

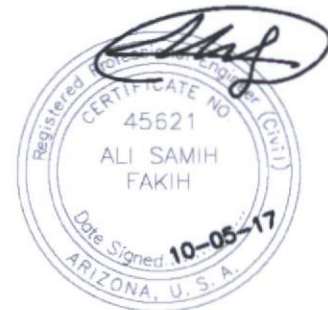
**PRELIMINARY DRAINAGE REPORT
WINFIELD HOTEL AND RESIDENCES
NEC Scottsdale Rd. & 3rd Ave.
Scottsdale, AZ 85251**

Prepared For:

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Okoboji, IA 51355

Prepared by:

Plan #	
Case #	7-ZN-2017
WS #	
<input checked="" type="checkbox"/> Accepted	
<input type="checkbox"/> Corrections	
Reviewed By	M. Rahman
Date	10/25/17



EXPIRES 12-31-17

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480.588.7226 www.azSEG.comProject Number: 170144
Submittal Date: April 26, 2017
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Case No.: 7-ZN-2017; 1-I-2017

Plan Check No.: TBD

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10/06/17


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1. INTRODUCTION

This report represents the storm water analysis for the proposed development consisting a 9-floor hotel/condominium project in downtown Scottsdale. The building will contain 244 hotel rooms, 26 condo units, and a 4,850 SF restaurant with 3 subgrade parking garage levels. 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) 2010¹, 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 a parcel of land located on the north-east corner of Scottsdale Road and 3rd Avenue. It is further bound by developed commercial property followed by 4th Avenue to the north and Winfield Scott Plaza to the east. It is located in a portion of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County,

- Arizona Parcel ID numbers APN: 173-51-005, 173-51-006, 173-51-007, 173-51-012, 173-51-013, 173-51-014, 173-51-015, 173-51-016, 173-51-017, 173-51-018, 173-51-019, 173-51-020
- Street address is 4221 N Scottsdale Rd., Scottsdale, AZ 85251
- The legal description is:

Lots 5 through 7, lots 12-20 of Winfield Scott Plaza book 66, page 03, Maricopa County Records being a portion of the southwest quarter section 23, township 2 north, range 4 east, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

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 north there are 3 lots total consisting of offices and restaurants zoned C-2 DO.
- West: The west side is bound by Scottsdale Road and directly across are offices and restaurants zoned D/DC-1 DO.
- South: The south is bound by 3rd Avenue and directly across is a Wells Fargo Bank zoned D/OR-2 PBD DO.
- East: The east is bound by Winfield Scott Plaza and directly across are offices zoned C-2/P-3 DO.

2.3 EXISTING SITE DESCRIPTION:

Land ownership, as defined by ALTA/NSPS Land Title Survey by AW Land Surveying, LLC dated 07/27/17 includes approximately 52,122 sq. ft. (1.196 Ac.) gross or 31,069 sq. ft. (0.71+/- acres) net of commercially developed land. Note that Lots 5-7 and 12-20 are separated by a 16' public alley that is to be abandoned. City of Scottsdale zoning map designates this parcel as C-2.

This site is fully developed as multiple shopping buildings and office buildings. The topography generally slopes from the northwest to the southeast corner at approximately 0.80% with a change in elevation of approximately two and one-half (2.5) feet. The site is almost completely an impervious area with a few desert landscape areas around the existing parking lot. Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

2.4 PROPOSED SITE DEVELOPMENT:

The project is proposed to be re-developed from 12 commercial parcels into one property. This property will have 244 hotel rooms, 26 condo units, and a 4,850 SF restaurant. The 16' public alley between Scottsdale Road and Winfield Scott Plaza is to be incorporated into the project boundaries and included as part of the development. Refer to **FIGURE 5** for proposed site layout.

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 2235 of 4425, as shown on Map Number 04013C2235L dated October 16, 2013 this site is designated as **Zone "X"**. As such, it is defined as areas outside of the 0.2% annual chance of flooding. Refer to **FIGURE 3** for the FIRM.

3. EXISTING DRAINAGE CONDITIONS

3.1 OFF-SITE DRAINAGE:

This site is bound as follows:

- By Winfield Scott Plaza to the east. This road has curb and gutter conveying runoff to the south.
- By developed commercial properties to the north. The alley between the east and west parcels carries the runoff from the roof drains and flows to the south, joining with the 3rd Avenue flows.
- By Scottsdale Road to the west. Runoff is conveyed in curb and gutter towards the south.
- By 3rd Avenue to the south. Runoff is conveyed in curb and gutter towards the east.
- Flows from 4th Avenue flow is conveyed in curb and gutter towards the east, around the site.

3.2 ON-SITE DRAINAGE:

This site is fully developed as multiple shopping buildings and office buildings. The topography generally slopes from the northwest to the southeast corner at approximately 0.80% with a change in elevation of approximately two and one-half (2.5) feet. The site is a large impervious area with a few desert landscape areas around the existing parking lot. Runoff from the alleyway flows south into 3rd Avenue and east towards Winfield Scott Plaza. Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

Based upon topographic survey information and on-site inspections, there is existing stormwater retention provided on this parcel. The covered parking lot contains a drywell structure with rim elevation 1263.07. This basin will fill up to a pavement grade break elevation of 1263.73 at the southeast end of the parking area and overflow through the drive entrance into 3rd Avenue. Using

1263.73 as the high-water elevation, the volume provided by this existing basin is 830 CF. Refer to **Exhibit "A"** in Appendix II.

3.3 EXISTING STORM SEWER SYSTEMS:

There are no apparent storm sewers existing on the parcel. Runoff is conveyed to the southeast by overland flow and along concrete curbs to the south east.

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

The existing drywell will be demolished and the storage volume in the existing retention basin will be eliminated. Roof runoff will be conveyed via downspouts and allowed to splash on grade and flow to historical patterns. The alley will be graded to keep existing storm runoff traveling overland unaffected.

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, stormwater storage for the 100-year 2-hour storm event based on pre-development versus post development C values and, at a minimum, existing storage volumes are required to be maintained.

4.3 CHARACTERISTICS OF BASINS:

The proposed drainage areas are comprised of mixed use buildings and associated parking areas, drives and landscape areas. Based on Figure 4.1-4 of the DS&PM, runoff coefficients for the 100-year storm event used are as follows:

- C=0.30 for grassed areas
- C=0.45 for desert landscaping
- C=0.95 for impervious areas.

HYDROLOGIC ANALYSIS: The hydrologic analysis is determined using the procedures in the City of Scottsdale Design Standards & Policies Manual and the Drainage Design Manual for Maricopa County, Arizona, Volume I. The Rational Method was utilized to compute the on-site peak discharges. The following established the Rational Method equation and the basic input data required:

$$Q=C_{wt}IA$$

Where:

- C_{wt} = The runoff coefficient relating runoff to rainfall
- I = Average rainfall intensity in inches/hour, lasting for T_c
- T_c = The time of concentration (minutes) – use 5 minutes
- A = The contributing drainage area in acres

C_{wt} CALCULATIONS:

- Pre-development (Refer to EXHIBIT "A" in Appendix II)

- Landscape area (Desert): 4,793 SF @ C=0.45
 - Impervious areas (Roof / Pavement): 26,276 SF @ C=0.95
- C_{wt} : 31,069 SF @ $C_{wt} = 0.87$

➤ Post-development (Refer to EXHIBIT "B" in Appendix II)

- Landscape area (Desert): 629 SF @ C=0.45
 - Impervious Ares (Roof / Pavement): 30,440 SF @ C=0.95
- C_{wt} : 31,069 SF @ $C_{wt} = 0.94$

OVERALL RUNOFF RATE COMPARISON:

Based on a Tc of 5 mins, pre and post development rates for the 100 yr storm event are calculated as follows:

$$Q_{100} \text{ PRE} = 0.87 * 7.46 \text{ in/hr} * 0.71 \text{ ac} = \mathbf{4.61 \text{ CFS}}$$

$$Q_{100} \text{ POST} = 0.94 * 7.46 \text{ in/hr} * 0.71 \text{ ac} = \mathbf{4.98 \text{ CFS}}$$

DEVELOPED RUNOFF FLOWS to OFF-SITE

Ultimately, all site runoff will exit the site at the historical outlets and join with runoff from Winfield Scott Plaza and 3rd Avenue at the northwest corner of the intersection.

4.4 OFF-SITE FLOW:

The alley flows south through the proposed property. The proposed development will have a pass through that will allow the flows from the north lots to continue to the historical outlet.

4.5 STORMWATER RETENTION:

Stormwater storage is required to be provided based on the difference between Pre vs Post development conditions or as required by site grading and drainage constraints. On-site inspection and review of current topographic survey provided evidence that there is existing on-site retention.

REQUIRED STORAGE (Pre vs Post):

Stormwater storage required is calculated In accordance with the COS – DS&PM. Required Retention

$$V_{req}(\text{Acre-Feet}) = (P/12) * A * (C_{post} - C_{pre})$$

Where: P = 100-Yr. 2-Hr. Precipitation in Inches (Ref: Isopluvial from DS&PM, Appendix 4-1D, pg. 11)

A = Area (Acres)

C = C_{post} – C_{pre}

$$V_{req} = (2.15 \text{ in} / 12) * (0.71 \text{ AC}) * (0.94 - 0.87)$$

$$V_{req} = 0.0089 \text{ AC-ft or } 388 \text{ cf}$$

Including the existing retention from Section 3.2 above, the total volume required is:

$$V_{total} = 388 \text{ cf} + 830 \text{ cf} = 1,218 \text{ cf}$$

STORMWATER RETENTION WAIVER:

The proposed development includes an underground parking structure to the limits of the property thereby eliminating potential open or underground retention areas. Therefore, a Request for Stormwater Storage Waiver is being sought based on Section 4-1.602, item 2 of the DS&PM. Refer to Appendix IV for the waiver form.

- A. From the above calculations, the equivalent area associated with a required storage volume of 1,218 CF can be calculated as follows: $A = 1,218 / (2.15 \text{ in}/12) * 0.94 = 7,232 \text{ sq. ft (0.166 ac)}$.
- B. The increase in runoff can then be calculated, using a T_c of 5 minutes for the 100-yr storm as:
 $Q = CIA = 0.94 * 7.46 \text{ in/hr} * 0.166 \text{ ac} = 1.16 \text{ cfs}$.
- C. Overall drainage basin area to the west gutter line along N. Winfield Scott is approximately 0.544 acres. $Q = 0.95 * 7.46 \text{ in/hr} * 0.544 \text{ ac} = 3.86 \text{ cfs}$
- D. The existing vertical curb near the southwest corner of the site slopes southerly at approximately 0.34%. The calculated depth of flow is as follows:
 - Normal depth flowing at 3.86 cfs = 0.23'
 - Normal depth flowing at (3.86 + 1.16) 5.02 cfs = 0.25'
 - The net effect is $0.25 - 0.23 = 0.02'$ or 0.24-inch increase.

