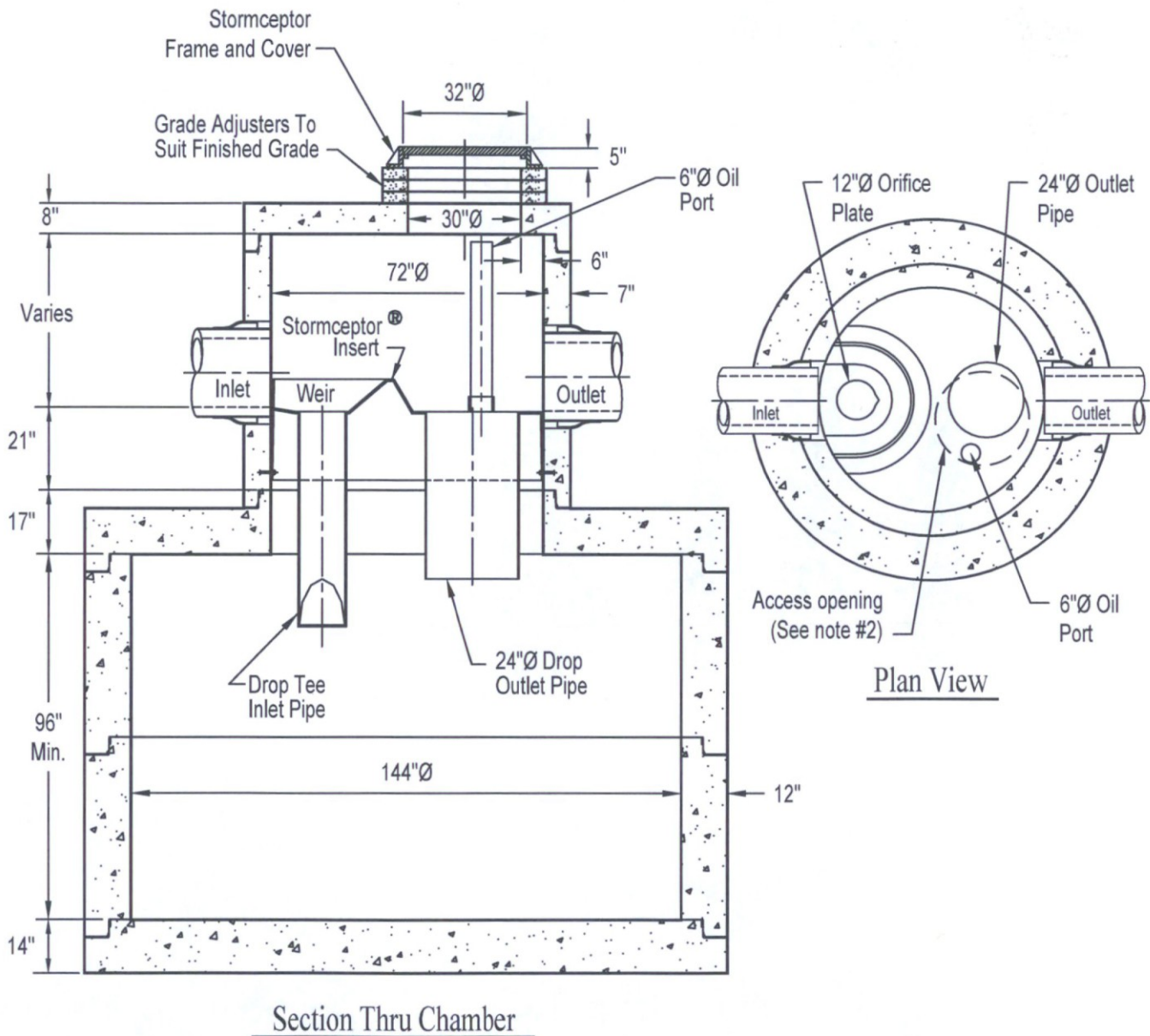
**PROPOSED CONDITION
DRAINAGE AREA MAP**

SHEET NO.:
DAM

X:\PROJECTS\WOOD PARTNERS\ALTA SAN VICTOR SCOTTSDALE 180211\11 CAD (SEG)\11.2 ENTITLEMENT-PLANNING\POST DAWDING

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**STC 7200 Precast Concrete Stormceptor®
(7200 U.S. Gallon Capacity)**



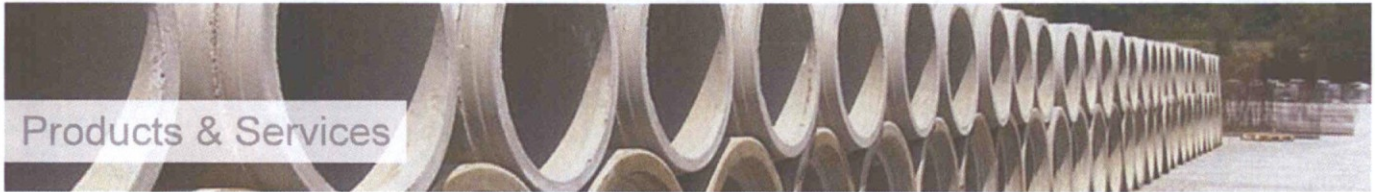
Notes:

1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Outlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.



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Products & Services

Concrete Pipe

Concrete Box

Stormceptor®

[In-Line Stormceptor®](#)

[Inlet Stormceptor®](#)

[Series Stormceptor®](#)

[Large-Scale Stormceptor® MAX](#)

[Submerged Stormceptor®](#)

[Extended Oil Storage \(EOS\) System](#)

[Oil and Sand Removal \(OSR\) System](#)

[Applications](#)

[Technical Information](#)

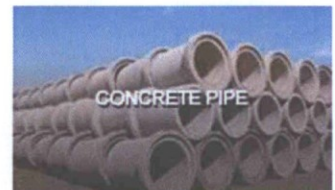
[Stormceptor® Locations & Contacts](#)

In-Line Stormceptor®

The InLine Stormceptor is the standard design for most stormwater treatment applications. The patented design allows the InLine unit to maintain continuous positive treatment of stormwater for the removal of pollutants such as total suspended solids (TSS), free oils and nutrients year round, regardless of the flow rate.

[SIZING SOFTWARE](#)

**LEARN MORE ABOUT
OUR PRODUCTS**



5/21/2018

Interactive Simulations

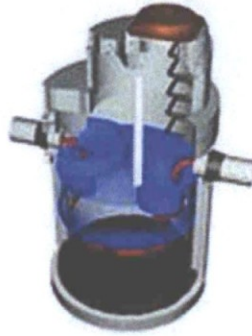
Stormwater Treatment

Jacking/Microtunneling Pipe & Box

Manholes & Inlets

Specialty Fittings & Accessories

In-Line Stormceptor | Rinker Pipe & Stormceptor



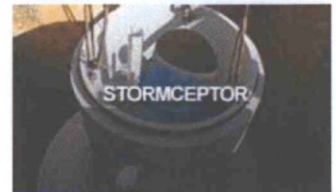
Uses & Applications

Stormceptor is applicable in a variety of development situations including:

Stormwater quality retrofits for existing developments
Industrial and commercial parking lots

Automobile service stations and truck stops
Airport and military installations
Areas susceptible to hydrocarbon spills
New residential sites and re-development in the urban core
Pre-treatment to LID designs (as part of a treatment train)

Contact your Local
Representative for
Availability



***Please be aware that all products are not available at every plant.
Contact your local plant for specific project requirements.***

Specifications

Technical Information

Single Inline Unit

(STC 900, 1200, 1800, 2400, 3600, 4800, 6000, 7200)

Frame and cover are orientated directly over riser pipe and oil port.

Can be utilized as a bend structure.

Minimum direction change from inlet to outlet is 90 degrees.

Multiple Inline Unit

Frame and cover should be orientated directly over riser pipe and oil port.

Accommodates multiple horizontal inlet pipes.

Can be utilized as a bend structure.



High Flow

Minimum direction change from either inlet to the outlet is 90 degrees.

Inspect and maintain the In-line Stormceptor® from the surface, without entry into the unit. Ideally, perform maintenance once the stored volume reaches 15 percent of the total volume in the lower chamber, or immediately in the event of a spill.

Maintenance intervals vary depending on the application. We recommend quarterly inspections during the first year of installation to accurately establish the maintenance schedule.

Disposal requirements for pollutants captured are similar to that of any other Best Management Practice (BMP). Consult local guidelines or your local Stormceptor® Representative for additional information.

Products & Services

Concrete Pipe
Concrete Box

Jacking/Microtunneling
Pipe & Box

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Awards

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5/21/2018

In-Line Stormceptor | Rinker Pipe & Stormceptor

Stormceptor
Stormwater Treatment

Manholes & Inlets
Specialty Fittings &
Accessories

Affiliations
Calendar of Events

Rinker Materials © 2014. All rights reserved.

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"LEED®ing and Developing Smart Projects"

APPENDIX III
Grading Plans

BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE MONUMENT LINE OF SAN VICTOR DRIVE AS SHOWN ON THE PLAT OF DEDICATION OF RIGHT-OF-WAY FOR STREETS, RECORDED IN BOOK 250, PAGE 46, MCR, USING A BEARING OF NORTH 68°56'00" EAST

LEGAL DESCRIPTION

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 3 NORTH, RANGE 5' EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 30, SAID POINT BEING THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 00 DEGREES 02 MINUTES 33 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 29 DEGREES 33 MINUTES 44 SECONDS, FOR A DISTANCE OF 386.97 FEET;

THENCE NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST, A DISTANCE OF 413.23 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 823.50 FEET, THE CENTER OF WHICH BEARS NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 03 DEGREES 48 MINUTES 13 SECONDS, FOR A DISTANCE OF 54.67 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 56 DEGREES 35 MINUTES 30 SECONDS WEST;

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THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46 DEGREES 13 MINUTES 13 SECONDS, FOR A DISTANCE OF 806.70 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 28 DEGREES 35 MINUTES 56 SECONDS WEST;

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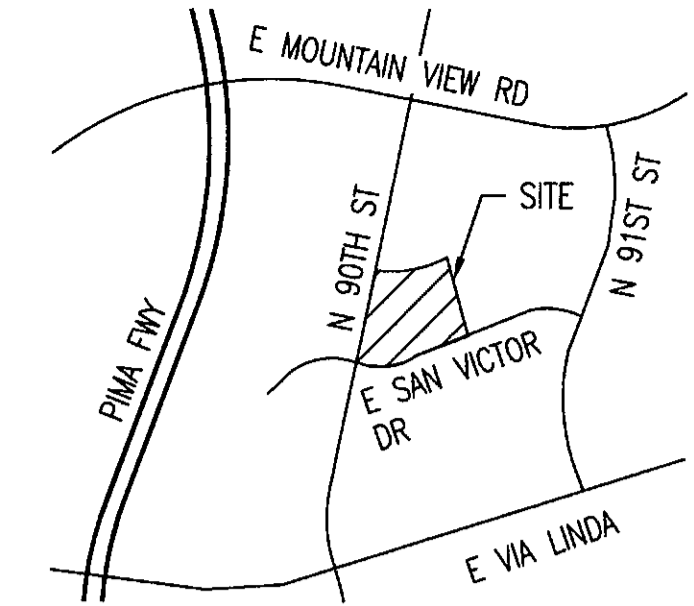
THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 95 DEGREES 44 MINUTES 21 SECONDS, FOR A DISTANCE OF 33.42 FEET;

THENCE NORTH 11 DEGREES 42 MINUTES 48 SECONDS EAST, A DISTANCE OF 308.50 FEET TO THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 01 DEGREES 01 MINUTES 45 SECONDS WEST;

THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 22 DEGREES 02 MINUTES 49 SECONDS, FOR A DISTANCE OF 288.59 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT ALL MINERALS AS RESERVED TO THE UNITED STATES OF AMERICA IN PATENT TO SAID LAND.

**RESIDENCE AT 90TH ST. & SAN VICTOR
PRELIMINARY GRADING PLAN
SCOTTSDALE, AZ**



VICINITY MAP
SCALE: NTS

DEVELOPER
WOOD PARTNERS
8777 E. VIA DE VENTURA, SUITE #201
SCOTTSDALE, ARIZONA 85258
PHONE: 480-607-0622
ATTN: CLAY RICHARDSON

ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR. SUITE #101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

BENCHMARK
BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE
LOCATED AT INTERSECTION SHEA BOULEVARD AND 92ND STREET.

ELEVATION = 1372.195' NAVD 88

KEY NOTES

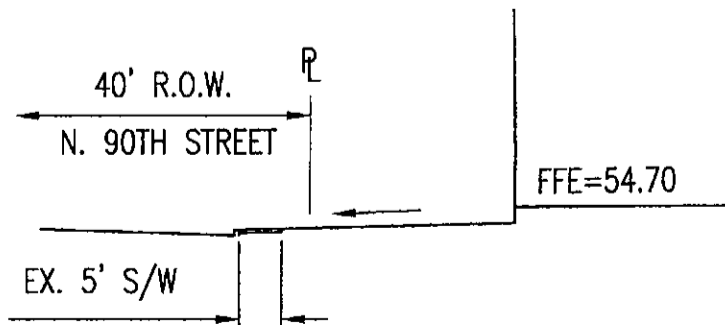
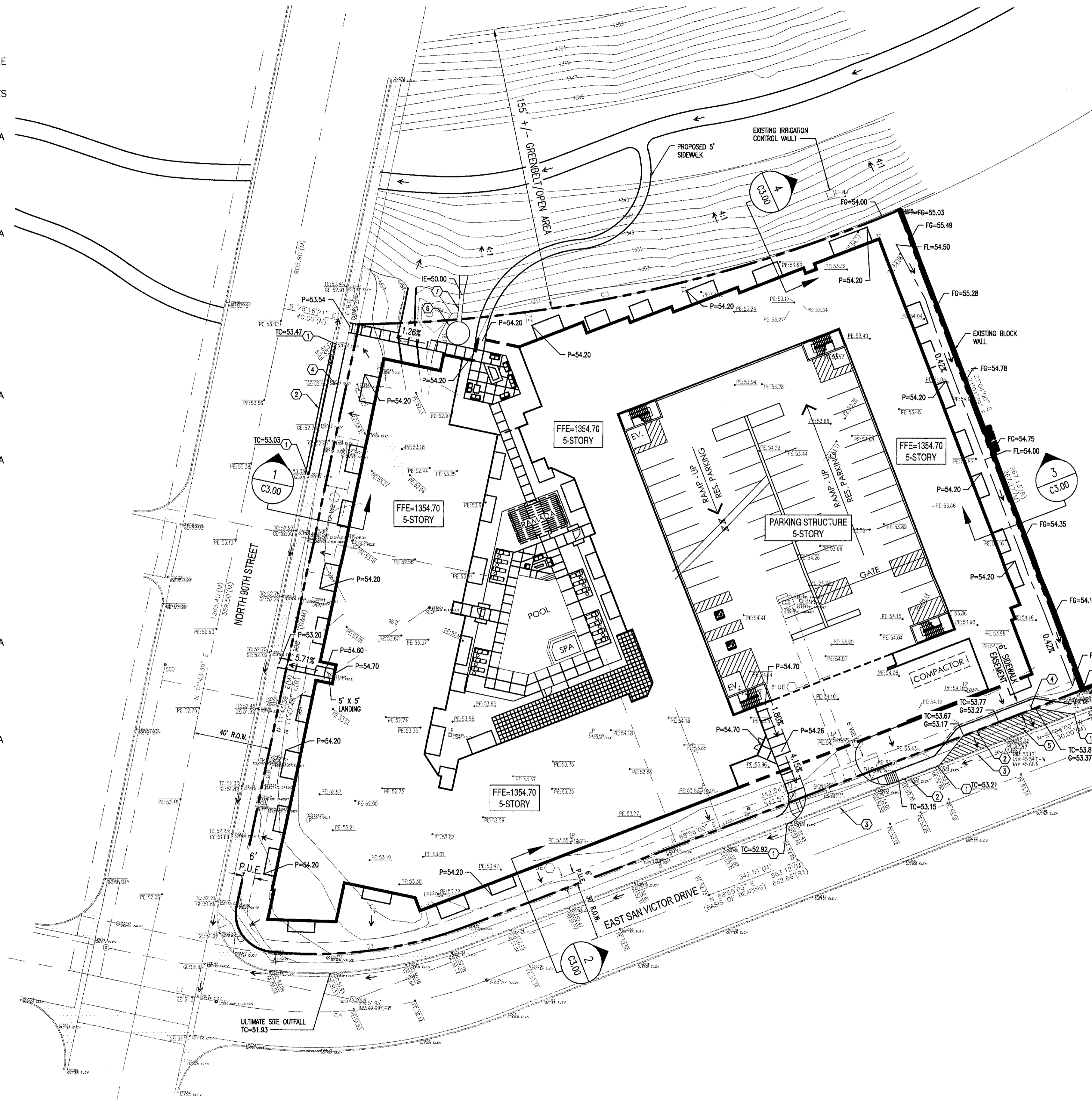
- ① MATCH EXISTING GRADE
- ② NEW 6" CURB AND GUTTER
- ③ REMOVE EXISTING CURB AND REPLACE 2' WIDE VALLEY GUTTER
- ④ NEW 5' WIDE SIDEWALK
- ⑤ REMOVE EXISTING SIDEWALK
- ⑥ STORMCEPTOR STC7200
- ⑦ 24" DIA. HDPE STORM PIPE

PROPOSED LEGEND

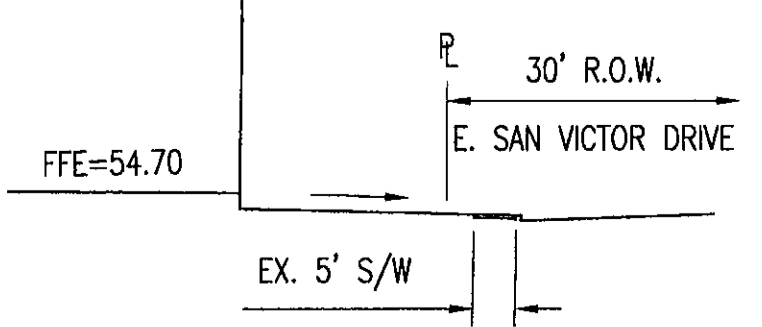
- TC TOP OF CURB ELEVATION
- G GUTTER ELEVATION
- CURB & GUTTER
- - - PUBLIC UTILITY EASEMENT (P.U.E.)
- STORM PIPE
- STORMCEPTOR
- FLOW ARROWS
- FG FINISHED GRADE
- FL FLOW LINE
- IE INVERT ELEVATION

