



**CITY OF EL MIRAGE**

**DEVELOPMENT APPLICATION FORM**

**Official Use**

Case No: \_\_\_\_\_ Date Received: \_\_\_\_\_ Planning & Zoning Commission Meeting: \_\_\_\_\_ City Council Meeting: \_\_\_\_\_

**PURPOSE**

Development Applications are reviewed by the Technical Advisory Committee (TAC) with the intent to provide the applicant specific information in preparation to meeting the City’s technical standards and requirements for the proposed development project. Information provided by TAC is based on applicant submittals and should be considered actual and detailed in nature.

**ACTION REQUESTED (Check one)**

- |  |  |
|--|--|
| <input type="checkbox"/> Conditional Use Permit  | <input type="checkbox"/> Site Plan Approval    |
| <input type="checkbox"/> General Plan Amendment: <input type="checkbox"/> Major <input type="checkbox"/> Minor | <input type="checkbox"/> Site Plan Amendment   |
| <input type="checkbox"/> Planned Area Development (PAD)  | <input type="checkbox"/> Preliminary Plat      |
| <input type="checkbox"/> Planned Area Development Amendment  | <input checked="" type="checkbox"/> Final Plat |
| <input type="checkbox"/> Rezoning  | <input type="checkbox"/> Other: _____          |

**PROPERTY INFORMATION:**

Name of Project: The Legacy Acreage: 4.85  
 Property Address/Location: Vicinity of Park Place and  
 Assessor’s Parcel Number: 501-86-408A & 501-86-441A & 501-86-474A & 501-86-503A & 501-86-553

**APPLICANT / OWNER INFORMATION:**

Applicant: <u>SKG Enterprises, Inc. (Shakir Gushgari)</u>	Owner: <u>NCR Development</u>
Address: <u>9260 E. Raintree Drive, Suite 140</u>	Address: <u>8350 E. Raintree Drive, Suite 220</u>
City/ST/Zip: <u>Scottsdale AA 85260</u>	City/ST/Zip: <u>Scottsdale, AZ 85260</u>
Phone: <u>(480) 998-5600</u>	Phone: <u>(480) 425-8696</u>
Email: <u>shakirg@skgaz.com</u>	Email: <u>cyates@robertsresorts.com</u>
Signature: <u></u>	Signature: <u></u>
(Agreement to act as agent for owner)	(Authorization for agent to act for owner)

- Application Form
- Comprehensive Site Plan
- Deed and/or Title Report
- Drainage Report
- A.L.T.A. Survey
- Phase I Environment Site Assessment
- Preliminary Landscape Plans
- Filing Fee (see Fee Schedule starting on page 9)

# Zoning Application Submittal

for

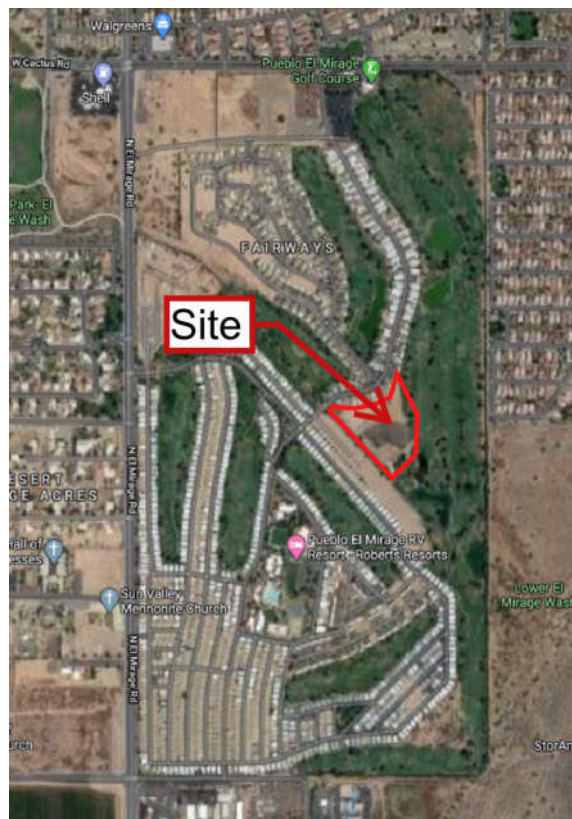
## The Legacy at Pueblo El Mirage RV Resort

To allow for the development of a 29-lot single-family residential development on approximately 4.85 acres located at the vicinity of the southwest corner of 17<sup>th</sup> Avenue and Park Place in City of El Mirage, Arizona

APN:

501-86-408A & 501-86-441A & 501-86-474A & 501-86-503A & 501-86-553

### VICINITY MAP



**Submittal date:**

April 24, 2020

## **Introduction & Purpose of Request:**

This application seeks an approval for developing a 29 Single Family Residential development known as The Legacy at Pueblo El Mirage RV Resort on approximately 4.85 acres located at the vicinity of the southwest corner of 17<sup>th</sup> Avenue and Park Place in the City of El Mirage, Maricopa County, Arizona.

The APNs are:

501-86-408A & 501-86-441A & 501-86-474A & 501-86-503A & 501-86-553

This site known as The Legacy, within the Master Planned Community of Pueblo El Mirage RV Resort, has been recorded Previously under Book 275, Page 45, of Maricopa County Recorder Office, Maricopa County, Arizona. It is the intention of this application to alter the layout of The Legacy development boundary from its original layout configuration to better attain a certain desired lotting yield, but well within the maximum allowable yield of 1,553 lots throughout the entire community.

Doing so will require a replat of portions of APN 501-86-408A & 501-86-441A & 501-86-474A & 501 86-503A & 501-86-553.

This proposed project further proposes to modify the existing improvements including paving, grading, water, and sewer systems to accommodate the proposed development's needs.

Included with this zoning application narrative report submittal are:

1. The zoning application
2. The proposed 29 lots final plat named as The Legacy
3. Development drainage report outlining the proposed stormwater management and all floodplain relate data
4. Development sewer design "basis of design" report outlining the proposed wastewater management system
5. Development water distribution system "basis of design" report outlining the proposed water distribution system
6. Processing Fee

**Site Information:**

APN: 501-86-408A & 501-86-441A & 501-86-474A & 501 86-503A & 501-86-553  
Site Size: 4.85 acres  
Location: Vicinity of the southwest corner of 17<sup>th</sup> Avenue and Park Place, in the City of El Mirage, Arizona

**Applicant:**

SKG Enterprises, Inc.  
ATTN: Shakir Gushgari, PE  
9260 E. Raintree Drive, Suite 140  
Scottsdale, AZ 85260

Phone: 480-998-5600  
Fax: 480-998-5603  
Email: [shakirg@skgaz.com](mailto:shakirg@skgaz.com)

# FINAL PLAT "THE LEGACY"

**DEDICATION**

STATE OF ARIZONA) )SS  
COUNTY OF MARICOPA)

A PORTION OF TRACTS G, I AND J AND LOTS 1283 THRU 1359, INCLUSIVE OF PUEBLO EL MIRAGE R.V. RESORT, BOOK 275 OF MAPS, PAGE 45, M.C.R.  
LOCATED IN A PORTION OF THE WEST HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 1 WEST, OF THE  
GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

**LEGAL DESCRIPTION**

A RE-SUBDIVISION A PORTION OF TRACTS G, I AND J AND LOTS 1283 THRU LOT 1359 INCLUSIVE OF "PUEBLO EL MIRAGE R.V. RESORT" ACCORDING TO BOOK 275 OF MAPS, PAGE 45, OFFICIAL RECORDS OF MARICOPA COUNTY, BEING A PORTION OF THE WEST HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 24, ON A BEARING OF S00°01'19"W(RECORD), A DISTANCE OF 2637.53 FEET(RECORD) 2637.84 FEET(MEASURED) TO THE WEST QUARTER CORNER OF SAID SECTION 24.

THENCE S00°00'00"W(RECORD) S00°00'16"W(MEASURED) A DISTANCE OF 2637.20 FEET(RECORD) 2637.18 FEET(MEASURED) TO THE SOUTHWEST CORNER OF SAID SECTION 24;

THENCE ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER ON A BEARING OF S89°21'20"E(RECORD) S89°20'50"E(MEASURED) A DISTANCE OF 2641.79 FEET(RECORD) 2641.90 FEET(MEASURED) TO THE SOUTH QUARTER CORNER OF SAID SECTION 24;

THENCE N00°06'35"E, A DISTANCE OF 2261.92 FEET;

THENCE N90°00'00"W, A DISTANCE OF 510.19 FEET;

THENCE N11°00'00"W, A DISTANCE OF 63.68 FEET;

THENCE S80°05'29"W, A DISTANCE OF 57.42 FEET TO THE POINT OF BEGINNING OF THE PARCEL DESCRIBED HEREIN;

THENCE S28°44'58"W, A DISTANCE OF 89.05 FEET;

THENCE N61°15'02"W, A DISTANCE OF 59.00 FEET;

THENCE N51°37'31"W, A DISTANCE OF 26.75 FEET;

THENCE N42°00'00"W, A DISTANCE OF 584.02 FEET;

THENCE N47°47'33"E, A DISTANCE OF 24.32 FEET TO A POINT OF CURVATURE CONCAVE TO THE SOUTH; HAVING AN ARC LENGTH OF 39.08 FEET AND A RADIUS OF 66.50 FEET THROUGH A CENTRAL ANGLE OF 33°40'19" TO A POINT OF TANGENCY;

THENCE N81°42'02"E, A DISTANCE OF 153.69 FEET TO A POINT OF CURVATURE CONCAVE TO THE NORTH; HAVING AN ARC LENGTH 155.71 FEET AND A RADIUS OF 293.69 FEET THROUGH A CENTRAL ANGLE 30°22'39" TO A POINT ON A CURVE CONCAVE TO THE NORTHEAST FROM WHENCE THE RADIUS BEARS N35°16'28"E, A RADIUS DISTANCE OF 164.00 FEET;

THENCE THROUGH A CENTRAL ANGLE 12°43'32" HAVING AN ARC LENGTH OF 36.42 FEET;

THENCE N42°00'00"W, A DISTANCE OF 48.00 FEET;

THENCE N48°00'00"E, A DISTANCE OF 28.00 FEET;

THENCE S42°00'00"E, A DISTANCE OF 48.00 FEET TO A POINT OF A CURVE CONCAVE TO THE NORTHEAST FROM WHENCE THE RADIUS BEARS N48°00'00"E, A RADIUS DISTANCE OF 136.00 FEET;

THENCE THROUGH A CENTRAL ANGLE 18°09'35" HAVING AN ARC LENGTH OF 43.10 FEET TO A POINT OF A REVERSE CURVE FROM WHENCE THE RADIUS BEARS S29°50'25"W, A RADIUS DISTANCE OF 164.00 FEET;

THENCE THROUGH A CENTRAL ANGLE OF 04°04'20" HAVING AN ARC LENGTH OF 11.66 FEET;

THENCE N48°00'00"E, A DISTANCE OF 81.64 FEET TO A POINT OF CURVATURE CONCAVE TO THE SOUTHWEST FROM WHENCE THE RADIUS BEARS S38°35'03"W, A RADIUS DISTANCE OF 244.00 FEET;

THENCE THROUGH A CENTRAL ANGLE 24°24'57" HAVING AN ARC LENGTH OF 103.98 FEET TO A POINT OF TANGENCY;

THENCE S27°00'00"E, A DISTANCE OF 187.97 FEET TO A POINT OF CURVATURE CONCAVE TO THE WEST FORM WHENCE THE RADIUS BEARS S63°00'00"W A RADIUS DISTANCE OF 244.00 FEET;

THENCE THROUGH A CENTRAL ANGLE 43°49'48" HAVING AN ARC LENGTH OF 186.65 FEET;

THENCE N73°10'12"W, A DISTANCE OF 72.00 FEET TO A POINT ON A CURVE CONCAVE TO THE NORTHWEST FROM WHENCE THE RADIUS BEARS N73°10'12"W, A RADIUS DISTANCE OF 172.00 FEET;

THENCE THROUGH A CENTRAL ANGLE OF 26°19'19" HAVING AN ARC LENGTH OF 79.02 FEET;

THENCE S46°50'53"E, A DISTANCE OF 72.00 FEET TO A POINT ON A CURVE CONCAVE TO THE NORTHWEST FOM WHENCE THE RADIUS BEARS N46°50'53"W, A RADIUS DISTANCE OF 244.00 FEET;

THENCE THROUGH A CENTRAL ANGLE 04°50'53" HAVING AN ARC LENGTH OF 20.65 FEET TO A POINT OF TANGENCY;

THENCE S48°00'00"W, A DISTANCE OF 53.29 FEET;

THENCE S42°00'00"E, A DISTANCE OF 8.72 FEET TO THE POINT OF BEGINNING SAID PARCEL BEING IN THE CITY OF EL MIRAGE, MARICOPA COUNTY, ARIZONA AND COMPRISING AN AREA OF 210,610.5 SQUARE FEET OR 4.835 ACRES.

**LEGEND**

- MONUMENT TO BE SET
- PROPERTY CORNER TO BE SET 1/2" REBAR L.S.# 32788
- BCF BRASS CAP FLUSH
- BCHH BRASS CAP HAND HOLE
- \_\_\_\_\_ SECTION LINE
- \_\_\_\_\_ CENTER LINE
- \_\_\_\_\_ SUBDIVISION BOUNDARY
- \_\_\_\_\_ RIGHT OF WAY LINE
- \_\_\_\_\_ PROPERTY LINE
- \_\_\_\_\_ EASEMENT LINE

ASSESSORS PARCEL NUMBER	APN
MARICOPA COUNTY RECORDS	MCR
MEASURED	(M)
RECORD	(R)
CALCULATED	(C)
RIGHT-OF-WAY	ROW
EASEMENT	ESMT
DRAINAGE EASEMENT	DE
WATER AND SEWER EASEMENT	W&S ESMT.
SIGHT VISIBILITY TRIANGLE	SVE
1' VEHICULAR NON-ACCESS EASEMENT	VNAE

KNOWN ALL MEN BY THESE PRESENTS: PUEBLO EL MIRAGE, LLC., A CALIFORNIA LIMITED LIABILITY COMPANY, AS OWNER HAS SUBDIVIDED UNDER THE NAME "THE LEGACY", A RE-SUBDIVISION OF A PORTION OF TRACTS G, I AND J AND LOTS 1283 THRU LOT 1359 INCLUSIVE OF "PUEBLO EL MIRAGE R.V. RESORT" ACCORDING TO BOOK 275 OF MAPS, PAGE 45, OFFICIAL RECORDS OF MARICOPA COUNTY, BEING A PORTION OF THE WEST HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA AS SHOWN AND PLATTED HEREON AND HEREBY PUBLISHES THIS PLAT AS THE PLAT OF "THE LEGACY" AND HEREBY DECLARES THAT SAID PLAT SETS FORTH THE LOCATIONS AND GIVES THE DIMENSIONS OF ALL LOTS, STREETS AND EASEMENTS CONSTITUTING SAME AND EACH LOT AND STREET SHALL BE KNOWN BY THE NUMBER OR NAME GIVEN EACH RESPECTIVELY ON SAID PLAT. PUEBLO EL MIRAGE, LLC, AS OWNER, HEREBY DEDICATES TO THE PUBLIC FOR USE AS SUCH THE EASEMENTS AS SHOWN HEREON, UPON OFFICIAL ACCEPTANCE BY THE CITY.

STREETS "16TH STREET, 16TH PLACE AND 17TH DRIVE" ARE HEREBY DEDICATED TO AND OWNED BY THE HOMEOWNERS ASSOCIATION (HOA) FOR THE PURPOSE OF PRIVATE STREETS/ACCESS. THE HOMEOWNERS ASSOCIATION IS RESPONSIBLE FOR MAINTENANCE OF THE PRIVATE STREETS/ACCESS.

A PUBLIC UTILITIES EASEMENT, INGRESS AND EGRESS FOR REFUSE COLLECTION, EMERGENCY AND SERVICE TYPE ACCESS ARE HEREBY DEDICATED OVER STREETS "16TH STREET, 16TH PLACE AND 17TH DRIVE" AND TRACTS "A, B, C.". MAINTENANCE OF THE EASEMENTS SHALL BE THE RESPONSIBILITY OF THE OWNER.

TRACTS "A, B, C." IS HEREBY DEDICATED TO AND OWNED BY THE HOMEOWNERS ASSOCIATION (HOA) FOR THE PURPOSE OF RETENTION AND DRAINAGE PURPOSES. THE HOMEOWNERS ASSOCIATION IS RESPONSIBLE FOR MAINTENANCE OF THE TRACTS. THE TRACTS SHALL BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION (HOA).

ALL WATER, SANITARY AND STORM DRAIN WITH THE PROPERTY ARE PRIVATE UNLESS OTHERWISE NOTED. THE HOMEOWNERS ASSOCIATION IS RESPONSIBLE FOR THE MAINTENANCE OF THESE PRIVATE UTILITY MAINS, SERVICES AND APPURTENANCES.

THE PROPERTY OWNER CERTIFIES THAT THE RULES AS MAY BE ESTABLISHED BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY RELATING TO THE CONSTRUCTION OR PREVENTION OF CONSTRUCTION OF STREETS IN LAND ESTABLISHED AS BEING SUBJECT TO PERIODIC INUNDATION HAVE BEEN FOLLOWED AS APPLICABLE.