Refer to Appendix II for FlowMaster calculations. This minor increase in water depth related to the street capacity has a negligible impact as the water surface is only ½ of the curb height capacity.

4.6 ADEQ WATER QUALITY REQUIREMENTS

An NOI will be submitted to ADEQ and an approved NOI Certification from ADEQ with an AZCON number will be provided to the City during Improvement Plans submittal.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISHED FLOOR ELEVATIONS

The ultimate outfall for this project is located at the southeast corner of the parcel at an elevation of approximately 1262.93. The lowest conceptual finished floor elevation is 1265. All building finished floor elevations will be set a minimum of 14 inches above ultimate outfalls and a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths. This will ensure that each building will be well above the 100-year water level.

6. CONCLUSIONS

6.1 OVERALL PROJECT:

1. Off-site storm water does not impact this project

2. The finish floor elevations will be designed a minimum of 12 inches above the 100-year water surface in adjacent streets and drainage paths and a minimum of 14 inches above the low top of curb of the lot.
3. Required stormwater storage can safely be conveyed offsite. Due to the lack of potential retention areas on site, a Request for Stormwater Retention Waiver is justified.

6.2 PROJECT PHASING:

This development is anticipated to 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 2010*
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*



WARNING & DISCLAIMER OF LIABILITY

The Drainage and Floodplain Regulations and Ordinances of the City of Scottsdale are intended to "minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding caused by the surface runoff of rainfall" (Scottsdale Revised Code §37-16).

As defined in S.R.C. §37-17, a flood plain or "*Special flood hazard* area means an area having flood and/or flood related erosion hazards as shown on a FHBM or FIRM as zone A, AO, A1-30, AE, A99, AH, or E, and those areas identified as such by the floodplain administrator, delineated in accordance with subsection 37-18(b) and adopted by the floodplain board." It is possible that a property could be inundated by greater frequency flood events or by a flood greater in magnitude than a 100-year flood. Additionally, much of the Scottsdale area is a dynamic flood area; that is, the floodplains may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY PURSUANT TO S.R.C §37-22

"The degree of flood protection provided by the requirements in this article 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 man-made or natural causes. This article (Chapter 37, Article II) shall not create liability on the part of the city, any officer or employee thereof, or the federal government for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder."

Compliance with Drainage and Floodplain Regulations and Ordinances does not insure complete protection from flooding. The Floodplain Regulations and Ordinances meet established local and federal standards for floodplain management, but neither this review nor the Regulations and Ordinances take into account such flood related problems as natural erosion, streambed meander or man-made obstructions and diversions, all of which may have an adverse affect 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. If I am an agent for an owner I have made the owner aware of and explained this disclaimer.

Plan Check No.

Owner or Agent

Date

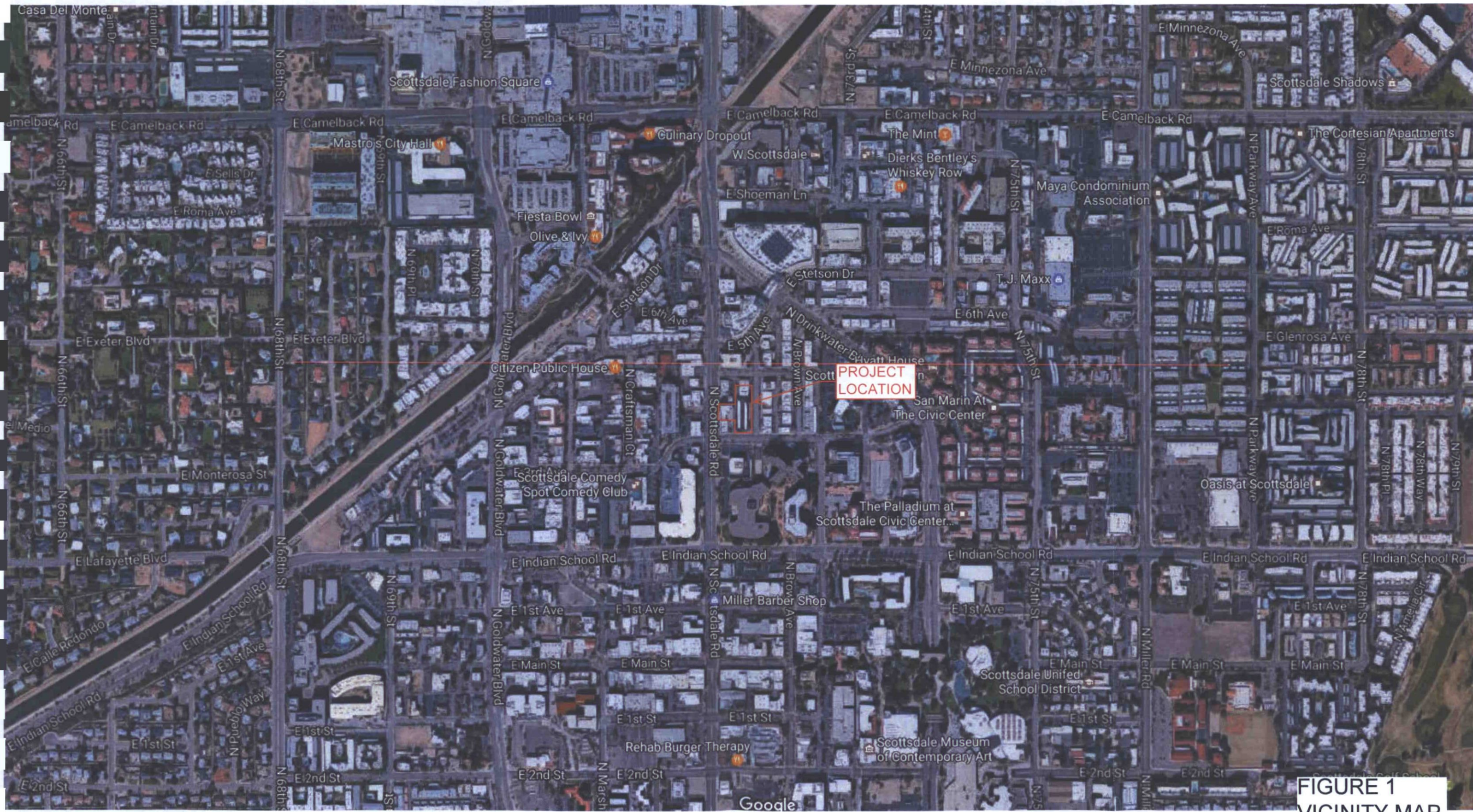
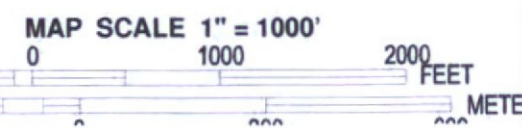
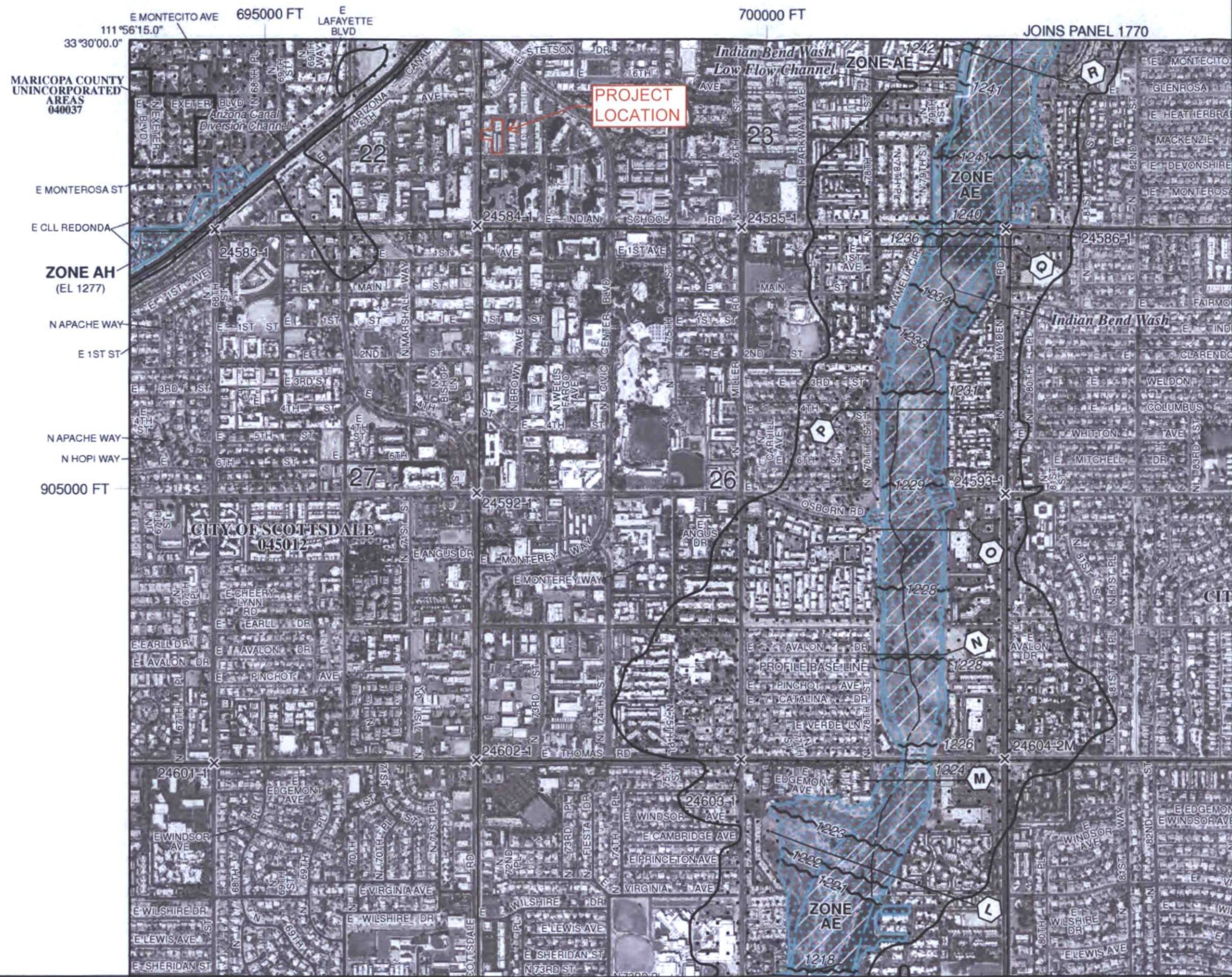


FIGURE 1
VICINITY MAP



FIGURE 2
AERIAL



NFIP PANEL 2235L


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

PANEL 2235 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2235	L
MESA, CITY OF	040048	2235	L
SCOTTSDALE, CITY OF	045012	2235	L
TEMPE, CITY OF	040054	2235	L

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



**MAP NUMBER
04013C2235L
MAP REVISED
OCTOBER 16, 2013**

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

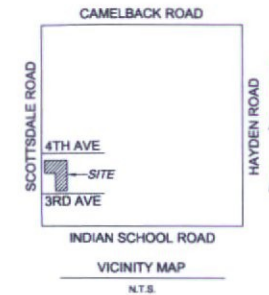
FIGURE 3

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

ALTA/NSPS LAND TITLE SURVEY

OF
**LOTS 5 THROUGH 7,
 LOTS 12 THROUGH 20
 WINFIELD SCOTT PLAZA
 BOOK 66, PAGE 03,
 MARICOPA COUNTY RECORDS**

BEING
 A PORTION OF THE SOUTHWEST QUARTER OF SECTION 23,
 TOWNSHIP 2 NORTH, RANGE 4 EAST,
 OF THE GILA AND SALT RIVER BASE AND MERIDIAN,
 MARICOPA COUNTY, ARIZONA.



