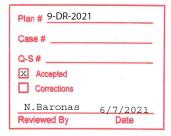


# 3 engineering

# Toy Barn Scottsdale

Preliminary Drainage Report 3 engineering Job #: 5201 April 30, 2021 COS# 9-DR-2021





# TOY BARN SCOTTSDALE

#### PRELIMINARY DRAINAGE REPORT

#### Prepared for:

Wesley Development PO Box 26768 Scottsdale, Arizona 85255 Contact: Jason Phillips Phone: (602) 920-3998



Expires 12/31/2021

Matthew J. Mancini, P.E.

April 30, 2021

#### Submittal to:

City of Scottsdale 7447 E. Indian School Road, Suite 105 Scottsdale, Arizona 85251

#### Prepared by:

3 engineering, L.L.C. 6370 E. Thomas Road, Suite 200 Scottsdale, Arizona 85251 Contact: Matthew J. Mancini, P.E.

Job Number 5201

#### **Table of Contents**

		Page
1.	Introduction	1
2.	Site Description	1
3.	Existing Drainage Conditions - Offsite	1
4.	Existing Drainage Conditions - Onsite	1
5.	Proposed Drainage Conditions	2
6.	Conclusions	4
7.	References	4
Appe	<u>endix</u>	
Appe	ndix A – Vicinity Map	A-1
Appe	ndix B – Current FIRM Map	A-2
Appe	ndix C - Aerial Photograph of Site,,	A-3
Appe	ndix D - Onsite Drainage Map	A-4
Appe	ndix E - Onsite Hydrologic & Hydraulic Calculations	A-5
Appe	ndix F – Warning & Disclaimer of Liability	A-6
Appe	ndix G - Improvement Plans	A-7
Anno	ndiv H. Scottsdalo Tono Manning	ΛΩ

#### 1. Introduction

The purpose of this preliminary drainage report is to present the existing and proposed drainage plan for the project, Toy Barn Scottsdale (Site). It is our opinion the proposed grading and drainage concept is in accordance with the City of Scottsdale's Design Standards & Policies Manual (Ref. 1).

The Site, is located in Section 11, Township 3 North, Range 4 East of the Gila and Salt River Meridian, Maricopa County, Arizona within the City of Scottsdale, Arizona. The Site is located South of Helm Drive, and East of 73<sup>rd</sup> Street, Scottsdale, Arizona 85254 (APNs 215-56-029 & 215-56-027C). The Site is bound on the south by existing commercial development, the east by a vacant parcel, on the north by Helm Drive Road, and on the west by 73<sup>rd</sup> Street. See Appendix A for a Vicinity Map.

The Site is zoned I-1. The Site currently exists as a vacant un-developed parcel. The intent of this project is to construct Garage Storage Condominiums and Clubhouse, including new site utility, drainage, and circulatory infrastructure.

#### 2. Site Description

#### **Existing**

The Site currently exists as a vacant un-developed parcel. (See Appendix C for Aerial Photograph of Site) The existing topography slopes from north to south at approximately 1.3% percent. In addition, both adjacent roadways, Helm Drive, and 73<sup>rd</sup> Street, are fully improved with curb, gutter, and sidewalk.

#### Federal Emergency Management Agency (FEMA) Designation

According to the current FEMA Flood Insurance Rate Map # 04013C1760L, dated October 16, 2013 (Ref. 2), the site is located within Zone "X" floodplain designation. Zone "X" is defined as follows:

"Area of 500-year flood; areas of 100-year flood with an average depth of less than 1-ft or with drainage areas less than 1 square mile; and area protected by levees from 100-year flood.."

Refer to the Current Flood Insurance Rate Map in Appendix B.

#### Proposed

The Site is proposed as a Garage storage condominium project, including new site utility, drainage, and circulatory infrastructure. The project will also include an Owners' Association Club House.

#### 3. Existing Drainage Conditions - Offsite

The site is not considered to be affected by offsite storm water from offsite areas. All surrounding parcels are improved developments or surrounded by existing infrastructure. These developments retain their respective 100 year storm water runoffs and/or drain away from the project. See Appendix H for Scottsdale Topo Mapping that shows drainage away from project.

#### 4. Existing Drainage Conditions - Onsite

Referring to the Aerial Photograph in Appendix C, the Site drains predominately in a sheet flow condition from south to north. The site does not contain any washes, nor does it contain any existing retention basins that collect onsite or offsite runoff.