THE PROPERTY OWNER CERTIFIES THAT THE RULES AS MAY BE ESTABLISHED BY THE MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES RELATING TO THE PROVISION OF DOMESTIC WATER SUPPLY AND SANITARY SEWER DISPOSAL HAVE BEEN FOLLOWED AS APPLICABLE.

OWNER WARRANTS AND REPRESENTS TO THE CITY OF EL MIRAGE TO BE THE SOLE OWNERS OF THE PROPERTY COVERED AND HEREBY CERTIFIES THAT ANY HOMEOWNERS ASSOCIATION, LENDER, EASEMENT HOLDER OR OTHER PERSON OR ENTITY HAVING AN INTEREST IN SAID PROPERTY HAS CONSENTED TO AND JOINED IN THIS PLAT, AS EVIDENCED BY INSTRUMENTS RECORDED WITH THE MARICOPA COUNTY RECORDERS OFFICE OR WHICH OWNERS WILL RECORD, NOT LATER THAN THE DATE ON WHICH THE PLAT IS RECORDED.

IN WITNESS WHEREOF, PUEBLO EL MIRAGE, LLC, AS OWNER, HAS HEREUNDER CAUSED ITS NAME TO BE SIGNED AND THE SAME TO BE ATTESTED BY THE SIGNATURE OF \_\_\_\_\_ ITS THEREUNTO DULY AUTHORIZED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2021.

BY: \_\_\_\_\_  
BY: PUEBLO EL MIRAGE, LLC., A CALIFORNIA LIMITED LIABILITY COMPANY

**ACKNOWLEDGEMENT**

STATE OF ARIZONA) )SS  
COUNTY OF MARICOPA)

BEFORE ME THIS DAY OF \_\_\_\_\_ OF \_\_\_\_\_, 2021. THAT PERSONALLY APPEARED BEFORE ME, THE UNDERSIGNED NOTARY PUBLIC, WHO ACKNOWLEDGED HIMSELF/HERSELF TO BE THE MANAGING MEMBER OF THE PUEBLO EL MIRAGE, LLC, THE LEGAL OWNER OF THE PROPERTY PLATTED HEREON AND ACKNOWLEDGED THAT HE/SHE AS SUCH, EXECUTED THIS INSTRUMENT FOR THE PURPOSE HEREIN CONTAINED.

IN WITNESS HEREOF: I HEREUNTO SET MY HAND AND OFFICIAL SEAL.

BY: NOTARY PUBLIC \_\_\_\_\_ MY COMMISSION EXPIRES: \_\_\_\_\_

**APPROVAL BY CITY COUNCIL**

APPROVED BY THE COUNCIL OF THE CITY OF EL MIRAGE, ARIZONA, THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2021.

BY: \_\_\_\_\_ ATTEST: \_\_\_\_\_  
MAYOR CITY CLERK

**APPROVAL OF CITY ENGINEER**

DATE ON THIS PLAT REVIEWED AND APPROVED ON THIS DAY \_\_\_\_\_ OF \_\_\_\_\_, 2021. BY THE CITY ENGINEER OF EL MIRAGE, ARIZONA.

\_\_\_\_\_  
CITY ENGINEER DATE:

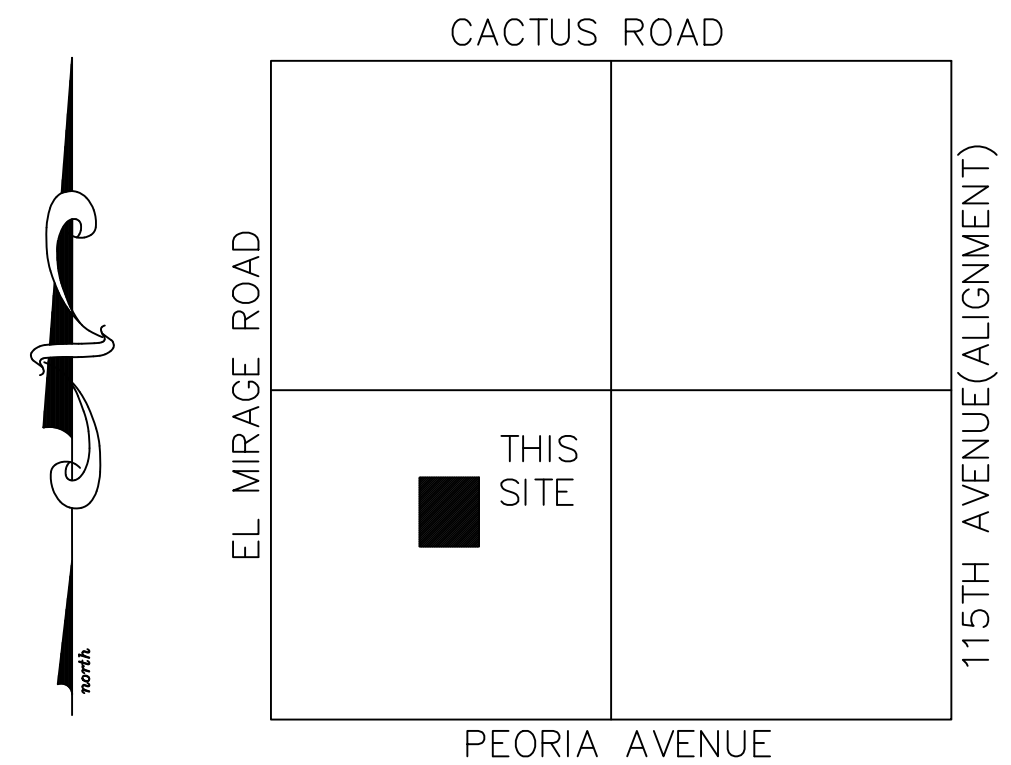
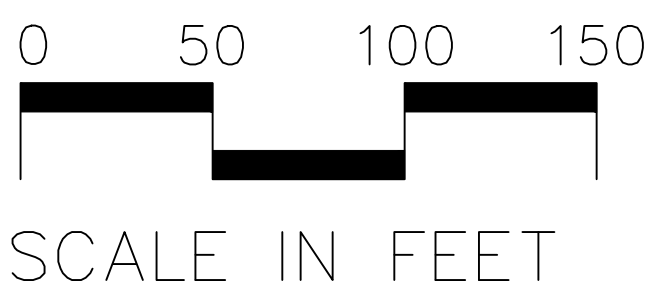
**CERTIFICATE OF COMPLIANCE**

THIS PLAT IS FULL COMPLIANCE WITH THE ORIGINAL PRELIMINARY PLAT APPROVED BY THE CITY OF EL MIRAGE PLANNING AND ZONING COMMISSION ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_, 2021.

THE FINAL PLAT REVIEWED AND APPROVED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2021.

\_\_\_\_\_  
PLANNING AND ZONING COMMISSION CHAIRPERSON

\_\_\_\_\_  
PLANNING DIRECTOR



**SEC. 24 T3N., R1W.  
VICINITY MAP  
N.T.S.**

**BASIS OF BEARING**

THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 24, T3N., R1W ACCORDING TO THE FINAL PLAT OF THE FAIRWAYS RECORDED IN BOOK 775 OF MAPS, PAGE 43 M.C.R. AND PUEBLO R.V. RESORT BOOK 275 OF MAPS, PAGE 45, M.C.R. THE LINE WHICH BEARS SOUTH 00° 01' 19" WEST.

**BENCHMARK**

FOUND 3" MARICOPA COUNTY BRASS CAP FLUSH IN CONCRETE STAMPED 2003 S13 AND S24 RLS #36563. THE NORTH QUARTER OF SECTION 24, T3N., R1W. ELEVATION=1109.555(G.D.A.C.S. PT.# 30783-Z1 NAVD '88 DATUM).

**PERTINENT DOCUMENTS**

- 1.) WARRANTY DEED #2015-0474254 M.C.R.
- 2.) SPECIAL WARRANTY DEED #2009-0817864 M.C.R.
- 3.) FINAL PLAT OF PUEBLO EL MIRAGE RV RESORT RECORDED IN BOOK 275 OF MAPS, PAGE 45 M.C.R.(R1)

**AREA TABLE**

THIS PROPERTY CONTAINS 210,610.5 SQUARE FEET OR 4.835 ACRES MORE OR LESS. LOTS 1-30 ARE ZONING: MP. TRACTS A, B, C ARE FOR RETENTION AND DRAINAGE EASEMENTS.

**FLOOD ZONE**

THIS PROPERTY IS LOCATED ON THE FLOOD INSURANCE RATE MAP(FIRM) ZONE X(SHADED). COMMUNITY NUMBER 040041 MAP NUMBER AND SUFFIX 04013C1680L PANEL NUMBER 1680 EFFECTIVE DATE OF FIRM OCTOBER 16, 2013. AND LOMR 14-09-2966P EFFECTIVE DATE OF FEBRUARY 27, 2015.

**NOTES**

- A. ALL STREETS SHOWN HEREON ARE PRIVATE AND ARE TO BE OWNED AND MAINTAINED BY PUEBLO EL MIRAGE RV HOMEOWNERS ASSOCIATION.
- B. ALL NEW AND EXISTING UTILITY, ELECTRICAL FACILITIES LESS THAN 69 KVA, CABLE T.V., TELECOMMUNICATIONS FIBER OPTICS, CELLULAR, GAS, ETC. SHALL BE INSTALLED UNDERGROUND AS PART OF THE STREET IMPROVEMENTS.
- C. MAINTENANCE OF SURFACE AND UNDERGROUND DRAINAGE FACILITIES WITHIN ALL TRACTS, EASEMENTS AND RIGHTS-OF-WAY SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.
- D. ALL LOT CORNERS SHALL BE MONUMENTED WITH 1/2" REBAR AND CAPPED OR TAGGED BEARING THE REGISTRATION NUMBER OF THE SURVEYOR RESPONSIBLE FOR THEIR PLACEMENT.
- E. SIGNS, FENCES, WALLS, UTILITY BOXES, STRUCTURES, SHRUBS, HEDGES OR OTHER PLANTS, BUT EXCLUDING TREES OVER 30-INCHES IN HEIGHT SHALL NOT BE PERMITTED WITHIN VIEW EASEMENTS OR THE SIGHT DISTANCE TRIANGLES. NO LIMBS, LEAVES, NEEDLES OR OTHER FOLIAGE ABOVE 30-INCHES IN HEIGHT OR BELOW 84-INCHES ARE PERMITTED.
- F. THIS SUBDIVISION IS LOCATED WITHIN THE CITY OF EL MIRAGE SEWER SERVICE AREA.
- G. THIS SUBDIVISION IS LOCATED WITHIN THE VICINITY OF A MILITARY AIRPORT.
- H. THIS SUBDIVISION IS LOCATED IN THE VICINITY OF A DESIGNATED TRUCK ROUTE. EL MIRAGE ROAD, CACTUS ROAD AND PEORIA AVENUE ARE DESIGNATED AS A TRUCK ROUTES BY THE CITY OF EL MIRAGE.
- I. NO STRUCTURE OF ANY KIND SHALL BE CONSTRUCTED, OR ANY VEGETATION BE PLANTED, NOR BE ALLOWED TO GROW WITHIN THE DRAINAGE EASEMENT OR TRACT, WHICH WOULD IMPEDE THE FLOW OF WATER OVER, UNDER, OR THROUGH THE EASEMENT OR TRACT.
- J. NO CONSTRUCTION OF ANY KIND SHALL BE CONSTRUCTED OR PLACED WITHIN THE UTILITY EASEMENTS, EXCEPT UTILITIES, WOOD, WIRE OR REMOVAL SECTION OF FENCING, AND/OR PAVING, NOR ANY PLANTING EXCEPT GRASS.
- K. THIS SUBDIVISION IS LOCATED WITHIN THE CITY OF EL MIRAGE WATER SERVICE AREA AND HAS BEEN DESIGNATED AS HAVING A 100-YEAR ASSURED WATER SUPPLY.

**NOTICE OF MILITARY OVER FLIGHTS**

THIS SUBDIVISION LIES WITHIN THE VICINITY OF A MILITARY AIRPORT AS DESCRIBED IN SECTION 28-8481 OF THE ARIZONA REVISED STATUES AND IS SUBJECT TO DIRECT OVER FLIGHTS AND NOISE BY JET AIRCRAFT. FOR MORE INFORMATION CONTACT LUKE AIR FORCE BASE.

**DEVELOPER**

ROBERTS RESORTS  
6991 EAST CAMELBACK ROAD SUITE C312  
SCOTTSDALE, ARIZONA 85260  
CONTACT: SCOTT ROBERTS  
PHONE: (480)425-8696

**OWNER**

PUEBLO EL MIRAGE, LLC.  
A CALIFORNIA LIMITED LIABILITY COMPANY  
11201 NORTH EL MIRAGE ROAD  
EL MIRAGE, ARIZONA 85335  
CONTACT: SCOTT ROBERTS

**CIVIL ENGINEER**

SKG ENTERPRISES, INC.  
9260 EAST RAINTREE DRIVE SUITE #140  
SCOTTSDALE, ARIZONA 85335  
CONTACT: SHAKIR GUSHGARI, P.E.  
PHONE: (480)998-5600

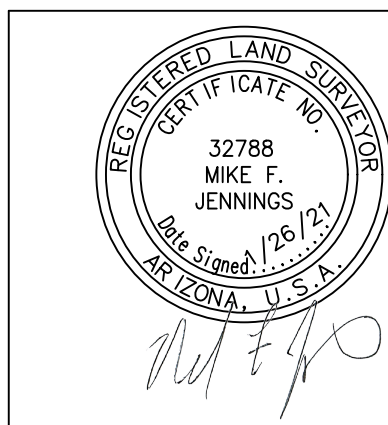
**LAND SURVEYOR**

EXTREME LAND SURVEYING, INC.  
4022 EAST GREENWAY ROAD SUITE #11 PMB #208  
PHOENIX, ARIZONA 85032  
CONTACT: MIKE F. JENNINGS, R.L.S.  
PHONE: (602)574-6171

**PLAT CERTIFICATION**

THIS IS TO CERTIFY THAT THE SUBDIVISION PLAT OF THE PREMISES DESCRIBED AND PLATTED HEREON WAS MADE UNDER MY DIRECTION DURING THE MONTH OF APRIL, 2020. USING SURVEY INFORMATION OBTAINED BY EXTREME LAND SURVEYING, INC., THAT THE PLAT IS TRUE AND COMPLETE AS SHOWN AND THE INFORMATION SHOWN ON THE PLAT IS SUFFICIENT TO ENABLE THE SURVEY TO BE RETRACTED.

*Mike F. Jennings*  
MIKE F. JENNINGS, R.L.S. #32788 1-26-21  
DATE:



**EXTREME LAND SURVEYING, INC.**

4022 EAST GREENWAY ROAD STE. 11 #208 • PHOENIX, ARIZONA 85032  
PHONE 602.574.6171 • PHONE 208.558.0143  
E-MAIL • M3KJENNINGS@GMAIL.COM

DSN: M.J. CKD: M.J. DATE: 4/18/20 SCALE: HORIZ: 1"=50' VERT: N.A.	<b>FINAL PLAT</b> "THE LEGACY" A PORTION OF THE W2, OF SECTION 24, T3N., R1W. G.&S.R.B.&M. MARICOPA COUNTY, ARIZONA	JOB# 5677-P SHEET 1 of 2
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# FINAL PLAT "THE LEGACY"

A PORTION OF TRACTS G, I AND J AND LOTS 1283 THRU 1359, INCLUSIVE OF PUEBLO EL MIRAGE R.V. RESORT, BOOK 275 OF MAPS, PAGE 45, M.C.R.  
LOCATED IN A PORTION OF THE WEST HALF OF SECTION 24, TOWNSHIP 3 NORTH, RANGE 1 WEST, OF THE  
GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA

NW COR., SECTION 24  
BRASS CAP IN  
A HAND HOLE

S0°01'19"W 2637.84'  
BASIS OF BEARING\*

W4, SECTION 24  
BRASS CAP IN  
A HAND HOLE

S0°00'16"W 2637.18'

SW COR., SECTION 24  
BRASS CAP IN  
A HAND HOLE

LINE TABLE		
LINE	DIRECTION	DISTANCE
L1	S51°37'31"E	26.75'
L2	N42°00'00"W	8.72'
L3	N42°00'00"W	44.00'
L4	N42°00'00"W	16.20'
L5	N47°47'33"E	24.32'
L6	N48°00'00"E	5.59'
L7	S27°00'00"E	63.27'
L8	S27°00'00"E	60.05'
L9	S27°00'00"E	5.38'
L10	S48°00'00"W	14.00'
L11	S48°00'00"W	14.00'
L12	S42°00'00"E	48.00'