PARCEL DESCRIPTION

PARCEL NO. 1:

Lots 5 through 7, inclusive and Lots 14 through 20, inclusive, WINFIELD SCOTT PLAZA, according to Book 66 of Maps, page 3, records of Maricopa County, Arizona.

Together with a portion of that certain 16 foot alley as shown on the final plat of WINFIELD SCOTT PLAZA, according to Book 66 of Maps, page 3, records of Maricopa County, Arizona, lying within the Southwest quarter of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, more particularly described as follows:

Commencing at the west quarter corner of said Section 23, a Maricopa County Brass Cap in Handhole, from which the southwest corner of said Section 23, a City of Scottsdale Brass Cap in Handhole, bears South 00 degrees 00 minutes East (Basis of Bearing) a distance of 2656.21 feet;

Thence along the west line of the Southwest quarter of said Section 23, South 00 degrees 00 minutes 00 seconds East a distance of 1572.17 feet to the centerline of 4th avenue a City of Scottsdale brass cap flush;

Thence leaving said west line along the center line South 89 degrees 42 minutes 48 seconds East a distance of 136.02 feet;

Thence leaving said center line South 00 degrees 00 minutes 01 seconds West a distance of 40.00 feet to the northeast corner of Lot 10 as shown on said final plat;

Thence along the easterly lines of Lots 8, 9 and 10 of said final plat, South 00 degrees 00 minutes 01 seconds West a distance of 100.06 feet to the northeast corner of Lot 7 as shown on said final plat and the Point of Beginning;

Thence leaving said northeast corner of Lot 7, South 89 degrees 44 minutes 57 seconds East a distance of 16.00 feet to the northwest corner of Lot 14 as shown on said final plat;

Thence along the westerly lines of Lots 14, 15 and 16 as shown on said final plat, South 00 degrees 00 minutes 01 seconds West a distance of 90.04 feet, to the southwest corner of Lot 16;

Thence leaving said southwest corner of said Lot 19, North 89 degrees 46 minutes 48 seconds West a distance of 16.00 feet to the southeast corner of Lot 5 as shown on said final plat;

Thence along the easterly lines of Lots 5, 6, and 7, North 00 degrees 00 minutes 01 seconds East a distance of 90.05 feet to the Point of Beginning

PARCEL NO. 2:

Lots 12 and 13, WINFIELD SCOTT PLAZA, according to Book 66 of Maps, page 3, records of Maricopa County, Arizona.

SCHEDULE "B" ITEMS

- ① Property taxes, which are a lien not yet due and payable, including any assessments collected with taxes to be levied for the year 2017.
 2. INTENTIONALLY OMITTED
 - ③ Any outstanding liabilities and obligations, including unpaid assessments, imposed upon said Land by reason of: (a) inclusion thereof within the boundaries of the Salt River Project Agricultural Improvement and Power District; (b) membership of the owner thereof in the Salt River Valley Water Users' Association, an Arizona corporation and (c) the terms of any Water Right Application made under the reclamation laws of the United States for the purposes of obtaining water rights for said Land.
 - ④ Easements, covenants, conditions and restrictions as set forth on the plat recorded in Book 66 of Maps, page 3.
 - ⑤ Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:
 Purpose: Road or Highway and Public utility lines
 Recording No: Docket 13358, page 864
 (as to Lots 14 through 20, inclusive)
 - ⑥ Easement(s) for the purpose(s) shown below and rights incidental thereto as set forth in a document:
 Purpose: Communication facilities
 Recording No: 88-022256
 (as to Lot 20)
 - ⑦ Reservations contained in the Patent
 From: The United States of America
 Recording Date: February 07, 1891
 Recording No: Book 25 of Deeds, page 588
 Which among other things recites as follows:
 Subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes and rights to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by local customs, laws and decisions of the courts; and also subject to the right of the proprietor of a vein or lode to extract and remove his ore therefrom should the same be found to penetrate or intersect the premises hereby granted, as provided by law.
 8. Water rights, claims or title to water, whether or not disclosed by the public records.
 9. Any rights of the parties in possession of a portion of, or all of, said Land, which rights are not disclosed by the public records.
 10. Matters which may be disclosed by an inspection and/or by a correct ALTA/ACSM Land Title Survey of said Land that is satisfactory to the Company, and/or by inquiry of the parties in possession thereof.
- PLOTTABLE SCHEDULE "B" ITEM, SHOWN ON THIS SURVEY (PAGE 2)
- SCHEDULE "B" ITEM CANNOT BE PLOTTED BUT DO AFFECT SUBJECT PROPERTIES.

NOTES: (Table "A" Items")

1. SET A 1/2" REBAR W/CAP "AWLS 45377" AT PROPERTY CORNERS AS SHOWN HEREON UNLESS OTHERWISE NOTED.
2. SUBJECT PROPERTY ADDRESS:
 LOTS 5 & 6: 4221 N SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA
 LOT 7: 4223 N SCOTTSDALE ROAD, SCOTTSDALE, ARIZONA
 LOTS 12-13: 4234 N WINFIELD SCOTT PLAZA, SCOTTSDALE, ARIZONA
 LOTS 14-20: 4216 N WINFIELD SCOTT PLAZA, SCOTTSDALE, ARIZONA
 PER MARICOPA COUNTY ASSESSOR WEBSITE.
3. THIS SURVEY REFLECTS ABOVE GROUND INDICATIONS OF UTILITIES. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. ADDITIONALLY, AS PER THE 2016 ALTA/NSPS STANDARDS: WITH REGARD TO TABLE A, ITEM 11, SOURCE INFORMATION FROM PLANS AND MARKINGS WILL BE COMBINED WITH OBSERVED EVIDENCE OF UTILITIES TO DEVELOP A VIEW OF THOSE UNDERGROUND UTILITIES. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY.
4. ADJOINER INFORMATION IS PER MARICOPA COUNTY ASSESSOR WEBSITE.
5. THE BUILDING LINES AND DIMENSIONS SHOWN HEREON DEPICT THE EXTERIOR BUILDING FOOTPRINT AT GROUND LEVEL BASED ON FIELD MEASUREMENTS. THIS MAY OR MAY NOT BE THE EXACT DIMENSIONS OF THE BUILDING FOUNDATION. THE BUILDING AREA IN SQUARE FEET IS CALCULATED FROM THESE MEASUREMENTS AND IS NOT INTENDED TO REPRESENT INTERIOR LEASEABLE AREA.
6. SUBJECT PROPERTIES ARE ZONED C-2 DO (CENTRAL BUSINESS WITH DOWNTOWN OVERLAY) PER CITY OF SCOTTSDALE.

AREA TABLE

LOT	Sq. Ft.	Acres
5	2401.7	0.055
6	2401.7	0.055
7	2401.5	0.055
12	2402.0	0.055
13	2406.4	0.055
14	2401.6	0.055
15	2402.1	0.055
16	2402.1	0.055
17	2402.1	0.055
18	2402.1	0.055
19	2402.1	0.055
20	3202.7	0.074
ALLEY	1440.7	0.033

PARKING SPACES

31 REGULAR PARKING SPACES (COVERED)
 2 HANDICAP PARKING SPACES (COVERED)

GROSS AREA TO INCLUDE 1/2 STREET RIGHTS-OF-WAY:
 52,122.1 SQ. FT. OR 1.196 ACRES MORE OR LESS.
 NET AREA: 31,068.8 SQ. FT. OR 0.712 ACRES MORE OR LESS.

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

AT THE TIME OF THIS SURVEY, SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X" (DOTTED) AS SHOWN ON FEMA FLOOD INSURANCE RATE MAP NO. 04013C2235L, DATED OCTOBER 16, 2013. ZONE "X" IS DEFINED AS AREAS OF 0.2% ANNUAL 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.

GENERAL NOTES

1. ALL TITLE INFORMATION IS BASED ON A COMMITMENT FOR TITLE INSURANCE PREPARED BY LAWYERS TITLE OF ARIZONA, INC., REPRESENTING COMMONWEALTH LAND TITLE INSURANCE COMPANY, ORDER NO. 01864517-003-B64, WITH AN EFFECTIVE DATE OF JUNE 22, 2017 AND AN AMENDMENT DATE OF JUNE 27, 2017.
2. A.R.S. 32-151 STATES THAT THE USE OF THE WORD "CERTIFY" OR "CERTIFICATION" BY A PERSON OR FIRM THAT IS REGISTERED OR CERTIFIED BY THE BOARD IS AN EXPRESSION OF PROFESSIONAL OPINION REGARDING THE FACTS OR FINDINGS THAT ARE SUBJECT TO THE CERTIFICATION AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE.
3. SURVEY FIELD WORK WAS COMPLETED ON FEBRUARY 7, 2017.
4. THIS SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLE EVIDENCE OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.

BASIS OF BEARING

THE BASIS OF BEARING AND ALL MONUMENTATION SHOWN HEREON IS BASED ON THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 23, USING A BEARING OF NORTH 00°00'00" EAST AS SHOWN ON THE FINAL PLAT OF WINFIELD SCOTT PLAZA, RECORDED IN BOOK 66, PAGE 3, MCR.