#### 5. Proposed Drainage Conditions

The proposed Site generally drains from north to south, with building roof drains directing storm water to the front of the of the units into the paved areas. The Site's paved areas are designed with an inverted crown, and direct flow to catch basins, which connect to an underground storage tank. Perimeter open space storm water runoff is proposed to be self-retained in surface retention basins that surround the site's frontage. Refer to Appendix D for Onsite Drainage Map. The underground retention tanks shall meet The City of Scottsdale's specifications outlined in the Design Standards and Policies Manual (DS&PM) (Ref.1), as well as follow the soils/resistivity information that will be determined during final engineering design.

Per the City's DS&PM, it is understood that city approves underground storage only after rigorous analysis of storage system location, specifications, access, operation and maintenance, liability, and signage. In addition, the project must be located within an industrial, commercial, or multifamily development, and the project must have a viable property maintenance organization or other maintenance mechanism to assume the continued maintenance, repair, and the potential replacement of the underground stormwater storage system and to protect the public's interest. The viability of the property maintenance organization or other mechanism shall be approved by the city on a case by case basis based on an assessment of the long-term ability of the property maintenance organization or other mechanism to maintain, repair and potentially replace the system in conjunction with the review of development review and preliminary plat submittals for the project. The following items shall be addressed for the underground tanks:

#### Water Quality (Gravity Drain)

o The underground system is designed to connect to dual-chamber drywells. Dual-chamber drywells utilize a sediment chamber which removes oils and pollutants from entering the ground water during disposal, and are connected with a gravity drain to the tank. In addition the tanks shall be designed with smooth floors to aid in gravity drainage.

#### Installation

o Installation and material specifications shall follow MAG.

#### Access

o Tanks shall have a minimum of two points of access.

#### System Failure (No-Storage)

o If the system fails, and provides no storage, storm water will back-up into the site 6-inches above the onsite catch basin inlet before it overflows into 73<sup>rd</sup> Street. Finished Floors are elevated above this onsite outfall elevation.

#### Vector Control (mosquito breeding)

o The system is designed to bleed-off via drywells. The number of drywells designed shall dispose of the storm water within 36-hours, which is the max. time period to eliminate the risk of vector control.

#### Redundancy

o There is not redundancy provided in the system in terms of additional pipe storage; however, storage for the 100-year 2-hour event is provided, and an Operations & Manual has been prepared. This manual sets forth the guidelines to keep the underground system functioning correctly. This manual is reviewed and approved by the City, recorded with Maricopa County, and is enforceable by the City shall the owner not follow the guidelines. This will ensure that sediments will not cause the system to fail.

#### Initial Suspended Load Removal (First Flush)

o The tanks shall be designed with a smooth bottom, and a 0.25% slope to ensure proper drainage to the disposal portion of the system. As mentioned for Water Quality, the drywells include a sediment chamber which functions to remove oils and pollutants, typical present in first flush runoff, from the storm water.

#### 75-year Design Life

o The tanks are designed with a minimum 75-year design life. Resistivity testing has shall be completed, and is included with CDs.

#### Maintenance

o The site shall develop an O&M manual that documents the proper maintenance and inspection procedures in order to keep the tanks functioning properly. The tanks shall also have signage onsite site to identify site tank locations.

As part of this project, the owner, and 3 engineering, as engineer, acknowledge the requirements necessary for the project to function properly using underground storage tanks.

Per the DS&PM (Ref. 1) the Site is required to retain the storm water generated from the 100-year 2-hour storm event. Based on Ref. 1, the Site's 100-year runoff coefficient for a commercial/industrial use is 0.86. Based on NOAA14 and Ref. 1, the site's precipitation value is 2.25 inches. For required and proposed retention volume calculations, refer to Appendix E. All basins are designed to overflow in events exceeding 100-years storms.

On-site peak flows have been calculated using the Rational Method, as established in Ref. 1. The calculations determined the amount of flow generated on-site and directly to the catch basins. Drainage basins were determined based on the preliminary grading plans, and are shown on the Onsite Drainage Map in Appendix D.

For the purposes of this report, a minimum time of concentration of 10 minutes was used. Refer to Appendix D for the onsite rational method calculations.