EXISTING LEGEND

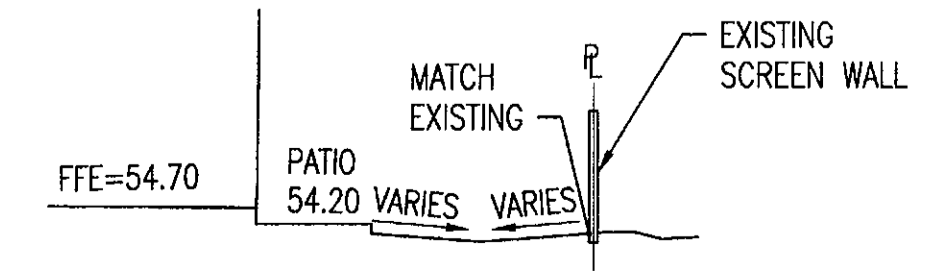
- × SPOT ELEVATION
- ⊕ FIRE HYDRANT
- CENTER LINE
- - - PROPERTY LINE



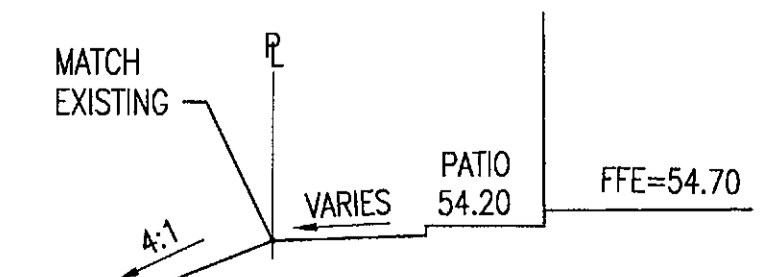
SECTION 1



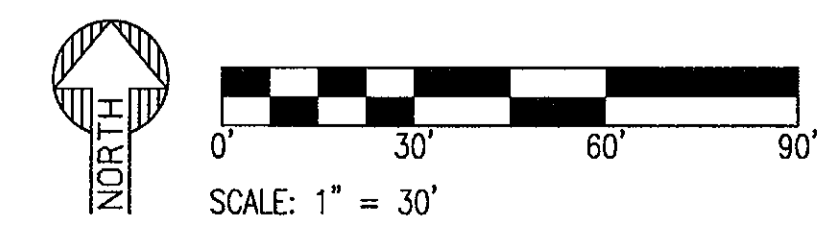
SECTION 2



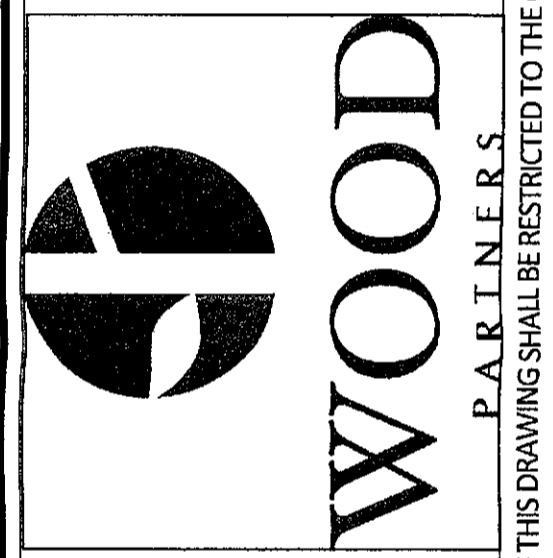
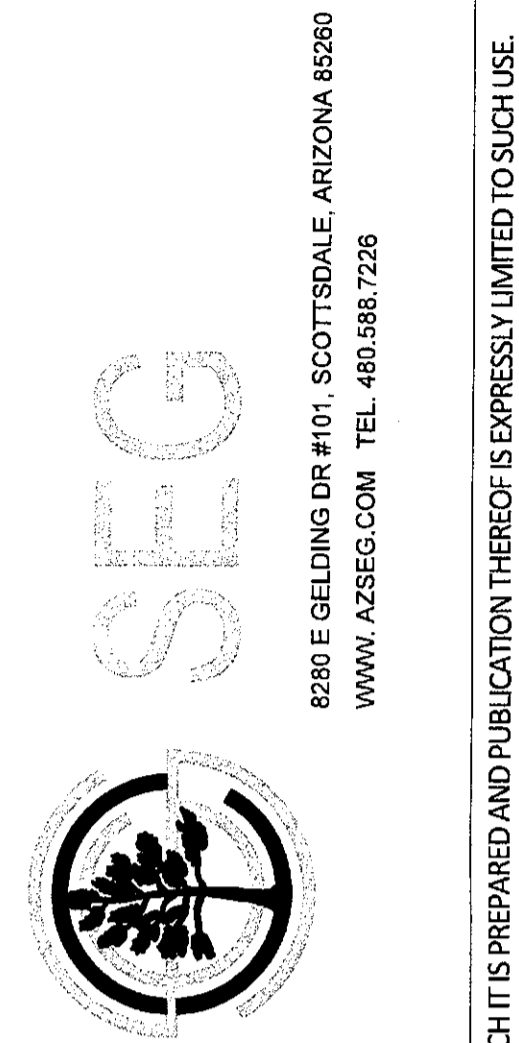
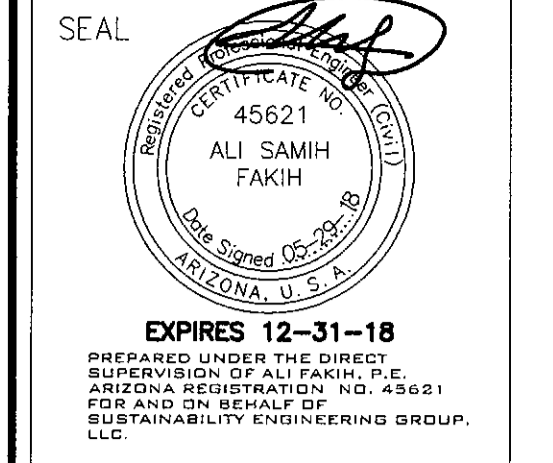
SECTION 3



SECTION 4



Call at least two full working days before you begin construction.
ARIZONA 811
800-488-8111
In Maricopa County (602) 545-1100



PROJECT: RESIDENCE AT 90TH ST. & SAN VICTOR
LOCATION: N 90TH ST & E SAN VICTOR DR, SCOTTSDALE, AZ 85258

DRAWN: SANTIAGO
DESIGNED: SANTIAGO
CHECKED: SANTIAGO
PROJ. MGR.: COUNSELL
DATE: 05/29/2018
ISSUED FOR:

REVISION NO.: DATE:
JOB NO.: 180211
SHEET TITLE: PRELIMINARY GRADING PLAN
SHEET NO.: C3.00

X:\PROJECTS\WOOD PARTNERS\ALTA SAN VICTOR SCOTTSDALE 180211\11 CAD (SEG)\11.2 ENTITLEMENT-PLANNING\C3.00.DWG

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Wood Partners – 90th Street & San Victor

Project Narrative

- ❖ *Non-major General Plan Amendment & Rezoning*
- ❖ *146-PA-2018*



Prepared by:

Berry Riddell, L.L.C.

John V. Berry, Esq.
Michele Hammond, Principal Planner

6750 East Camelback Road, Suite 100
Scottsdale, Arizona 85251
480-385-2753

7-ZN-2018
06/07/18

I. Project Overview & Context

The proposed application is a request for a non-major General Plan Amendment (“GPA”) from Office to Mixed Use Neighborhoods and an amendment to the McCormick Ranch Planned Community District (“PCD”) to rezone an approximate 3.16+/- acre infill site from Commercial Office, Planned Community District (“C-O PCD”) to Planned Unit Development, Planned Community District (“PUD PCD”) located at the northeast corner of 90th Street and San Victor Drive (the “Property”), for the development of a mixed-use multifamily residential community. The Property is currently occupied by a partially vacated office building.



The proposed residential community will consist of 179+/- units with building heights stepping up from 3, 4 and 5 stories. Located along the Camelback Walk, this community will benefit from direct access to the existing greenbelt and pathway system. Additionally, the development will provide housing options for nearby HonorHealth, PSC/CVS Caremark and numerous medical offices within the “Cure Corridor.”

The Cure Corridor is the presence of medical-related and bioscience business focused in a T-shaped geographic area that runs along Scottsdale Road from the Airpark to Thomas Road and along Shea Boulevard from Scottsdale Road to the Mayo facility at 136th Street.

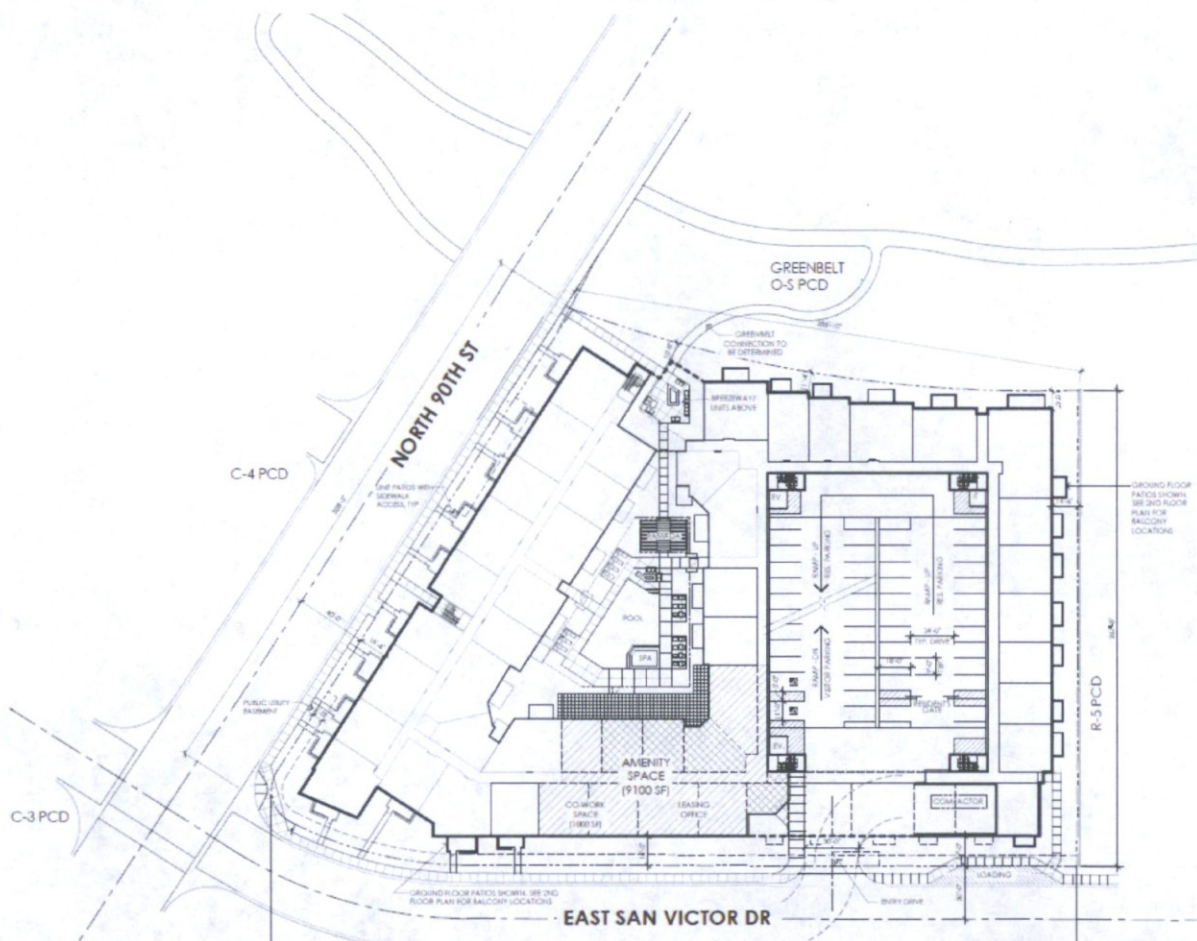
The Property was zoned C-O PCD with the approval of the development plan for McCormick Ranch PCD (40-Z-79) on July 17, 1979. The infrastructure stipulations were satisfied as the early phases of McCormick Ranch were developed, including rights-of-way, street improvements, and water and sewer infrastructure.

The Property is surrounded by retail, service, office and residential uses. Immediately north of the Property is the Camelback Walk open space amenity with office uses further to the north and northwest. To the west is a service/retail center including Leslie’s Pool Supplies, Midas, Autohaus, Valero Gas Station and Firestone. Further to the southeast is Wendy’s, Fry’s Grocery Store & Gas and a variety of retail uses. South of the Property is Ajo Al’s Mexican Restaurant and the 91 San Victor residential condominiums. To the east the Tuscany at McCormick Ranch retirement community. The intersection of the 101 Freeway and 90th Street is approximately 1/2 mile to the south.



The proposed residential development will include 179+/- units with 1-, 2-, and 3-bedrooms ranging in size from approximately 690 s.f. to 1,705 s.f. The development will also include a 9,100 s.f. amenity space, which consists of 1,000 s.f. of flex office/co-work space and community amenities such as, but not limited to, a cyber-café, yoga studio, resident lounge/club room, bike shop/storage, and demonstration kitchen to be utilized by the residents. A centralized parking structure wrapped with units will be provided to accommodate parking for residents and guests but will be obscured from street view. Other recreational amenities include a pool, spa, courtyard areas, shaded streetscape sidewalks, and direct access to the Camelback Walk path.

Conceptual Site Plan





II. City of Scottsdale General Plan 2001

The proposed development requires a non-major amendment to the General Plan Land Use Map designation from Office to Mixed-Use Neighborhoods to accommodate the request for PUD PCD zoning. The proposal is supportive of the desired values defined in the General Plan, which include those goals for the Character Area, Land Use, and Community Mobility.

General Plan Land Use Map



-  Office
- to-
-  Mixed-Use Neighborhoods

The request from Office to Mixed Use Neighborhoods is a non-major GPA per the land use matrix in the General Plan. Additionally, the Property size of 3.16+/- gross acres does not trigger the 15-gross acre or greater threshold for a Major GPA. The proposed Mixed-Use Neighborhoods designation will bring synergy to an area that has a significant concentration of retail, service and office uses.

The General Plan sets forth a collection of goals and approaches intended to integrate the Guiding Principles into the planning process and provide as a framework for proposed development and the built environment.

Per the City's 2001 General Plan, six Guiding Principles articulate how the appropriateness of a land use change to the General Plan is to be qualified. These six Guiding Principles are as follows:

1. Value Scottsdale's Unique Lifestyle & Character (Character & Design, Land Use)
2. Support Economic Vitality
3. Enhance Neighborhoods (Housing, Neighborhoods)
4. Preserve Meaningful Open Space
5. Seek Sustainability
6. Advance Transportation (Mobility)

These six Guiding Principles are further explained below through the different Elements of the General Plan.

2001 General Plan Goals & Policies

❖ *Character & Design:*

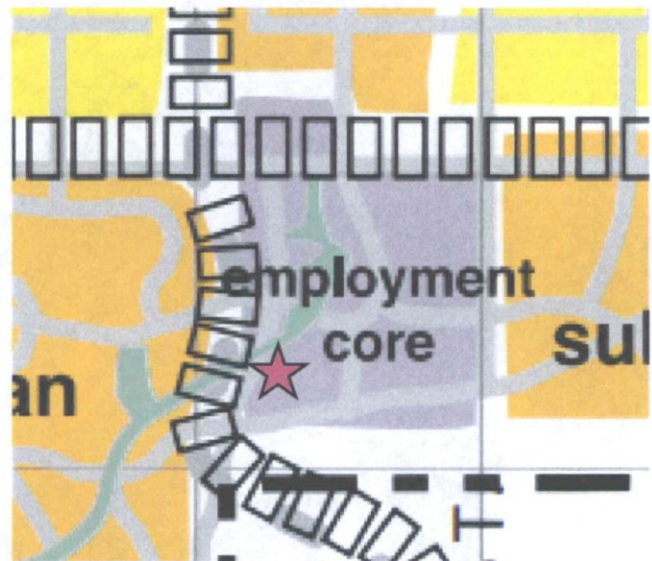
Goal 1: *Determine the appropriateness of all development in terms of community goals, surrounding area character, and the specific context of the surrounding neighborhood.*

-Bullet 2: Enrich the lives of all Scottsdale citizens by promoting safe, attractive, and context compatible development.

-Bullet 4: Ensure that all development is a part of and contributes to the established or planned character of the area of the proposed location. Character can cross land uses and zoning to include community regions containing a mixture of housing, employment, cultural, educational, commercial and recreational uses. The overall type of character type that these uses are a part of describes the pattern and intensity of how these uses fit together. The following general character types are found in our community:

***Urban Character Types** contain higher density residential, non-residential, and mixed-use neighborhoods. The district includes apartments, high-density townhouses, commercial and employment centers and resorts. Urban districts should have a pedestrian orientation with shade, activity nodes and small intimate developed open spaces that encourage interaction among people. Some examples of Urban Districts include:*

***Employment Cores (a subdistrict of the Urban Character Type)** are primary employment centers for the City. These cores support a wide range of activities and regional and community level employment uses.*



Response: The Urban Character Type recognizes the need for a wide variety of high intensity uses in the same location area to support each other and create a true urban feel. The Property is a vacant infill site located in the middle of an area designated as an Employment Core with easy access to the 101 Freeway. Being surrounded with multiple retail and large office uses, a mixed-use residential community would be very compatible and provide additional housing in an area where it is much needed. The proposed development would allow employees to live close to their jobs and walk or bike to work.

Goal 2: *Review the design of all development proposals to foster quality design that enhances Scottsdale as a unique southwestern desert community.*

- Bullet 5: Promote development that respects and enhances the unique climate, topography, vegetation and historical context of Scottsdale's Sonoran Desert environment, all of which are considered amenities that help sustain our community and its quality of life.*
- Bullet 6: Promote, evaluate and maintain the Scottsdale Sensitive Design Principles that when followed will help improve and reinforce the quality of design in our community.*

Response: The proposed site layout, architectural character and landscaping design respects the unique climate, and vegetation of Scottsdale. See Scottsdale Sensitive Design Principles below (Section IV) for detailed responses regarding each principle.

Goal 6: *Recognize the value and visual significance that landscaping has upon the character of the community and maintain standards that result in substantial, mature landscaping that reinforces the character of a city.*

- Bullet 1: Require substantial landscaping be provided as part of new development or redevelopment.*
- Bullet 3: Encourage the use of landscaping to reduce the effects of heat and glare on buildings and pedestrian areas as well as contribute toward better air quality.*
- Bullet 4: Discourage plant materials that contribute substantial air-borne pollen.*
- Bullet 5: Encourage landscape designs that promote water conservation, safe public settings, erosion protection, and reduce the "urban heat island" effect.*

Response: The lush desert landscape character of the Property includes a variety of plants that will provide year-round color, shade, and texture for the site. The proposed plant palette incorporates hardy plants known to thrive in the intense heat and sun of the desert climate. Plant selection and placement will allow for the ability to use water efficiently throughout the site. The proposed planting design limits lush and dense planting patterns to areas with the most human interaction such as entries, amenity areas and pedestrian areas.

Goal 7: *Encourage sensitive outdoor lighting that reflects the needs and character of different parts of the City.*

- Bullet 2: Encourage lighting designs that minimize glare and lighting intrusions into neighborhood settings.*

- Bullet 3: Encourage creative and high-quality designs for outdoor lighting fixtures and standards that reflect the character of the local context.*
- Bullet 5: Allow for lighting systems that support active pedestrian uses and contribute to public safety.*

Response: Lighting will be designed in a manner that is respectful of the surrounding context while maintaining safety for future residents. Lighting designs will be commensurate with the quality architectural style proposed for the Property; low-level with no glare and intrusion on neighboring properties. Lighting will be placed in a thoughtful way to provide safe pedestrian wayfinding at night and highlight paths leading to parking areas.