CURVE TABLE				
CURVE #	RADIUS	LENGTH	DELTA	TANGENT
C1	164.00'	57.28'	20°00'47"	28.94
C2	164.00'	25.97'	9°04'27"	13.01
C3	164.00'	15.61'	5°27'14"	7.81
C4	164.00'	54.92'	19°11'17"	27.72
C5	164.00'	54.92'	19°11'17"	27.72
C6	164.00'	75.34'	26°19'19"	38.35
C7	164.00'	13.88'	4°50'53"	6.94
C8	172.00'	79.02'	26°19'19"	40.22
C9	19.80'	31.10'	90°00'00"	19.80
C10	244.00'	20.65'	4°50'53"	10.33
C11	244.00'	81.71'	19°11'17"	41.24
C12	244.00'	81.71'	19°11'17"	41.24
C13	244.00'	23.23'	5°27'14"	11.62
C14	244.00'	38.64'	9°04'27"	19.36
C15	244.00'	65.33'	15°20'29"	32.86
C16	164.00'	11.66'	4°04'20"	5.83
C17	136.00'	43.10'	18°09'35"	21.73
C18	164.00'	36.42'	12°43'32"	18.29
C19	164.00'	15.55'	5°26'03"	7.78
C20	136.00'	8.29'	3°29'39"	4.15

CURVE TABLE				
CURVE #	RADIUS	LENGTH	DELTA	TANGENT
C21	136.00'	69.54'	29°17'55"	35.55
C22	15.00'	19.73'	75°22'00"	11.59
C23	15.00'	23.56'	90°00'00"	15.00
C24	19.80'	31.10'	90°00'00"	19.80
C25	66.50'	39.08'	33°40'19"	20.12
C26	19.80'	31.10'	90°00'00"	19.80
C27	15.00'	23.56'	90°00'00"	15.00
C28	15.00'	27.49'	105°00'00"	19.55
C29	136.00'	60.10'	25°19'13"	30.55
C30	136.00'	91.04'	38°21'14"	47.30
C31	19.80'	31.10'	90°00'00"	19.80
C32	136.00'	26.88'	11°19'33"	13.49

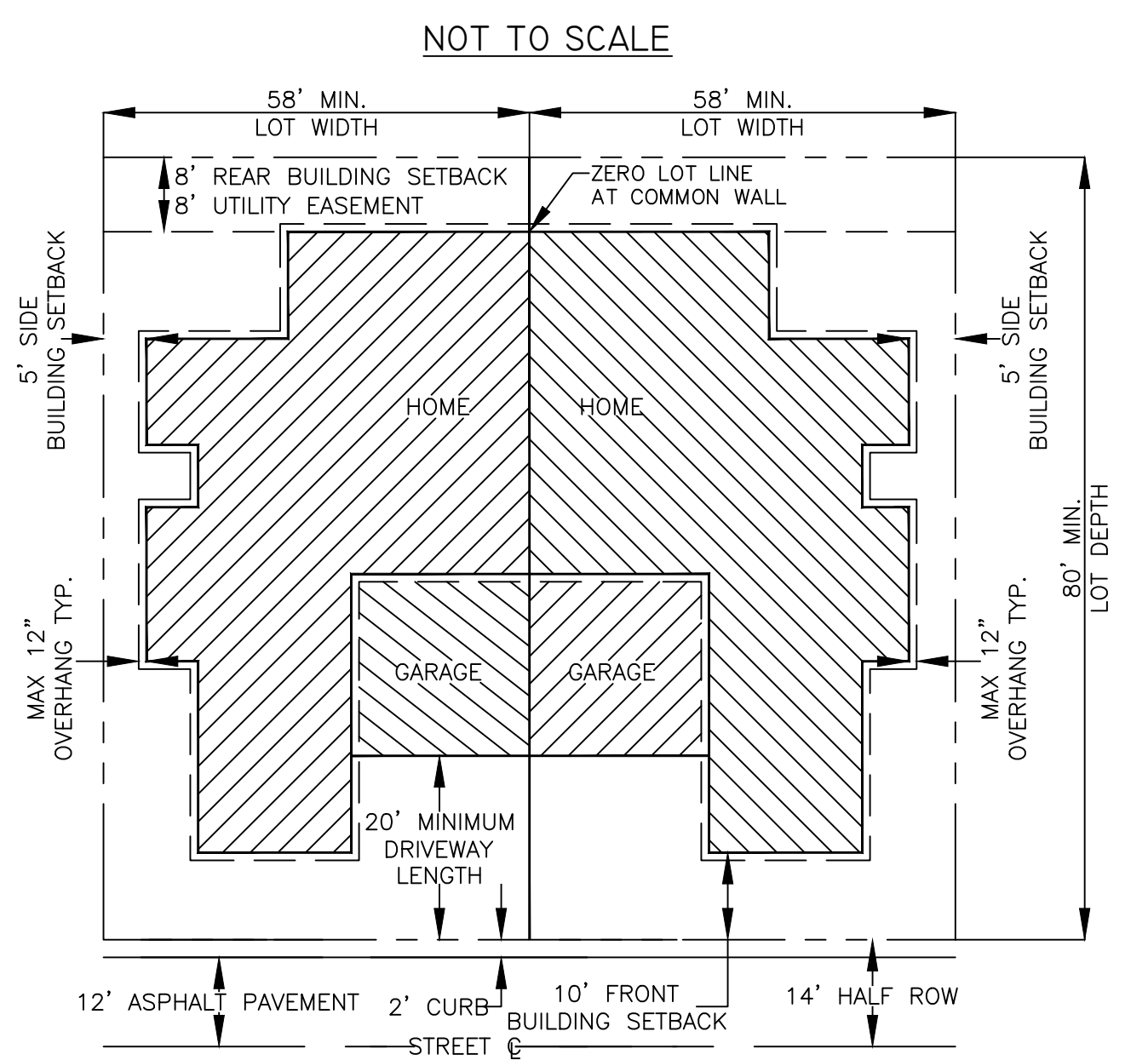
AREA TABLE		
LOT #	SQ. FT.	AC.
LOT 1	4,902.87	0.11
LOT 2	5,026.04	0.12
LOT 3	4,640.00	0.11
LOT 4	4,640.00	0.11
LOT 5	4,870.02	0.11
LOT 6	5,465.51	0.13
LOT 7	5,465.51	0.13
LOT 8	5,560.08	0.13
LOT 9	6,700.16	0.15
LOT 10	5,440.00	0.12
LOT 11	4,640.00	0.11
LOT 12	4,640.00	0.11
LOT 13	4,640.00	0.11
LOT 14	4,640.00	0.11
LOT 15	4,640.00	0.11
LOT 16	4,640.00	0.11
LOT 17	5,165.93	0.12
LOT 18	5,163.50	0.12
LOT 19	4,591.71	0.11
LOT 20	4,640.00	0.11
LOT 21	4,640.00	0.11
LOT 22	4,923.01	0.11
LOT 23	4,640.00	0.11
LOT 24	4,640.00	0.11
LOT 25	4,965.78	0.11
LOT 26	4,640.00	0.11
LOT 27	4,640.00	0.11
LOT 28	5,118.32	0.12
LOT 29	5,474.87	0.13
LOT 30	6,601.61	0.15
TRACT A	15,992.3	0.37
TRACT B	1,217.69	0.03
TRACT C	2,197.74	0.05



N4 COR., SECTION 24  
BRASS CAP FLUSH

N0°06'35"E 5258.17'

S4 COR., SECTION 24  
FD 1/2" REBAR AC L.S. 30563

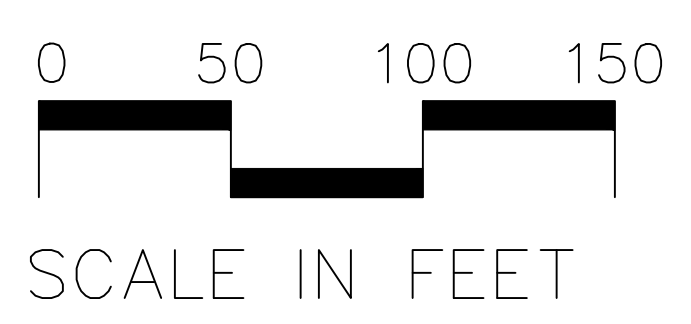


## ZERO LOT LINE SETBACK EXHIBIT

### LEGEND

- MONUMENT TO BE SET
- PROPERTY CORNER TO BE SET 1/2" REBAR L.S.# 32788
- BCF BRASS CAP FLUSH
- BCHH BRASS CAP HAND HOLE
- SECTION LINE
- CENTER LINE
- SUBDIVISION BOUNDARY
- RIGHT OF WAY LINE
- PROPERTY LINE
- - - EASEMENT LINE

- |                                  |           |
|----------------------------------|-----------|
| ASSESSORS PARCEL NUMBER          | APN       |
| MARICOPA COUNTY RECORDS          | MCR       |
| MEASURED                         | (M)       |
| RECORD                           | (R)       |
| CALCULATED                       | (C)       |
| RIGHT-OF-WAY                     | ROW       |
| EASEMENT                         | ESMT      |
| DRAINAGE EASEMENT                | DE        |
| WATER AND SEWER EASEMENT         | W&S ESMT. |
| SIGHT VISIBILITY TRIANGLE        | SVE       |
| 1' VEHICULAR NON-ACCESS EASEMENT | VNAE      |



**EXTREME LAND SURVEYING, INC.**  
4022 EAST GREENWAY ROAD STE. 11 #208 PHOENIX, ARIZONA 85032  
PHONE 602.574.6171 • PHONE 208.558.0143  
E-MAIL: M3KJENNINGS@GMAIL.COM

DSN: M.J. CKD: M.J. DATE: 4/18/20	FINAL PLAT "THE LEGACY" A PORTION OF THE W2 OF SECTION 24, T3N., R1W, G.&S.R.B.&M. MARICOPA COUNTY, ARIZONA	JOB# 5677-P SHEET 2 OF 2
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**PUEBLO EL MIRAGE: THE LEGACY  
DRAINAGE REPORT ADDENDUM**

Prepared for:  
Pueblo El Mirage RV Resort  
8350 E. Raintree Drive, Suite 220  
Scottsdale, AZ 85260  
(480) 425-8696



SKG Project # 127-9

Prepared by:

**SKG Enterprises, Inc.**  
9260 East Raintree Drive, Suite 140  
Scottsdale, Arizona 85260  
Phone (480) 998-5600  
Fax (480) 998-5603

MAY 2020

## TABLE OF CONTENTS

EXPLANATION OF THE LEGACY ADDENDUM .....	1
INTRODUCTION.....	2
FLOOD INSURANCE RATE MAP .....	6
OFFSITE DRAINAGE.....	6
ONSITE DRAINAGE.....	6

### EXHIBITS

Exhibit 1	General Vicinity Map
Exhibit 2	“The Legacy” Vicinity Map
Exhibit 3	“The Legacy” Close Up Map

### APPENDICES

Appendix A	FEMA FIRMette
Appendix B	Drainage Exhibit



## EXPLANATION OF THE LEGACY ADDENDUM

The proposed “Legacy” residential community within the master planned community of Pueblo El Mirage RV Resort consists of 29 lots (141,218 square feet) and 40,736 square feet of roadway (including 4” roll curbs). The purpose of this drainage report addendum is to determine the change in stormwater capacity due to the proposed development, delineate the management of stormwater flow within the proposed development, determine the hydraulic capacity of the proposed onsite retention basin and adjacent wash the onsite stormwater will discharge to, and determine the hydraulic capacity of the proposed roadway within “The Legacy” development and its ability to convey the hydraulic stormwater load.

The total area of the lots impacted by the proposed development totals 181,954 S.F. (4.18 Ac.) and constitutes a total **24.77 CFS** 100-year event and a **15.52 CFS** 10-year event to the hydraulic requirements, split the proposed “onsite basin 1” and the existing wash located directly adjacent to the southwestern boundary of the proposed development:

$$Q = C_w * i * A$$

Where:

$$Q_{100,10} = \text{Peak Discharge (CFS)}$$

$$i_{100} = 7.5 \text{ in/hr (100 - year event)}$$

$$i_{10} = 4.7 \text{ in/hr (10 - year event)}$$

$$A = 4.18 \text{ Ac. (Net Area of Parcel, in Acres)}$$

$$C_{w,post} = 0.79 \text{ (Weighted Runoff Coefficient)}$$

$$C_{w,pre} = 0.50 \text{ (Weighted Runoff Coefficient)}$$

$$Q_{100-post} = (7.5 \text{ in/hr})(4.18 \text{ ac.})(0.79) = \mathbf{24.77 \text{ CFS (100 - yr event)}}$$

$$Q_{10-post} = (4.7 \text{ in/hr})(4.18 \text{ ac.})(0.79) = \mathbf{15.52 \text{ CFS (10 - yr event)}}$$

$$Q_{100-pre} = (7.5 \text{ in/hr})(4.18 \text{ ac.})(0.50) = \mathbf{15.68 \text{ CFS (100 - yr event)}}$$

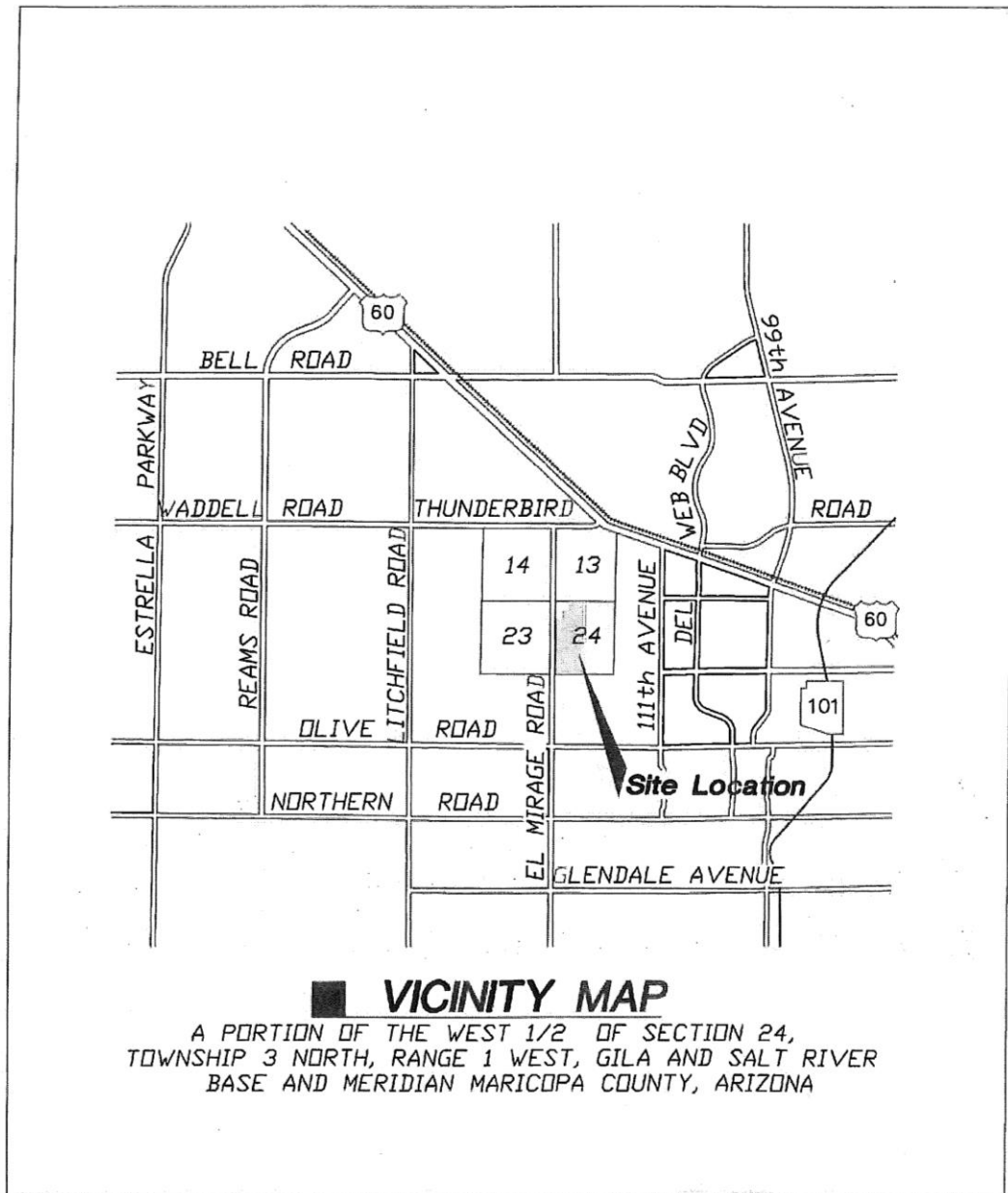
$$Q_{10-pre} = (4.7 \text{ in/hr})(4.18 \text{ ac.})(0.50) = \mathbf{9.82 \text{ CFS (10 - yr event)}}$$

As it can be seen, the proposed developments constitute an increase of **9.09 CFS** and **5.70 CFS** for the 100-yr and 10-yr events, respectively, compared to their current conditions. No other deviations have been made from the original approved master drainage report aside from the grading revisions and related onsite stormwater flow calculations.

## **INTRODUCTION**

This report is prepared in partial fulfilment of the improvement plans' submittal requirement for the proposed subdivision development of "The Legacy", within the existing master planned community of Pueblo El Mirage RV Resort in El Mirage, Arizona. The proposed development to the master planned community consists of 29 lots to the south of the intersection of W. 17<sup>th</sup> Avenue and N. Park Place. This proposed subdivision development legally falls within a portion of the northwest quarter of Section 24, Township 3 North, Range 1 West, of the Gila and Salt River base and meridian, Maricopa County, Arizona, as recorded in Book 775 of Maps, Page 43 of Maricopa County Records.