Weir Calculations were used to determined catch basin sizes. Refer to Appendix D for the Weir calculations. Catch basins shall be designed with only 6" max ponding, with overflows set at the ponding elevation.

To bleed off the site's retained storm water from onsite drainage areas, drywell systems have been designed and connected to the underground retention systems. Dual chamber drywells will be utilized in order to properly filtrate oils and sediments from the paved areas. A design rate of 0.1 cfs per drywell was used to determine the number of drywells required for the site to drain within a 36-hour period. See Appendix D for drywell percolation calculations for the drywell.

For the surface basins A, B, & C, the basins are proposed at 1-ft deep which would not require drywells.

#### 6. Conclusions

The following is a summary of the Toy Barn at the Airpark Drainage Report.

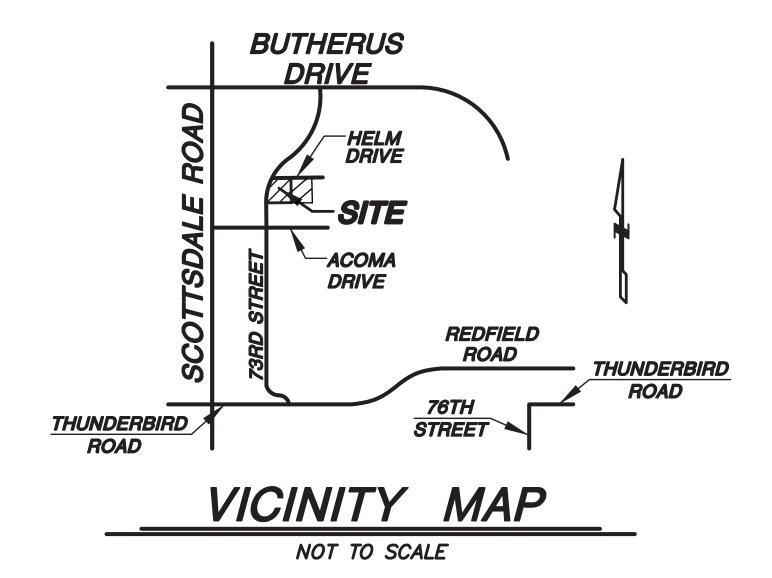
- The site currently lies within "Zone X" floodplain designation.
- All onsite flow will be directed away from the buildings and conveyed to underground storage tanks and retention basins located within the site.
- Unit roof tops will drain to the front of the units and into the paved areas.
- The project will retain site 100-year 2-hour storm water runoff.
- Finished Floors are elevated 14-inches above the ultimate site outfall.

#### 7. References

- 1. City of Scottsdale, Design Standards and Policies Manual, 2018.
- 2. Federal Emergency Management Agency, Flood Insurance Rate Maps for Maricopa County Arizona, and Incorporated Area, Map Number 04013C1760L, dated October 16, 2013.

APPENDIX A

Vicinity Map



# APPENDIX B Current FIRM Map

### NOTES TO USERS

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

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

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

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

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

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

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

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

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <a href="http://www.ngs.noaa.gov">http://www.ngs.noaa.gov</a>. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at:

http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm.