❖ **Land Use:**

Goal 4: Maintain a balance of land uses that support a high quality of life, a diverse mixture of housing and leisure opportunities and the economic base needed to secure resources to support the community.

- Bullet 1: Allow for diversity of residential uses and supporting services that provide for the needs of the community.*
- Bullet 4: Provide a variety of housing types and densities and innovative development patterns and building methods that will result in greater housing affordability.*

Response: Developing the Property as a mixed-use residential community will directly support the wide variety of major employment and service related uses in the immediate area. Additionally, revitalizing and redeveloping properties is a critical part of the economic vitality of the community as it matures. Integrating additional housing options in this area is essential for the continuing economic growth and sustainability of the city as a whole. This project exemplifies this revitalization component by taking an underutilized, nearly vacant office development and developing the Property into a thriving residential community in an area of town that is eager for new multifamily housing options to serve the vast employment base within the Cure Corridor.

Goal 5: Develop land use patterns that are compatible with and support a variety of mobility opportunities/choices and service provisions.

- Bullet 1: Integrate the pattern of land use and mobility systems in ways that allow for shorter and fewer automobile trips and greater choices for mobility.*
- Bullet 2: Encourage non-motorized (pedestrian and bicycle) access/circulation within and to mix-use centers to reduce reliance on the automobile.*
- Bullet 3: Provide a balance of live, work, and play land uses and development intensities that enable convenient non-automotive trips (pedestrian and cycling and transit) where environmentally and physically feasible.*

Response: The integration of multifamily residential within this employment centric area supports the City's desire to reduce resident's reliance on their automobiles. Residents of the proposed multifamily development will be able to walk to work and retail establishments and services, nearly eliminating the need for daily vehicle usage. Additionally, the proposal includes an integrated co-work office space and community amenities on the ground level for its residents. The site also benefits from direct adjacency to the Camelback Walk, which provides connectivity to a 25-mile long open space/path network that runs through the City.

From a mass transit mobility standpoint, there are three major Valley Metro bus routes that run in the area. Route 514 is an Express/RAPID bus that runs primarily during morning and afternoon rush hour and extends from downtown Phoenix to downtown Fountain Hills. Route 81 runs north and south from the intersection of Hayden Road and Raintree Drive to the Loop 101 and 202 interchanges. Route 80 runs east and west from the intersection of 59th Avenue and Northern to Shea Boulevard and 136th Street. Considering the connections that can be made from these bus routes, there is convenient access to all parts of the valley from the Property via mass transit.



❖ **Economic Vitality:**

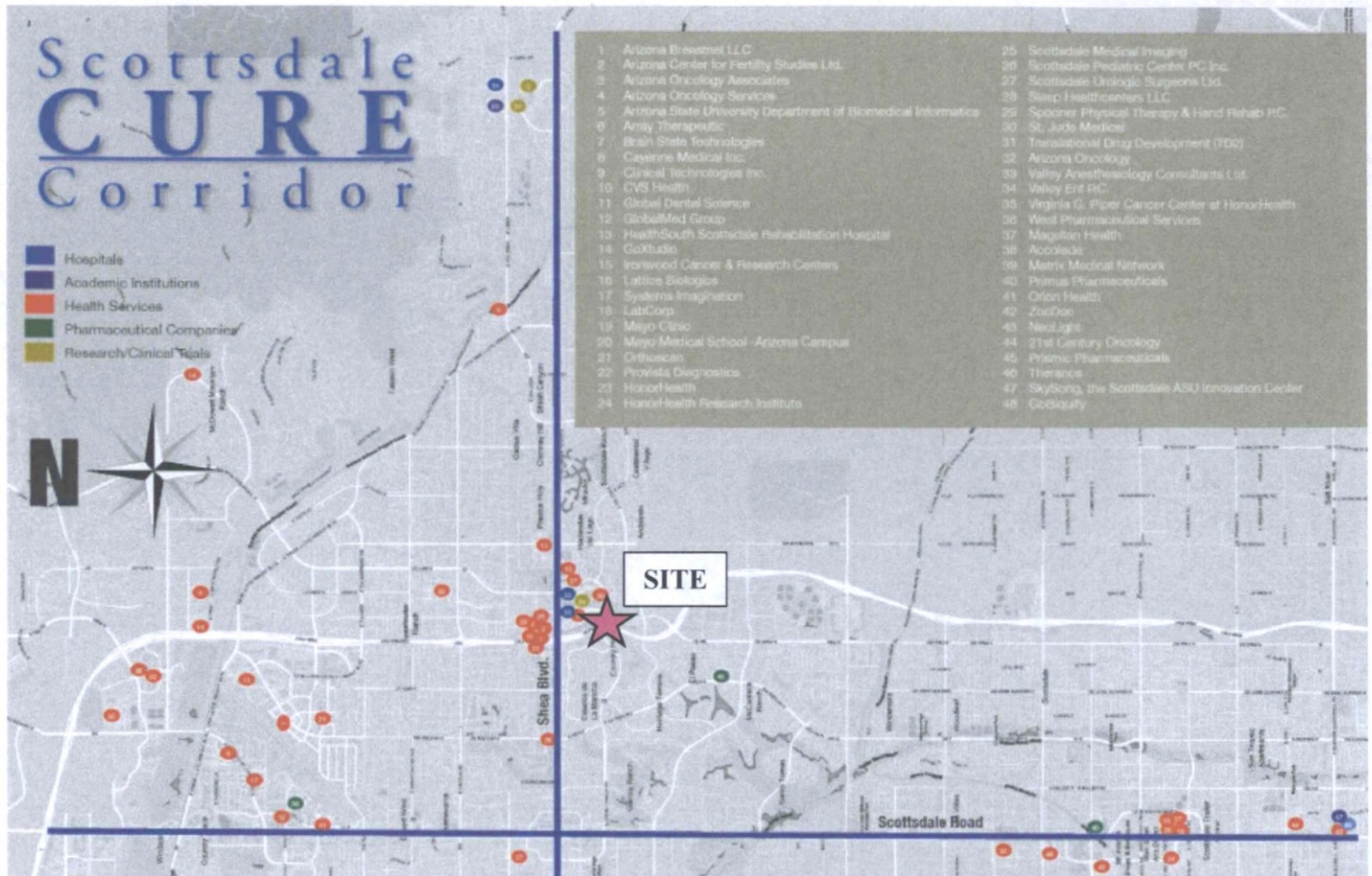
Goal 7: Sustain the long-term economic well-being of the city and its citizens through redevelopment and revitalization efforts.

***-Bullet 2:* Encourage and support the renovation and reuse of underutilized or vacant parcels/buildings/shopping centers.**

***-Bullet 6:* Promote residential revitalization to maintain quality housing and thus maintain quality of life and stability of the local economy.**

Response: The redevelopment of this underutilized and partially vacant site will contribute towards the economic stability of Scottsdale by providing housing options in the heart of an area with an abundance of established employment and retail uses, which will better balance the land use mix in this area. Below is a list of planning, employment and growth facts for the area:

- 10,000 medical related jobs within walking distance of the site
- HonorHealth has 6,700 employees
- CVS/Caremark has 1,000 employees
- 70,000 jobs in Scottsdale Airpark area
- April 2018 Scottsdale: 3.2% unemployment rate
- 14% of Scottsdale's workforce is employed in healthcare and social assistance positions
- 13% of Metro Phoenix biosciences employment is in Scottsdale with more than 27,000 jobs in this sector alone
- Metro Phoenix (including Scottsdale) is #1 in wage growth from July 2016 to July 2017
- Money Magazine July 2017: Phoenix (including Scottsdale) is #3 on list of 20 hottest cities for tech jobs
- Phoenix listed as #2 moving destination in 2017
- No multifamily has been constructed in last 20 years within 4 miles of site
- Property has a "walk-score" of 64
- Nearby developments under construction/planned in the Salt River Indian Community: Great Wolf Lodge (Pima & south of Via de Ventura), The Block at Pima Center (101 & Via De Ventura) includes a 22-acre mixed-use development including retail, office and hotel, Sierra Bloom Wellness Campus (101 & 90th Street) includes 43 acres of senior living, medical office, behavior health and hotel.



Source: City of Scottsdale

❖ **Housing:**

Goal 2: Seek a variety of housing options that blend with the character of the surrounding community.

- Bullet 1:** Maintain Scottsdale's quality-driven development review standards for new housing development
- Bullet 2:** Encourage physical design, building structure, and lot layout relationships between existing and new construction to help the new developments complement the surrounding neighborhood.
- Bullet 5:** Encourage the creation of mixed-use projects as a means to increase housing supply while promoting diversity and neighborhood vitality.

Response: The proposed mixed-use project in the heart of Scottsdale's Cure Corridor provides housing options in an area that is lacking new multifamily housing opportunities given the desirable location, multimodal connectivity and growing medical and bioscience related fields. The location of the Property not only provides an opportunity for housing in the Cure Corridor, but also connectivity to the surrounding retail, restaurants, library, park and office uses that will enhance the overall sustainability of the area. The development promotes an integrated modern appeal contributing towards the live, work, play philosophy and promoting neighborhood diversity and vitality.

Goal 3: Seek a variety of housing options that meet the socioeconomic needs of people who live and work here.

***-Bullet 1:* Encourage and establish appropriate incentives for development of aesthetically pleasing housing that will accommodate a variety of income levels and socioeconomic needs.**

Response: The PUD and PCD zoning districts promote flexibility in development standards, which on smaller infill sites, such as this one, allow for redevelopment and creative design offering housing options to support the nearby employment core. The proposed development plan includes amendments to the property development standards with respect to building height, setbacks and stepbacks. See Section V. below.

Goal 4: Encourage housing development that provides for “live, work, and play” relationships as a way to reduce traffic congestion, encourage economic expansion and increase overall quality of life for our residents.

***-Bullet 1:* Encourage a variety of housing densities throughout Scottsdale, with mixed-use in areas of major employment and transit hubs, to offer greater live-work choices to a broader economic range of households.**

***-Bullet 6:* Consider a variety of strategies to increase housing intensity and diversity in appropriate locations, such as around commercial areas, near transit centers and major employers.**

***-Bullet 7:* Explore opportunities for new or redeveloped housing to serve the employment base.**

Response: As discussed previously, the area surrounding the Property has a high intensity of employment and retail uses. Adding multifamily housing in this location will provide more diverse living opportunities at various price points for the vast employment base, which includes nearby HonorHealth, PSC/CVS Caremark and numerous medical offices within the Cure Corridor. Additionally, the Property is approximately one-half mile from the 90th Street and 101 Freeway interchange, which provides regional access, and the Property has immediate access to three bus routes.

❖ ***Neighborhoods:***

Goal 4: Preserve and enhance the unique sense of neighborhood found in diverse areas of Scottsdale through neighborhood conservation.

***-Bullet 3:* Guide revitalization, redevelopment, and infill (new development in established areas) development to ensure that such development efforts are context-appropriate to the surrounding neighborhoods.**

Response: The proposed mixed-use residential development on this infill site complements the surrounding land use context. The substantial number of employers in the area also drives the demand for housing diversity. Notably, there are limited new multifamily housing options for

Scottsdale residents as there has been no multifamily development constructed in the last 20 years within 4 miles of the site.

Goal 5: Promote and encourage context-appropriate new development in established areas of the community.

- Bullet 1: Encourage new development efforts toward existing developed areas in Scottsdale.*
- Bullet 2: Promote the use of existing infrastructure as an incentive to encourage more infill development within the community.*

Response: The proposed multifamily community will provide new development on an underutilized office building site in an area surrounded by established open space, retail/service and office uses. The infill development will utilize existing infrastructure systems (roads, utilities, etc.). This application is driven by the site's surrounding mix of land uses and a strong market demand for residential housing options sought after by workers in the area.

❖ ***Open Space and Recreation:***

Goal 1: Protect and improve the quality of Scottsdale's natural and urban environments as defined in the quality and quantity of its open spaces.

- Bullet 9: Promote creative residential and commercial development techniques consistent with the Character Plan for an area, to further preserve meaningful and accessible open space.*
- Bullet 11: Preserve and integrate visual and functional connections between major city open spaces into the design of development projects.*



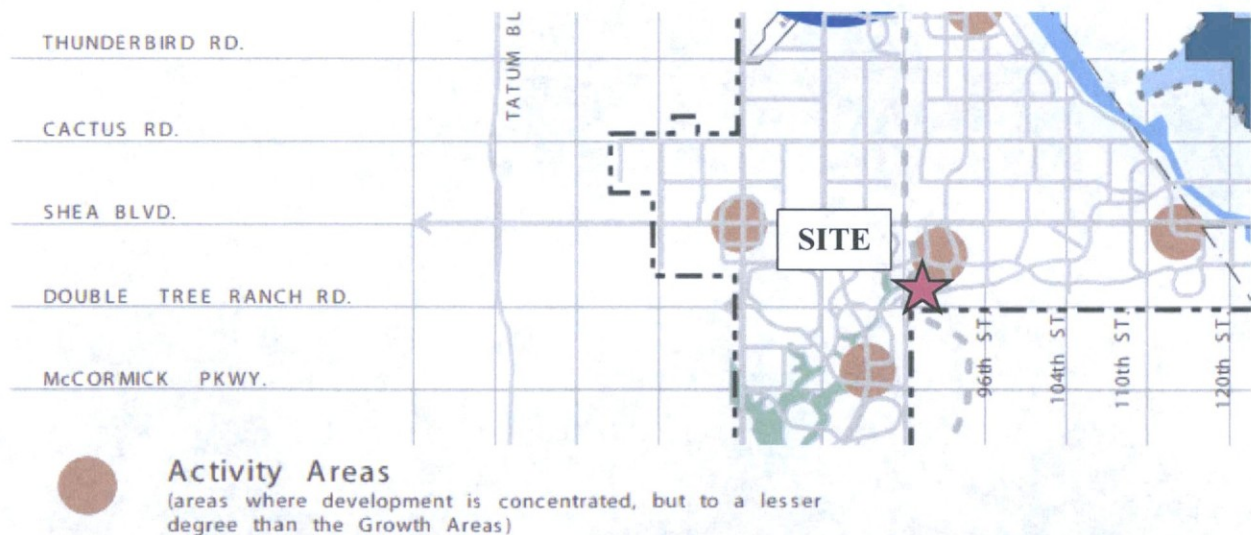
Response: The Property is ideally situated with direct access to the Camelback Walk, an existing urban open space amenity, which provides connectivity to a 25-mile long pathway network (Indian Bend Wash) spanning from Tempe to Westworld. The path system hits numerous amenities along the way include Mountain View Park, Mustang Library and a variety of retail and restaurant establishments. The path system also offers connectivity to abundant office developments in the area promoting the live, play, work philosophy. The integration of a residential community in place of office in this location will provide synergy along the path system offering multiple recreational opportunities for its residents.

❖ **Growth Areas:**

The site is located on the edge of the HonorHealth Activity Area identified above on the City’s Growth Areas Map (see below). Activity Areas have a concentration of development promoting a range of mixed land uses.

Goal 1: *Direct and sustain growth and expansion in areas of the city that can support a concentration of a variety of uses and are particularly suitable for multimodal transportation and infrastructure expansion and improvements.*

-Bullet 3: *Promote the coordination of infrastructure development and upgrade with opportunities for infill development and development activity where it will encourage a mix of uses and support pedestrian and transit activity.*



Response: The proposed development will tie into existing infrastructure systems. Water and sewer basis of design reports are being submitted and reviewed with the zoning application. The existing transportation network will more than adequately serve the proposed use as there will be a reduction in trips from the existing office development. Integrating mixed-use residential in the heart of the McCormick Ranch PCD will help sustain the balance of land uses and continue to serve a growing and diverse community.

Goal 2: Make automobile transit and other multimodal circulation more efficient.

-Bullet 1: Encourage physical planning and design techniques that facilitate the access to and use of transit services and pedestrian amenities.

Response: As previously noted, the Property is adjacent to three major bus routes that provide direct access to many parts of the east valley. Additionally, the interchange for the Loop 101 Freeway and 90th Street is one-half mile south of the Property. The Loop 101 connects with many other major freeways in the valley which further extends regional access. Shea Boulevard is also located approximately three-quarters of a mile to the north. The site is extremely desirable for multifamily development due to the surrounding services, retail and restaurants within walking distance of the site and most notably its direct adjacency to the Camelback Walk, which runs along the north side of the Property. The site plan has been designed to take advantage of this adjacency with direct path connections and a breezeway that runs through the building at ground level connecting the community's central open space amenity with the greenbelt. Specific location for path connection to Camelback Walk to be determined with City Staff.

❖ **Community Mobility:**

Goal 8: Emphasize live, work and play land use relationships to optimize the use of citywide systems and reduce the strain on regional and local/neighborhood systems.

-Bullet 2: Encourage the development of redevelopment of areas that support a balance of live, work and play land use relationships and alternative modes of transportation that reduces reliance on the automobile.

Response: As mentioned above, the Property is one-half mile north of the Loop 101 and 90th Street interchange and three-quarters of a mile south of Shea Boulevard, both of which provide regional access. The proposed development accomplishes a range of goals including the integration of high quality, vibrant architecture and innovative site planning and provides housing in the employment core, frequently referred to as the Cure Corridor, thereby reducing trip generation during peak hours. The nearby bus stops will provide direct access to the local and regional transportation systems.

III. Shea Area Plan Overview

The Property is located within the Shea Area Plan (the "Area Plan") which was adopted in 1993, and further superseded by the General Plan 2001 Land Use Map. As a result of a recommendation from the Shea Area Plan, Shea Boulevard Streetscape Guidelines were approved in 1994. The Area Plan applies to an area generally bounded by Thunderbird on the north, Hayden on the west, the Doubletree Ranch Road alignment on the south, and the City's eastern boundary. The Area Plan contains policies and guidelines that set a minimum threshold for a project to be considered by the City.

Goal- Enhance and protect existing neighborhoods.

Policy 1: New development should be compatible to existing development through appropriate transitions.

Response: The proposed mixed-use residential development is compatible with the existing surrounding retail and office uses with respect to intensity and land use relationship. The stepped building massing will provide appropriate transitions along the street frontages.

Goal- Encourage site planning which is sensitive to environmental features.

Policy 1: Open space should be provided to link neighborhoods with trails and recreational areas, act as buffers between major streets and adjacent land uses, provide for drainage, and protect significant habitat corridors, and to visually enhance the character of the area.

Policy 2: Encourage the preservation of unique natural features and open spaces.

Response: Due to the fact that this Property is an infill parcel, surrounded by established retail, residential and office uses, there are no known habitat corridors or natural features which will be disturbed by the proposed development. The Property has direct adjacency to the Camelback Walk and the site design takes advantage of this amenity by celebrating view corridors and providing direct linkage to this recreational and open space amenity.

Goal 3- Provide for an efficient road network and promote alternative modes of travel.

Policy 2: The trail system should be maximized as an alternative transportation route.

Response: The Camelback Walk is an important feature of the proposed site design. There is minimal residential development that has direct adjacency to the Walk through this segment of McCormick Ranch. Integrating mixed-use residential in this location will provide walkability for residents further promoting use of the path system and alternative modes of transportation.

Goal- A variety of residential housing choices should be provided.

Intent: Create housing opportunities that will allow residents to live near school and employment areas.