The purpose of this report is to present the proposed design and drainage concepts of the proposed addition of "The Legacy" development within the existing master planned community. Approximately 1310 linear feet of additional roadway is proposed in "The Legacy" development, and subsequent sections will show that the proposed roadway system's hydraulic capacity is sufficient to handle the hydraulic capacity requirements of the proposed development. Lots 5-18 will drain under towards the back of the lots and directly into "Lower El Mirage Wash" or the adjacent existing waterway. Lots 1-4, Lots 19-29, and the proposed roadway will all drain to along the proposed roadway and within the hydraulic capacity of the road to the southwestern portion of the proposed development, ultimately discharging at two points into the "Lower El Mirage Wash", as the site does under current undisturbed conditions. The following pages present the general and close up location exhibits for "The Legacy" proposed development.



**PUEBLO EL MIRAGE  
GOLF & RV RESORT  
A PLANNED AREA DEVELOPMENT  
VICINITY MAP**

**Exhibit 1**  
(General Vicinity Map)



**Exhibit 2**

“The Legacy” Vicinity Map

Red outline delineates “The Legacy” development area.



**Exhibit 3**

“The Fairways II” Close-Up Map

Red line delineates location of 29 proposed lots within “The Fairways II”.

## **FLOOD INSURANCE RATE MAP**

The Legacy development segment is located within Zone X as shown on FEMA Flood Insurance Rate Map (FIRM) per Flood Insurance Rate Map (FIRM) number 040131C1680 L dated October 16, 2013, and updated on February 27, 2015 (See Appendix A: FEMA FIRMette). Zone X is defined as “Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot of with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood”.

It should be noted that a flood-hazard designated flood “AE” zone (Lower El Mirage Wash) is located to the southwest of “The Legacy” proposed lots 10 to 18 (see Appendix A).

## **OFFSITE DRAINAGE**

The portion of land being developed is bounded fully by “S. Park Place” and existing lotting to the northwest, an existing golf course to the northeastern and southeastern boundaries of the proposed development, and by “Lower El Mirage Wash” and the subsequent “Creekside” development area to the southwestern portion of the development boundary. All offsite flows in this area have been addressed under the previous master drainage report, and the proposed grading design does not deviate from the original design – only the “weighted runoff coefficient” for the proposed development area has change, slightly increasing the stormwater flow that the system will experience (calculations shown in subsequent sections).

## **ONSITE DRAINAGE**

The proposed lots within “The Legacy” development are designed to drain one of two ways: (1) front-drainage towards the proposed roadway, to be carried within the hydraulic capacity of the roadway and ultimately discharged into “Lower El Mirage Wash” at two discharge points, or (2) back-drainage towards existing waterways which can handle the additional hydraulic load without modification. Of the proposed lots, lots 5-19 have been designed under the back-draining concept, while the remainder of the lots are designed under the front-draining concept (see Appendix B: Drainage Exhibit). The rational equation was used to determine the increase in onsite stormwater volume due to the proposed development of “The Legacy” community, as shown below:

$$Q = C_w * i * A$$

Rainfall intensity values were obtained from Figure 9-4 of the Maricopa County Hydrology Manual for both the 100-year and the 10-year stormwater events. Time of concentration values ( $T_c$ ) were obtained using Kirpich's formula, as follows:

$$T_c = 0.0078 \left( L^{0.77} / S^{0.385} \right)$$

Where:

$$T_c = \text{Time of Concentration (min)}$$

$$L = \text{Travel Length (ft)} = 565 \text{ ft}$$

$$S = \text{Average Slope (ft/ft)} = 0.0055$$

Through Kirpich's formula, a value of 7.61 minutes for the time of concentration was calculated, and a conservative value of 7 minutes was then used in figure 9.4 of the Maricopa County Hydrology manual, resulting in intensity values for the 100-year and 10-year stormwater events of 7.5 in/hr and 4.7 in/hr, respectively. Of the 29 proposed lots, 15 of them (70,171 SF) are front-draining lots contributing to the street hydraulic capacity. The following calculations take into account the 16 front-draining lots (70,171 SF) and 40,736 square feet of roadway (including 4" roll curbs).

Pre-Development Conditions:

$$Q_{100} = (7.5 \text{ in/hr})(2.55 \text{ ac.})(0.50) = \mathbf{9.56 \text{ CFS (100 - yr event)}}$$

$$Q_{10} = (4.7 \text{ in/hr})(2.55 \text{ ac.})(0.50) = \mathbf{5.99 \text{ CFS (10 - yr event)}}$$

Post-Development Conditions:

$$Q_{100} = (7.5 \text{ in/hr})(2.55 \text{ ac.})(0.79) = \mathbf{15.11 \text{ CFS (100 - yr event)}}$$

$$Q_{10} = (4.7 \text{ in/hr})(2.55 \text{ ac.})(0.79) = \mathbf{9.47 \text{ CFS (10 - yr event)}}$$

Post- and Pre-Development Difference:

$$\Delta Q_{100} = 15.11 \text{ CFS} - 9.56 \text{ CFS} = \mathbf{5.55 \text{ CFS (100 - yr event)}}$$

$$\Delta Q_{10} = 9.47 \text{ CFS} - 5.99 \text{ CFS} = \mathbf{3.48 \text{ CFS (10 - yr event)}}$$

Therefore, the proposed developments for the roadway and the front-draining lots will contribute a maximum of 5.55 CFS addition of stormwater flow to the stormwater system ultimately discharging to the “Lower El Mirage Wash” system, as it currently does under current conditions.

Proposed lots 5 to 18 will also follow the current drainage pattern by following the back-drainage concept and ultimately discharging to the existing wash/waterways that they do under current undisturbed conditions. The same rainfall intensity values used to calculate stormwater discharge from the previous calculations were also used for calculations of back-draining lots 5-18 (71,047 SF). As the undeveloped area currently drains onsite stormwater under the same conditions, the increase to the “Lower El Mirage Wash” and subsequent basins is minimal, as calculated below using the rational method formula for the peak discharge:

$$Q = i * A * C_W$$

Pre-Development Conditions:

$$Q_{100} = (7.5 \text{ in/hr})(1.63 \text{ ac.})(0.50) = \mathbf{6.11 \text{ CFS (100 - yr event)}}$$

$$Q_{10} = (4.7 \text{ in/hr})(1.63 \text{ ac.})(0.50) = \mathbf{3.83 \text{ CFS (10 - yr event)}}$$

Pre-Development Conditions:

$$Q_{100} = (7.5 \text{ in/hr})(1.63 \text{ ac.})(0.79) = \mathbf{9.66 \text{ CFS (100 - yr event)}}$$

$$Q_{10} = (4.7 \text{ in/hr})(1.63 \text{ ac.})(0.79) = \mathbf{6.05 \text{ CFS (10 - yr event)}}$$

Post- and Pre-Development Difference:

$$\Delta Q_{100} = 9.66 \text{ CFS} - 6.11 \text{ CFS} = \mathbf{3.55 \text{ CFS (100 - yr event)}}$$

$$\Delta Q_{10} = 6.05 \text{ CFS} - 3.83 \text{ CFS} = \mathbf{2.22 \text{ CFS (10 - yr event)}}$$

Therefore, the proposed developments for the back-draining lots will contribute a maximum of 3.55 CFS addition of stormwater flow to the stormwater system ultimately discharging to the “Lower El Mirage Wash” system, as it currently does under current conditions.

# **APPENDIX A**

**FEMA FIRMette**

# National Flood Hazard Layer FIRMette



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

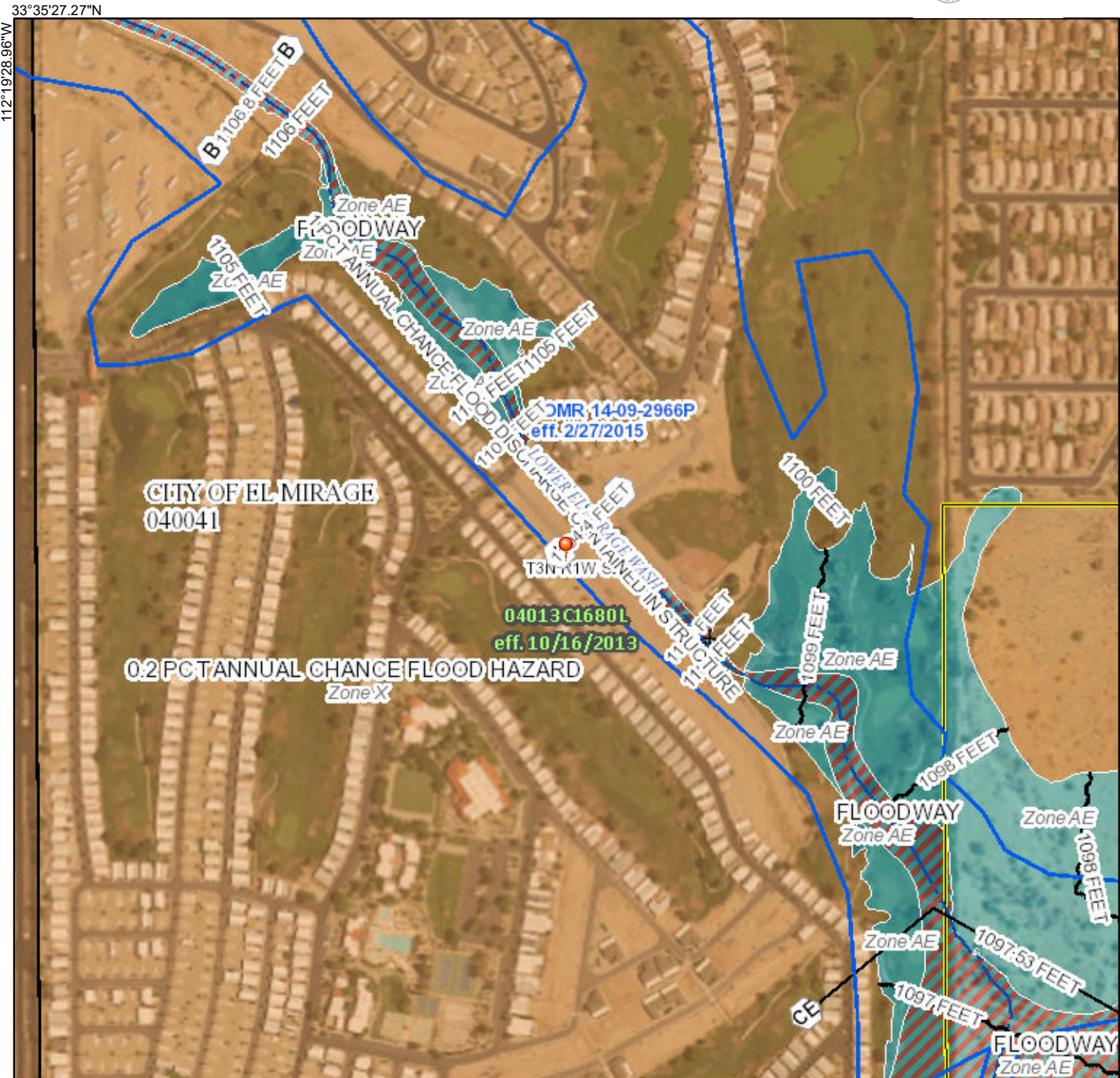


The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/22/2020 at 12:30:25 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



33°35'27.27"N  
112°19'28.96"W



33°34'57.30"N  
112°18'51.51"W

# **APPENDIX B**

## **Drainage Exhibit**



**WASTEWATER (SEWER) COLLECTION SYSTEM  
BASIS OF DESIGN REPORT**

For  
**The Legacy  
Pueblo El Mirage RV Resort**

Prepared By:  
SKG Enterprises, Inc.  
9260 E. Raintree Drive  
Suite 140  
Scottsdale, Arizona 85260

April 2020



## TABLE OF CONTENTS

1.0	INTRODUCTION .....	1
2.0	PROPOSED WASTEWATER COLLECTION SYSTEM .....	2
3.0	ESTIMATED PEAK DISCHARGE .....	2
4.0	CONCLUSIONS.....	3

## EXHIBITS

EXHIBIT	DESCRIPTION
1	Parcel Location Map
2	Hydraulic Calculation
3	The Legacy Sewer Design Layout

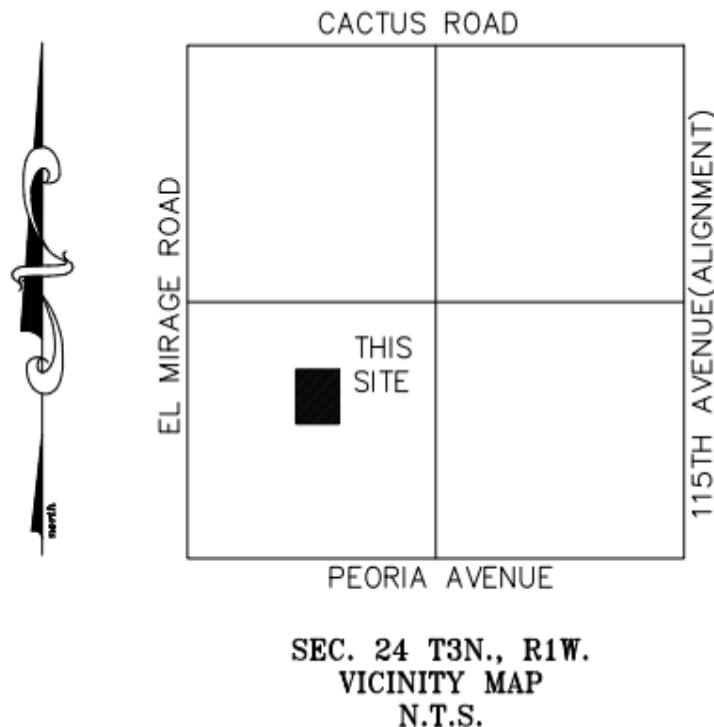
APPENDIX	DESCRIPTION
A	COEM Collection System Design Criteria



## 1.0 INTRODUCTION

This wastewater (sewer) basis of design (BOD) report is generated in order to analyze the proposed sanitary sewer system described herein. The purpose of this proposed sanitary sewer system is to provide wastewater services to the 29 lots within the property known as “The Legacy” within the master planned community of Pueblo El Mirage RV Resort as recorded in Book 275, Page 45, of Maricopa County Recorder Office, Maricopa County, Arizona. This “Legacy” project is approximately 4.85-acre in size and falls within the City of El Mirage Quarter Section map number 20-02. A parcel location map is given in “Exhibit 1” below.

Currently there is no wastewater generated from the above described parcel. The proposed sewer system involves the addition of 1,358’ of 8” (PVC-SDR-35) of sewer line material to ultimately tie-in to an existing manhole located adjacent to the northwest corner of the project parcel. As such, this wastewater (sewer) BOD report is generated in support of the proposed development of the Legacy project as shown in Exhibit 3 of this report, labeled, “The Legacy Sewer Design Layout”.



**Exhibit 1 – Parcel Location Map**

## 2.0 PROPOSED WASTEWATER COLLECTION SYSTEM

The existing sewer manhole to tie into is located within the adjacent roadway (Park Place) just northwest of the parcel. This existing manhole ties into an 8” PVC sewer line with the following existing data:

### Existing Manhole (Southeastern section within APN 501-86-408A)

1. Existing manhole Rim Elevation 1106.23
2. Existing manhole Flow Line Elevation (E) 1097.08
3. Existing Manhole depth 9.15 feet
4. Existing Sewer Line Size 8-inch in diameter

(NOTE: the above existing data is based on site topographic data provided by Extreme Land Surveying, LLC on April 2020)

The proposed sewer line consists of (1) 1,358’ of 8-inch diameter PVC-SDR-35 material sloping at a minimum of 0.33%, (2) 7-each of 4” sewer cleanouts, (3) 29-each of 4” sewer tab services and (4) 5-each of 4’ diameter manholes. The line will be designed to attain a minimum scouring velocity of 2.0 feet-per-second (fps) when flowing full (d/D = 0.65) at a minimum slope rate of 0.33%. Once the proposed Sewer plans are city approved, it is the intent that construction activity will commence shortly thereafter.

## 3.0 ESTIMATED PEAK DISCHARGE

The estimated wastewater generation from the subject development (29 residential lots) is estimated based on the parameters shown in the table below.

Land use	Person/ House Hold	Average Daily Flow/ House Hold	Total Average Daily Flow	Peak Factor	Peak Flow/ House Hold	Total Peak Flow (dry)	Wet Weather Factor	Total Peak Flow (wet)
Residential	3.4	210 gpd	6,090 gpd	4.0	840 gpd	24,360 gpd	1.17	28,501 gpd

gpd: gallons per day

It should be noted that the proposed 8" line capacity exceeds both the estimated total average daily flow and the estimated total peak flow generated from the contributing 29 lots into this sewer system. Exhibit 2 presents hydraulic calculation of the proposed 8" sewer line with the estimated total average daily flow of 6,090 gpd (or 0.01 CFS), the estimated total peak flow (dry) of 24,360 gpd (or 0.04 CFS), the estimated total peak flow (wet) of 28,501 gpd (or 0.04 CFS, used 0.05 CFS to be conservative), and the flow at maximum volume ( $d/D=0.65$ ).