BENCHMARK

BENCHMARK IS A MARICOPA CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE LOCATED AT THE INTERSECTION OF SCOTTSDALE ROAD AND INDIAN SCHOOL ROAD.
 ELEVATION = 1260.37' NAVD 88

CERTIFICATION

TO: 4221 - Associates, AZ, LLC, an Arizona limited liability company, as to Parcel 1 and Heidi H. Ream, a widow as to an undivided 50% interest and R. Gregory Hougham and Ann Hougham, husband and wife as to an undivided 50% interest as joint tenants with right of survivorship

Central State Bank

LAWYERS TITLE OF ARIZONA, INC. REPRESENTING COMMONWEALTH LAND TITLE INSURANCE COMPANY

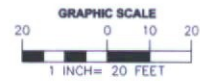
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 8, 9, 11, AND 13 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON FEBRUARY 08, 2017.

FIGURE 4



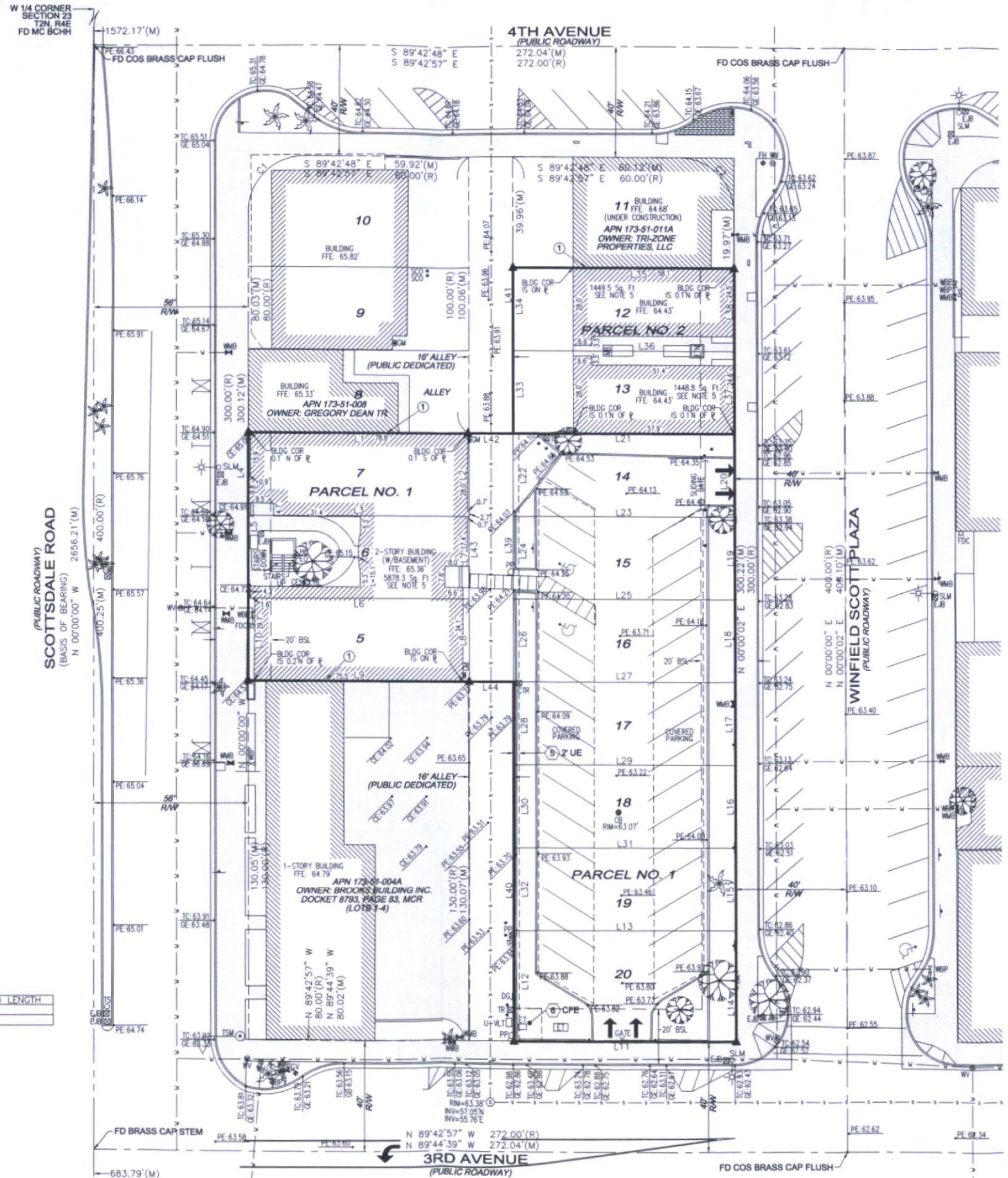
ALTA/NSPS LAND TITLE SURVEY
 SECTION 23
 TOWNSHIP 2 NORTH
 RANGE 4 EAST
 OF THE G.S.R.B. & M.
 MARICOPA COUNTY, ARIZONA

AW LAND SURVEYING, LLC
 P.O. BOX 2170, CHANDLER, AZ 85244
 (480) 244-7630 (480) 243-4287



LINE	BEARING	DISTANCE
L1	S 89°45'49" E	80.02
L2	N 00°00'01" E	30.01
L3	S 89°46'22" E	80.02
L4	S 00°00'00" E	30.02
L5	N 00°00'00" W	30.01
L6	S 89°45'56" E	80.02
L7	S 00°00'01" W	30.02
L8	S 00°00'01" W	30.02
L9	S 89°45'31" E	80.02
L10	N 00°00'00" W	30.01
L11	S 89°44'39" E	80.02
L12	S 00°00'01" W	40.02
L13	N 89°45'05" W	80.02
L14	N 00°00'02" E	40.03
L15	N 00°00'02" E	30.02
L16	N 00°00'02" E	30.02
L17	N 00°00'02" E	30.02
L18	N 00°00'02" E	30.02
L19	N 00°00'02" E	30.02
L20	N 00°00'02" E	30.03
L21	N 89°46'29" W	80.02
L22	S 00°00'01" W	30.00
L23	N 89°45'05" W	80.02
L24	S 00°00'01" W	30.02
L25	N 89°45'05" W	80.02
L26	S 00°00'01" W	30.02
L27	N 89°45'05" W	80.02
L28	S 00°00'01" W	30.02
L29	N 89°45'05" W	80.02
L30	S 00°00'01" W	30.02
L31	N 89°45'05" W	80.02
L32	S 00°00'01" W	30.02
L33	N 00°00'01" E	30.07
L34	S 00°00'01" W	30.02
L35	N 89°46'35" W	80.02
L36	N 89°46'24" W	80.02
L37	S 00°00'02" W	30.07
L38	S 00°00'02" W	30.02
L39	N 00°00'01" E	90.04
L40	N 00°00'01" E	130.08
L41	N 00°00'01" E	100.05
L42	S 89°44'57" E	16.00
L43	N 00°00'01" E	90.05
L44	S 89°46'48" E	16.00

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	31.52	20.00	90°17'12"	N 45°08'36" E	28.35
C2	31.32	20.00	89°42'50"	N 44°51'23" W	28.21



- LEGEND**
- MCR MARICOPA COUNTY RECORDS
 - APN ASSESSOR PARCEL NUMBER
 - R/W RIGHT-OF-WAY
 - CFE COMMUNICATION FACILITIES EASEMENT
 - UE UTILITY EASEMENT
 - MC MARICOPA COUNTY
 - COS CITY OF SCOTTSDALE
 - BCHH BRASS CAP IN HANDHOLE
 - BLDG COR BUILDING CORNER
 - (M) MEASURED DATA
 - (R) RECORD DATA (BOOK 86, PAGE 3)
 - WMB WATER METER BOX
 - SLM STREET LIGHT MAST
 - EJB ELECTRIC JUNCTION BOX
 - HB HOSE BIB
 - EO ELECTRIC OUTLET
 - WV WATER VALVE
 - WBP WATER BACKFLOW PREVENTOR
 - FDC FIRE DEPARTMENT CONNECTION
 - GM GAS METER
 - U-VLT UTILITY VAULT
 - TR TELEPHONE RISER
 - DG DOWN GUY
 - ET ELECTRIC TRANSFORMER
 - CTR CABLE TV RISER
 - CB CATCH BASIN
 - MB MAILBOX
 - FTN FOUNTAIN
 - BSL BUILDING SETBACK LINE
 - TC xx.xx TOP OF CURB ELEVATION
 - GE xx.xx GUTTER ELEVATION
 - NG xx.xx NATURAL GROUND ELEVATION
 - CE xx.xx CONCRETE ELEVATION
 - PE xx.xx PAVEMENT ELEVATION
 - CONCRETE CONCRETE
 - TREE TREE
 - PALM TREE PALM TREE
 - PROPERTY LINE PROPERTY LINE
 - ADJOINER LINE ADJOINER LINE
 - CENTER LINE CENTER LINE
 - EASEMENT LINE (AS NOTED) EASEMENT LINE (AS NOTED)
 - STORM DRAIN MANHOLE STORM DRAIN MANHOLE
 - BOLLARD BOLLARD
 - SIGN SIGN
 - SET PKN WITH TAG 'AWLS 45377' UNLESS OTHERWISE NOTED
 - DEMISING BUILDING WALLS ADJOIN ONE ANOTHER