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

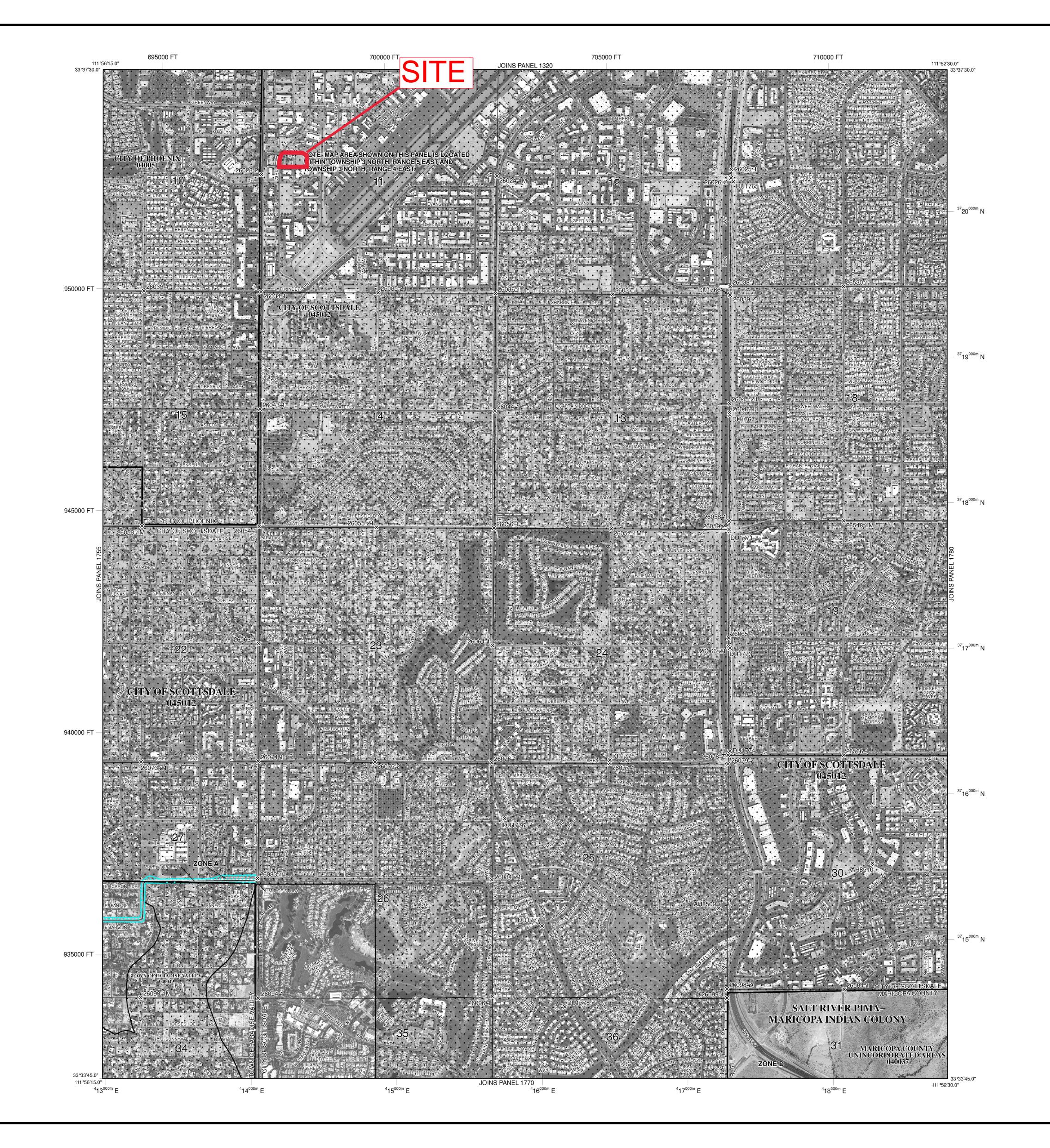
The **profile base line** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the profile base line, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

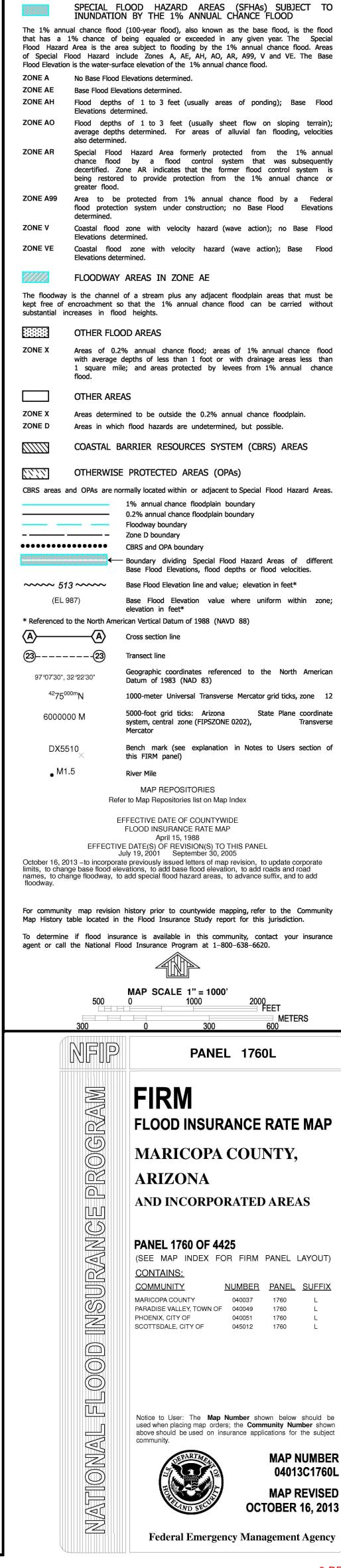
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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