Response: The proposed mixed-use residential development seeks to provide additional housing opportunities in the middle of the employment area, near school and an established mix of office, retail, services and restaurants.

IV. Scottsdale Sensitive Design Principles

The Character and Design Element of the General Plan states that “Development should respect and enhance the unique climate, topography, vegetation and historical context of Scottsdale's Sonoran Desert environment, all of which are considered amenities that help sustain our community and its quality of life.” The City has established a set of design principles, known as the Scottsdale's Sensitive Design Principles, to reinforce the quality of design in our community. The following Sensitive Design Principles are fundamental to the design and development of the Property.

1. *The design character of any area should be enhanced and strengthened by new development.*

Response: The contemporary, context appropriate building character and massing fits well with the surrounding development including the established retail, residential and office uses. The proposed development will utilize a variety of Sonoran Desert inspired textures and building finishes, incorporate architectural elements that provide solar shading and overhangs, and celebrate the Southwestern climate by creating outdoor living spaces for each unit, recreational amenities, and gathering places for its residents.

2. *Development, through appropriate siting and orientation of buildings, should recognize and preserve established major vistas, as well as protect natural features.*

Response: The Property itself does not contain any natural features. Building siting has been designed in a way that makes the most of the small site while still being able to provide amenities, gathering areas, and the required amount of parking. Connectivity to the Camelback Walk is promoted, both visually and physically through view corridors and sidewalks.

3. *Development should be sensitive to existing topography and landscaping.*

Response: The site is a relatively flat, urban infill parcel. All landscaping will consist of low-water use desert appropriate landscaping materials. Respecting the Southwest's climate conditions, a variety of native materials and sizes will be integrated to create a layering effect to help mitigate the urban heat island effect.

4. *Development should protect the character of the Sonoran Desert by preserving and restoring natural habitats and ecological processes.*

Response: To the extent possible, the development will preserve and restore natural habitats and ecological processes through the inclusion of additional desert appropriate landscaping (as well as integration of native plants). Additional landscaping will contribute to the urban habitat for wildlife and improved air quality. Also, desert appropriate plants will be able to withstand the variations of the local climate and as they mature they should become self-sustaining relative to water demand.

5. *The design of the public realm, including streetscapes, parks, plazas and civic amenities, is an opportunity to provide identity to the community and to convey its design expectations.*

Response: Pedestrian circulation along both the perimeter and through the site is an important design feature of the proposed mixed-use residential development which is within close proximity to abundant retail, restaurant, and office uses with direct adjacency to the Camelback Walk open space amenity.

6. *Developments should integrate alternative modes of transportation, including bicycles and bus access, within the pedestrian network that encourage social contact and interaction within the community.*

Response: The Property is located within close proximity to three bus routes. From a regional access standpoint, the Loop 101 Freeway and 90th Street interchange is located one-half mile to the south and Shea Boulevard is located approximately three-quarters of a mile to the north. The Camelback Walk provides connectivity to a 25-mile long path network, which can be accessed directly from the Property.

7. *Development should show consideration for the pedestrian by providing landscaping and shading elements as well as inviting access connections to adjacent developments.*

Response: The proposed development will incorporate design elements that respect human-scale, providing shade and shelter through building, site and landscape design. A detailed pedestrian circulation plan is provided with the application showing connectivity to/from/along the site as well as internal connections. The site plan has been designed to take advantage of this adjacency with direct path connections and a breezeway that runs through the building at ground level connecting the central open space amenity with the greenbelt.

8. *Buildings should be designed with a logical hierarchy of masses.*

Response: Building articulation and stepped massing promote a natural hierarchy. The building consists of 3-, 4- and 5-story elements with the highest elements centered on the site thereby providing an appropriate massing transition from the street. There are other 3-story elements found along the Camelback Walk (adjacent Tuscany senior housing depicted below).



9. *The design of the built environment should respond to the desert environment.*

Response: The proposed development will utilize a variety of desert appropriate textures and building finishes, incorporate architectural elements that provide solar shading and overhangs, and celebrate the Southwest climate by creating abundant outdoor living spaces and amenities for its residents celebrating the direct adjacency to the Camelback Walk.

10. *Developments should strive to incorporate sustainable and healthy building practices and products.*

Response: This mixed-use residential development promotes land use sustainability by reducing vehicle trips and fostering pedestrian synergy. Sustainable strategies and building techniques, which minimize environmental impact and reduce energy consumption, will be emphasized. The developer intends to incorporate sustainable design elements into the building design and plans to develop in accordance with green building standards where possible.

11. *Landscape design should respond to the desert environment by utilizing a variety of mature landscape materials indigenous to the arid region.*

Response: Context appropriate, mature arid-region plant materials will be utilized with the development of the Property. The desert character will be upheld through the careful selection of plant materials in terms of scale, density, and arrangement.

12. *Site design should incorporate techniques for efficient water use by providing desert adapted landscaping and preserving native plants.*

Response: The proposed development will maintain a low-water use plant palette (see landscape plan). Context appropriate desert plant materials will be utilized with the development of the Property.

13. *The extent and quality of lighting should be integrally designed as part of the built environment.*

Response: Lighting will be designed in a manner that is respectful of the surrounding context while maintaining safety for future residents and in conformance with City standards.

14. *Signage should consider the distinctive qualities and character of the surrounding context in terms of size, color, location and illumination.*

Response: Project identification will be contextually appropriate and processed under a separate approval and permit process.

V. Amended Development Standards & PCD Findings

The proposed development will require an amendment to the McCormick Ranch PCD to change the zoning on the Property from C-O PCD to PUD PCD. This amendment will allow for deviations from the development standards for building height, setbacks and step-backs. The requested amended development standards are necessary to develop the underutilized office parcel located in the center of an employment core. The PCD is design and intended to enable and encourage the development of lands (existing and planned land uses) to achieve land development patterns, which will maintain and enhance the physical, social, and economic values in the area. As an infill, mixed-use residential development the proposal will offer an engaging street presence, direct connectivity to Camelback Walk and integrate a highly desired multifamily residential component within the fabric of the McCormick Ranch PCD.

The PCD provides for a combination of land uses including a variety of residential, commercial, industrial, public and semi-public types to be arranged in accordance with modern land planning principles and techniques. Due to site constraints, the proposal for PUD PCD also requires amended development standards which accompany this application. The PCD criteria are discussed below.

Amended Development Standards

The proposed changes for the development standards with this PUD PCD development are identified below. All requested amended development standards are amendable though the PUD district with the exception of building height which is amended through the PCD.

	Base PUD Development Standards	Proposed PUD PCD Development Standards
Density	To be established with the development plan (no cap)	57 du/ac
Building Height	58 feet 48 plus 10 for mechanical not to exceed 30% of the roof area.	66 feet including mechanical
Building Setback – Minor Arterial (measured from back of curb) 90th Street	Minor Arterial with Residential on First Floor: Minimum: 34 feet Average: 40 feet Minor Arterial with Commercial on First Floor: Minimum: 28 feet Average: 32 feet	Minimum: 20 feet Average: 24 feet
Building Setback – Local (measured from back of curb) San Victor	Local with Residential on the First Floor: Minimum: 25 feet Average: 30 feet Local with Commercial on First Floor: 23 feet Average: 28 feet	Minimum: 20 feet Average: 24 feet
Setback Adjacent to Residential District	20 feet	Minimum: 14 feet
Building Stepback Street Frontage	Starting at a point thirty-six (36) feet above the minimum building setback line, the building envelope inclined stepback plane shall slope upwards at 1:1 (ratio of the vertical rise to the horizontal run) to a point measured forty-eight (48) feet above the minimum building setback line. Thereafter the building envelope inclined stepback plane shall slope upwards at 2:1 (ratio of the vertical rise to the horizontal run) on all sides of a property adjacent to public and private streets	No change Note that exceptions include parapet walls.

Stepback adjacent to a Residential District	PUD Developments abutting or adjacent to a residential zoning district shall have a building envelope inclined stepback plane of 1:2 (ratio of the vertical rise to the horizontal run) starting on the residential zoning district boundary	Delete standard.
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The requested Amended Development Standards are necessary to create an energized, vibrant and successful mixed-use residential lifestyle on this small infill parcel. The project utilizes best planning concepts in terms of creating a friendly, pedestrian-scaled streetscape along 90th and San Victor, providing a stepped building form and internalizing the parking structure, incorporating a central common area element with resident amenities, and enlivening the Camelback Walk edge with direct resident access. The integration of new residential units along the Camelback Walk will bring synergy to the area which is predominately lined with office and “back of house” edge conditions along much of the older retail/service related uses. This development will re-engage the Camelback Walk and provide a meaningful open space amenity for residents to enjoy both visually and physically.

The minimal increase of 8 feet in allowable building height from 58 feet (48 feet + 10 feet for mechanical) to 66 feet including mechanical will allow for a transition of building massing from 3, 4 to 5 stories from the street edge with the tallest portion being central to the development. Note, however, that approximately 75% of the proposed building height is below 60 feet. The portions that reach 66 feet include the parking structure and stair towers. As a comparison, the existing C-O zoning designation allows for 48 feet in height excluding mechanical. The C-O building height could reach heights of 60 feet or greater by right without rezoning the Property. Building setbacks from edge of curb are modified to provide the same condition on both street frontages but allow for plenty of space to provide a treelined sidewalk along both 90th and San Victor. The overall open space required is 10% (13,765 s.f.) of the gross site area, however, the proposed development provides over 21% (29,590 s.f.), over double the requirement of common open space excluding patios and balconies (private outdoor living spaces).



PCD Findings

Per Section 5.2104 of the Zoning Ordinance, before approval or modified approval of an application for a proposed P-C District, the Planning Commission and the City Council must find:

- A. That the development proposed is in substantial harmony with the General Plan and can be coordinated with existing and planned development of surrounding areas.***

Response: A request for a non-major GPA has been submitted in conjunction with this rezoning request. Integrating the proposed mixed-use residential development will provide additional housing opportunities for the residents of Scottsdale in an established employment and service core area. The area is lacking new multifamily housing opportunities given the desirable location, multimodal connectivity and growing medical and bioscience related fields. The location of the Property not only provides an opportunity for housing in the Cure Corridor, but also connectivity to the surrounding retail, restaurants, library, park and office uses that will enhance the overall sustainability of the area. The development promotes an integrated, sustainable character for the area contributing towards the live, work, play goals identified in the General Plan.

- B. That the streets and thoroughfares proposed are suitable and adequate to serve the proposed uses and the anticipated traffic which will be generated thereby.***

Response: The street systems in place include adjacent 90th Street (a minor arterial), Shea Boulevard to the north (a major arterial) and Loop 101 Freeway to the south, all of which provide suitable local and regional access to the Property. A TIMA is provided with the application submittal including a specific traffic analysis which reflects a reduction in trip generation from the existing office use.

C. The Planning Commission and City Council shall further find that the facts submitted with the application and presented at the hearing establish beyond reasonable doubt that:

1. In the case of proposed residential development, that such development will constitute a residential environment of sustained desirability and stability; that it will be in harmony with the character of the surrounding area; and that the sites proposed for public facilities, such as schools, playgrounds and parks, are adequate to serve the anticipated population. The Planning Commission and City Council shall be presented written acknowledgment of this from the appropriate school district, the Scottsdale Parks and Recreation Commission and any other responsible agency.

Response: The school district has been notified and the area schools have adequate facilities to serve the additional residents.

2. In the case of proposed industrial or research uses, that such development will be appropriate in area, location and overall planning to the purpose intended; and that the design and development standards are such as to create an industrial environment of sustained desirability and stability.

Response: Not applicable.

3. In the case of proposed commercial, educational, cultural, recreational and other nonresidential uses, that such development will be appropriate in area, location and overall planning to the purpose intended; and that such development will be in harmony with the character of the surrounding areas.

Response: The non-residential land uses proposed with this application include a 9,100 s.f. amenity space, which features a 1,000 s.f. co-work office space provided on the ground level of the development for the use and benefit of the residents. The overall design is intended to function seamlessly together as well as integrate with the surrounding mix of land uses.

VI. PUD Criteria

Section 5.5003 of the Zoning Ordinance sets forth the criteria that must be satisfied when considering an application for a PUD District:

A. PUD Zoning District approval criteria.

1. As part of the approval or modified approval of an application for a PUD District, the Planning Commission shall recommend and the City Council shall find that the following criteria have been met:

a. The proposed development promotes revitalization, the goals, policies, and guidelines of the General Plan, area plans, and design guidelines.

Response: As demonstrated in the General Plan and Shea Area Plan sections above, the proposed development promotes revitalization and upholds the goals and policies set forth in these documents.

b. The proposed development's uses, densities, or development standards would not otherwise be permitted by the property's existing zoning.

Response: The development standards proposed with the application align best with the PUD zoning district.

c. The proposed development will be compatible with adjacent land uses and promotes the stability and integrity of abutting or adjacent residential neighborhoods.

Response: As an infill development, the proposed design is respectful of the existing edge conditions in terms of setbacks, building placement, building height transitioning, human-scale and landscaping buffers. The architectural character of the proposed community is complementary of the surrounding commercial, office and residential context.

d. There is adequate infrastructure and city services to serve the development.

Response: Water and Sewer reports are included with the application and demonstrate that there is adequate infrastructure and city services to serve the development.

e. The proposal meets the following criteria:

i. The proposed development is not located within any area zoned Environmentally Sensitive Lands Ordinance (ESL) nor within the boundaries of the Downtown Area.

Response: Property is not located in ESL or Downtown.

ii. The proposed development fronts onto a major or minor arterial and/or major collector street as designated in the Transportation Master Plan.

Response: The site fronts onto 90th Street, a minor arterial.

B. Amended development standards.

- 1. To encourage sensitivity to site conditions and provide flexibility in planning, development standards outlined in Section 5.5005., excluding C. Allowable building height and D. Exception to building height, may be amended upon recommendation by the Planning Commission and a finding by the City Council that the amended development standards achieve the purposes of the planned unit development district better than the existing standards.*

Response: See justification under Amended Development Standards & PCD Section V. above. Note that the building height amendment is requested through the PCD overlay.

WATER CAPACITY REPORT
Residence at 90th St. & San Victor
9449 N. 90th Street
Scottsdale, AZ 85258

Prepared For:



8777 E Via De Ventura, Suite 201
Scottsdale, AZ 85258
Phone:480.607.0622



Prepared by:



Sustainability Engineering Group

8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 180211

Submittal Date: May 29, 2018 Zoning

Case No.: XX-PA-2018; XX-ZN-2018

Plan Check No.: TBD

7-ZN-2018
06/07/18

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Appendix II	-	Utility Plan
Appendix III	-	Water Model Calculations

1. EXECUTIVE SUMMARY

The proposed development consists of demolition of the existing 2 story office building and car port structures and construction of a multi-family apartment building consisting of 5-stories with a total of 179 dwelling units of 1 to 3 bedroom and an enclosed 5 level parking structure. Additional amenities include a pool with a spa, a ramada and patio internal to the building. The purpose of this water capacity design report is to provide analysis of the impact that this development will have on the City of Scottsdale's water system.

Water service for the development is to be provided by the City of Scottsdale. An existing 8" ACP water main is located approximately 29 feet north of the centerline on San Victor Drive. There is an existing water stub out for the existing commercial building off San Victor Drive located at approximately the center of the lot or 290 feet east of the intersection of 90th Street and San Victor Drive. The stub out size is unknown at this time and will need to be field verified. Approximately 404 feet east of the intersection with 90th Street and on the north right-of-way of San Victor Drive is an existing fire hydrant.

There is an 8" ACP water main on 90th Street approximately 38 feet west of the centerline of 90th Street. There is a water service with an existing meter located 245 feet north of the intersection with San Victor Drive and an existing fire hydrant located approximately 295 feet north of the same intersection and located on the east right-of-way line of 90th Street.

Refer to **Figure 3** for COS Quarter Section Map 27-49.

Certified fire hydrant flow testing was performed on March 30, 2018, by Arizona Flow Testing LLC at locations as shown on the provided report. The test was performed at 8:00 a.m. The fire flow test recorded a static pressure of 86.0 psi and residual pressure of 70.0 psi at 1,681 gpm. Calculated flow at 20 psi with a 14 psi safety factor is 3,178 gpm. The actual flow test documentation is included in **Appendix I**.

2. INTRODUCTION

2.1 PLAN OBJECTIVE:

The purpose of this report is to provide discussions and calculations defining the water system design necessary to comply with the requirements outlined in the City of Scottsdale Design Standards & Policy Manual (DS&PM). Preparation of this report has been done in accordance with Chapter 6 of the DS&PM.

2.2 SITE LOCATION

The project is located at 9449 N. 90th Street in Scottsdale, AZ at the northeast corner of 90th Street and San Victor Drive. The site consists of one parcel of land located in a portion of the NE $\frac{1}{4}$ of Section 30, Township 3 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona; Parcel ID number is 217-343E. The parcel area is 137,649.6 SF (3.16 gross acres) and 108,900 SF net (2.50 net acres).

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

2.3 PROPOSED DEVELOPMENT

2.3.1 Existing Site Description:

Land ownership, as defined by Maricopa County Assessor mapping is office commercial development on the parcel. City of Scottsdale zoning map designates this parcel as C-O PCD.

The parcel is developed with two 2-story office buildings with a combined 18,339 square feet or 0.42+/- acres footprint, customer parking along the west and south side and employee covered parking along the east side of the buildings. The topography along the perimeter of the site generally slopes from north to south and east to west with the northeast elevation being 1354.28+/- and the southwest elevation being 1352.02 +/- with a change in elevation of approximately two (2) feet. An existing three-foot-high perimeter walls along the west and south sides of the project site sit approximately 1.25 feet above the top of curb at the southwest corner of the site. Internal to the perimeter walls, the site flows from the south to the north as it splits around the existing building east and west.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

The City of Scottsdale Water Quarter Section Map (27-49) shows water mains in N. 90th Street and East San Victor Drive as follows:

- An 8" ACP water main within 90th Street approximately 38 feet west of the street centerline.
- An 8" ACP water main within San Victor Drive approximately 29 feet north of the street centerline.
- There are 2 fire hydrants within the vicinity of the project site with the one on 90th Street approximately 295 feet north of the intersection and on the east right-of-way line of 90th Street. The second fire hydrant is located on San Victor Drive and is approximately 404 feet east of the intersection and on the north right-of-way line of San Victor Drive. .

Refer to **Figure 3** for the COS Water **Quarter Section Map (27-49)**.

2.3.2 Proposed Site Development:

The proposed building is 5 stories and calculated to have approximately 272,474 sf of building area (excluding parking garage). The 272,474 sf area is rentable space for the 179 living units.

The proposed building will connect to the existing water mains to provide for fire, irrigation and domestic service. Refer to section 6.1 below for additional design information and to **APPENDIX II** for Utility Plans.

3. DESIGN CRITERIA**3.1 UTILITY DEVELOPER GUIDE CRITERIA**

This project is designed in accordance with the City of Scottsdale DS&PM. Refer to **Table 1** below for applicable "Design Criteria for Water Systems".