ALTA/NSPS LAND TITLE SURVEY
SECTION 23
TOWNSHIP 2 NORTH
RANGE 4 EAST
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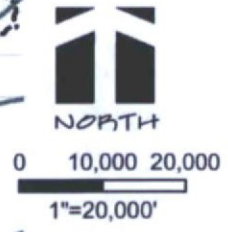
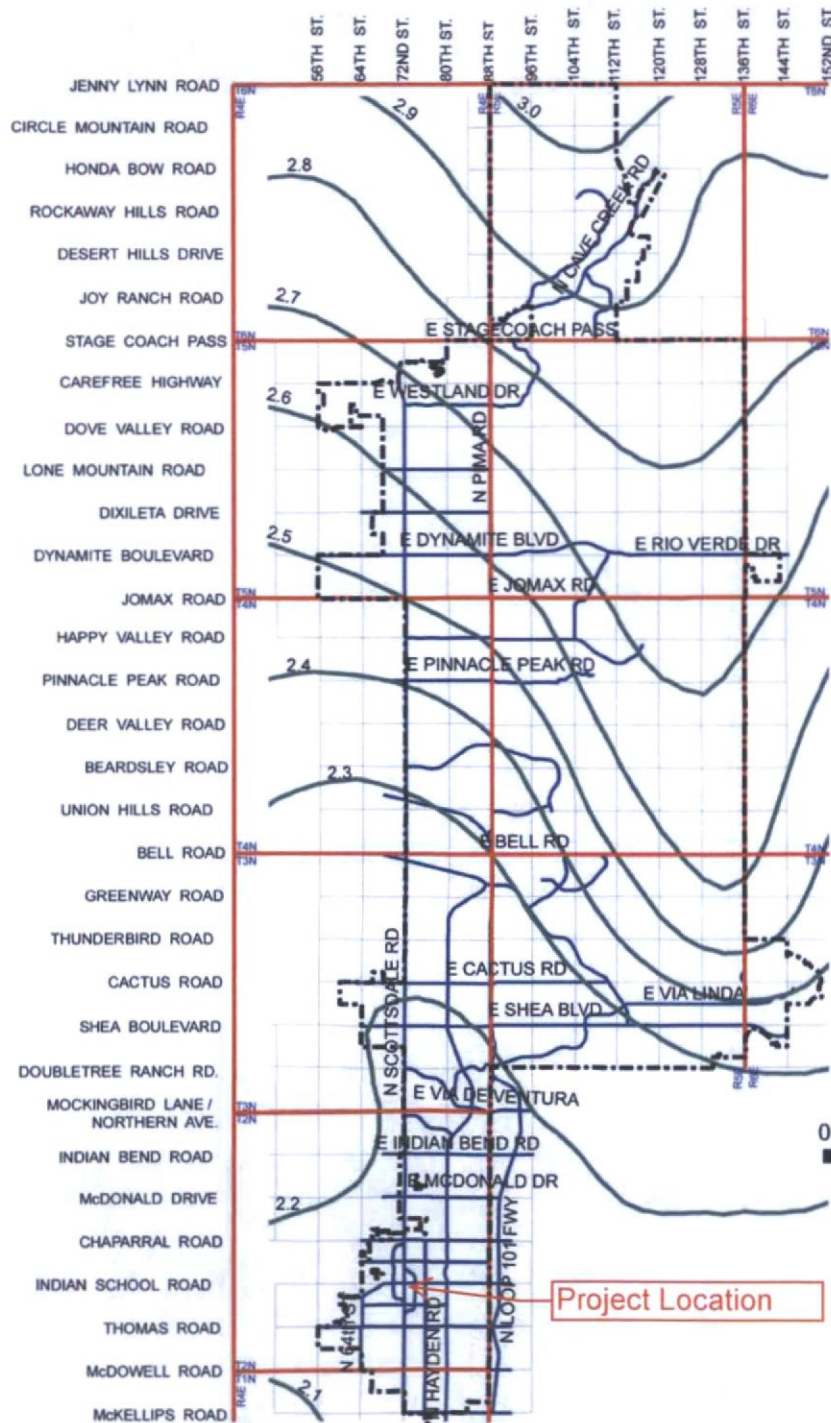


"LEED®ing and Developing Smart Projects"

APPENDIX I
Rainfall Data

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

100 Year 2 Hour Precipitation in Inches



Map Produced By: Geographic Information Systems
04/03/2009

Rainfall Data From NOAA Atlas 14 Vol. 1



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4973°, Longitude: -111.9256°
Elevation: 1262.91 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/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	2.21 (1.85-2.69)	2.88 (2.42-3.52)	3.92 (3.28-4.76)	4.72 (3.91-5.70)	5.78 (4.73-6.96)	6.62 (5.34-7.92)	7.46 (5.90-8.90)	8.33 (6.48-9.92)	9.48 (7.18-11.3)	10.4 (7.69-12.4)
10-min	1.68 (1.40-2.05)	2.20 (1.85-2.68)	2.98 (2.49-3.62)	3.59 (2.98-4.33)	4.40 (3.59-5.30)	5.03 (4.06-6.02)	5.68 (4.49-6.78)	6.34 (4.93-7.55)	7.22 (5.47-8.62)	7.89 (5.86-9.43)
15-min	1.39 (1.16-1.69)	1.81 (1.53-2.21)	2.46 (2.06-2.99)	2.96 (2.46-3.58)	3.64 (2.97-4.38)	4.16 (3.36-4.98)	4.70 (3.71-5.60)	5.24 (4.07-6.24)	5.96 (4.52-7.12)	6.52 (4.84-7.80)
30-min	0.934 (0.782-1.14)	1.22 (1.03-1.49)	1.66 (1.39-2.01)	2.00 (1.66-2.41)	2.45 (2.00-2.95)	2.80 (2.26-3.35)	3.16 (2.50-3.77)	3.53 (2.74-4.20)	4.02 (3.04-4.79)	4.39 (3.26-5.25)
60-min	0.578 (0.484-0.704)	0.755 (0.636-0.921)	1.03 (0.858-1.25)	1.24 (1.02-1.49)	1.52 (1.24-1.82)	1.73 (1.40-2.08)	1.96 (1.55-2.33)	2.18 (1.70-2.60)	2.48 (1.88-2.97)	2.72 (2.02-3.25)
2-hr	0.335 (0.286-0.400)	0.434 (0.370-0.520)	0.580 (0.492-0.691)	0.692 (0.580-0.823)	0.845 (0.701-0.998)	0.962 (0.788-1.13)	1.08 (0.874-1.28)	1.21 (0.954-1.42)	1.37 (1.06-1.61)	1.50 (1.13-1.78)
3-hr	0.243 (0.206-0.293)	0.312 (0.265-0.377)	0.410 (0.347-0.494)	0.487 (0.409-0.584)	0.596 (0.492-0.709)	0.682 (0.556-0.810)	0.773 (0.618-0.917)	0.867 (0.682-1.03)	0.997 (0.761-1.18)	1.10 (0.821-1.31)
6-hr	0.147 (0.127-0.173)	0.186 (0.161-0.219)	0.238 (0.206-0.280)	0.280 (0.240-0.327)	0.337 (0.285-0.391)	0.382 (0.318-0.442)	0.429 (0.351-0.496)	0.476 (0.382-0.552)	0.541 (0.424-0.628)	0.593 (0.453-0.690)
12-hr	0.082 (0.071-0.095)	0.103 (0.090-0.120)	0.130 (0.113-0.151)	0.152 (0.131-0.176)	0.181 (0.155-0.209)	0.204 (0.172-0.234)	0.227 (0.189-0.261)	0.250 (0.205-0.288)	0.281 (0.225-0.326)	0.306 (0.240-0.356)
24-hr	0.049 (0.043-0.055)	0.062 (0.055-0.070)	0.080 (0.071-0.091)	0.095 (0.084-0.107)	0.115 (0.101-0.130)	0.131 (0.114-0.147)	0.148 (0.128-0.166)	0.165 (0.142-0.185)	0.188 (0.160-0.212)	0.207 (0.175-0.234)
2-day	0.026 (0.023-0.030)	0.034 (0.030-0.038)	0.044 (0.039-0.050)	0.053 (0.047-0.059)	0.064 (0.057-0.073)	0.074 (0.065-0.083)	0.084 (0.073-0.094)	0.094 (0.081-0.106)	0.108 (0.093-0.123)	0.120 (0.101-0.136)
3-day	0.019 (0.017-0.021)	0.024 (0.021-0.027)	0.031 (0.028-0.035)	0.037 (0.033-0.042)	0.046 (0.040-0.052)	0.053 (0.046-0.059)	0.060 (0.052-0.067)	0.068 (0.058-0.076)	0.078 (0.067-0.088)	0.087 (0.073-0.098)
4-day	0.015 (0.013-0.017)	0.019 (0.017-0.021)	0.025 (0.022-0.028)	0.030 (0.026-0.033)	0.037 (0.032-0.041)	0.042 (0.037-0.047)	0.048 (0.042-0.054)	0.054 (0.047-0.061)	0.063 (0.054-0.071)	0.071 (0.059-0.080)
7-day	0.009 (0.008-0.011)	0.012 (0.011-0.014)	0.016 (0.014-0.018)	0.019 (0.017-0.021)	0.023 (0.020-0.026)	0.027 (0.023-0.030)	0.031 (0.026-0.034)	0.035 (0.030-0.039)	0.040 (0.034-0.045)	0.045 (0.038-0.051)
10-day	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.012 (0.011-0.014)	0.014 (0.013-0.016)	0.018 (0.015-0.020)	0.020 (0.018-0.023)	0.023 (0.020-0.026)	0.026 (0.022-0.029)	0.030 (0.026-0.034)	0.033 (0.028-0.038)
20-day	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.007-0.008)	0.009 (0.008-0.010)	0.011 (0.009-0.012)	0.012 (0.011-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.017 (0.015-0.019)	0.018 (0.016-0.021)
30-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.014 (0.012-0.016)
45-day	0.003 (0.002-0.003)	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.012)
60-day	0.002 (0.002-0.002)	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.008 (0.007-0.009)