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

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





**LEGEND** 

# APPENDIX C

Aerial Photograph of Site



# **Aerial Photo**

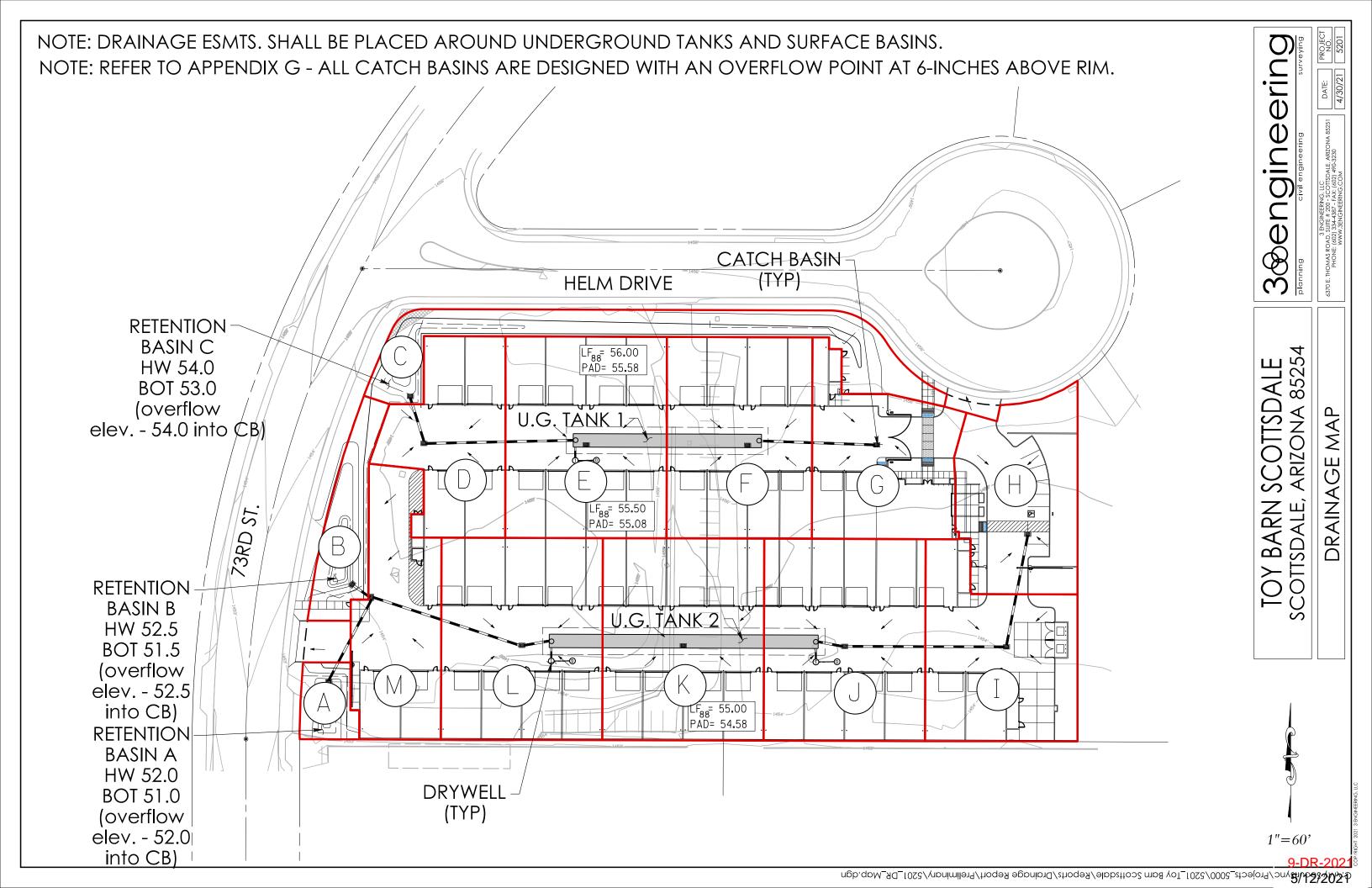




2/2/2021 1:38:14 PM

# APPENDIX D

Onsite Drainage Map



# APPENDIX E

# Onsite Hydrologic & Hydraulic Calculations



NOAA Atlas 14, Volume 1, Version 5 Location name: Scottsdale, Arizona, USA\* Latitude: 33.6258°, Longitude: -111.9123° Elevation: 1480.29 ft\*\* \* source: ESRI Maps \*\* source: USGS



#### POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

#### PF tabular

PE	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) <sup>1</sup>									
Duration				Avera	ge recurrenc	e interval (y	ears)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>0.192</b> (0.159-0.234)	<b>0.251</b> (0.210-0.306)	<b>0.337</b> (0.280-0.411)	<b>0.405</b> (0.335-0.491)	<b>0.495</b> (0.403-0.599)	<b>0.564</b> (0.454-0.677)	<b>0.636</b> (0.502-0.762)	<b>0.707</b> (0.549-0.845)	<b>0.804</b> (0.608-0.963)	<b>0.877</b> (0.650-1.05)
10-min	<b>0.292</b> (0.242-0.357)	<b>0.382</b> (0.320-0.466)	<b>0.514</b> (0.426-0.626)	<b>0.616</b> (0.509-0.748)	<b>0.754</b> (0.613-0.912)	<b>0.859</b> (0.691-1.03)	<b>0.968</b> (0.764-1.16)	<b>1.08</b> (0.835–1.29)	<b>1.22</b> (0.925–1.47)	<b>1.33</b> (0.990-1.60)
15-min	<b>0.362</b> (0.301-0.442)	<b>0.473</b> (0.396-0.578)	<b>0.637</b> (0.528-0.776)	<b>0.764</b> (0.631-0.927)	<b>0.935</b> (0.760-1.13)	<b>1.07</b> (0.856-1.28)	<b>1.20</b> (0.947–1.44)	<b>1.33</b> (1.04–1.59)	<b>1.52</b> (1.15–1.82)	<b>1.65</b> (1.23–1.98)
30-min	<b>0.488</b> (0.405-0.595)	<b>0.638</b> (0.534-0.778)	<b>0.857</b> (0.711-1.04)	<b>1.03</b> (0.850-1.25)	<b>1.26</b> (1.02–1.52)	<b>1.43</b> (1.15–1.72)	<b>1.62</b> (1.28–1.94)	<b>1.80</b> (1.40-2.15)	<b>2.04</b> (1.55–2.44)	<b>2.23</b> (1.65-2.67)
60-min	<b>0.604</b> (0.501-0.737)	<b>0.789</b> (0.660-0.963)	<b>1.06</b> (0.880-1.29)	<b>1.27</b> (1.05–1.55)	<b>1.56</b> (1.27–1.88)	<b>1.78</b> (1.43–2.13)	<b>2.00</b> (1.58-2.40)	<b>2.22</b> (1.73–2.66)	<b>2.53</b> (1.91–3.03)	<b>2.76</b> (2.05–3.31)
2-hr	<b>0.706</b> (0.594-0.842)	<b>0.914</b> (0.773-1.09)	<b>1.22</b> (1.02-1.44)	<b>1.45</b> (1.20–1.71)	<b>1.76</b> (1.46–2.08)	<b>2.00</b> (1.63–2.35)	<b>2.25</b> (1.80-2.63)	<b>2.49</b> (1.96-2.92)	<b>2.83</b> (2.18-3.32)	<b>3.09</b> (2.32–3.63)
3-hr	<b>0.786</b> (0.663-0.962)	<b>1.01</b> (0.852-1.24)	<b>1.31</b> (1.11–1.61)	<b>1.56</b> (1.30–1.89)	<b>1.90</b> (1.56–2.29)	<b>2.17</b> (1.76–2.60)	<b>2.45</b> (1.95–2.94)	<b>2.75</b> (2.15–3.28)	<b>3.15</b> (2.39–3.77)	<b>3.48</b> (2.58-4.16)
6-hr	<b>0.948</b> (0.814-1.13)	<b>1.20</b> (1.02–1.42)	<b>1.52</b> (1.30–1.80)	<b>1.79</b> (1.51–2.10)	<b>2.15</b> (1.79–2.52)	<b>2.42</b> (1.99–2.83)	<b>2.72</b> (2.20–3.16)	<b>3.01</b> (2.40-3.52)	<b>3.42</b> (2.64-3.98)	<b>3.73</b> (2.82-4.36)
12-hr	<b>1.06</b> (0.911–1.25)	<b>1.33</b> (1.15–1.58)	<b>1.68</b> (1.44-1.98)	<b>1.96</b> (1.66-2.30)	<b>2.33</b> (1.95-2.72)	<b>2.61</b> (2.17–3.04)	<b>2.90</b> (2.37–3.38)	<b>3.20</b> (2.59-3.72)	<b>3.59</b> (2.83-4.20)	<b>3.90</b> (3.01–4.59)