Table 1: COS Design Criteria by demand type

Land Use	Average Day Demand (gpd)	Max Day Peaking Factor	Peak Hour Peaking Factor
High Density Condo	185.3 / unit	2	3.5
Restaurant	1.3 / sq. ft.	2	3.5
Office	0.8 / sq. ft.	2	3.5

The system pressures, velocities, head losses and fire flow are in accordance with the COS DS&PM as follows:

Minimum Pressures:

50 psi residual pressure at the highest delivery point and 30 psi @ max day +fire flow

Maximum Pressures:

In accordance with the DS&PM, all structures shall have an individual pressure reducing valve on the customer side of the meter.

Velocity & Head loss:

- *10 ft. headloss maximum per 1,000 linear feet of pipe for pipes less than 16 inches in diameter.*

Hazen-Williams Coefficient 130 (for new pipes).

Fire Flows:

Based on preliminary development concepts, a 2,000 gpm system fire flow demand is assumed. The fire hydrant flow test in Appendix I supports this demand.

4. DEMANDS

4.1 PROJECT USE DESCRIPTION

Refer to **Table 2** below for the proposed water demand calculations based on the design criteria established in *Section 3.1* above.

Table 2: WATER DEMAND CALCULATIONS

	Units or Area (sq. ft.)	ADD (gpd)	Max Day Peaking Factor	Peak Hour Peaking Factor	Avg. Day Demand (GPD)	Max. Day Demand (GPD)	Peak Hour (GPD)
High Density Condo	179	185.3	2	3.5	33,168.7	66,337.4	116,090.5
TOTAL DEMANDS (GPD):					33,168.7	66,337.4	116,090.5
TOTAL DEMANDS (gpm):					23.0	46.1	80.6

4.2 ZONING

Per Figure 6-1.3 in the DS&PM, this project is in pressure zone 2.

4.3 PHASING OF DEMANDS

The project is proposed to be constructed in a single phase.

4.4 SUMMARY NARRATIVE OF DEMANDS

The demand scenario that governs the design was the peak hour demand.

5. EXISTING FACILITIES / CONDITIONS

5.1 PREVIOUS MASTER PLANS

No existing master plan or water report is available from COS for this project.

6. PROPOSED FACILITIES

6.1 DISTRIBUTION SYSTEM PIPING

6.1.1 Onsite:

No new onsite infrastructure water line is anticipated on site.

Domestic service will be provided by a 2" meter service connection to the building.
Irrigation will be provided by a 1.5" meter / service connection.

6.1.2 Offsite Infrastructure:

No new offsite infrastructure is proposed being built with this project.

7. WATER COMPUTATIONS

7.1 DESCRIPTION OF MODEL

The proposed water system is designed to meet the criteria of COS Water, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

Bentley WaterCAD® Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

1. Pipe diameters (inches)
2. Pipe lengths (feet)
3. Pipes invert elevations (feet)
4. General Purpose Valve to model Water Meter and Double Check Valve Assembly
5. A reservoir and a pump to model the fire flow test performed
6. System demands (gpm)
7. Fire flows (gpm)
8. Model piping is ductile iron pipe using Hazen-Williams frictional losses (C = 130)

Output parameters included but were not limited to:

1. Pressure (psig)

2. Flow rates (gpm)
3. Velocities (fps)
4. Head loss (feet)

7.2 ASSUMPTIONS

Please refer to *Section 3.1* for the design criteria.

The general methodology used to design this public water infrastructure consists of modeling a network of water distribution mains to meet COS pressure, head loss, and water demand requirements during daily demands and fire events. The connection to the water system is modeled as a reservoir and pump. The pump will simulate the pressure drop and the available flow from the existing water system as depicted by the fire flow test.

Refer to **APPENDIX I** for a copy of the fire flow test results.

Irrigation, water feature, and pool filling if applicable are from a dedicated service and meter. It is assumed that these water uses occur during low peak hours and are therefore not considered in this modeling.

7.3 SUMMARY OF RESULTS

A summary of the modeling results is presented below in **Table 3**. Detailed WaterCAD® results are presented in **Appendix III**.

Demand Scenario	Water Demand (GMP)	Pressure (PSIG)				Velocity (ft/s)	Pipe ID
		Min.	Node	Max.	Node		
Average Day	23	57	J10	60	J4	4.18	P11
Maximum Day	40	59	J2	60	J1	2.35	P8
Peak Hour	40	59	J2	60	J1	4.12	P8
Max. + Fire Flow	2000 + Max day	34	J8	58	J8	N/A	N/A

These results indicate that the proposed water system meets *COS DS&PM* for daily water usage and fire flow events.

8. SUMMARY / CONCLUSIONS

8.1 CONFORMANCE TO DESIGN GOALS

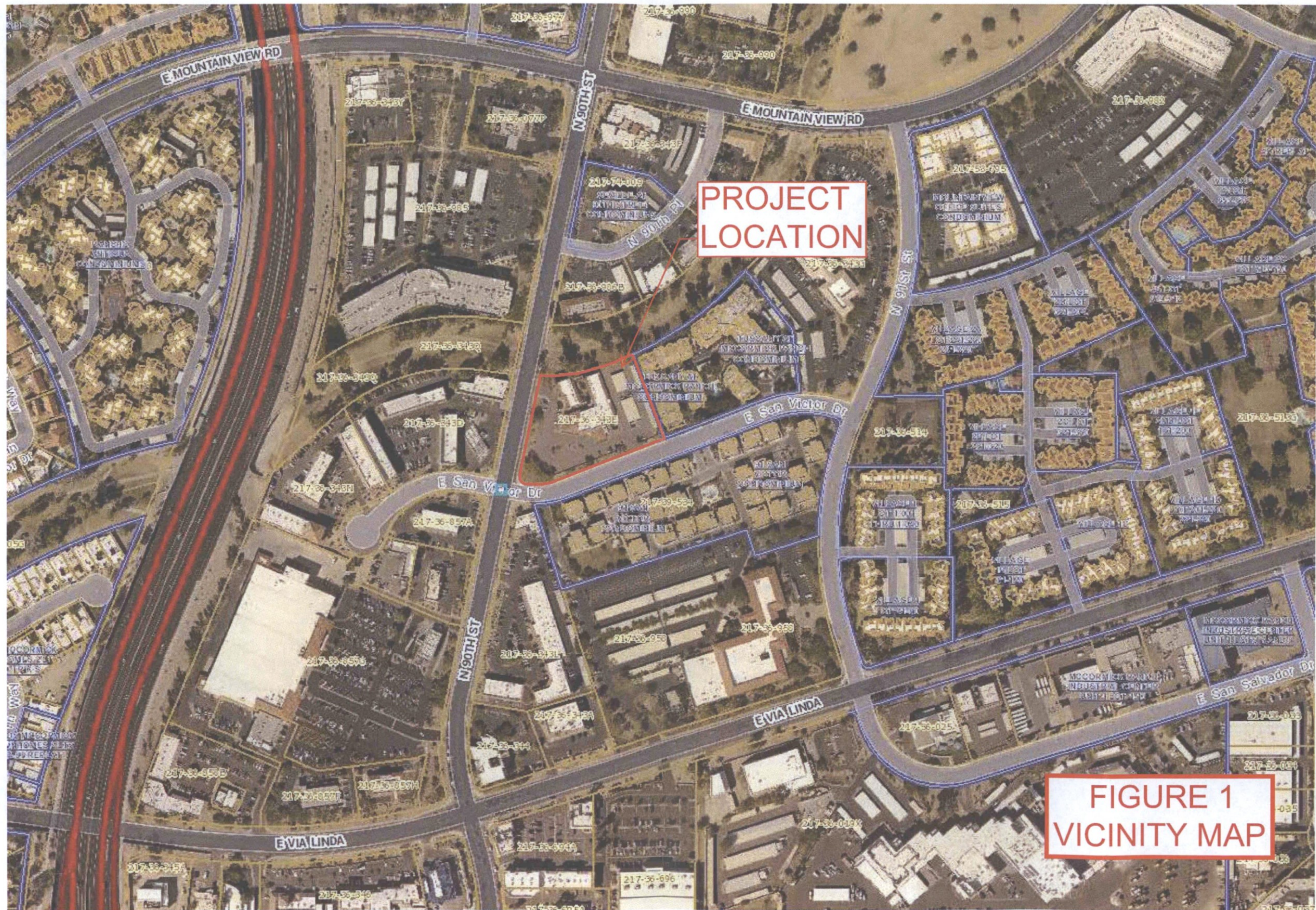
- The proposed water main is designed in accordance with COS design standards and policies².
 - Minimum 50 psi static, 30 psi @ peak hour required, 59 psi provided.
 - Minimum 30 psi (10 psi fs) @ max+ fire flow required, 34 psi provided.
 - 10 fps maximum velocity is not exceeded.
 - The system supports the minimum 1,500 gpm fire flow requirements for multi-family residential properties.
- It is shown in section 7.3 that the proposed water system meets the COS criteria for Daily water usage and fire flow events as described in Section 3.1.

8.2 REQUIRED FACILITIES AND PHASING

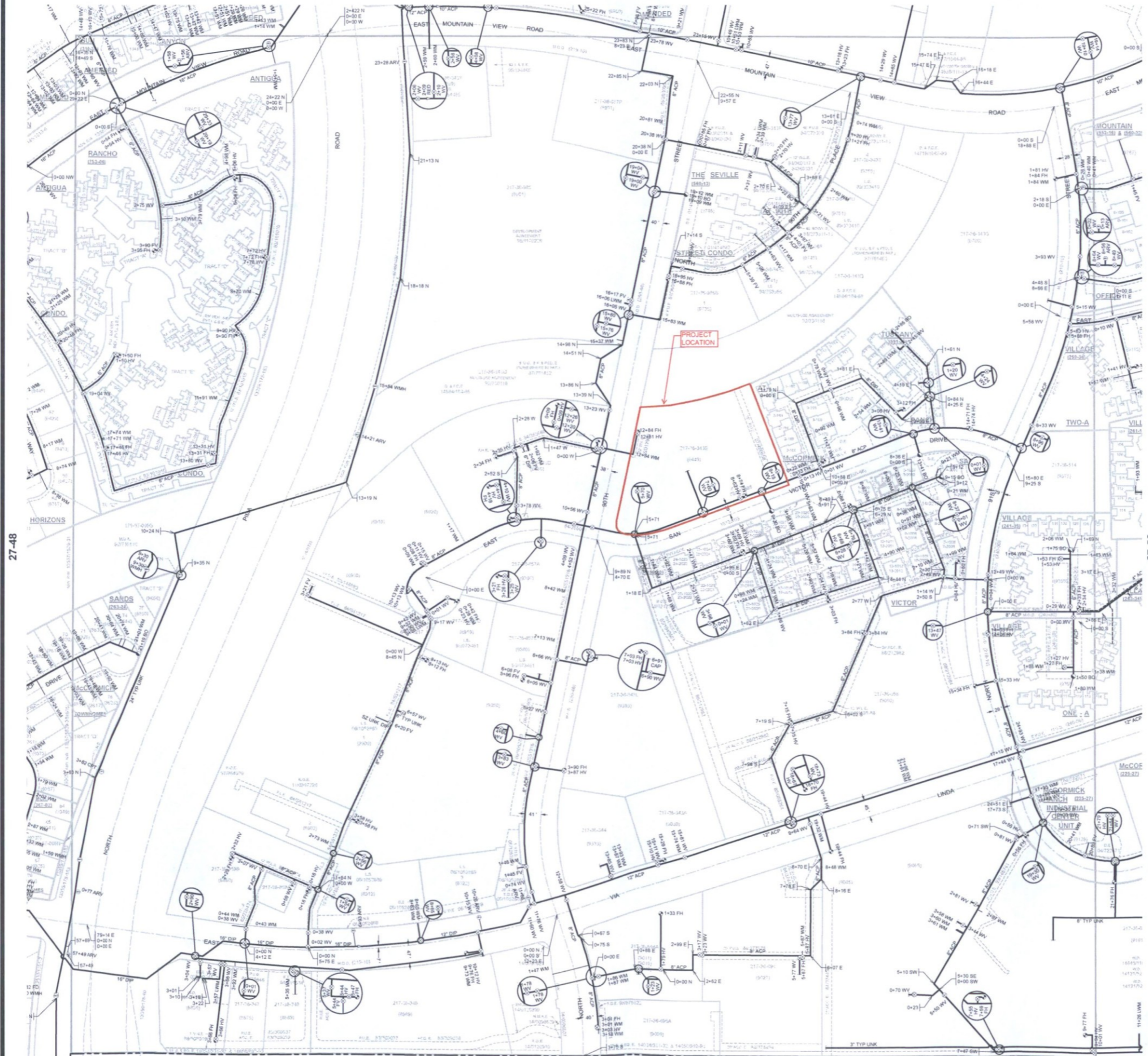
- Proposed facility improvements for this project are limited to a 2" domestic water meter, 1.5" landscape meter and a new 4" fire line connecting to the existing 8" water line in San Victor Drive.
- This project will be constructed in a single phase.

9. REFERENCES

1. *COS QS Water Plan number 27-49*
2. *City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 6 – Water)*



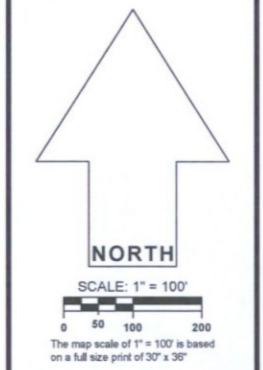




GENERAL NOTES:
 THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-1762.
 THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER 1991. BEARINGS ARE GROUND BEARINGS AND DISTANCES ARE PLATTED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.

LEGEND:

Air Release Valve	(Symbol)
Non-potable Air Release Valve	(Symbol)
Blowoff	(Symbol)
Cap	(Symbol)
Cathodic Protection	(Symbol)
Fill Drain	(Symbol)
Fire Hydrant	(Symbol)
Non-GPS Point	(Symbol)
Pressure Reducing Valve	(Symbol)
Pump	(Symbol)
Reducer	(Symbol)
Sample Station	(Symbol)
Water Manhole	(Symbol)
Non-Potable Manhole	(Symbol)
Well	(Symbol)
Valve	(Symbol)
Non-potable Valve	(Symbol)
Vault	(Symbol)
Water Main	(Symbol)
Non-Potable Main	(Symbol)
Fire / Private Main	(Symbol)
Non-Scottsdale Main	(Symbol)



WATER
QUARTER SECTION MAP
27-49
 SW 1/4 SEC. 30 T3N R5E

FIGURE 3

NOTICE
 THE CITY OF SCOTTSDALE



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APPENDIX I
Flow Test Results

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Not Provided
Project Address:	90th St & E San Victor Dr. (NEC), Scottsdale, Arizona 85258
Arizona Flow Testing Project No.:	18110
Client Project No.:	Not Provided
Flow Test Permit No.:	C55014
Date and time flow test conducted:	March 30, 2018 at 8:00 AM
Data is current and reliable until:	September 30, 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: **86.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **70.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **20.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: 4 Inch Hose Monster
(Measured in inches)

Coefficient of Diffuser: 0.7875

Flowing GPM: **1,681 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **3,614 GPM**

Data with 14 PSI Safety Factor

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

Residual Pressure: **56.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 600 feet

Main size: Not Provided

Flowing GPM: **1,681 GPM**

GPM @ 20 PSI: **3,178 GPM**

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

Flow Test Location

North ↑





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APPENDIX II

Utility Plans

BASIS OF BEARING

THE BASIS OF BEARING AN ALL MONUMENTATION SHOWN HEREON IS BASED ON THE MONUMENT LINE OF SAN VICTOR DRIVE AS SHOWN ON THE PLAT OF DEDICATION OF RIGHT-OF-WAY FOR STREETS, RECORDED IN BOOK 250, PAGE 46, MCR, USING THE BEARING OF NORTH 68°56'00" EAST.

LEGAL DESCRIPTION

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 3 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 30, SAID POINT BEING THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 00 DEGREES 02 MINUTES 33 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 29 DEGREES 33 MINUTES 44 SECONDS, FOR A DISTANCE OF 386.97 FEET;

THENCE NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST, A DISTANCE OF 413.23 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 823.50 FEET, THE CENTER OF WHICH BEARS NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 03 DEGREES 48 MINUTES 13 SECONDS, FOR A DISTANCE OF 54.67 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 56 DEGREES 35 MINUTES 30 SECONDS WEST;

THENCE WESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 59 DEGREES 52 MINUTES 46 SECONDS, FOR A DISTANCE OF 1045.09 FEET;

THENCE SOUTH 03 DEGREES 17 MINUTES 16 SECONDS WEST, A DISTANCE OF 55.00 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 74 DEGREES 49 MINUTES 09 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46 DEGREES 13 MINUTES 13 SECONDS, FOR A DISTANCE OF 806.70 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 28 DEGREES 35 MINUTES 56 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 05 DEGREES 31 MINUTES 22 SECONDS, FOR A DISTANCE OF 72.29 FEET TO THE TRUE POINT OF BEGINNING;

THENCE SOUTH 21 DEGREES 04 MINUTES 00 SECONDS EAST, A DISTANCE OF 267.13 FEET;

THENCE SOUTH 68 DEGREES 56 MINUTES 00 SECONDS WEST, A DISTANCE OF 342.56 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT, HAVING A RADIUS OF 220.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 27 DEGREES 02 MINUTES 27 SECONDS, FOR A DISTANCE OF 103.83 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET, THE CENTER OF WHICH BEARS NORTH 05 DEGREES 58 MINUTES 27 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 95 DEGREES 44 MINUTES 21 SECONDS, FOR A DISTANCE OF 33.42 FEET;

THENCE NORTH 11 DEGREES 42 MINUTES 48 SECONDS EAST, A DISTANCE OF 308.50 FEET TO THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 01 DEGREES 01 MINUTES 45 SECONDS WEST;

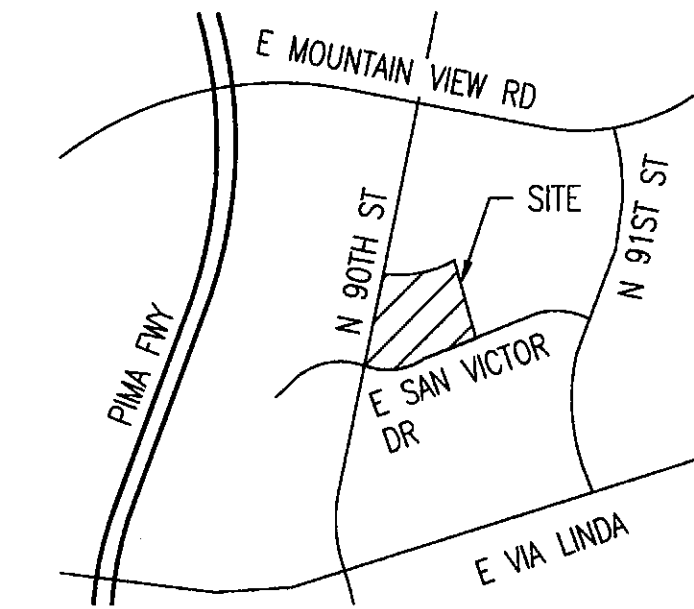
THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 22 DEGREES 02 MINUTES 49 SECONDS, FOR A DISTANCE OF 288.59 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT ALL MINERALS AS RESERVED TO THE UNITED STATES OF AMERICA IN PATENT TO SAID LAND.