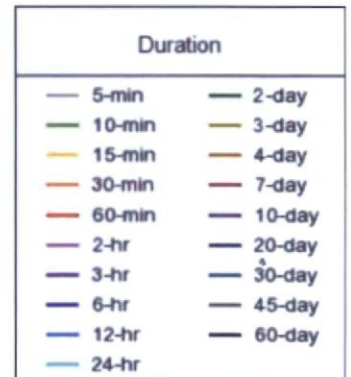
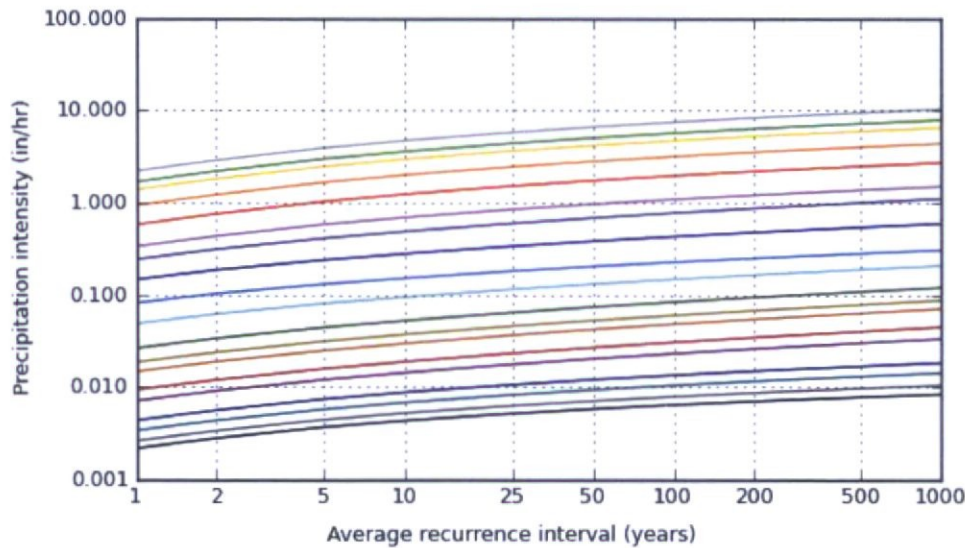
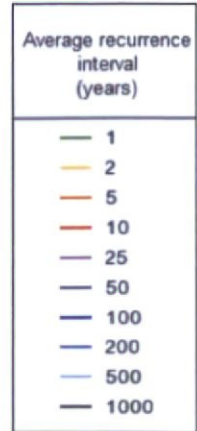
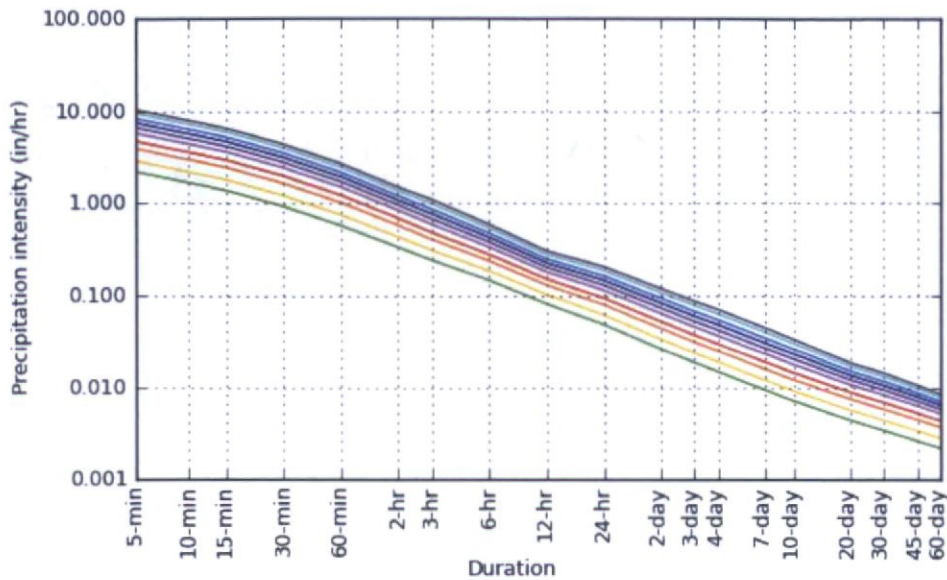
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average 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

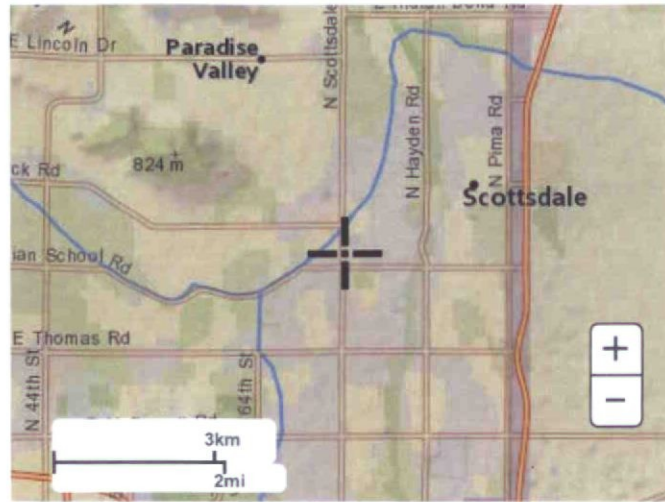
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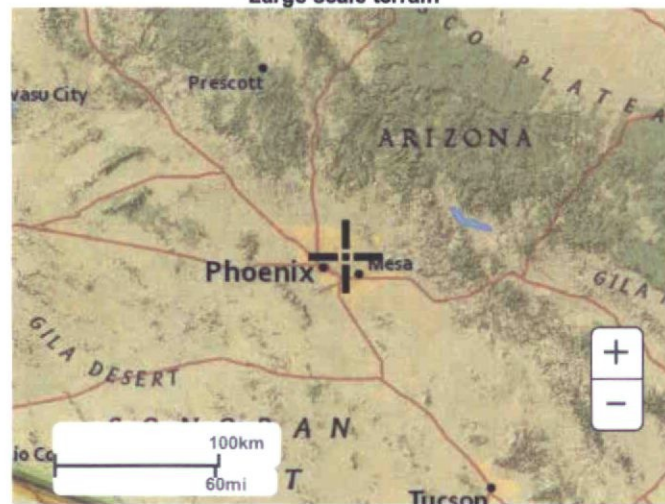
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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4973°, Longitude: -111.9256°
Elevation: 1262.91 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	0.184 (0.154-0.224)	0.240 (0.202-0.293)	0.327 (0.273-0.397)	0.393 (0.326-0.475)	0.482 (0.394-0.580)	0.552 (0.445-0.660)	0.622 (0.492-0.742)	0.694 (0.540-0.827)	0.790 (0.598-0.943)	0.864 (0.641-1.03)
10-min	0.280 (0.234-0.341)	0.366 (0.308-0.446)	0.497 (0.415-0.604)	0.598 (0.496-0.722)	0.734 (0.599-0.883)	0.839 (0.677-1.00)	0.947 (0.749-1.13)	1.06 (0.821-1.26)	1.20 (0.911-1.44)	1.31 (0.976-1.57)
15-min	0.347 (0.290-0.423)	0.453 (0.382-0.553)	0.616 (0.515-0.748)	0.741 (0.615-0.895)	0.910 (0.743-1.09)	1.04 (0.839-1.25)	1.17 (0.928-1.40)	1.31 (1.02-1.56)	1.49 (1.13-1.78)	1.63 (1.21-1.95)
30-min	0.467 (0.391-0.569)	0.610 (0.514-0.744)	0.829 (0.693-1.01)	0.998 (0.828-1.21)	1.23 (1.00-1.47)	1.40 (1.13-1.68)	1.58 (1.25-1.89)	1.76 (1.37-2.10)	2.01 (1.52-2.40)	2.19 (1.63-2.63)
60-min	0.578 (0.484-0.704)	0.755 (0.636-0.921)	1.03 (0.858-1.25)	1.24 (1.02-1.49)	1.52 (1.24-1.82)	1.73 (1.40-2.08)	1.96 (1.55-2.33)	2.18 (1.70-2.60)	2.48 (1.88-2.97)	2.72 (2.02-3.25)
2-hr	0.670 (0.571-0.800)	0.867 (0.739-1.04)	1.16 (0.984-1.38)	1.38 (1.16-1.65)	1.69 (1.40-2.00)	1.92 (1.58-2.27)	2.17 (1.75-2.55)	2.41 (1.91-2.84)	2.74 (2.12-3.23)	3.00 (2.27-3.55)
3-hr	0.730 (0.618-0.880)	0.937 (0.797-1.13)	1.23 (1.04-1.48)	1.46 (1.23-1.75)	1.79 (1.48-2.13)	2.05 (1.67-2.43)	2.32 (1.86-2.75)	2.60 (2.05-3.08)	2.99 (2.29-3.55)	3.31 (2.46-3.93)
6-hr	0.879 (0.760-1.03)	1.11 (0.967-1.31)	1.43 (1.23-1.68)	1.68 (1.44-1.96)	2.02 (1.71-2.34)	2.29 (1.90-2.65)	2.57 (2.10-2.97)	2.85 (2.29-3.30)	3.24 (2.54-3.76)	3.55 (2.71-4.13)
12-hr	0.982 (0.859-1.14)	1.24 (1.08-1.44)	1.57 (1.37-1.82)	1.83 (1.58-2.12)	2.18 (1.87-2.52)	2.45 (2.07-2.82)	2.73 (2.27-3.14)	3.01 (2.47-3.47)	3.39 (2.71-3.92)	3.68 (2.90-4.29)
24-hr	1.17 (1.04-1.32)	1.49 (1.32-1.69)	1.93 (1.71-2.18)	2.28 (2.02-2.57)	2.76 (2.43-3.11)	3.14 (2.74-3.53)	3.54 (3.07-3.98)	3.95 (3.40-4.45)	4.52 (3.85-5.09)	4.97 (4.19-5.61)
2-day	1.26 (1.13-1.43)	1.62 (1.44-1.83)	2.12 (1.89-2.40)	2.53 (2.24-2.85)	3.09 (2.73-3.48)	3.54 (3.10-3.99)	4.02 (3.50-4.53)	4.51 (3.90-5.09)	5.20 (4.44-5.88)	5.76 (4.87-6.53)
3-day	1.34 (1.19-1.51)	1.71 (1.52-1.94)	2.25 (2.00-2.54)	2.69 (2.38-3.03)	3.30 (2.90-3.72)	3.79 (3.32-4.27)	4.32 (3.75-4.86)	4.87 (4.19-5.48)	5.64 (4.80-6.36)	6.27 (5.28-7.08)
4-day	1.41 (1.25-1.60)	1.81 (1.60-2.04)	2.38 (2.11-2.69)	2.85 (2.52-3.21)	3.51 (3.08-3.95)	4.05 (3.53-4.55)	4.62 (4.00-5.19)	5.22 (4.48-5.88)	6.08 (5.15-6.84)	6.78 (5.68-7.64)
7-day	1.57 (1.39-1.78)	2.00 (1.78-2.27)	2.65 (2.35-2.99)	3.17 (2.80-3.58)	3.91 (3.43-4.40)	4.50 (3.93-5.06)	5.13 (4.44-5.78)	5.80 (4.98-6.54)	6.75 (5.72-7.61)	7.51 (6.30-8.49)
10-day	1.70 (1.51-1.93)	2.18 (1.94-2.46)	2.88 (2.55-3.24)	3.44 (3.04-3.87)	4.23 (3.71-4.74)	4.86 (4.24-5.44)	5.53 (4.80-6.20)	6.24 (5.37-7.00)	7.22 (6.14-8.11)	8.02 (6.75-9.02)
20-day	2.10 (1.87-2.35)	2.69 (2.40-3.02)	3.56 (3.17-3.98)	4.21 (3.74-4.71)	5.09 (4.50-5.69)	5.77 (5.08-6.45)	6.46 (5.66-7.23)	7.16 (6.24-8.02)	8.10 (7.00-9.10)	8.83 (7.57-9.92)
30-day	2.45 (2.17-2.75)	3.15 (2.80-3.53)	4.15 (3.69-4.65)	4.91 (4.35-5.49)	5.93 (5.23-6.63)	6.72 (5.90-7.50)	7.53 (6.58-8.39)	8.35 (7.25-9.31)	9.45 (8.15-10.6)	10.3 (8.82-11.5)
45-day	2.83 (2.53-3.17)	3.65 (3.26-4.09)	4.81 (4.29-5.38)	5.67 (5.04-6.34)	6.80 (6.03-7.60)	7.65 (6.76-8.55)	8.51 (7.49-9.52)	9.37 (8.21-10.5)	10.5 (9.14-11.8)	11.4 (9.82-12.8)
60-day	3.13 (2.81-3.50)	4.05 (3.62-4.51)	5.32 (4.76-5.93)	6.25 (5.58-6.97)	7.46 (6.64-8.31)	8.35 (7.41-9.31)	9.25 (8.17-10.3)	10.1 (8.91-11.3)	11.3 (9.87-12.6)	12.1 (10.6-13.6)

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.