24-hr	<b>1.24</b> (1.08–1.44)	<b>1.57</b> (1.38–1.83)	<b>2.02</b> (1.76–2.35)	<b>2.38</b> (2.07-2.76)	<b>2.89</b> (2.48-3.34)	<b>3.28</b> (2.80-3.78)	<b>3.70</b> (3.12-4.27)	<b>4.13</b> (3.44-4.76)	<b>4.72</b> (3.86-5.46)	<b>5.20</b> (4.19-6.03)
2-day	<b>1.33</b> (1.15–1.54)	<b>1.69</b> (1.46–1.96)	<b>2.20</b> (1.90-2.56)	<b>2.61</b> (2.25-3.02)	<b>3.18</b> (2.71–3.68)	<b>3.63</b> (3.07–4.19)	<b>4.10</b> (3.43–4.75)	<b>4.59</b> (3.81-5.33)	<b>5.27</b> (4.30-6.13)	<b>5.81</b> (4.67–6.79)
3-day	<b>1.43</b> (1.25–1.64)	<b>1.82</b> (1.59–2.10)	<b>2.39</b> (2.09–2.75)	<b>2.85</b> (2.48-3.27)	<b>3.50</b> (3.02-4.01)	<b>4.02</b> (3.44-4.60)	<b>4.57</b> (3.88–5.25)	<b>5.15</b> (4.33-5.93)	<b>5.97</b> (4.94–6.89)	<b>6.63</b> (5.41–7.68)
4-day	<b>1.52</b> (1.34–1.75)	<b>1.95</b> (1.72-2.23)	<b>2.58</b> (2.27-2.94)	<b>3.09</b> (2.71–3.52)	<b>3.82</b> (3.32-4.34)	<b>4.41</b> (3.81–5.02)	<b>5.04</b> (4.33–5.75)	<b>5.71</b> (4.85-6.54)	<b>6.67</b> (5.58-7.64)	<b>7.45</b> (6.16–8.58)
7-day	<b>1.72</b> (1.51–1.98)	<b>2.20</b> (1.93–2.52)	<b>2.91</b> (2.55–3.34)	<b>3.49</b> (3.05-4.00)	<b>4.32</b> (3.74-4.94)	<b>4.99</b> (4.30–5.70)	<b>5.71</b> (4.87-6.53)	<b>6.47</b> (5.47–7.44)	<b>7.56</b> (6.30–8.71)	<b>8.45</b> (6.95–9.78)
10-day	<b>1.86</b> (1.64-2.13)	<b>2.39</b> (2.10-2.73)	<b>3.16</b> (2.77–3.60)	<b>3.78</b> (3.30-4.31)	<b>4.66</b> (4.04-5.30)	<b>5.37</b> (4.63–6.10)	<b>6.13</b> (5.24–6.98)	<b>6.93</b> (5.87-7.91)	<b>8.06</b> (6.73-9.23)	<b>8.97</b> (7.41–10.3)
20-day	<b>2.31</b> (2.03–2.63)	<b>2.97</b> (2.62-3.38)	<b>3.92</b> (3.45-4.46)	<b>4.65</b> (4.08-5.28)	<b>5.64</b> (4.93-6.40)	<b>6.40</b> (5.57–7.27)	<b>7.18</b> (6.21–8.18)	<b>7.99</b> (6.86-9.12)	<b>9.07</b> (7.71–10.4)	<b>9.91</b> (8.35–11.4)
30-day	<b>2.71</b> (2.38–3.08)	<b>3.48</b> (3.07–3.96)	<b>4.60</b> (4.04–5.22)	<b>5.45</b> (4.78-6.17)	<b>6.60</b> (5.75–7.47)	<b>7.48</b> (6.50–8.47)	<b>8.40</b> (7.25–9.51)	<b>9.32</b> (8.00–10.6)	<b>10.6</b> (9.00–12.0)	<b>11.6</b> (9.74–13.2)
45-day	<b>3.14</b> (2.78-3.56)	<b>4.05</b> (3.59-4.59)	<b>5.35</b> (4.73–6.05)	<b>6.31</b> (5.56-7.14)	<b>7.59</b> (6.66-8.59)	<b>8.57</b> (7.48-9.69)	<b>9.56</b> (8.30–10.8)	<b>10.6</b> (9.11–12.0)	<b>11.9</b> (10.2–13.6)	<b>12.9</b> (10.9–14.8)
60-day	<b>3.48</b> (3.09–3.94)	<b>4.50</b> (4.00-5.08)	<b>5.93</b> (5.25-6.68)	<b>6.97</b> (6.16–7.86)	<b>8.34</b> (7.34–9.40)	<b>9.36</b> (8.20–10.6)	<b>10.4</b> (9.06–11.7)	<b>11.4</b> (9.90–12.9)	<b>12.7</b> (11.0-14.5)	<b>13.7</b> (11.7–15.7)