City of El Mirage requirements state dry weather peak flow must not exceed a  $d/D$  of 0.50 and wet weather peak flow must not exceed a  $d/D$  of 0.90. Under the proposed design, dry weather peak flow  $d/D = 0.16$ , and wet weather peak flow  $d/D = 0.19$ , both of which are well within the maximum limits set forth by the City of El Mirage.

The proposed Sewer Design Layout concept for The Legacy is shown in Exhibit 3 of this report.

#### **4.0 CONCLUSIONS**

- The project is located in City of El Mirage corporate limit.
- The proposed sewer system is designed in accordance with the City of El Mirage and Policies and designed to be composed of 8-inch diameter pipe of a PVC, SDR-35 material with a minimum slope rate of 0.33%.

**Exhibit 2**  
*Hydraulic Calculations*

# Channel Report

## Average Daily Flow

## 8", 6,510 GPD

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Tuesday, Apr 21 2020

### <Name>

#### Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1000.00

Slope (%) = 0.33

N-Value = 0.013

#### Calculations

Compute by: Known Q

Known Q (cfs) = 0.01

#### Highlighted

Depth (ft) = 0.06

Q (cfs) = 0.010

Area (sqft) = 0.02

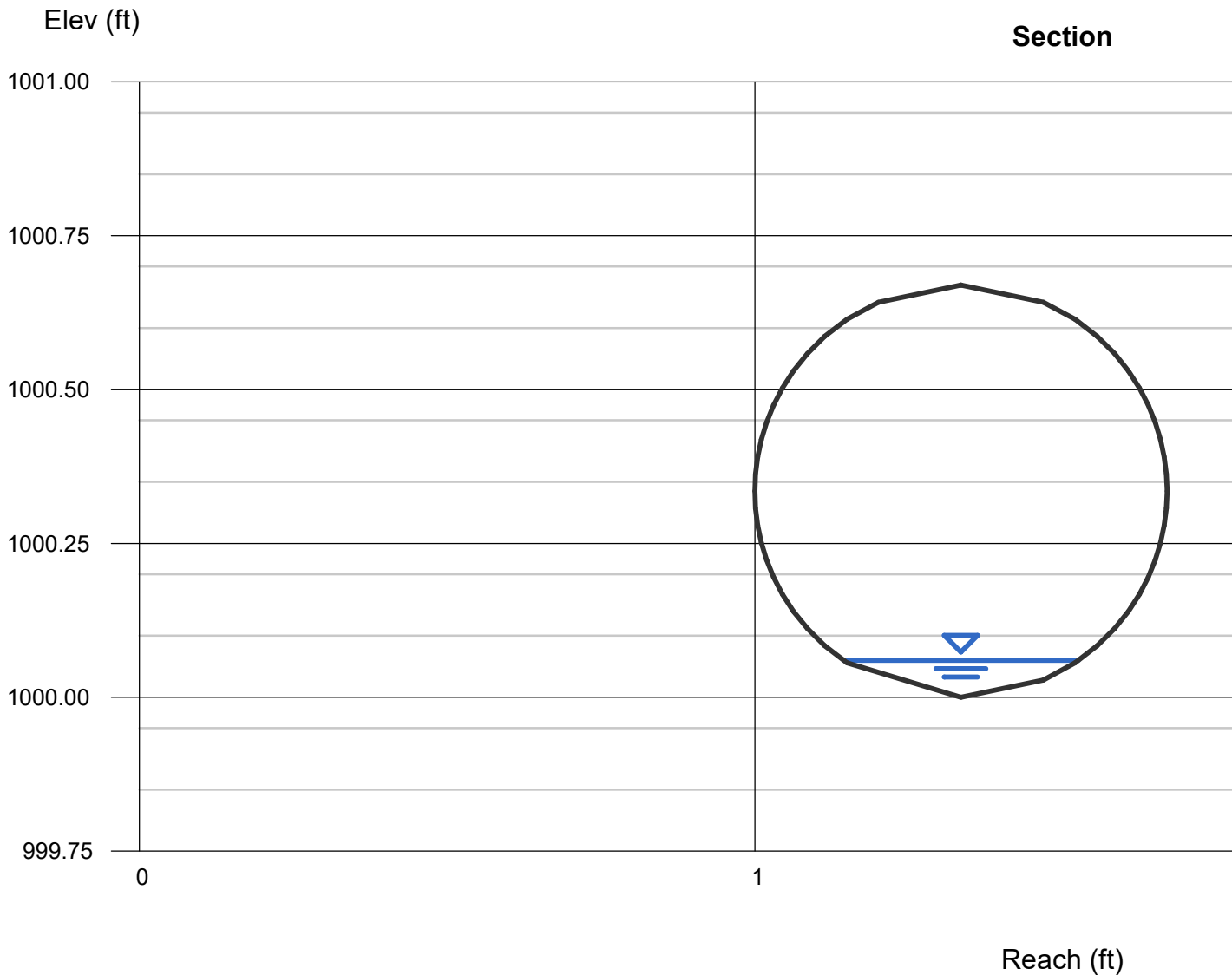
Velocity (ft/s) = 0.63

Wetted Perim (ft) = 0.41

Crit Depth, Yc (ft) = 0.05

Top Width (ft) = 0.38

EGL (ft) = 0.07



# Channel Report

Total Peak (Dry)

8", 26,040 GPD

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Tuesday, Apr 21 2020

## <Name>

### Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1000.00

Slope (%) = 0.33

N-Value = 0.013

### Calculations

Compute by: Known Q

Known Q (cfs) = 0.04

### Highlighted

Depth (ft) = 0.11

Q (cfs) = 0.040

Area (sqft) = 0.04

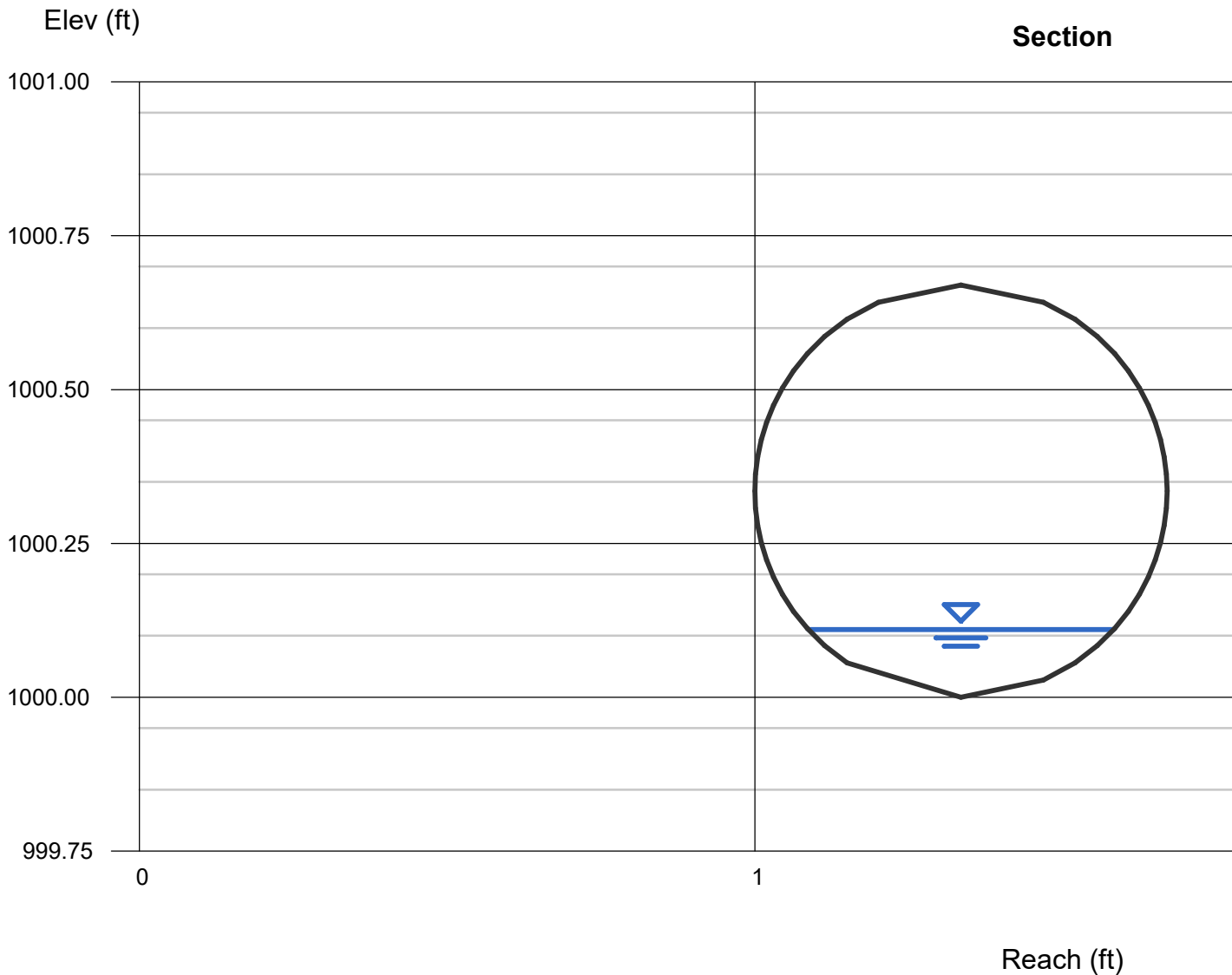
Velocity (ft/s) = 1.06

Wetted Perim (ft) = 0.56

Crit Depth, Yc (ft) = 0.09

Top Width (ft) = 0.50

EGL (ft) = 0.13



# Channel Report

Total Peak (Wet)

8", 30,467 GPD

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Tuesday, Apr 21 2020

## <Name>

### Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1000.00

Slope (%) = 0.33

N-Value = 0.013

### Calculations

Compute by: Known Q

Known Q (cfs) = 0.05

### Highlighted

Depth (ft) = 0.13

Q (cfs) = 0.050

Area (sqft) = 0.05

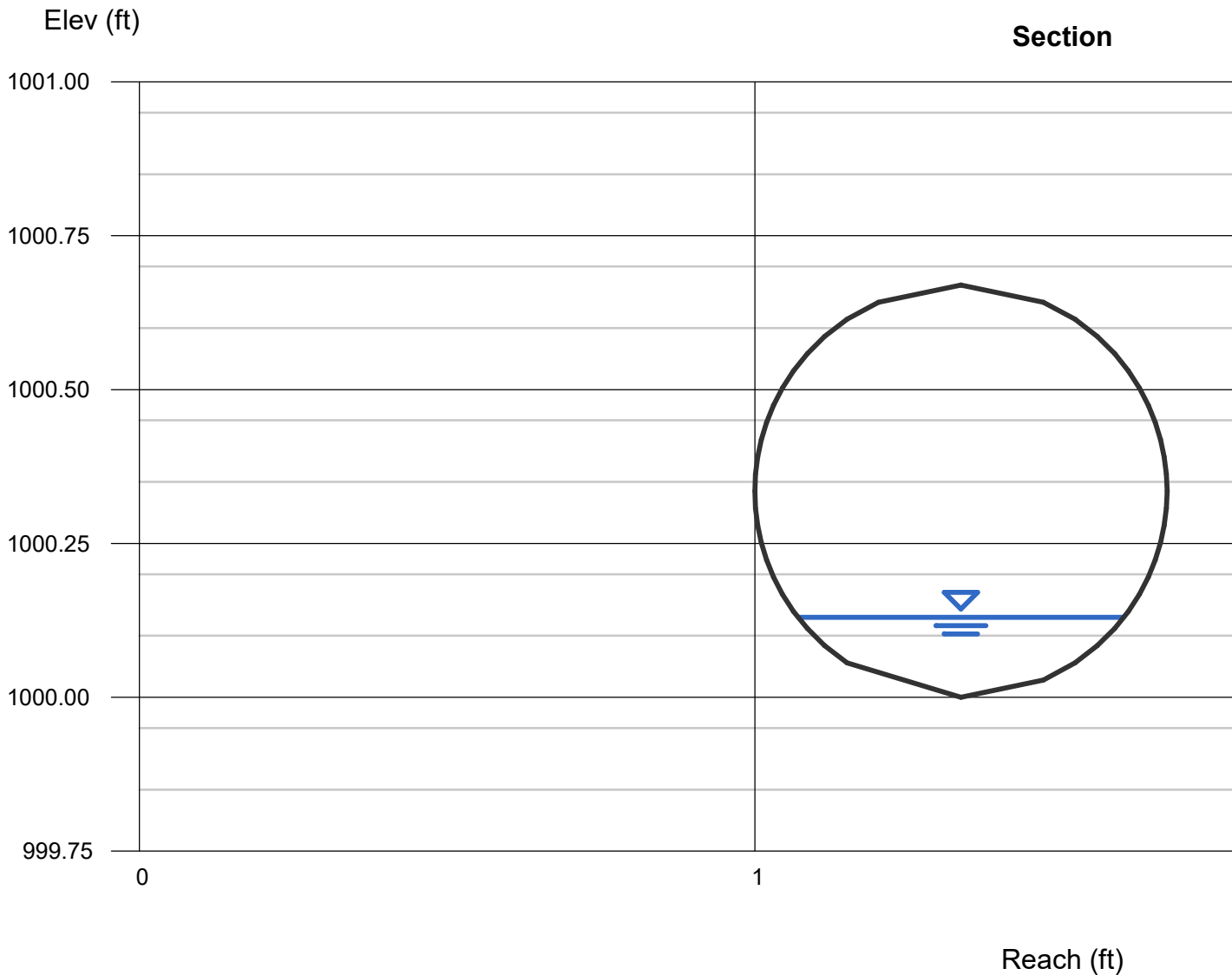
Velocity (ft/s) = 1.03

Wetted Perim (ft) = 0.61

Crit Depth, Yc (ft) = 0.11

Top Width (ft) = 0.53

EGL (ft) = 0.15



# Channel Report

Max Volume

8", d/D=0.65

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc.