[Back to Top](#)



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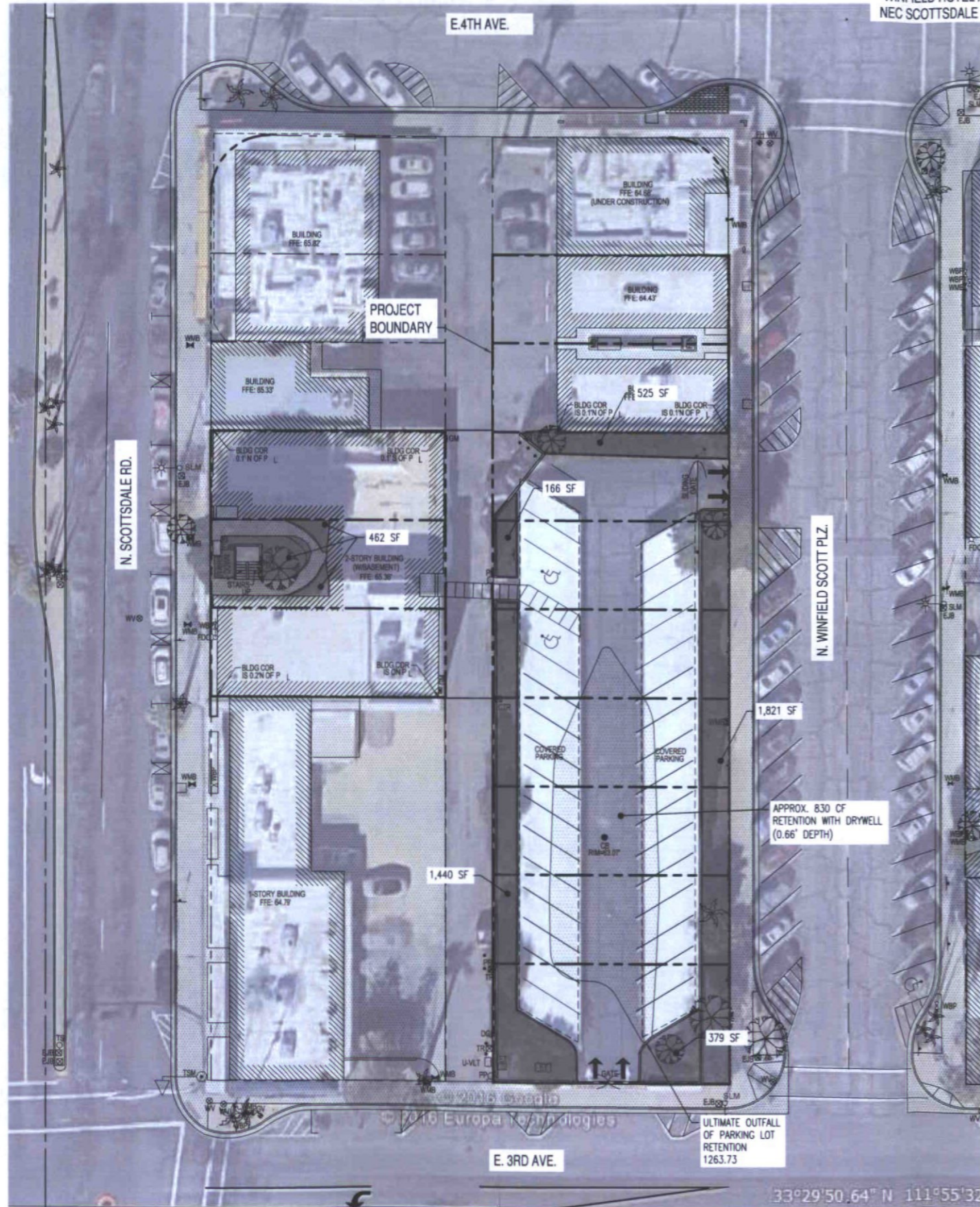
APPENDIX II

Calculations

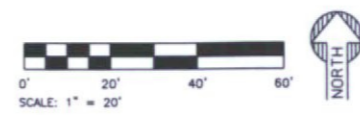
8280 E. Gelding Dr., Suite 101
Scottsdale, AZ 85260

PRE DEVELOPMENT Cwt MAP

WINFIELD HOTEL AND RESIDENCES
NEC SCOTTSDALE RD. AND 3RD AVE.



	DESERT LSCP =	4,793 SF	@ Cwt=0.45
	IMPERVIOUS =	26,276 SF	@ Cwt=0.95
	Cwt=	31,069 SF	@ Cwt=0.87
		(0.71 AC)	



1800 E. GELDING DR #101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL 480.588.7228

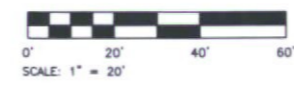
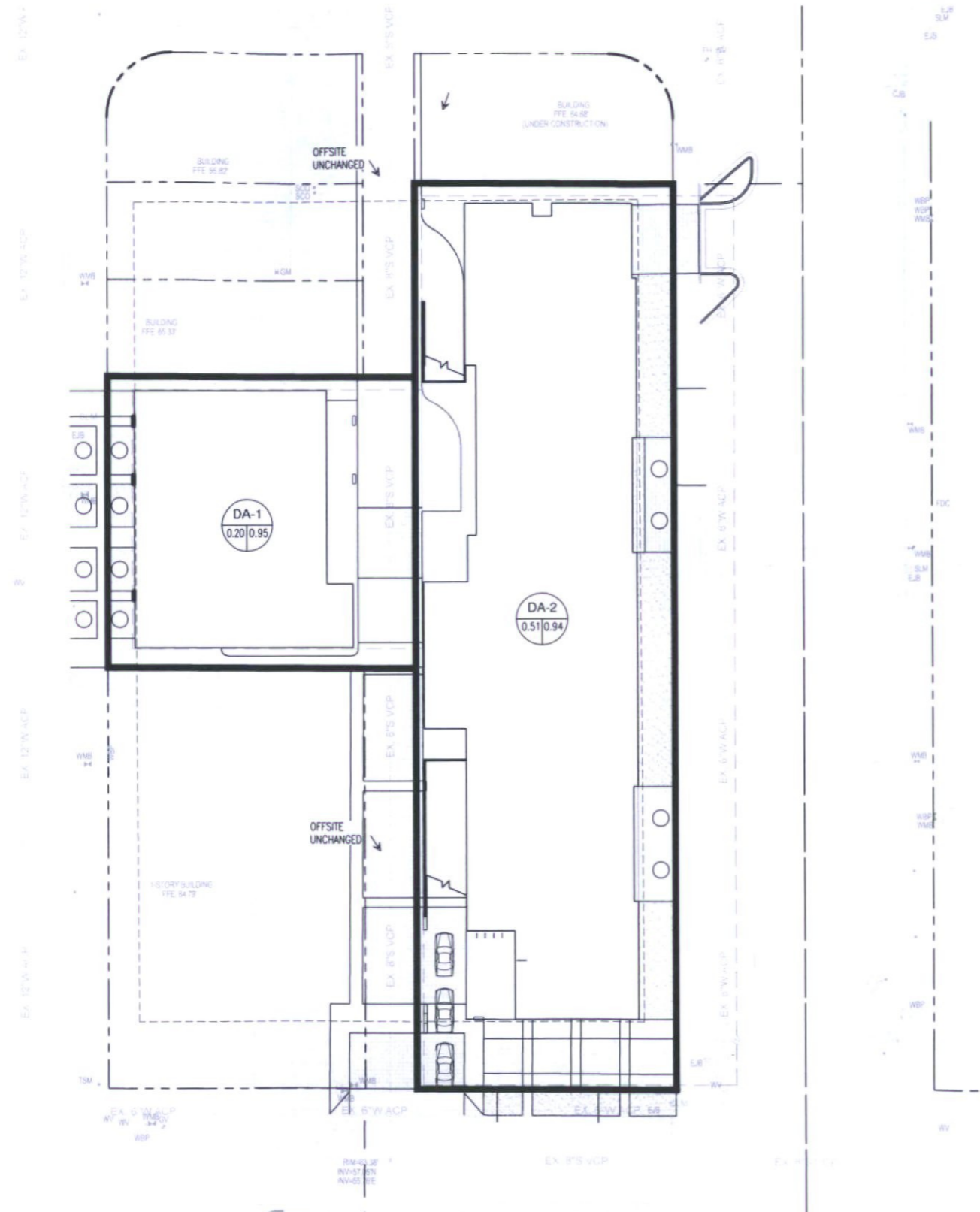
PROJECT WINFIELD HOTEL	
LOCATION NEC SCOTTSDALE RD. AND 3RD AVE SCOTTSDALE, AZ 85251	
DRAWN	POUNDS
DESIGNED	POUNDS
CHECKED	COUNSELL
PROJ. MGR.	FAKH
DATE	07/26/2017
ISSUED FOR	CITY SUBMITTAL
REVISION NO.	DATE
JOB NO	170144
SHEET TITLE	PRE DEVELOPMENT Cwt MAP
SHEET NO.	EXHIBIT "A"

ARIZONA 811
Call 811 or 1-800-475-4754
to schedule service (M-F 8AM-5PM)

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POST DEVELOPMENT DRAINAGE AREA MAP

WINFIELD HOTEL AND RESIDENCES
NEC SCOTTSDALE RD. AND 3RD AVE.



THIS SET OF DRAWINGS AND DOCUMENTS IS INTENDED AS A SET OF GUIDELINES FOR THE PROJECT AND ARE ATTACHED TO BE USED IN CONNECTION WITH A SET OF CONTRACT DOCUMENTS TO BE SUPPLIED BY OWNER. THEY MUST BE USED TO COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES INCLUDING FEDERAL AIA REQUIREMENTS. THE SET AGREES THAT THERE ARE NO UNUSUAL SOIL CONDITIONS OR HAZARDOUS MATERIALS ON THE PROJECT SITE AND TO THE BEST OF THE ENGINEER'S KNOWLEDGE AND BELIEF, THE INFORMATION CONTAINED HEREIN IS ACCURATE AND COMPLETE. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED AND DOES NOT INCLUDE THE DESIGN OR CONSTRUCTION OF ANY STRUCTURE OR SYSTEM. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND FOR OBTAINING ALL NECESSARY INFORMATION FROM THE OWNER AND OTHER CONTRACTORS. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED AND DOES NOT INCLUDE THE DESIGN OR CONSTRUCTION OF ANY STRUCTURE OR SYSTEM. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND FOR OBTAINING ALL NECESSARY INFORMATION FROM THE OWNER AND OTHER CONTRACTORS.