**RESIDENCE AT 90TH ST. & SAN VICTOR
PRELIMINARY UTILITY PLAN
SCOTTSDALE, AZ**

DEVELOPER
WOOD PARTNERS
8777 E. VIA DE VENTURA, SUITE #201
SCOTTSDALE, ARIZONA 85258
PHONE: 480-607-0622
ATTN: CLAY RICHARDSON

ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR. SUITE #101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH

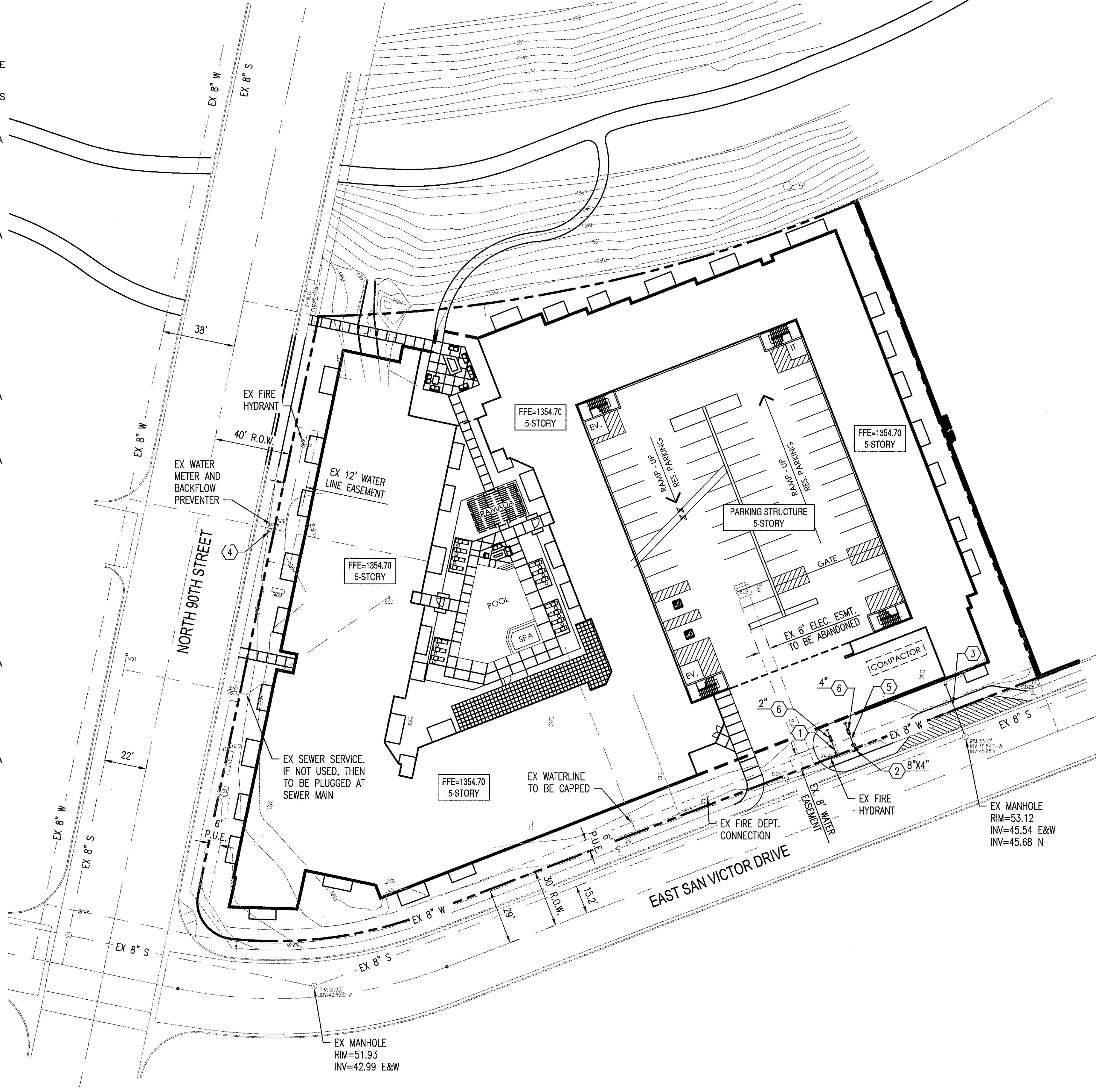


VICINITY MAP
SCALE: NTS

BENCHMARK
BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE LOCATED AT INTERSECTION SHEA BOULEVARD AND 92ND STREET.
ELEVATION = 1372.195' NAVD 88

KEY NOTES

- ① 2" WATER SERVICE & METER
- ② TAPPING SLEEVE, VALVE, BOX, & COVER. SIZE PER PLAN.
- ③ 6" SEWER STUB
- ④ 1.5" IRRIGATION METER
- ⑤ 4" FIRE LINE
- ⑥ BACKFLOW PREVENTER, SIZE PER PLAN.

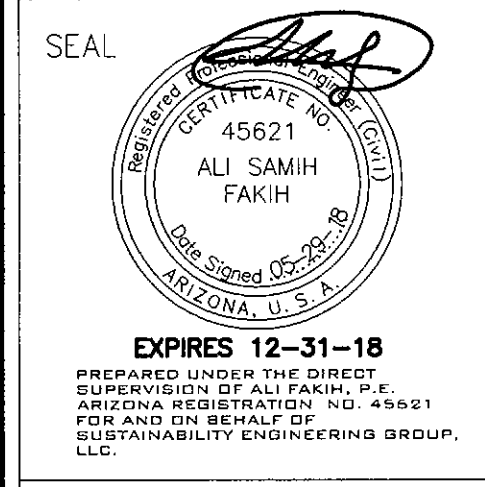
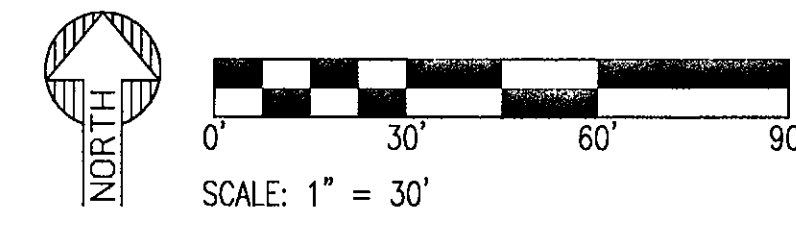


PROPOSED LEGEND

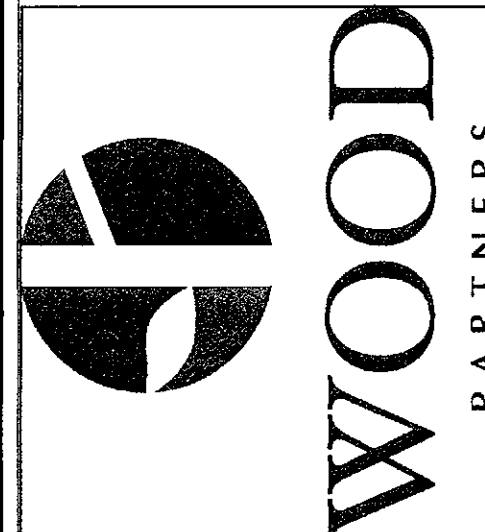
- 8" W — WATER LINE
- METER BOX
- 6" S — SEWER LINE
- ⊕ BACKFLOW PREVENTER
- RISER ROOM
- ⊕ TAPPING SLEEVE, VALVE BOX AND COVER

EXISTING LEGEND

- ⊕ MANHOLE
- EX. 8" S — SEWER LINE
- EX. 12" W — WATER LINE
- ⊕ FIRE HYDRANT
- — — CENTER LINE
- — — PROPERTY LINE



SEAL
SUSTAINABILITY ENGINEERING GROUP, LLC
8280 E. GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEEG.COM TEL. 480.688.7228



PROJECT
RESIDENCE AT 90TH ST. & SAN VICTOR

LOCATION
N 90TH ST & E SAN VICTOR DR
SCOTTSDALE, AZ 85258

DRAWN SANTIAGO
DESIGNED SANTIAGO
CHECKED COUNSELL
PROJ. MGR. FAKIH

DATE: 05/29/2018
ISSUED FOR:

REVISION NO.:	DATE:

JOB NO.: 180211
SHEET TITLE:

PRELIMINARY UTILITY PLAN

SHEET NO.: C4.00

X:\PROJECTS\WOOD PARTNERS\ALTA SAN VICTOR SCOTTSDALE 180211\11 CAD (SEG)\11.2 ENTITLEMENT-PLANNING\C4.00.DWG

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APPENDIX III

Water Model Calculations

FlexTable: Junction Table
Active Scenario: AVG DAY

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	1,353.32	23	1,490.48	59
J-2	1,353.70	12	1,490.48	59
J-3	1,351.53	0	1,490.47	60
J-4	1,351.33	0	1,490.46	60
J-5	1,352.21	0	1,490.44	60
J-6	1,354.00	23	1,490.48	59
J-7	1,354.04	12	1,490.42	59
J-8	1,352.92	23	1,490.44	59
J-10	1,354.70	23	1,486.19	57

FlexTable: Pipe Table
Active Scenario: AVG DAY

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	17	24.0	Ductile Iron	130.0	115	0.08
P-2	14	8.0	Ductile Iron	130.0	115	0.73
P-3	10	8.0	Ductile Iron	130.0	69	0.44
P-4	277	8.0	Ductile Iron	130.0	46	0.29
P-5	157	8.0	Ductile Iron	130.0	46	0.29
P-6	217	8.0	Ductile Iron	130.0	46	0.29
P-7	15	4.0	Ductile Iron	130.0	23	0.59
P-8	15	2.0	Ductile Iron	130.0	12	1.17
P-9	83	8.0	Ductile Iron	130.0	46	0.29
P-10	46	6.0	Ductile Iron	130.0	0	0.00
P-11	72	1.5	Ductile Iron	130.0	23	4.18

FlexTable: Pump Table
Active Scenario: AVG DAY

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,353.30	On	1,353.30	1,490.49	115	137.19

FlexTable: Reservoir Table

Active Scenario: AVG DAY

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,353.30	115	1,353.30

FlexTable: Junction Table
Active Scenario: MAX DAY

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	1,353.32	0	1,490.89	60
J-2	1,353.70	23	1,490.89	59
J-3	1,351.53	0	1,490.89	60
J-4	1,351.33	0	1,490.89	60
J-5	1,352.21	0	1,490.89	60
J-6	1,354.00	40	1,490.87	59
J-7	1,354.04	23	1,490.67	59
J-8	1,352.92	0	1,490.89	60
J-10	1,354.70	0	1,490.89	59

FlexTable: Pipe Table
Active Scenario: MAX DAY

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	17	24.0	Ductile Iron	130.0	86	0.06
P-2	14	8.0	Ductile Iron	130.0	86	0.55
P-3	10	8.0	Ductile Iron	130.0	46	0.29
P-4	277	8.0	Ductile Iron	130.0	0	0.00
P-5	157	8.0	Ductile Iron	130.0	0	0.00
P-6	217	8.0	Ductile Iron	130.0	0	0.00
P-7	15	4.0	Ductile Iron	130.0	40	1.03
P-8	15	2.0	Ductile Iron	130.0	23	2.35
P-9	83	8.0	Ductile Iron	130.0	0	0.00
P-10	46	6.0	Ductile Iron	130.0	0	0.00
P-11	72	1.5	Ductile Iron	130.0	0	0.00

FlexTable: Pump Table
Active Scenario: MAX DAY

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,353.30	On	1,353.30	1,490.89	86	137.59

FlexTable: Reservoir Table
Active Scenario: MAX DAY

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,353.30	86	1,353.30

FlexTable: Junction Table
Active Scenario: PEAK HOUR

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-1	1,353.32	0	1,490.97	60
J-2	1,353.70	40	1,490.97	59
J-3	1,351.53	0	1,490.97	60
J-4	1,351.33	0	1,490.97	60
J-5	1,352.21	0	1,490.97	60
J-6	1,354.00	0	1,490.97	59
J-7	1,354.04	40	1,490.34	59
J-8	1,352.92	0	1,490.97	60
J-10	1,354.70	0	1,490.97	59

FlexTable: Pipe Table
Active Scenario: PEAK HOUR

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-1	17	24.0	Ductile Iron	130.0	81	0.06
P-2	14	8.0	Ductile Iron	130.0	81	0.51
P-3	10	8.0	Ductile Iron	130.0	81	0.51
P-4	277	8.0	Ductile Iron	130.0	0	0.00
P-5	157	8.0	Ductile Iron	130.0	0	0.00
P-6	217	8.0	Ductile Iron	130.0	0	0.00
P-7	15	4.0	Ductile Iron	130.0	0	0.00
P-8	15	2.0	Ductile Iron	130.0	40	4.12
P-9	83	8.0	Ductile Iron	130.0	0	0.00
P-10	46	6.0	Ductile Iron	130.0	0	0.00
P-11	72	1.5	Ductile Iron	130.0	0	0.00

FlexTable: Pump Table
Active Scenario: PEAK HOUR

Label	Elevation (ft)	Pump Status	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,353.30	On	1,353.30	1,490.97	81	137.67

FlexTable: Reservoir Table
Active Scenario: PEAK HOUR

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,353.30	81	1,353.30

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: MAX DAY + FIRE

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (Calculated System Lower Limit) (psi)	Velocity of Maximum Pipe (ft/s)	Pipe w/ Maximum Velocity
H-1	1,500	881	45	J-10	46	10.00	P-10
J-1	1,500	1,406	45	J-10	45	10.00	P-2
J-2	1,500	1,406	45	J-10	45	10.00	P-2
J-3	1,500	1,406	42	J-10	40	10.00	P-2
J-4	1,500	1,406	40	J-10	38	10.00	P-2
J-5	1,500	1,406	36	J-10	35	10.00	P-2
J-6	1,500	351	55	J-10	56	10.00	P-7
J-7	1,500	58	57	J-10	58	10.00	P-8
J-8	1,500	1,406	34	J-10	34	10.00	P-2
J-10	1,500	55	49	J-7	58	10.00	P-11

SEWER CAPACITY REPORT
Residence at 90th St. & San Victor
9449 N. 90th Street
Scottsdale, AZ 85258

Prepared For:



8777 E Via De Ventura, Suite 201
Scottsdale, AZ 85258
Phone:480.607.0622



Prepared by:



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Project Number: 180211

Submittal Date: May 29, 2018 Zoning

Case No.: XX-PA-2018; XX-ZN-2018

Plan Check No.: TBD

7-ZN-2018
06/07/18

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- APPENDIX III - Calculations
- APPENDIX II - Preliminary Utility Plan

1. INTRODUCTION

1.1 SUMMARY OF PROPOSED DEVELOPMENT:

The proposed development consists of demolition of the existing 2 story office building and car port structures and construction of a new multi-family apartment building consisting of 5-stories with a total of 179 dwelling units and a 5-level parking structure. Additional amenities include a pool with a spa, a ramada and patio internal to the building. The purpose of this sewer capacity design report is to provide analysis of the impact that this development will have on the City's sewer system.

1.2 LEGAL DESCRIPTION:

The project is located at 9449 N. 90th Street in Scottsdale, AZ at the northeast corner of 90th Street and San Victor Drive. The site consists of one parcel of land located in a portion of the NE ¼ of Section 30, Township 3 North, Range 5 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona; Parcel ID number is 217-36-343E. The parcel area is 137,649.6 SF gross (3.16 gross acres) and 108,900 SF net (2.50 net acres).

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

1.3 EXISTING AND PROPOSED SITE ZONING AND LAND USES:

The project parcel is zoned C-O PCD overlay. The proposed site zoning is R-5/PCD overlay with amendments. Per the City of Scottsdale Conceptual Land Use Plan, the project is designated Commercial Development. Currently the project parcel has an office building with associated parking. The site will be demolished for the redevelopment into a multifamily apartment building with an attached parking garage.

1.4 REFERENCES:

City of Scottsdale zoning map designates this project site as C-O PCD.

City of Scottsdale Conceptual Land Use Plan designates this project site Commercial Development.

2. DESIGN DOCUMENTATION

2.1 DESIGN COMPLIANCE:

The analysis of the proposed and existing sewer system is done in compliance with Chapter 7 – Wastewater of the City of Scottsdale 2018 update of the Design Standards & Policies Manual (DS&PM). Design flow calculations for the on-site system will be based on the recommendations in Section 7-1.403 of the DS&PM.

3. EXISTING CONDITIONS

3.1 EXISTING ZONING & LAND USE:

Land ownership, as defined by Maricopa County Assessor mapping is office commercial development on the parcel. City of Scottsdale zoning map designates this parcel as C-O PCD.

3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The parcel is developed with two 2-story office buildings with a combined 18,339 square feet or 0.42+/- acres footprint, customer parking along the west and south side and employee covered parking along the east side of the buildings. The topography along the perimeter of the site generally slopes from north to south and east to west with the northeast elevation being 1354.28+/- and the southwest elevation being 1352.02 +/- with a change in elevation of approximately two (2) feet. An existing three-foot-high perimeter walls along the west and south sides of the project site sit approximately 1.25 feet above the top of curb at the southwest corner of the site. Internal to the perimeter walls, the site flows from the south to the north as it splits around the existing building east and west.

Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

3.3 EXISTING UTILITIES:

Sanitary Sewer: QS 27-49 City of Scottsdale

- 90th Street: An existing 8" VCP sewer main is located approximately 22 feet west of the centerline of 90th Street and flows south. A sewer cleanout is located approximately 150 feet north of the intersection of 90th Street and San Victor Drive adjacent to the project site. The existing office building sanitary lead is from this main. The 8" VCP sewer line continues south through the intersection. There is an existing common manhole in the intersection with San Victor Drive. The rim is approximately 1349.57 with a north invert of 1343.01, south invert of 1339.88, west invert of 1339.98 and an east invert of 1340.05. Approximate depth of manhole is 9.69 feet.
- San Victor Drive: There is an existing 8" VCP sewer main located approximately 15 feet north of the centerline of San Victor Drive and flows to the west. There are two manholes adjacent to the project site. One manhole located approximately 131 feet east of the intersection manhole and one another 364 east of the prior manhole. The westerly manhole is approximately 8.66 feet in depth but has no stub out to the project site. The easterly manhole is approximately 9.39 feet in depth and has a stub out to the north at approximately 1343.67.

Refer to **FIGURE 4** for the City quarter section map (QS 27-49)

4. PROPOSED CONDITIONS

4.1 SITE PLAN:

The property is proposed to be re-developed with a new multi-family apartment building consisting of 5-stories with a total of 179 dwelling units of 1 to 3 bedrooms and an enclosed 5-level parking structure. Additional amenities include a pool with a spa, a ramada and patio internal to the building.

Refer to **APPENDIX III** for Utility Plans.

4.2 PROPOSED SEWER SYSTEM:

For the purposes of this preliminary report, it is assumed that no new on-site public sewer will be constructed. Sewer service will connect to the existing sewer line in San Victor Drive, preferably at the location of the existing sewer stub out from an existing manhole.

Refer to **APPENDIX III** for Utility Plans.

4.3 MAINTENANCE RESPONSIBILITIES:

The off-site sewer is a public system owned and maintained by the City of Scottsdale.

5. SANITARY SYSTEM COMPUTATIONS

5.1. SEWER FLOW DEMANDS:

The proposed building will be one building designated as a multi-family apartment building consisting of 5-stories with a total of 179 dwelling units and a 5-level parking structure

The 2018 DS&PM Section 7-1.403 specifies the following sewer demands and peaking factors.