Tuesday, Apr 21 2020

## <Name>

### Circular

Diameter (ft) = 0.67

Invert Elev (ft) = 1000.00

Slope (%) = 0.33

N-Value = 0.013

### Calculations

Compute by: Known Depth

Known Depth (ft) = 0.44

### Highlighted

Depth (ft) = 0.44

Q (cfs) = 0.540

Area (sqft) = 0.25

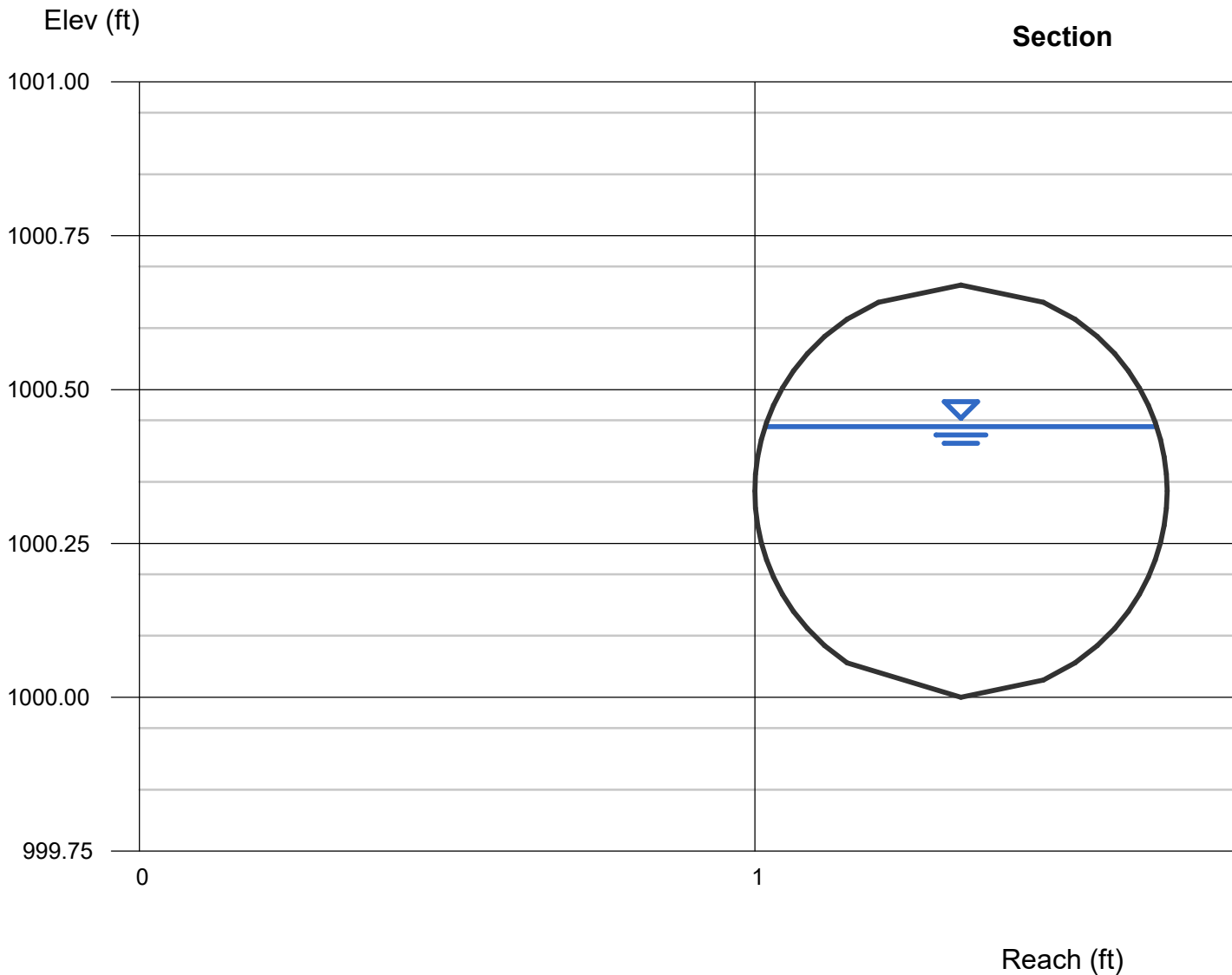
Velocity (ft/s) = 2.20

Wetted Perim (ft) = 1.27

Crit Depth, Yc (ft) = 0.35

Top Width (ft) = 0.64

EGL (ft) = 0.52



**Exhibit 3**  
*Legacy Sewer Design Layout*



**Appendix A**  
*COEM Collection System*  
*Design Criteria*

**TABLE 4-9: COLLECTION SYSTEM DESIGN CRITERIA SUMMARY**

PARAMETER	CRITERIA
<b>Flow Velocity in feet per second (fps)</b> Gravity Mains	2 fps $\leq$ V $\leq$ 6 fps* <i>*For controlling odors</i> Maximum of 8 fps
Force Mains	3 fps $\leq$ V $\leq$ 7 fps
<b>Flow Depth, d/D (for dry weather peak hour flows)</b> d/D for new sewers with diameters less than 10 inches d/D for new sewers with diameters above 12 inches	0.50 0.75 (A.A.C. R18-9-E301.D.e.iii)
<b>Peaking Factors (See Section 4.4.1)</b> Dry Weather Peak Factors (Applied to Average Flows) Wet Weather Peak Factors (Applied to Peak Flows)	Per A.A.C. R18-9-E301-D 1.17
<b>Flow Depth, d/D (for wet weather peak hour flows)</b> d/D for designing new sewer pipes d/D for evaluating existing pipes in developed areas	<0.90 <1.00
<b>Headloss in Existing Pipes</b> Gravity Pipes Pressure Pipes	Manning's n = 0.013 Hazen Williams's C = 120
<b>Changes in Pipe Size</b> When smaller sewer joins a larger one	Sewer crowns will be matched
<b>Headloss at Manholes</b> Manholes with pipelines intersecting at $\geq$ 90 degrees Manholes with pipelines intersecting at < 90 degrees	Provide 0.2' Invert Drop Provide 0.1' Invert Drop

#### 4.4.2 Peaking Factors

For sewer collection system planning, dry weather peaking factors were applied to the projected average day sewer flows. Peaking factor equations were obtained from the Arizona Administrative Code Section R18-9-E301-D. **Table 4-10** briefly summarizes the peaking factors equations utilized.

<b>TABLE 4-10: PEAKING FACTORS FOR COLLECTION SYSTEM DESIGN</b>	
<b>Upstream Population</b>	<b>Dry Weather Peaking Factor</b>
100	3.62
200	3.14
300	2.90
400	2.74
500	2.64
600	2.56
700	2.50
800	2.46
900	2.42
1,000	2.38
1,001 to 10,000	$PF = (6.330 \times p^{-0.231}) + 1.094$
10,001 to 100,000	$PF = (6.117 \times p^{-0.233}) + 1.128$
PF = Dry Weather Peaking Factor P = Upstream Population Source: Arizona Administrative Code R18-9-E301-D	

**Figure 4-3** illustrates the peak dry peaking factors based on average flows. The flows were calculated based on the upstream population, presented in **Table 4-10** and the adopted GPCD of 58.5 for the area north of Peoria Avenue.

Wet weather factors were then applied to the predicted dry weather flows. The evaluation of the hourly influent flows to El Mirage WWTP during rainfall events in the month of July 2013 resulted in a wet weather peaking factor of 17% of the average daily sewer flow. Data collected and the analysis results are presented in **Appendix H**. The adopted wet weather factor is similar to factors used by surrounding cities in the Phoenix Metropolitan Area for master planning purposes.

WATER DISTRIBUTION SYSTEM  
BASIS OF DESIGN REPORT  
FOR  
THE LEGACY

*Prepared For:*

Pueblo El Mirage RV Resort  
8350 E. Raintree Drive, Suite 220  
Scottsdale, AZ 85260

*Prepared By:*



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SKG Job No. 127-9  
April 2020

**COEM#: E xx-xxxx**



**TABLE OF CONTENTS**

1.0 INTRODUCTION .....3  
2.0 EXISTING WATER DISTRIBUTION SYSTEM.....4  
3.0 WATER DEMAND .....4  
4.0 PROPOSED ONSITE WATER DISTRIBUTION SYSTEM.....5  
5.0 CONCLUSIONS.....6

**EXHIBITS**

- Exhibit 1 - Site Location Map
- Exhibit 2 - Proposed Onsite Water System Schematic
- Exhibit 3 – Water Layout

**APPENDICIES**

- Appendix A - Fire Hydrant Flow Test Results
- Appendix B - International Fire Code 2018, Section B105, Table B105.1(1)
- Appendix C – Hydraulic Modeling Results
- Appendix D – City of El Mirage Water System Sizing Criteria
- Appendix E – Arizona Administrative Code, Title 18, Chapter 9



## 1.0 INTRODUCTION

This report is prepared in partial fulfillment of the improvement plans submittal requirement for the development of 29 lots denoted “The Legacy”. It lies within the master planned community “Pueblo El Mirage RV Resort” in El Mirage, Arizona as recorded in Book 275, Page 45, of Maricopa County Recorder Office, Maricopa County, Arizona. The proposed “Legacy” development is located within the vicinity of the intersection of 17<sup>th</sup> Avenue and Park Place and consisting of 4.85 acres in size. It also lies within the City of El Mirage Quarter Section number 20-02, see Vicinity Map (Exhibit 1) below for the site’s general location.

The proposed Legacy development consists of 29-residential units of 58’ wide by 80’ deep in dimension. The general terrain of the subject parcel slopes from northeast to southwest at a relatively flat slope rate.

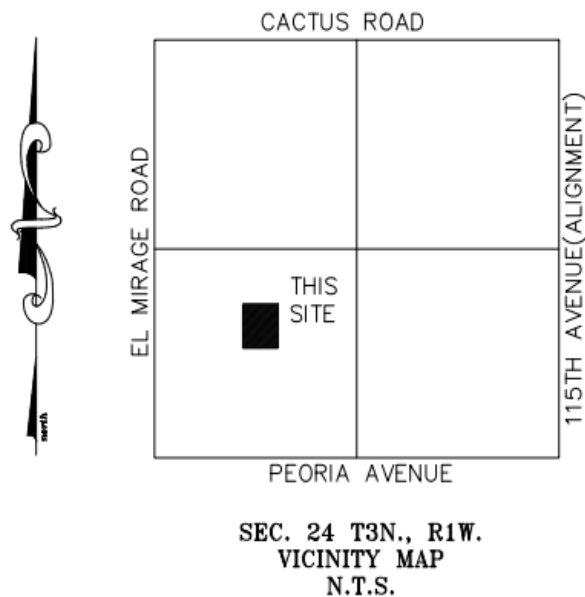


Exhibit 1 – Site Location Map

The purpose of this report is to describe the water distribution system proposed for this project including water demand and connection to the existing water distribution system.

## 2.0 EXISTING WATER DISTRIBUTION SYSTEM

According to as-built topographic data provided by Extreme Land Surveying, LLC in April 202, the existing water system which the proposed “Legacy” would connect to is located along the south side of Park Place and consists of an existing 8” polyvinyl chloride (PVC) pipe. The existing water system is located directly north of The Legacy Development 3’ south of the Park Place Roadway’s Prism. Therefore, the proposed development of The Legacy will connect to this existing 8” PVC for its water needs as depicted in Exhibits 2 and 3 located at the end of this report.

## 3.0 WATER DEMAND

As previously noted, The Legacy development is a single family residential development, comprising of 29 lots. The average day and peak day demand for these lots were calculated based on the City of El Mirage Water and Wastewater Master Plan dated December 2014 and fire flow demand were adopted as per Appendix B, Section B105, Table B105.1(1) of the 2018 International fire code and are summarized in table below.

Average day demand (gallon/day/unit)	250
Maximum Day Demand	1.7 x average day demand
Peak Hour Demand	1.7 x max day demand
Fire flow (gallons per minute)	1,500

While Table B105.1(1) of the International fire code dictates a fire flow of 1,000 GPM, for conservative purposes a fire flow value of 1,500 GPM was used for fire flow modeling and analysis purposes. Copy of the fire code is presented in Appendix B of this report and detailed demand computation for each junction is summarized in Appendix C of this report.

#### **4.0 PROPOSED ONSITE WATER DISTRIBUTION SYSTEM**

The proposed onsite water distribution system will consist of installing an 8” PVC-AWWA-C900 (PVC) pressure class 200 waterline within The Legacy interior roadway prism, and installation of 1” “Type K” copper water service from the individual lots to the aforementioned proposed 8” PVC waterline. The water line is proposed to be located within the interior roadway prism 6’ off the road’s centerline. The proposed onsite water distribution system is shown on Exhibits 2 and 3 located at the end of this report.

A fire hydrant tests were conducted by Hydra Contracting on February 19, 2019.

According to Hydra Contracting test results, the tested two fire hydrants (#1 & #1162) recorded a static pressure of 70-psi each and a residual pressure of 55 and 35-psi, respectively, with a test flow of 1185 and 918-gpm, respectively (see Appendix A).

These fire hydrant test results were used in modeling the onsite water distribution system using WaterCAD software. Four scenarios were modeled:

1. Average day
2. Maximum (peak) day
3. Maximum (peak) day + Fire Flow (1,500 gpm)
4. Peak hour

The proposed onsite water distribution defining junction nodes and water line segments’ locations is presented on Exhibit 2 while all four modeled hydraulic scenarios’ results are shown in Appendix D, at the end of this report. Based on these modeling results, the proposed onsite water system meets minimum and maximum pressure requirement of 40 pounds per square inch (psi) and 100 psi, respectively, for all scenarios.

Automated fire flow analysis was also performed using WaterCAD software by assigning demand of 1500 gpm for each node. Maximum velocity is found to be 9.58 fps in pipe P-9 when a demand of 1500 gpm is applied at junction J-9. Fire flow results are included in Appendix C of this report.

Note: A more recent fire hydrant flow test has been requested and is currently in process of being done. Should the new fire hydrant flow test results show both flow and pressure values being similar or better than the currently used values in the hydraulic analyses, no further action would be necessary and the current analyses would stand. On the other hand, should the fire hydrant flow test values on either flow or pressure were found to be of lesser values than what has been used, an update models will then be provided.

## 5.0 CONCLUSIONS

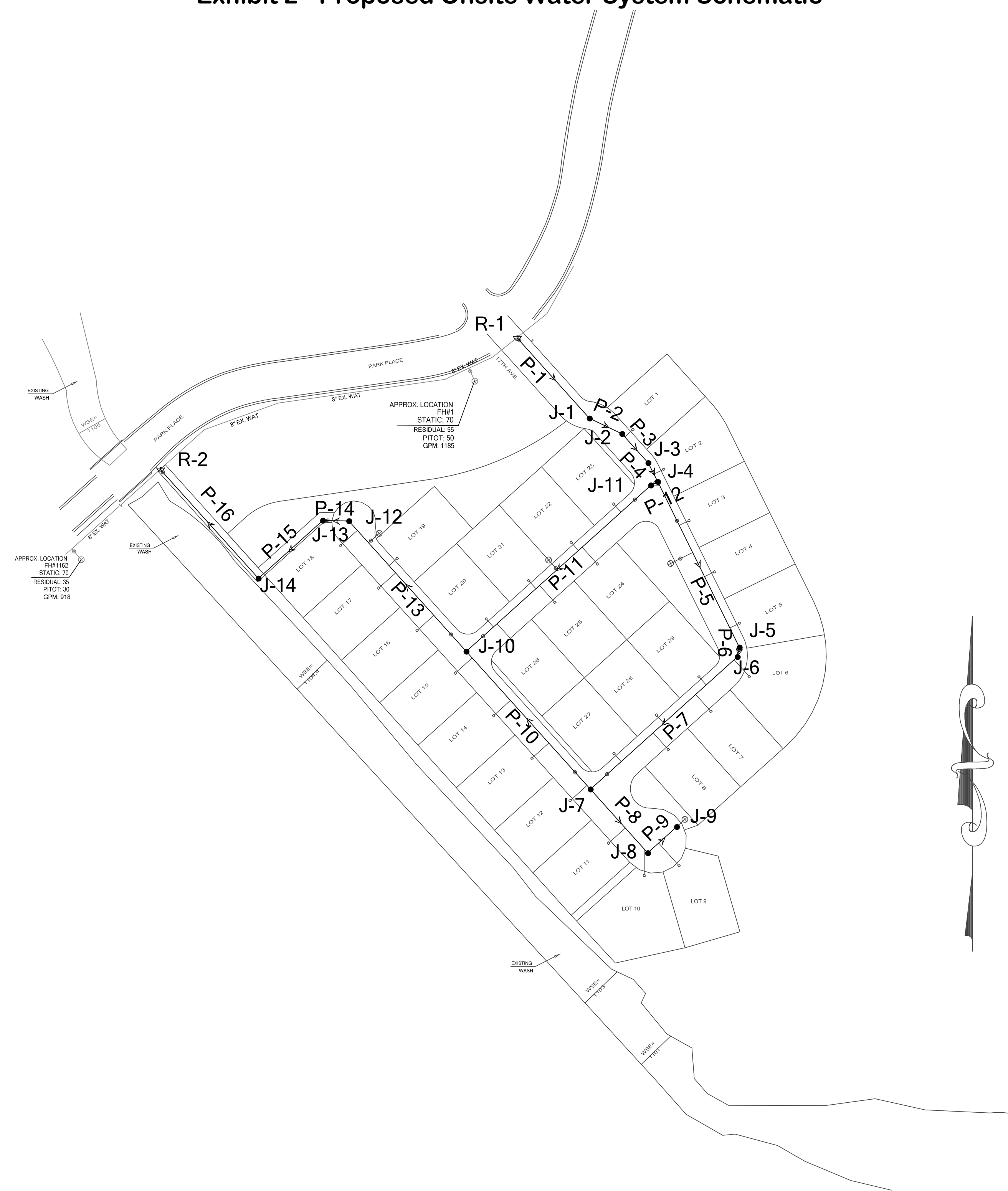
- The project is located in City of El Mirage corporate limit.
- The proposed onsite water system is in general conformance with the requirements outlined in the City of El Mirage Development.
- Standards and Summary of results are tabulated below.