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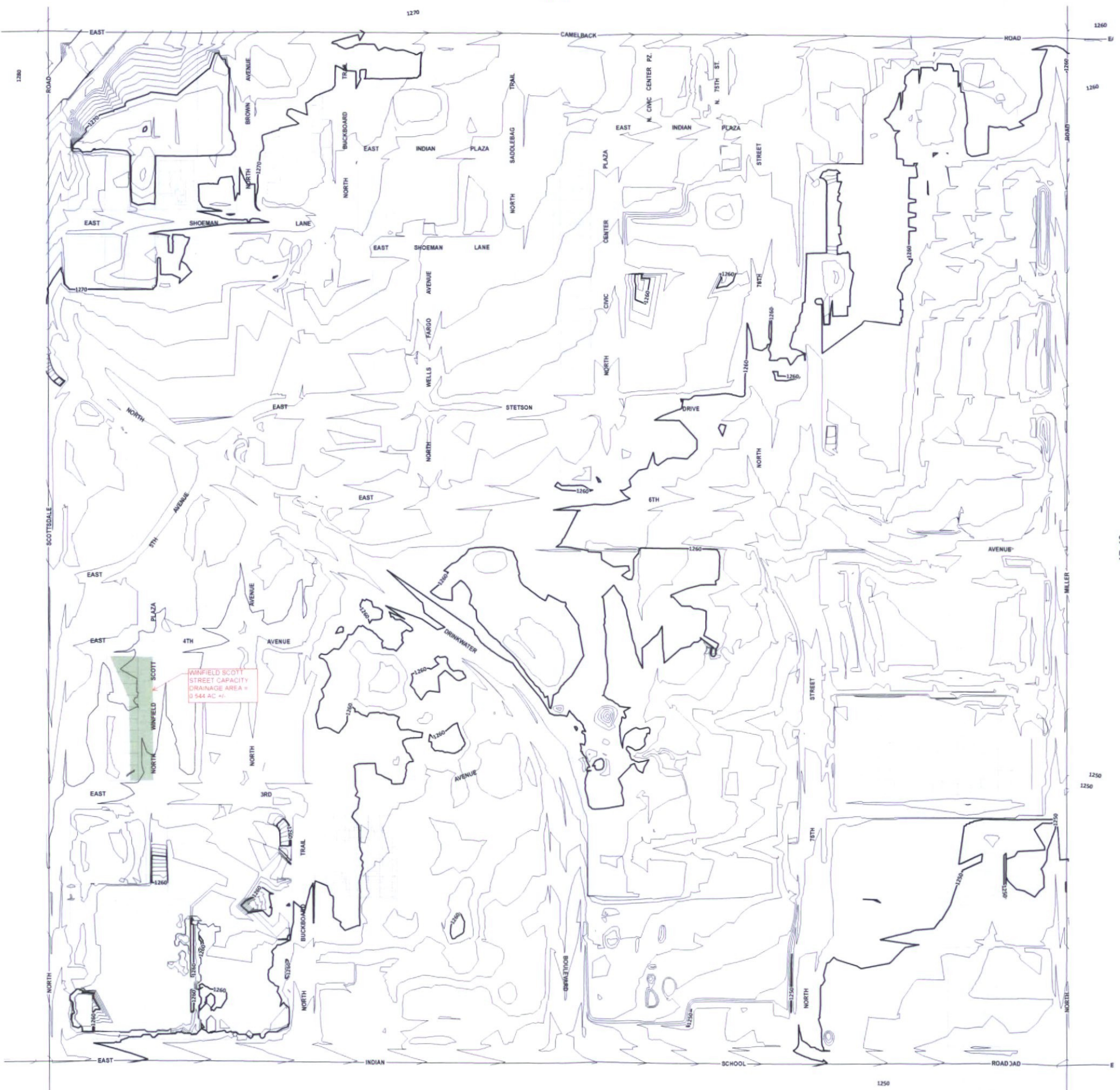
PROJECT WINFIELD HOTEL	LOCATION NEC SCOTTSDALE RD. AND 3RD AVE SCOTTSDALE, AZ 85251
DESIGN: _____ POUNDS	
DRAWN: _____ POUNDS	
CHECKED: _____ COUNSELL	
PROJ. MGR: _____ FAKIH	
DATE: 07/26/2017	
ISSUED FOR: CITY SUBMITTAL	
REVISION NO. _____	DATE: _____
△	
△	
△	
JOB NO.: 170144	
SHEET TITLE: POST DEVELOPMENT DRAINAGE AREA MAP	
SHEET NO.: DAM	

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 THE CITY OF SCOTTSDALE

28 APR 14

17-44



16-45

18-45

GENERAL NOTES:
 * THIS IS A COMPUTER GENERATED DRAWING FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 370-7760
 * THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER 1997. BEARINGS ARE MAGNETIC AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS CALCULATED ON THE MAP.

LEGEND:

VICINITY MAP

NORTH

SCALE: 1" = 100'

0 50 100 200
 The map scale of 1" = 100' is based on a full size print of 30" x 36"

**CONTOUR
 QUARTER SECTION MAP
 17-45
 SW 1/4 SEC. 23 T2N R4E**

CITY OF SCOTTSDALE
 SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS
 3620 North Drinkwater Boulevard
 Scottsdale, Arizona 85251

Worksheet for Irregular Section - Winfield Scott @ q=3.86 cfs

Results

Velocity Head	0.05	ft
Specific Energy	0.30	ft
Froude Number	0.87	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.25	ft
Critical Depth	0.24	ft
Channel Slope	0.00380	ft/ft
Critical Slope	0.00508	ft/ft

Cross Section for Irregular Section - Winfield Scott 3.86 cfs

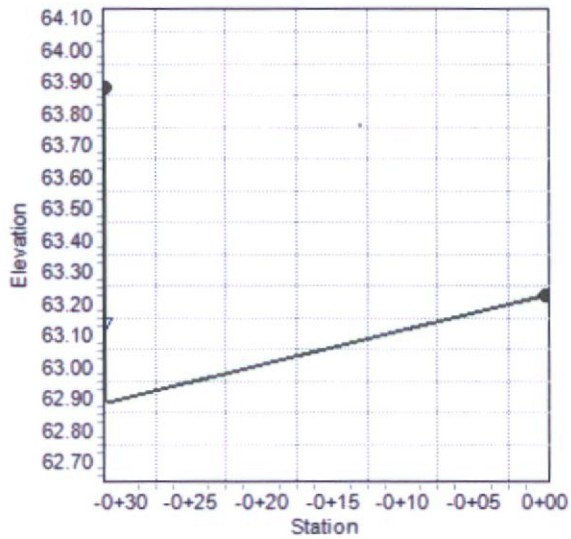
Project Description

Friction Method Manning Formula
Solve For Normal Depth

Input Data

Channel Slope	0.00380	ft/ft
Normal Depth	0.23	ft
Discharge	3.86	ft ³ /s

Cross Section Image



Worksheet for Irregular Section - Winfield Scott @ q= 5.02 cfs

Results

Velocity Head	0.05	ft
Specific Energy	0.30	ft
Froude Number	0.87	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	0.25	ft
Critical Depth	0.24	ft
Channel Slope	0.00380	ft/ft
Critical Slope	0.00508	ft/ft



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APPENDIX III
Grading Plans

APPENDIX IV

Request for Stormwater Storage Waiver



Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

- PA - 7 - ZN - 2017 - UP - - DR - - PP - PC#

The applicant/developer must complete and submit this form to the city for processing and obtain approval of waiver request **before submitting improvement plans**. Denial of the waiver may require the developer to submit a revised site plan to the Development Review Board.

Date 10/04/2017 Project Name Winfield Hotel and Residences
Project Location NEC Scottsdale Road and 3rd Avenue
Applicant Contact Steve Counsell Company Name SEG
Phone 480.588.7226 Fax _____ E-mail steve@azseg.com
Address 8280 E. Gelding Dr., Suite 101, Scottsdale, AZ 85260

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

- 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.
- 2. The development is on a parcel less than one-half acre in size.
- 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

Partial waivers are available for projects or portions of properties within the Environmentally Sensitive Lands Zoning Overlay District, not meeting any of the three full waiver criteria above, if post-development peak discharge rates do not exceed pre-development conditions, based on the 10- and 100-year storm events.

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentation.

Steven R. Counsell
Engineer

Digitally signed by Steven R. Counsell
DN: cn=Steven R. Counsell, o=ESL, ou=ESL/Stormwater Manager, email=steve@azseg.com, c=US
Date: 2017.10.04 09:42:34 -0700

October 4, 2017
Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7781



Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

 - PA - 7 - ZN - 2017 - UP - - DR - - PP - PC#

CITY STAFF TO COMPLETE THIS PAGE

Project Name Winfield Hotel and Residences

Check Appropriate Boxes:

Meets waiver criteria (specify): 1 2 3

Recommend approve waiver.

Recommend deny waiver:

None of waiver criteria met.

Downstream conditions prohibit waiver of any storage.

Other:

Explain: _____

Return waiver request:

Insufficient data provided.

Other: _____

Explain: _____

Recommended Conditions of Waiver:

All storage requirements waived.

Post-development peak discharge rates do not exceed pre-development conditions.

Other:

Explain: _____

Waiver approved per above conditions.

Waiver denied.

C. Ashley Couch
Floodplain Administrator or Designee

10/25/17
Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7781



Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

- PA -

7

- ZN - 2017

- UP -

- DR -

- PP -

PC#

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is \$1.87 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name Winfield Hotel and Residences

The waived stormwater storage volume is calculated using a simplified approach as follows:

V = ΔCRA; where

V = stormwater storage volume required, in cubic feet,

ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),

R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and

A = area of disturbed ground, in square feet

Furthermore,

R = _____

ΔC = _____

$V_w = V - V_p$; where

A = _____

V_w = volume waived,

V = 1,218

V = volume required, and

$V_p = 0$

V_p = volume provided

$V_w = 1,218$

An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee (\$) = V_w (cu. ft.) x \$1.87 per cubic foot = \$2,277.66

An in-kind contribution will be made, as follows:

No in-lieu fee is required. Reason:

Approved by:

C. Ashley Couch

10/25/17

Floodplain Administrator or Designee

Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7781