LAND USE	DEMAND (gpd)	DESIGN PEAKING FACTOR
<i>Commercial/Retail</i>	0.5 per sq. ft.	3
<i>Office</i>	0.4 per sq. ft.	3
<i>Restaurant</i>	1.2 per sq. ft.	6
<i>High Density</i>	140 per unit	4.5
<i>Condominium (Condo)</i>		
<i>Resort Hotel (includes site amenities)</i>	380 per room.	4.5
<i>School: without cafeteria</i>	30 per student	6
<i>School: with cafeteria</i>	50 per student	6
<i>Cultural</i>	0.1 per sq. ft.	3
<i>Clubhouse for Subdivision</i>	100 per patron x 2	4.5
<i>Golf Course</i>	patrons per du per day	
<i>Fitness Center/Spa/Health club</i>	0.8 per sq. ft.	3.5

FIGURE 7-1.2 AVERAGE DAY SEWER DEMAND IN GALLONS PER DAY & PEAKING FACTORS BY LAND USE

Refer to Table 1 below for the proposed design flow:

Table 1 - Sewer Demand Calculations - Proposed Conditions					
USE	UNITS/AREA	AVERAGE DAY DEMAND FACTOR (GPD)	AVERAGE DAY DEMAND (GPD)	Peaking Factor	Peak Hour (GPD)
High Density Condos	179 units	140 per unit	25,060	4.5	112,770
Total Flows			25,060		112,770

5.2. VARIANCE FROM STATED DESIGN FLOWS:

Stated design flows for the on-site system will be used as recommended.

5.3. SEWER SYSTEM ANALYSIS (Off-Site):

The proposed sewer flow will contribute to the 8" VCP sewer line in San Victor Drive and 90th Street.

Refer to **FIGURE 4 – Wastewater Service Area Map** for contributing properties.

Existing flows to the intersection of 90th Street and San Victor Drive manhole are summarized in Table 2 below.

Table 2 - Sewer Demand Calculations - Existing Conditions					
Use	Units / Area	Average Day Demand Factor (GPD)	Average Day Demand (GPD)	Peaking Factor	Peak Hour (GPD)
High Density Condominium	131 units	140 per unit	18,340	4.5	82,530
Commercial Office (Exist. Site)	28,380 sq. ft.	0.4 per sq. ft.	11,352	3	34,056
Commercial Retail	70,682 sq. ft.	0.5 per sq. ft.	35,341	3	106,023
Total Flows			65,033		222,609

65,033 gpd total ADD – 11,352 gpd (existing site) + 25,060 gpd (proposed site) = **78,741 gpd ADD**

222,609 gpd Total Peak Hour – 34,056 gpd (existing site) + 112,770 gpd (proposed site) = **301,323 gpd Total Peak Hour**

Based on the above calculations, new use increases the design flows by 13,708 gpd ADD and 78,714 gpd PHD.

New sewer demand is **78,741** gpd ADD and **301,323** gpd PHD.

5.4. SEWER CAPACITY CALCULATIONS

The sewer capacities have been calculated using FlowMaster V8i.

Refer to **APPENDIX II** for pipe calculation output.

The capacity of the existing public 8" sewer line in 90th Street, is based on a 0.75% slope per the City of Scottsdale Q.S. Map and at a 0.65 d/D ratio, is **511,592.45 gpd**. The capacity of the existing public 8" sewer line in San Victor Drive is based on 0.70% slope per field survey and at a 0.65 d/D ratio, is **494,245.26 gpd**. This is sufficient for the projected average and peak flows for the development.

6. SUMMARY

6.1 SUMMARY OF PROPOSED IMPROVEMENTS:

- The proposed wastewater improvement was designed based on the current City of Scottsdale's design standards and policies.
- The existing 8" sanitary main being tied into has enough capacity and is capable of supporting the projected average and peak flows for the development.

6.2 PROJECT SCHEDULE:

The infrastructure is proposed to be constructed in a single phase.

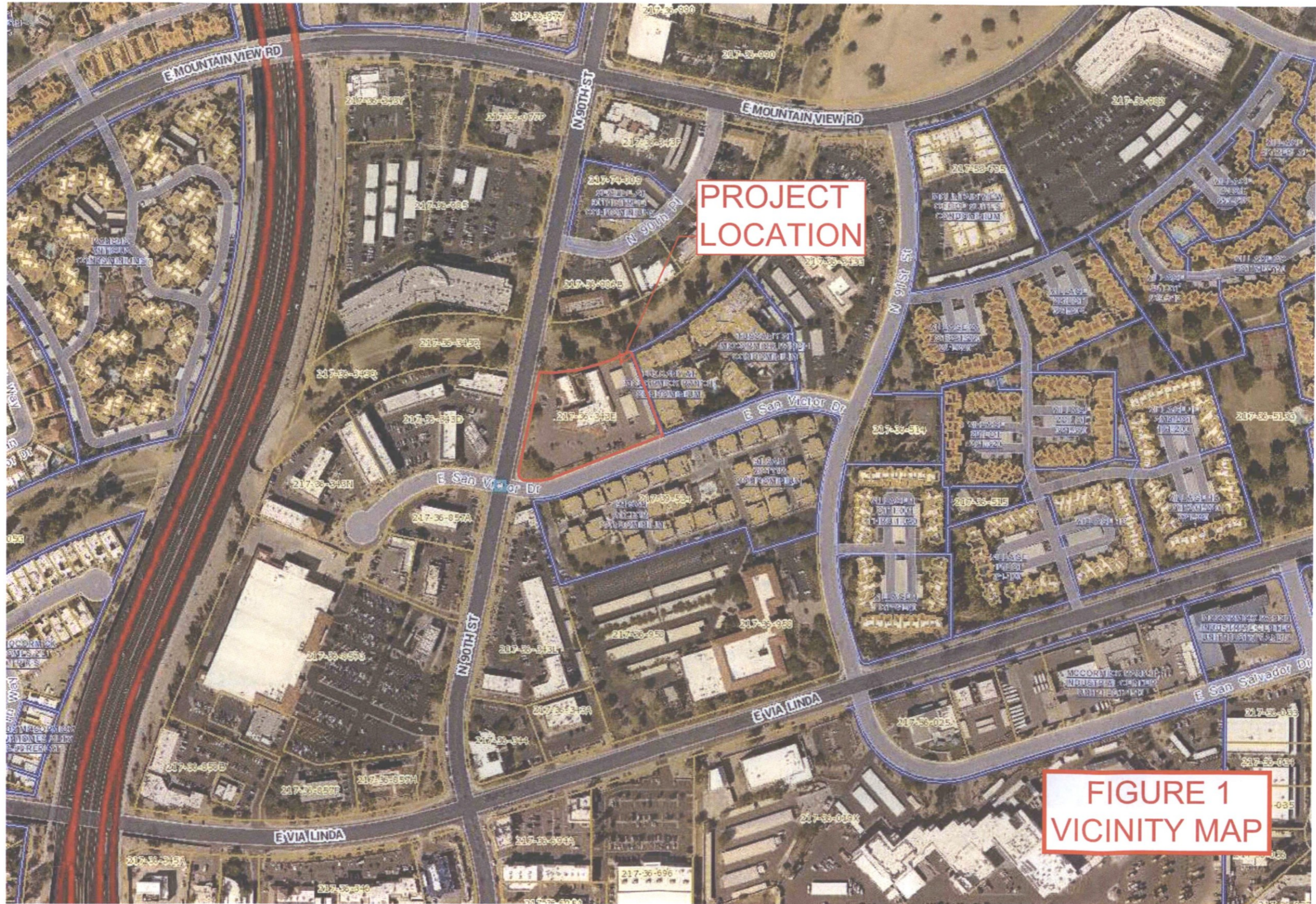
7 SUPPORTING MAPS

7.1 UTILITY PLANS

Refer to **APPENDIX II** for Utility Plans.

8 REFERENCES

1. *COS QS Sewer Plan number 27-49*
2. *City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 7 – Wastewater)*



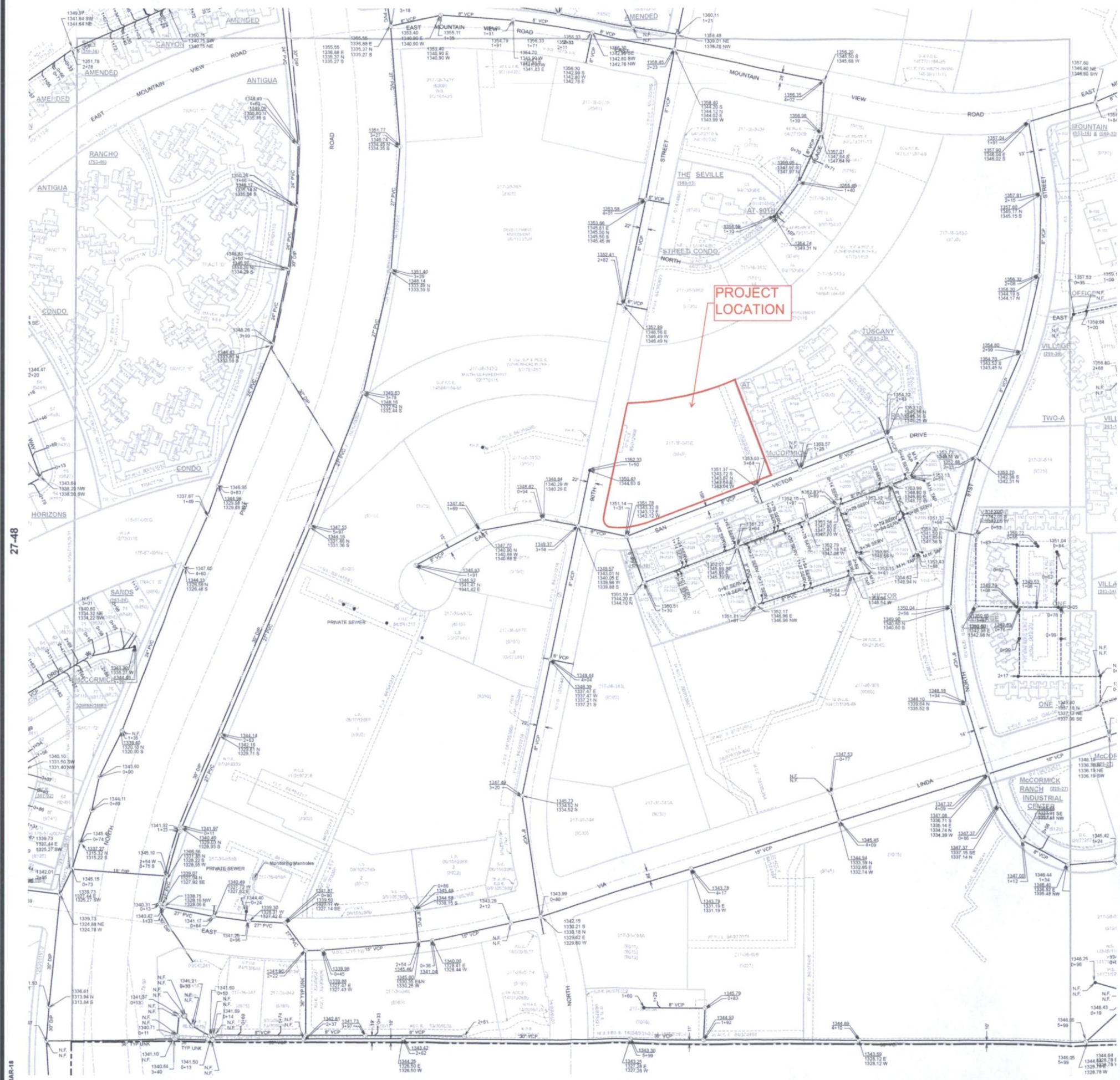
PROJECT
LOCATION

FIGURE 1
VICINITY MAP



PROJECT
LOCATION

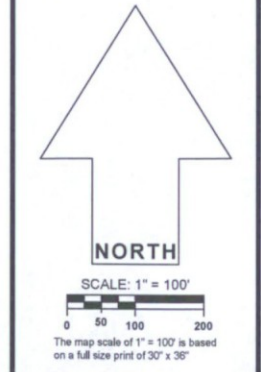
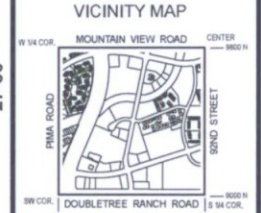
FIGURE 2
AERIAL



GENERAL NOTES:
 * THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 310-7702.
 * THE SECTION LINE BEARINGS AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GIS SURVEY OF SEPTEMBER 1991. BEARINGS ARE HAD BY GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND, THE CORNERS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.

LEGEND:

Cleanout	●
Lift Station	⊕
Manhole	⊙
Non-GPS Point	○
Plug	⌒
Sewer Service Point	⊙
Sewer Tap Point	⊙
Sewer Valve	⊗
Treatment Plant	⊠
Sewer Main - Gravity	—
Sewer Main - Force	—
Sewer Main - Private	—



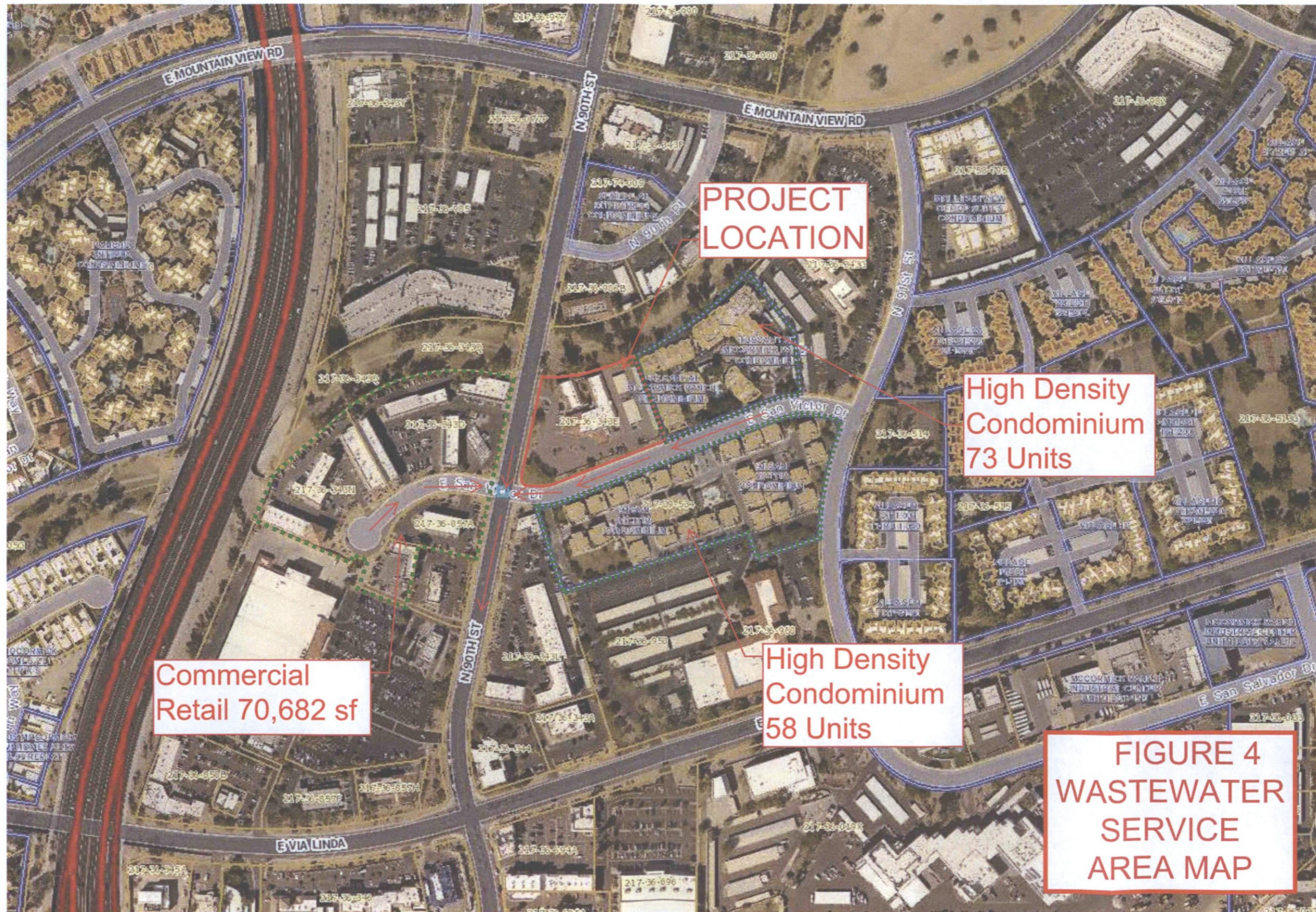
SEWER
QUARTER SECTION MAP
27-49
 SW 1/4 SEC. 30 T3N R5E

FIGURE 3

NOTICE
 THIS DOCUMENT IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY. THE CITY OF SCOTTSDALE DOES NOT WARRANT THE ACCURACY OF THE INFORMATION CONTAINED HEREIN FOR ANY PARTICULAR PURPOSE. IT SHOULD NOT BE RELIED UPON WITHOUT FIELD VERIFICATION.
 THE CITY OF SCOTTSDALE

27-48

11-MAR-18



**PROJECT
LOCATION**

**High Density
Condominium
73 Units**

**Commercial
Retail 70,682 sf**

**High Density
Condominium
58 Units**

**FIGURE 4
WASTEWATER
SERVICE
AREA MAP**



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APPENDIX I
Design Requirements

calculations to the Water Resources Department for permission to use extra-strength pipe, special bedding specifications, or alternative construction methods. The Water Resources Department must accept the request in writing prior to Plan Review's approval of the final plans.

Ensure that all types of pipe material used in design have established ASTM, ANSI, AWWA or NSF standards of manufacture or seals of approval and are designated for use with wastewater.

SYSTEM LAYOUT

Generally, SS lines constructed along a street grid should be aligned parallel to, and south or west of the street centerline. Lines should not cross the street centerline except in cases where curvilinear roadway alignments are encountered.

Public SS lines within commercial, industrial or multi-family developments must be located within drive aisles a minimum of 6 feet from any structure. Public SS lines will be located within tracts and/or sewer line easements. No private utilities are allowed longitudinally within a sewer line easement.

Curvilinear SS lines are not allowed. Developments with numerous curved streets should be discussed with the Water Resources Department to decide whether the city will consider a design report with water and sewer layouts in accordance with the following criteria:

- A. Water and SS lines will be placed under the paved section of the roadway within the area, from back-of-curb to back-of-curb.
- B. SS lines must maintain a minimum of 6-foot horizontal clearance to dry utilities per COS Standard Detail No. 2401.
- C. SS manholes are to be located at the approximate center of the drive lane.
- D. The water line and SS line shall run parallel to each other with 6 feet of separation between the pipe walls. Lines may cross the street centerline.
- E. Deflections in the SS line through manholes shall be designed to nominal fitting angles within standard tolerances and will occur at the same locations where the water line is deflected. Refer to Section 6-1.402 for related water system criteria.

DESIGN FLOWS

A. Residential

SS lines 8 to 12 inches in diameter will be designed using 100 gallons per capita per day (gpcpd) and a peaking factor of 4.