### Summary of Water System Analysis Results

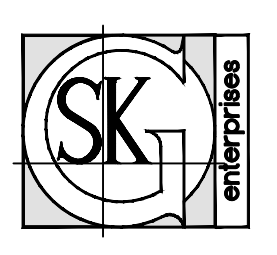
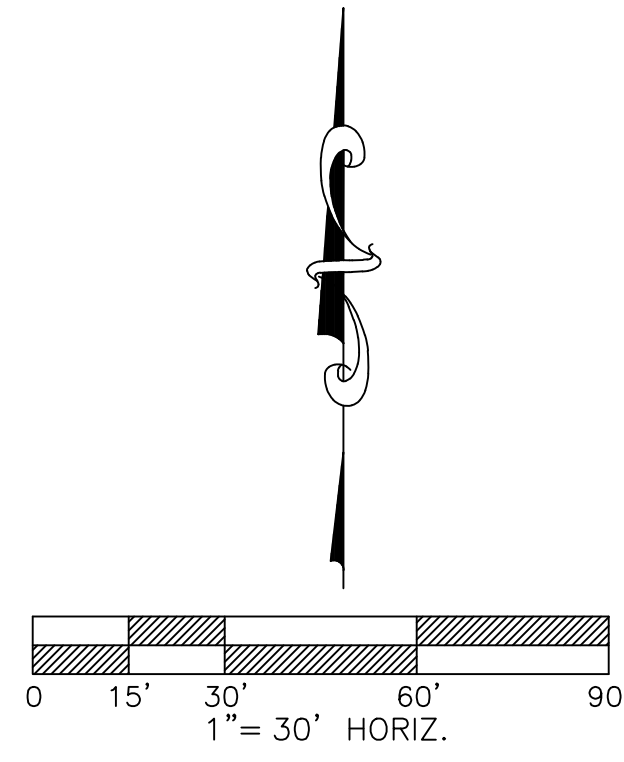
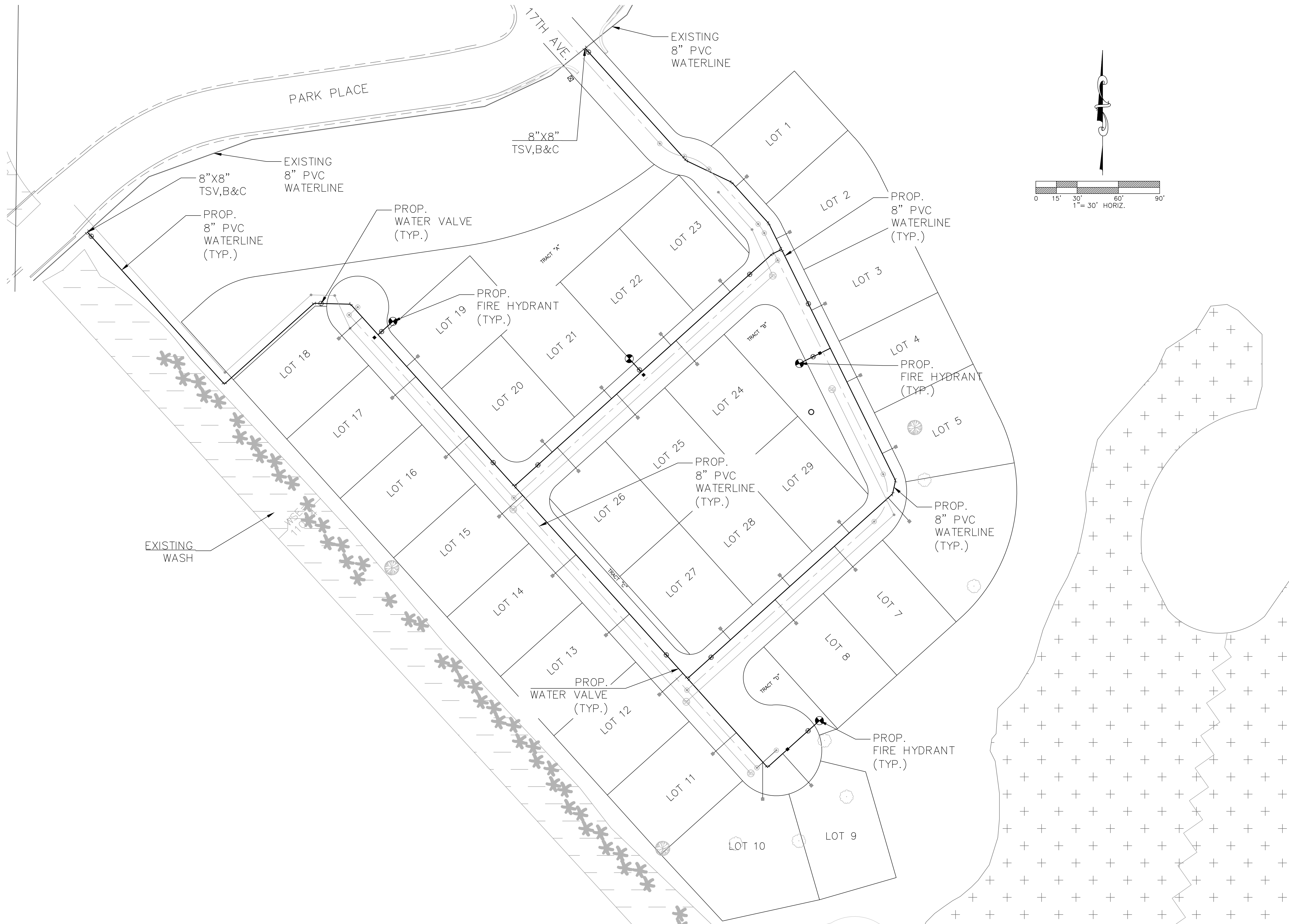
Scenarios	Total Demand gpm	Velocity (ft/s)		Pressure (psi)		Head loss (ft/1000 ft)	
		Maximum	Max. Permissible	Minimum	Min. Permissible	Maximum	Max. Permissible
Average Day	5.03	2.15	5	69	40	0.32	10
Maximum Day	8.56	2.17	5	69	40	0.32	10
Maximum Day + Fire Flow	1508.56	9.58	10	67	20	0.32	10
Peak Hour	14.55	2.19	7	69	40	0.32	10

**EXHIBIT 2**  
**Proposed Onsite Water**  
**System Schematic**

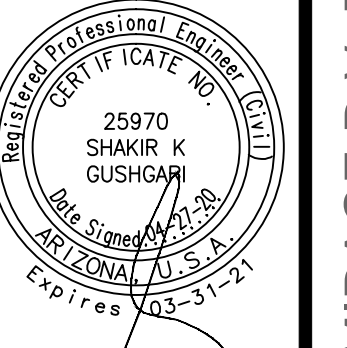
**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**  
Exhibit 2 - Proposed Onsite Water System Schematic



**EXHIBIT 3**  
**Water Layout**



SKG ENTERPRISES, INC.  
 9260 E. RAINTREE DRIVE  
 SUITE 140  
 SCOTTSDALE, AZ. 85260  
 PH) 480-998-5600  
 FAX) 480-998-5603  
 WWW.SKGAZ.COM



Contact Arizona 911 at least two full working days before you begin excavation.  
**ARIZONA911**  
 Call 911 or click Arizona911.com

**PUEBLO EL MIRAGE R.V. RESORT**  
 WATER LAYOUT  
 THE LEGACY  
 CITY OF EL MIRAGE, MARICOPA COUNTY, ARIZONA

job no. 127-9  
 design SKG  
 approved SKG  
 date 04/2020

revisions

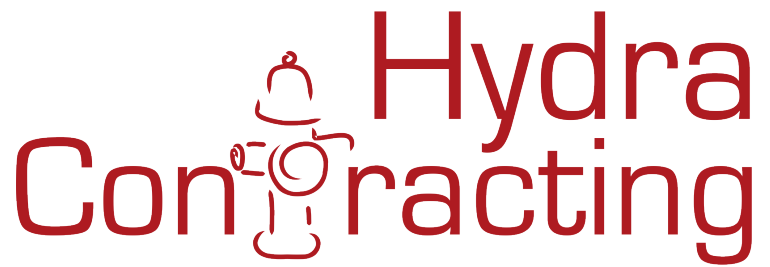
sheet  
**EXHIBIT 3**

PROJECT NO. PUEBLO EL MIRAGE R.V. RESORT - THE LEGACY

**APPENDIX A**  
**Fire Hydrant Flow Test**  
**Results**

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



## Location

**Client**

Pueblo El Mirage

**Hydrant #**

1

**Address**

11201 N El Mirage

**City**

**State**

AZ

**Zip Code**

## Hydrant Assessment

**Type of Hydrant**

Mueller

**Summary of Hydrant disfunction**

**Assessment Photo**



## Trouble Codes

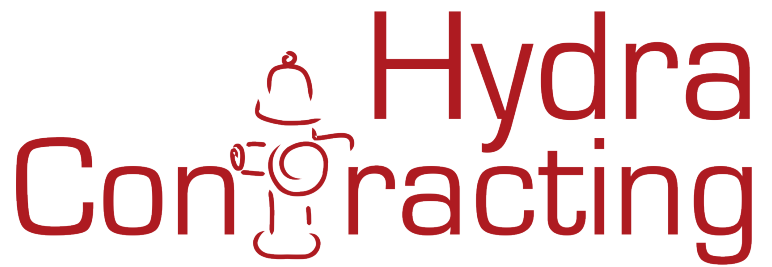
### Trouble Codes

HT = hard turning stem

## Repair

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



- Upper Barrel
- Lower Barrel
- Hydrant Greased

- Hydrant Flushed
- Hydrant Painted

Repair summary

## After Service



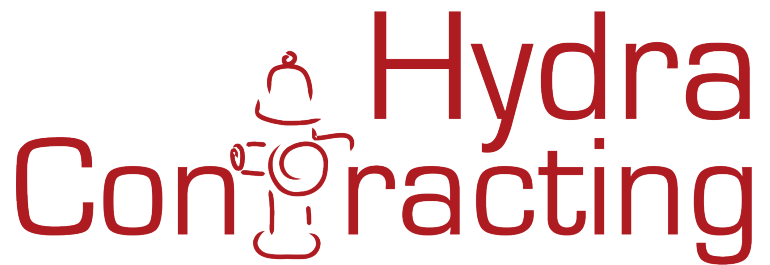
## GPS Location



## Summary

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



## Notes & Comments

STATIC-70  
RESIDUAL-55  
PITOT-50  
GPM 1185

NEEDS UPPER BARREL REPAIR  
FAILED

## Hydrant Technician

David Munoz

## Project Manager

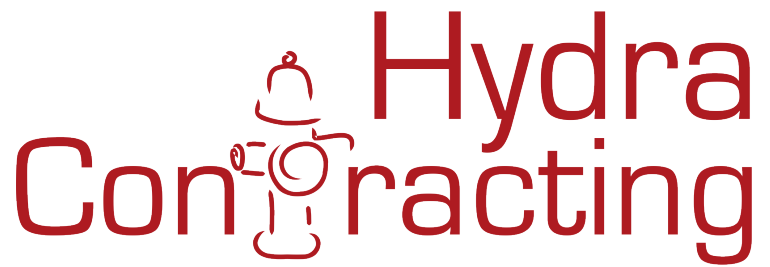
David Munoz ROC #283661, UFM4 #CSA21277  
exp 6/20

## Date

02/19/2019

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



## Location

**Client**

Pueblo El Mirage

**Hydrant #**

1162

**Address**

11201 N El Mirage

**City**

EL MIRAGE

**State**

AZ

**Zip Code**

## Hydrant Assessment

**Type of Hydrant**

Mueller

**Summary of Hydrant disfunction**

**Assessment Photo**



## Trouble Codes

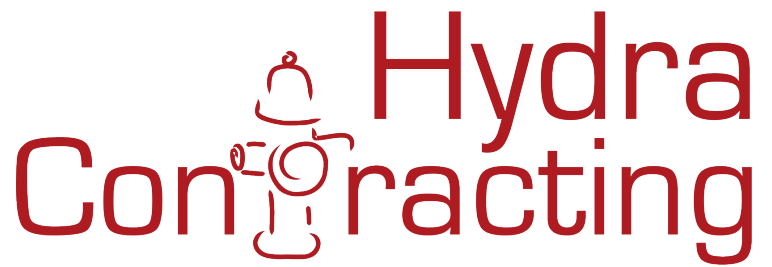
### Trouble Codes

ND = no deficiencies

## Repair

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



- Upper Barrel
- Lower Barrel
- Hydrant Greased

- Hydrant Flushed
- Hydrant Painted

Repair summary

## After Service



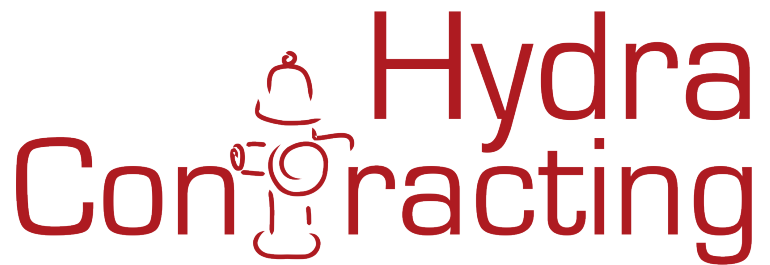
## GPS Location



## Summary

# Fire Hydrant Service Report

PO Box 979  
Tempe, Arizona 85280  
480-242-8402



## Notes & Comments

STATIC-70

RESIDUAL-35

PITOT-30

GPM 918

Hydrant Technician

David Munoz

## Project Manager

David Munoz ROC #283661, UFM4 #CSA21277

exp 6/20

## Date

02/19/2019

**APPENDIX B**  
**International Fire Code 2018,**  
**Section B105, Table B105.1(1)**

# 2012 International Fire Code

(Sixth Printing: Apr 2014)

## APPENDIX B FIRE-FLOW REQUIREMENTS FOR BUILDINGS

### SECTION B105 FIRE-FLOW REQUIREMENTS FOR BUILDINGS

#### B105.1 One- and two-family dwellings.

The minimum fire-flow and flow duration requirements for one- and two-family *dwellings* having a fire-flow calculation area that does not exceed 3,600 square feet (344.5 m<sup>2</sup>) shall be 1,000 gallons per minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for *dwellings* having a fire-flow calculation area in excess of 3,600 square feet (344.5m<sup>2</sup>) shall not be less than that specified in Table B105.1.

**Exception:** A reduction in required fire-flow of 50 percent, as *approved*, is allowed when the building is equipped with an *approved* automatic sprinkler system.

TABLE B105.1  
MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute) <sup>b</sup>	FLOW DURATION (hours)
Type IA and IB <sup>a</sup>	Type IIA and IIIA <sup>a</sup>	Type IV and V-A <sup>a</sup>	Type IIB and IIIB <sup>a</sup>	Type V-B <sup>a</sup>		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	3
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-183,400	92,401-103,100	59,101-66,000	42,701-47,700	26,301-29,300	4,500	
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m<sup>2</sup>, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code*.

b. Measured at 20 psi residual pressure.

#### B105.2 Buildings other than one- and two-family dwellings.

The minimum fire-flow and flow duration for buildings other than one- and two-family *dwellings* shall be as specified in Table B105.1.

**APPENDIX C**  
**Hydraulic Modeling Results**

## APPENDIX C

### Water Demand Computation - THE LEGACY

Junction #	Number of Units	Average Day Demand (gpd)	Average Day Flow (gpm)	Maximum Day Demand (gpm)	Peak Hour Flow (gpm)
A	B	C=B X 250	D=C/1440	E=D*1.7	F=E*1.7
1	0	0	0.00	0.00	0.00
2	1	250	0.17	0.30	0.50
3	1	250	0.17	0.30	0.50
4	2	500	0.35	0.59	1.00
5	2	500	0.35	0.59	1.00
6	4	1000	0.69	1.18	2.01
7	4	1000	0.69	1.18	2.01
8	1	250	0.17	0.30	0.50
9	1	250	0.17	0.30	0.50
10	5	1250	0.87	1.48	2.51
11	5	1250	0.87	1.48	2.51
12	3	750	0.52	0.89	1.51
13	0	0	0.00	0.00	0.00
14	0	0	0.00	0.00	0.00

Design Criteria:

1. Average Daily Consumption = 250 gpd
2. Average total daily consumption = No. of Units X 250 gpd
4. Maximum Day Flow Rate = 1.7 X Avg Day Flow
5. Peak Hour Flow Rate = 1.7 X Peak Day Flow
- 5. Fire Flow = 1500 gpm for Single family residential**
6. Hazen-Williams Co-efficient for PVC, C=150

**Average Day  
Scenario  
Flow Results**

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Average Day**



**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Average Day**

**Current Time: 0.000 hours**

Label	Diameter (in)	ID	Status (Initial)	Start Node	Stop Node	Length (User Defined) (ft)	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Start) (ft)	Hydraulic Grade (Stop) (ft)	Headloss Gradient (ft/ft)	Headloss (ft)
P-1	8.0	38	Open	R-1	J-1	109.81	338.20	2.159	1,264.70	1,264.49	0.0019	0.2067
P-2	8.0	39	Open	J-1	J-2	36.58	338.20	2.159	1,264.49	1,264.42	0.0019	0.0688
P-3	8.0	40	Open	J-2	J-3	40.23	338.03	2.158	1,264.42	1,264.35	0.0019	0.0756
P-4	8.0	41	Open	J-3	J-4	21.02	337.86	2.156	1,264.35	1,264.31	0.0019	0.0396
P-5	8.0	42	Open	J-4	J-5	187.18	132.57	0.846	1,264.31	1,264.25	0.0003	0.0621
P-6	8.0	43	Open	J-5	J-6	9.94	132.22	0.844	1,264.25	1,264.24	0.0003	0.0033
P-8	8.0	66	Open	J-7	J-8	86.84	0.34	0.002	1,264.18	1,264.18	0.0000	0.0000
P-7	8.0	67	Open	J-6	J-7	200.41	131.53	0.840	1,264.24	1,264.18	0.0003	0.0656
P-9	8.0	70	Open	J-8	J-9	39.61	0.17	0.001	1,264.18	1,264.18	0.0000	0.0000
P-10	8.0	72	Open	J-7	J-10	188.00	130.50	0.833	1,264.18	1,264.12	0.0003	0.0607
P-11	8.0	74	Open	J-11	J-10	251.95	204.07	1.303	1,264.30	1,264.12	0.0007	0.1860
P-12	8.0	76	Open	J-4	J-11	7.63	204.94	1.308	1,264.31	1,264.30	0.0007	0.0056
P-13	8.0	78	Open	J-10	J-12	177.85	333.70	2.130	1,264.12	1,263.79	0.0018	0.3265
P-14	8.0	80	Open	J-12	J-13	26.46	333.18	2.127	1,263.79	1,263.74	0.0018	0.0483
P-15	8.0	82	Open	J-13	J-14	87.77	333.18	2.127	1,263.74	1,263.58	0.0018	0.1606
P-16	8.0	84	Open	J-14	R-2	148.62	333.18	2.127	1,263.58	1,263.31	0.0018	0.2721

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Average Day**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (gpm)
J-1	1,101.67	1,264.49	70	162.82	0.00
J-2	1,101.00	1,264.42	71	163.42	0.17
J-3	1,103.86	1,264.35	69	160.49	0.17
J-4	1,104.85	1,264.31	69	159.46	0.35
J-5	1,100.59	1,264.25	71	163.66	0.35
J-6	1,100.68	1,264.24	71	163.56	0.69
J-7	1,101.00	1,264.18	71	163.18	0.69
J-8	1,100.55	1,264.18	71	163.63	0.17
J-9	1,100.52	1,264.18	71	163.66	0.17
J-10	1,101.18	1,264.12	70	162.94	0.87
J-11	1,104.91	1,264.30	69	159.39	0.87
J-12	1,103.00	1,263.79	70	160.79	0.52
J-13	1,102.95	1,263.74	70	160.79	0.00
J-14	1,101.12	1,263.58	70	162.46	0.00