SS lines larger than 12 inches in diameter will be designed using 105 gpcpd and a peaking factor developed from "Harmon's Formula":

$$Q_{max} = Q_{avg} \times [1 + (14 / (4 + P1/2))]$$

$$P = \text{Population} / 1,000$$

Residential densities are to assume 2.5 persons per dwelling unit. Multifamily densities exceeding 22 dwelling units per acre can assume 1.7 to 2.2 persons per unit.

B. Commercial and Industrial

Wastewater flows for uses other than those listed below shall be based upon known regional or accepted engineering reference sources approved by the Water Resources Department.

7-1.402

7-1.403

LAND USE	DEMAND (gpd)	DESIGN PEAKING FACTOR
<i>Commercial/Retail</i>	0.5 per sq. ft.	3
<i>Office</i>	0.4 per sq. ft.	3
<i>Restaurant</i>	1.2 per sq. ft.	6
<i>High Density Condominium (Condo)</i>	140 per unit	4.5
<i>Resort Hotel (includes site amenities)</i>	380 per room.	4.5
<i>School: without cafeteria</i>	30 per student	6
<i>School: with cafeteria</i>	50 per student	6
<i>Cultural</i>	0.1 per sq. ft.	3
<i>Clubhouse for Subdivision</i>	100 per patron x 2	4.5
<i>Golf Course</i>	patrons per du per day	
<i>Fitness Center/ Spa/ Health club</i>	0.8 per sq. ft.	3.5

FIGURE 7-1.2 AVERAGE DAY SEWER DEMAND IN GALLONS PER DAY & PEAKING FACTORS BY LAND USE

HYDRAULIC DESIGN

No public SS lines will be less than 8 inches in diameter unless permission is received in writing from the Water Resources Department.

SS lines shall be designed and constructed to give mean full flow velocities equal to or greater than 2.5 fps, based upon Manning’s Formula, using an “n” value of 0.013.

To prevent abrasion and erosion of the pipe material, the maximum velocity will be limited to 10 fps at estimated peak flow. Where velocities exceed this maximum figure, submit a hydraulic analysis along with construction recommendations to the Water Resources Department for consideration. In no case will velocities greater than 15 fps be allowed.

Actual velocities shall be analyzed for minimum, average day and peak day design flow conditions for each reach of pipe.

The SS system shall be designed to achieve uniform flow velocities through consistent slopes. Abrupt changes in slope shall be evaluated for hydraulic jump.

The depth to diameter ratio (d/D) for gravity SS pipes 12 inches in diameter and less shall not exceed 0.65 in the ultimate peak flow condition. This d/D ratio includes an allowance for system infiltration and inflow.

The d/D for gravity drains greater than 12 inches diameter shall not exceed 0.70 for the ultimate peak flow condition. This d/D includes an allowance for system infiltration and inflow.

Measures to mitigate hydrogen sulfide shall be analyzed at manhole drops, abrupt changes in pipe slope or direction and at changes in pipe diameter.

MANHOLES AND CLEAN OUTS

Manholes in city streets shall be located near the center of the inside traffic lane, rather than on or near the line separating traffic lanes. Manholes shall not be in bike trails, equestrian trails, sidewalks, crosswalks or wash crossings. Manholes are required at all

7-1.404

7-1.405



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APPENDIX II

Calculations

90th Street 8" @ 0.75% d/D=0.65

Project Description

Friction Method Manning Formula
Solve For Discharge

Input Data

Roughness Coefficient 0.013
Channel Slope 0.75000 %
Normal Depth 5.20 in
Diameter 8.00 in

Results

Discharge 511592.45 gal/day
Flow Area 0.24 ft²
Wetted Perimeter 1.25 ft
Hydraulic Radius 2.31 in
Top Width 0.64 ft
Critical Depth 0.42 ft
Percent Full 65.0 %
Critical Slope 0.00816 ft/ft
Velocity 3.30 ft/s
Velocity Head 0.17 ft
Specific Energy 0.60 ft
Froude Number 0.95
Maximum Discharge 1.13 ft³/s
Discharge Full 1.05 ft³/s
Slope Full 0.00429 ft/ft
Flow Type SubCritical

GVF Input Data

Downstream Depth 0.00 in
Length 0.00 ft
Number Of Steps 0

GVF Output Data

Upstream Depth 0.00 in
Profile Description
Profile Headloss 0.00 ft
Average End Depth Over Rise 0.00 %
Normal Depth Over Rise 65.00 %
Downstream Velocity Infinity ft/s

90th Street 8" @ 0.75% d/D=0.65

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.42	ft
Channel Slope	0.75000	%
Critical Slope	0.00816	ft/ft

San Victor Dr 8" @ 0.70%, d/D=0.65

Project Description

Friction Method Manning Formula
Solve For Discharge

Input Data

Roughness Coefficient 0.013
Channel Slope 0.70000 %
Normal Depth 5.20 in
Diameter 8.00 in

Results

Discharge 494245.26 gal/day
Flow Area 0.24 ft²
Wetted Perimeter 1.25 ft
Hydraulic Radius 2.31 in
Top Width 0.64 ft
Critical Depth 0.41 ft
Percent Full 65.0 %
Critical Slope 0.00802 ft/ft
Velocity 3.18 ft/s
Velocity Head 0.16 ft
Specific Energy 0.59 ft
Froude Number 0.91
Maximum Discharge 1.09 ft³/s
Discharge Full 1.01 ft³/s
Slope Full 0.00401 ft/ft
Flow Type SubCritical

GVF Input Data

Downstream Depth 0.00 in
Length 0.00 ft
Number Of Steps 0

GVF Output Data

Upstream Depth 0.00 in
Profile Description
Profile Headloss 0.00 ft
Average End Depth Over Rise 0.00 %
Normal Depth Over Rise 65.00 %
Downstream Velocity Infinity ft/s

San Victor Dr 8" @ 0.70%, d/D=0.65

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	5.20	in
Critical Depth	0.41	ft
Channel Slope	0.70000	%
Critical Slope	0.00802	ft/ft



"LEED®ing and Developing Smart Projects"

APPENDIX III

Utility Plans

8280 E. Gelding Dr., Suite 101
Scottsdale, AZ 85260

BASIS OF BEARING

THE BASIS OF BEARING AN ALL MONUMENTATION SHOWN HEREON IS BASED ON THE MONUMENT LINE OF SAN VICTOR DRIVE AS SHOWN ON THE PLAT OF DEDICATION OF RIGHT-OF-WAY FOR STREETS, RECORDED IN BOOK 250, PAGE 46, MCR, USING THE BEARING OF NORTH 68°56'00" EAST.

LEGAL DESCRIPTION

BEING A PORTION OF THE SOUTHWEST QUARTER OF SECTION 30, TOWNSHIP 3 NORTH, RANGE 5 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF THE EAST HALF OF THE NORTHEAST QUARTER OF SECTION 30, SAID POINT BEING THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 00 DEGREES 02 MINUTES 33 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 29 DEGREES 33 MINUTES 44 SECONDS, FOR A DISTANCE OF 386.97 FEET;

THENCE NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST, A DISTANCE OF 413.23 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 823.50 FEET, THE CENTER OF WHICH BEARS NORTH 60 DEGREES 23 MINUTES 43 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 03 DEGREES 48 MINUTES 13 SECONDS, FOR A DISTANCE OF 54.67 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 56 DEGREES 35 MINUTES 30 SECONDS WEST;

THENCE WESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 59 DEGREES 52 MINUTES 46 SECONDS, FOR A DISTANCE OF 1045.09 FEET;

THENCE SOUTH 03 DEGREES 17 MINUTES 16 SECONDS WEST, A DISTANCE OF 55.00 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 1000.00 FEET, THE CENTER OF WHICH BEARS NORTH 74 DEGREES 49 MINUTES 09 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 46 DEGREES 13 MINUTES 13 SECONDS, FOR A DISTANCE OF 806.70 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 28 DEGREES 35 MINUTES 56 SECONDS WEST;

THENCE SOUTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 05 DEGREES 31 MINUTES 22 SECONDS, FOR A DISTANCE OF 72.29 FEET TO THE TRUE POINT OF BEGINNING;

THENCE SOUTH 21 DEGREES 04 MINUTES 00 SECONDS EAST, A DISTANCE OF 267.13 FEET;

THENCE SOUTH 68 DEGREES 56 MINUTES 00 SECONDS WEST, A DISTANCE OF 342.56 FEET TO THE BEGINNING OF A TANGENT CURVE TO THE RIGHT, HAVING A RADIUS OF 220.00 FEET;

THENCE ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 27 DEGREES 02 MINUTES 27 SECONDS, FOR A DISTANCE OF 103.83 FEET TO THE BEGINNING OF A CURVE TO THE RIGHT, HAVING A RADIUS OF 20.00 FEET, THE CENTER OF WHICH BEARS NORTH 05 DEGREES 58 MINUTES 27 SECONDS EAST;

THENCE NORTHWESTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 95 DEGREES 44 MINUTES 21 SECONDS, FOR A DISTANCE OF 33.42 FEET;

THENCE NORTH 11 DEGREES 42 MINUTES 48 SECONDS EAST, A DISTANCE OF 308.50 FEET TO THE BEGINNING OF A CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, THE CENTER OF WHICH BEARS NORTH 01 DEGREES 01 MINUTES 45 SECONDS WEST;

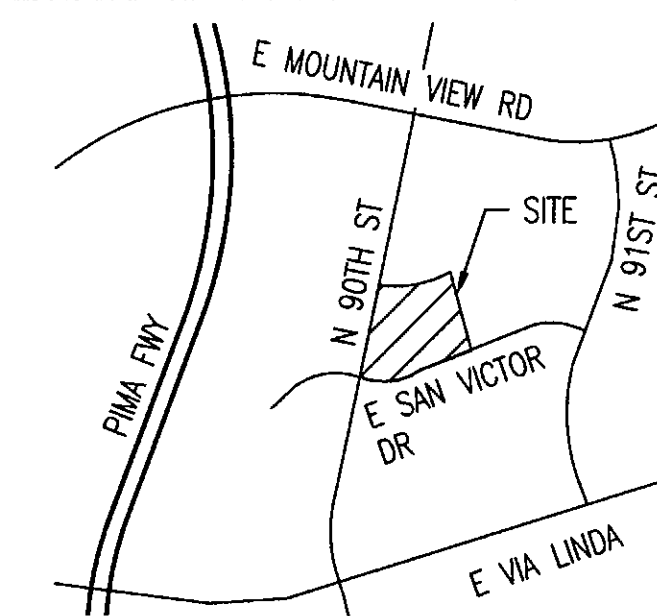
THENCE NORTHEASTERLY ALONG THE ARC OF SAID CURVE, THROUGH A CENTRAL ANGLE OF 22 DEGREES 02 MINUTES 49 SECONDS, FOR A DISTANCE OF 288.59 FEET, MORE OR LESS, TO THE POINT OF BEGINNING;

EXCEPT ALL MINERALS AS RESERVED TO THE UNITED STATES OF AMERICA IN PATENT TO SAID LAND.

**RESIDENCE AT 90TH ST. & SAN VICTOR
PRELIMINARY UTILITY PLAN
SCOTTSDALE, AZ**

DEVELOPER
WOOD PARTNERS
8777 E. VIA DE VENTURA, SUITE #201
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ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR. SUITE #101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH



VICINITY MAP
SCALE: NTS

BENCHMARK

BENCHMARK IS A CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE LOCATED AT INTERSECTION SHEA BOULEVARD AND 92ND STREET.

ELEVATION = 1372.195' NAVD 88

KEY NOTES

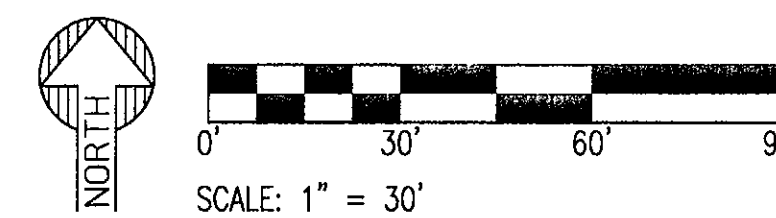
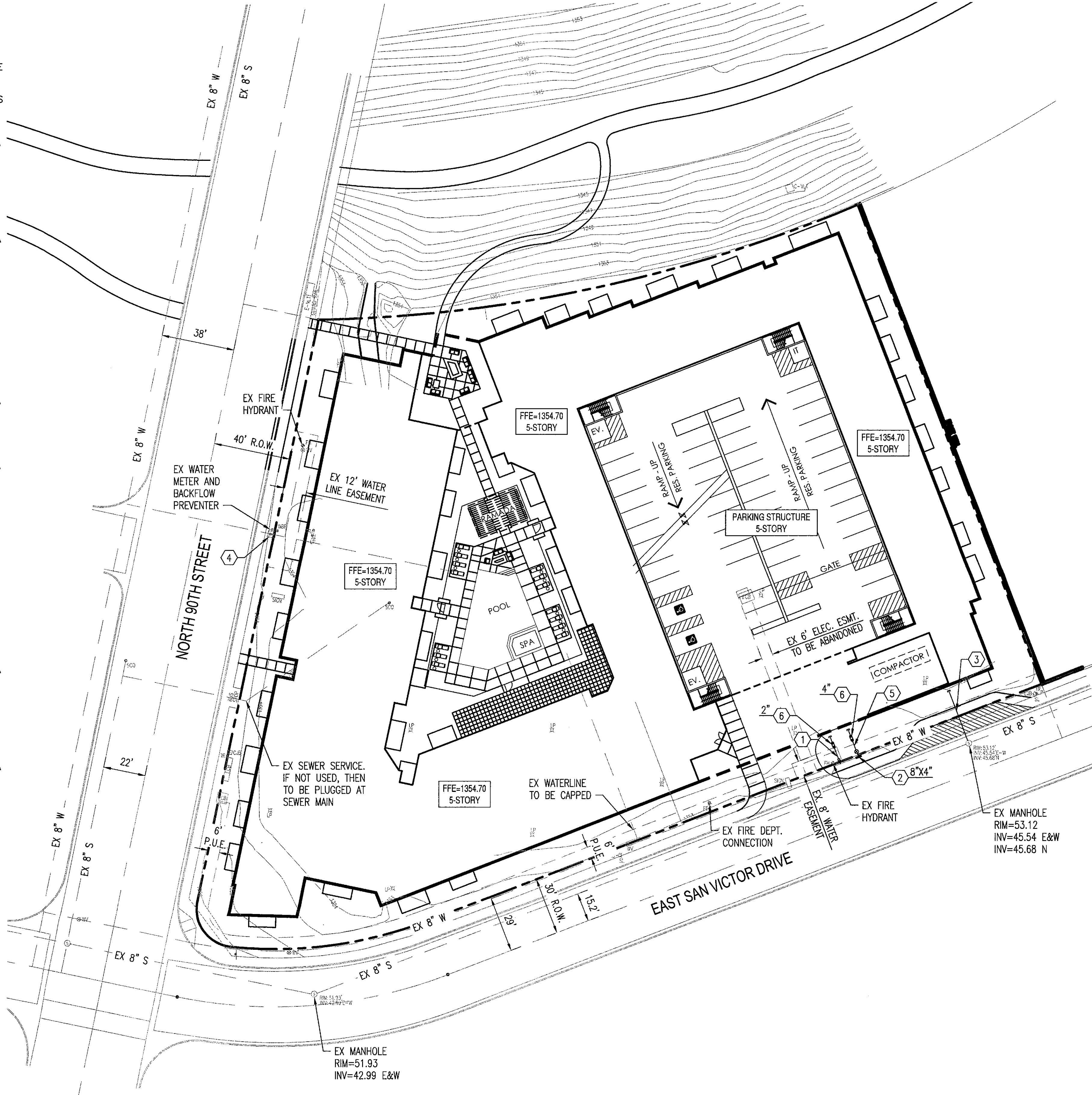
- ① 2" WATER SERVICE & METER
- ② TAPPING SLEEVE, VALVE, BOX, & COVER. SIZE PER PLAN.
- ③ 6" SEWER STUB
- ④ 1.5" IRRIGATION METER
- ⑤ 4" FIRE LINE
- ⑥ BACKFLOW PREVENTER, SIZE PER PLAN.

PROPOSED LEGEND

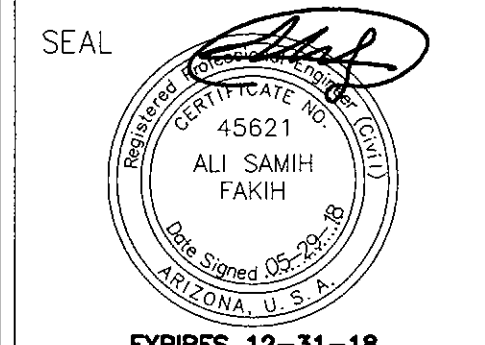
- 8" W — WATER LINE
- METER BOX
- 6" S — SEWER LINE
- ⊗ BACKFLOW PREVENTER
- RISER ROOM
- ⊕ TAPPING SLEEVE, VALVE BOX AND COVER

EXISTING LEGEND

- ⊙ MANHOLE
- EX. 8" S — SEWER LINE
- EX. 12" W — WATER LINE
- ⊕ FIRE HYDRANT
- — — CENTER LINE
- — — PROPERTY LINE

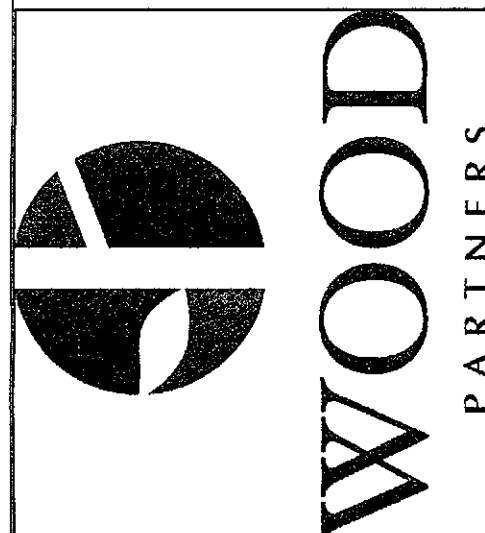


Call at least two full working days before you begin construction.
ARIZONA 600
Division of Professional Regulation
1111 North Central Avenue, Suite 1000
Phoenix, Arizona 85004
Phone: (602) 995-3333
Fax: (602) 995-3334
www.azsos.gov



EXPIRES 12-31-18
PREPARED UNDER THE DIRECT SUPERVISION OF ALI FAKIH, P.E. ARIZONA REGISTRATION NO. 45621 FOR AN AND DR BEHALF OF SUSTAINABILITY ENGINEERING GROUP, LLC.

8280 E GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEEG.COM TEL: 480.688.7228



PROJECT
RESIDENCE AT 90TH ST. & SAN VICTOR

LOCATION
N 90TH ST & E SAN VICTOR DR
SCOTTSDALE, AZ 85258

DRAWN SANTIAGO
DESIGNED SANTIAGO
CHECKED COUNSELL
PROJ. MGR. FAKIH

DATE: 05/29/2018
ISSUED FOR:

REVISION NO.: _____ **DATE:** _____

△
△
△
△

JOB NO.: 180211

SHEET TITLE:
PRELIMINARY UTILITY PLAN

SHEET NO.: C4.00