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Average Day**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,264.70	338.20	1,264.70
R-2	1,263.31	-333.18	1,263.31

**Maximum Day  
Scenario  
Flow Results**

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Maximum Day**

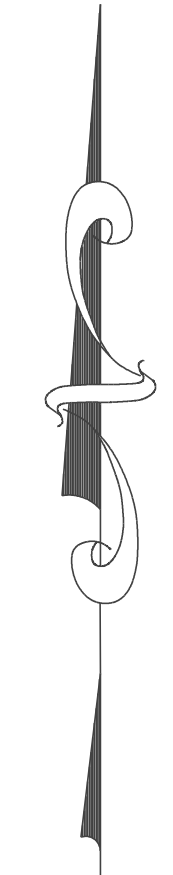


**Color Coding Legend**  
Pipe: Velocity (ft/s)

<span style="color: red;">—</span>	<= 0.000
<span style="color: blue;">—</span>	<= 2.000
<span style="color: green;">—</span>	<= 3.000
<span style="color: magenta;">—</span>	<= 5.000
<span style="color: red;">—</span>	Other

**Color Coding Legend**  
Junction: Pressure (psi)

<span style="color: red;">●</span>	<= 40
<span style="color: blue;">●</span>	<= 70
<span style="color: green;">●</span>	<= 80
<span style="color: magenta;">●</span>	<= 100
<span style="color: red;">●</span>	Other



**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Maximum Day**

**Current Time: 0.000 hours**

Label	Diameter (in)	ID	Status (Initial)	Start Node	Stop Node	Length (User Defined) (ft)	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Start) (ft)	Hydraulic Grade (Stop) (ft)	Headloss Gradient (ft/ft)	Headloss (ft)
P-1	8.0	38	Open	R-1	J-1	109.81	340.46	2.173	1,264.70	1,264.49	0.0019	0.2092
P-2	8.0	39	Open	J-1	J-2	36.58	340.46	2.173	1,264.49	1,264.42	0.0019	0.0697
P-3	8.0	40	Open	J-2	J-3	40.23	340.16	2.171	1,264.42	1,264.34	0.0019	0.0765
P-4	8.0	41	Open	J-3	J-4	21.02	339.86	2.169	1,264.34	1,264.30	0.0019	0.0399
P-5	8.0	42	Open	J-4	J-5	187.18	133.47	0.852	1,264.30	1,264.24	0.0003	0.0629
P-6	8.0	43	Open	J-5	J-6	9.94	132.88	0.848	1,264.24	1,264.24	0.0003	0.0033
P-8	8.0	66	Open	J-7	J-8	86.84	0.60	0.004	1,264.17	1,264.17	0.0000	0.0000
P-7	8.0	67	Open	J-6	J-7	200.41	131.70	0.841	1,264.24	1,264.17	0.0003	0.0658
P-9	8.0	70	Open	J-8	J-9	39.61	0.30	0.002	1,264.17	1,264.17	0.0000	0.0000
P-10	8.0	72	Open	J-7	J-10	188.00	129.92	0.829	1,264.17	1,264.11	0.0003	0.0602
P-11	8.0	74	Open	J-11	J-10	251.95	204.32	1.304	1,264.30	1,264.11	0.0007	0.1865
P-12	8.0	76	Open	J-4	J-11	7.63	205.80	1.314	1,264.30	1,264.30	0.0007	0.0056
P-13	8.0	78	Open	J-10	J-12	177.85	332.76	2.124	1,264.11	1,263.79	0.0018	0.3247
P-14	8.0	80	Open	J-12	J-13	26.46	331.87	2.118	1,263.79	1,263.74	0.0018	0.0481
P-15	8.0	82	Open	J-13	J-14	87.77	331.87	2.118	1,263.74	1,263.58	0.0018	0.1595
P-16	8.0	84	Open	J-14	R-2	148.62	331.87	2.118	1,263.58	1,263.31	0.0018	0.2700

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Maximum Day**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (gpm)
J-1	1,101.67	1,264.49	70	162.82	0.00
J-2	1,101.00	1,264.42	71	163.42	0.30
J-3	1,103.86	1,264.34	69	160.48	0.30
J-4	1,104.85	1,264.30	69	159.45	0.59
J-5	1,100.59	1,264.24	71	163.65	0.59
J-6	1,100.68	1,264.24	71	163.56	1.18
J-7	1,101.00	1,264.17	71	163.17	1.18
J-8	1,100.55	1,264.17	71	163.62	0.30
J-9	1,100.52	1,264.17	71	163.65	0.30
J-10	1,101.18	1,264.11	70	162.93	1.48
J-11	1,104.91	1,264.30	69	159.39	1.48
J-12	1,103.00	1,263.79	70	160.79	0.89
J-13	1,102.95	1,263.74	70	160.79	0.00
J-14	1,101.12	1,263.58	70	162.46	0.00

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Maximum Day**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,264.70	340.46	1,264.70
R-2	1,263.31	-331.87	1,263.31

**Maximum Day +  
FIRE Flow  
Scenario  
Flow Results.**

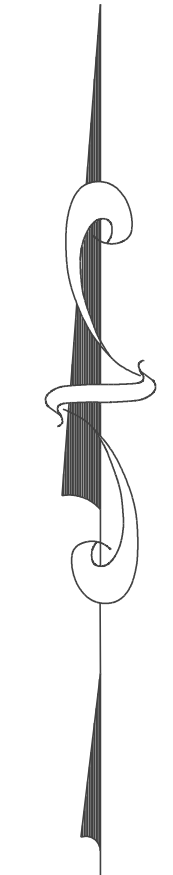
# PUEBLO EL MIRAGE R.V. RESORT THE LEGACY

## Exhibit 2 - Proposed Onsite Water System Schematic



Color Coding Legend	
Pipe: Velocity (ft/s)	
<span style="color: red;">—</span>	<= 0.000
<span style="color: blue;">—</span>	<= 2.000
<span style="color: green;">—</span>	<= 5.000
<span style="color: magenta;">—</span>	<= 10.000
<span style="color: red;">—</span>	Other

Color Coding Legend	
Junction: Pressure (psi)	
<span style="color: red;">●</span>	<= 20
<span style="color: green;">●</span>	<= 30
<span style="color: blue;">●</span>	<= 50
<span style="color: magenta;">●</span>	<= 100
<span style="color: red;">●</span>	Other



**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Maximum Day+Fire Flow**

**Current Time: 0.000 hours**

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone)	Pipe w/ Maximum Velocity	Is Fire Flow Run Balanced?	Velocity of Maximum Pipe (ft/s)
J-1	True	1,500.00	1,501.00	1,500.00	1,501.00	20	70	J-11	P-1	True	7.83
J-2	True	1,500.00	1,501.00	1,500.30	1,501.30	20	70	J-11	P-2	True	7.34
J-3	True	1,500.00	1,501.00	1,500.30	1,501.30	20	68	J-11	P-2	True	6.90
J-4	True	1,500.00	1,501.00	1,500.59	1,501.59	20	68	J-11	P-2	True	6.70
J-5	True	1,500.00	1,501.00	1,500.59	1,501.59	20	69	J-11	P-2	True	6.49
J-6	True	1,500.00	1,501.00	1,501.18	1,502.18	20	69	J-11	P-2	True	6.48
J-7	True	1,500.00	1,501.00	1,501.18	1,502.18	20	69	J-11	P-2	True	6.26
J-8	True	1,500.00	1,501.00	1,500.30	1,501.30	20	68	J-9	P-8	True	9.58
J-9	True	1,500.00	1,501.00	1,500.30	1,501.30	20	67	J-8	P-8	True	9.58
J-10	True	1,500.00	1,501.00	1,501.48	1,502.48	20	69	J-11	P-2	True	5.87
J-11	True	1,500.00	1,501.00	1,501.48	1,502.48	20	68	J-4	P-12	True	7.62
J-12	True	1,500.00	1,501.00	1,500.89	1,501.89	20	68	J-11	P-14	True	5.01
J-13	True	1,500.00	1,501.00	1,500.00	1,501.00	20	68	J-12	P-15	True	5.19
J-14	True	1,500.00	1,501.00	1,500.00	1,501.00	20	69	J-11	P-16	True	5.85

**Peak Hour  
Scenario  
Flow Results**

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**  
Active Scenario: Peak Hour



Color Coding Legend	
Pipe: Velocity (ft/s)	
<span style="color: red;">—</span>	<= 0.000
<span style="color: blue;">—</span>	<= 2.000
<span style="color: green;">—</span>	<= 3.000
<span style="color: magenta;">—</span>	<= 5.000
<span style="color: red;">—</span>	Other

Color Coding Legend	
Junction: Pressure (psi)	
<span style="color: red;">●</span>	<= 40
<span style="color: blue;">●</span>	<= 70
<span style="color: green;">●</span>	<= 80
<span style="color: magenta;">●</span>	<= 100
<span style="color: red;">●</span>	Other

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Peak Hour**

**Current Time: 0.000 hours**

Label	Diameter (in)	ID	Status (Initial)	Start Node	Stop Node	Length (User Defined) (ft)	Flow (gpm)	Velocity (ft/s)	Hydraulic Grade (Start) (ft)	Hydraulic Grade (Stop) (ft)	Headloss Gradient (ft/ft)	Headloss (ft)
P-1	8.0	38	Open	R-1	J-1	109.81	344.21	2.197	1,264.70	1,264.49	0.0019	0.2135
P-2	8.0	39	Open	J-1	J-2	36.58	344.21	2.197	1,264.49	1,264.42	0.0019	0.0712
P-3	8.0	40	Open	J-2	J-3	40.23	343.71	2.194	1,264.42	1,264.34	0.0019	0.0780
P-4	8.0	41	Open	J-3	J-4	21.02	343.21	2.191	1,264.34	1,264.30	0.0019	0.0406
P-5	8.0	42	Open	J-4	J-5	187.18	134.97	0.861	1,264.30	1,264.23	0.0003	0.0642
P-6	8.0	43	Open	J-5	J-6	9.94	133.97	0.855	1,264.23	1,264.23	0.0003	0.0034
P-8	8.0	66	Open	J-7	J-8	86.84	1.00	0.006	1,264.16	1,264.16	0.0000	0.0000
P-7	8.0	67	Open	J-6	J-7	200.41	131.96	0.842	1,264.23	1,264.16	0.0003	0.0659
P-9	8.0	70	Open	J-8	J-9	39.61	0.50	0.003	1,264.16	1,264.16	0.0000	0.0000
P-10	8.0	72	Open	J-7	J-10	188.00	128.95	0.823	1,264.16	1,264.10	0.0003	0.0593
P-11	8.0	74	Open	J-11	J-10	251.95	204.73	1.307	1,264.29	1,264.10	0.0007	0.1871
P-12	8.0	76	Open	J-4	J-11	7.63	207.24	1.323	1,264.30	1,264.29	0.0008	0.0057
P-13	8.0	78	Open	J-10	J-12	177.85	331.17	2.114	1,264.10	1,263.78	0.0018	0.3219
P-14	8.0	80	Open	J-12	J-13	26.46	329.66	2.104	1,263.78	1,263.73	0.0018	0.0475
P-15	8.0	82	Open	J-13	J-14	87.77	329.66	2.104	1,263.73	1,263.58	0.0018	0.1576
P-16	8.0	84	Open	J-14	R-2	148.62	329.66	2.104	1,263.58	1,263.31	0.0018	0.2667

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY**

**Active Scenario: Peak Hour**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (gpm)
J-1	1,101.67	1,264.49	70	162.82	0.00
J-2	1,101.00	1,264.42	71	163.42	0.50
J-3	1,103.86	1,264.34	69	160.48	0.50
J-4	1,104.85	1,264.30	69	159.45	1.00
J-5	1,100.59	1,264.23	71	163.64	1.00
J-6	1,100.68	1,264.23	71	163.55	2.01
J-7	1,101.00	1,264.16	71	163.16	2.01
J-8	1,100.55	1,264.16	71	163.61	0.50
J-9	1,100.52	1,264.16	71	163.64	0.50
J-10	1,101.18	1,264.10	70	162.92	2.51
J-11	1,104.91	1,264.29	69	159.38	2.51
J-12	1,103.00	1,263.78	70	160.78	1.51
J-13	1,102.95	1,263.73	70	160.78	0.00
J-14	1,101.12	1,263.58	70	162.46	0.00

**PUEBLO EL MIRAGE R.V. RESORT  
THE LEGACY  
Active Scenario: Peak Hour**

**Current Time: 0.000 hours**

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,264.70	344.21	1,264.70
R-2	1,263.31	-329.66	1,263.31

**APPENDIX D**  
**City of El Mirage Water System**  
**Sizing Criteria**

**TABLE 3-11: WATER SYSTEM SIZING CRITERIA**

Item	Demand Type	Sizing Criteria
Storage	Max Day (1.7 times Average Day)	Equalization plus Fire Reserve plus Emergency Reserve
Booster Pumps	Peak Hour (1.7 times Max Day)	Max Day plus Fire Flow plus 10% or Peak Hour Firm Capacity
Well Production Facilities	Max Day	Max Day Demand with largest well out of service
Pipelines	Peak Hour (1.7 times Max Day)	<u>Max Day Conditions:</u> Max Velocity < 5 fps
		<u>Peak Hour Conditions:</u> Max Velocity ≤ 7 fps.
		Max Head Loss of 10 feet per 1,000 feet pipe.
		Min System Pressure of 40 psi.
	Max Day Plus Fire Flow	Min Residual Pressure of 20 psi.
Fire Flows	Single Family (SF) Residential	1,500 gpm for 2 hours
	Any Land Use Other Than SF Residential	3,500 gpm for 4 hours

### 3.5 Water System Facility Requirements

#### 3.5.1 Well Production Requirements

The required well production capacity was calculated by comparing the projected maximum day demands with the existing well capacity with the largest well out of service. It was assumed that the two wells in the City of Surprise would continue to be owned and operated by the City of El Mirage, and the currently served area within the City of Surprise would continue to be served by the City of El Mirage. **Table 3-12** presents the existing and required well capacities for each planning year. **Figure 3-5** presents the well production phasing graphically.

**APPENDIX E**  
**Arizona Administrative Code,**  
**Title 18, Chapter 9**

Hotel/motel		
Without kitchen	Bed (2 person)	50
With kitchen	Bed (2 person)	60
Industrial facility		
Without showers	Employee	25
With showers	Employee	35
Cafeteria, add	Employee	5
Institutions		
Resident	Person	75
Nursing home	Person	125
Rest home	Person	125
Laundry		
Self service	Wash cycle	50
Commercial	Washing machine	Per manufacturer, if consistent with this Chapter
Office Building	Employee	20
Park (temporary use)		
Picnic, with showers, flush toilets	Parking space	40
Picnic, with flush toilets only	Parking space	20
Recreational vehicle, no water or sewer connections	Vehicle space	75
Recreational vehicle, with water and sewer connections	Vehicle space	100
Mobile home/Trailer	Space	250
Restaurant/Cafeteria	Employee	20
With toilet, add	Customer	7
Kitchen waste, add	Meal	6
Garbage disposal, add	Meal	1
Cocktail lounge, add	Customer	2
Kitchen waste disposal service, add	Meal	2
Restroom, public	Toilet	200
School		
Staff and office	Person	20
Elementary, add	Student	15
Middle and High, add	Student	20
with gym & showers, add	Student	5
with cafeteria, add	Student	3
Boarding, total flow	Person	100
Service Station with toilets	First bay	1000
	Each additional bay	500
Shopping Center, no food or laundry	Square foot of retail space	0.1
Store	Employee	20
Public restroom, add	Square foot of retail space	0.1
Swimming Pool, Public	Person	10
Theater		
Indoor	Seat	5
Drive-in	Car space	10

Note: Unit flow rates published in standard texts, literature sources, or relevant area or regional studies are considered by the Department, if appropriate to the project.

**Historical Note**

New Section adopted by final rulemaking at 7 A.A.R. 235, effective January 1, 2001 (Supp. 00-4). Amended by final rulemaking at 11 A.A.R. 4544, effective November 12, 2005 (05-3).

**ARTICLE 4. NITROGEN MANAGEMENT GENERAL PERMITS**

**R18-9-401. Definitions**

In addition to the definitions established in A.R.S. §§ 49-101 and 49-201 and A.A.C. R18-9-101, the following terms apply to this Article:

1. "Application of nitrogen fertilizer" means any use of a substance containing nitrogen for the commercial production of a crop or plant. The commercial production of a

crop or plant includes commercial sod farms and nurseries.

2. "Contact stormwater" means stormwater that comes in contact with animals or animal wastes within a concentrated animal feeding operation.
3. "Crop or plant needs" means the amount of water and nitrogen required to meet the physiological demands of a crop or plant to achieve a defined yield.
4. "Crop or plant uptake" means the amount of water and nitrogen that can be physiologically absorbed by the roots