<sup>&</sup>lt;sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

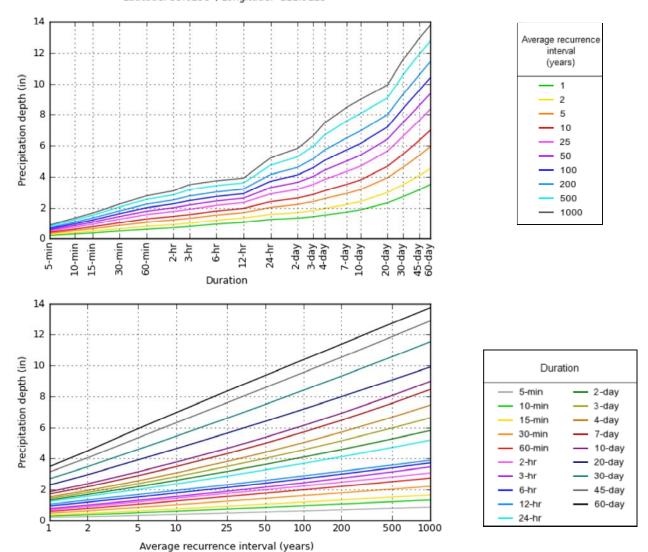
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper 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

#### PF graphical

PDS-based depth-duration-frequency (DDF) curves Latitude: 33.6258°, Longitude: -111.9123°

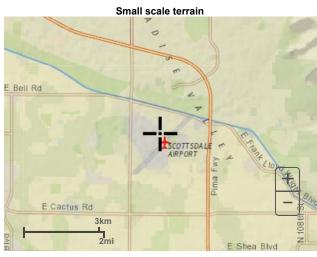


NOAA Atlas 14, Volume 1, Version 5

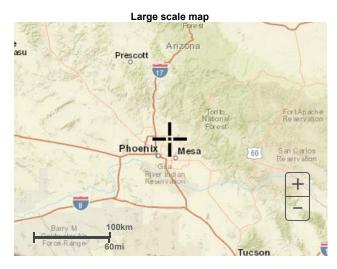
Created (GMT): Mon Jul 10 21:01:58 2017

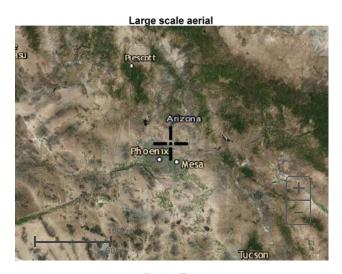
Back to Top

#### Maps & aerials









Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer



NOAA Atlas 14, Volume 1, Version 5 Location name: Scottsdale, Arizona, USA\* Latitude: 33.6258°, Longitude: -111.9123° Elevation: 1480.29 ft\*\* \* source: ESRI Maps \*\* source: USGS



## POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

#### PF tabular

PDS-	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>									
Duration	-	-		Avera	ige recurren	ce interval ()	/ears)			•
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	<b>2.30</b> (1.91–2.81)	<b>3.01</b> (2.52–3.67)	<b>4.04</b> (3.36-4.93)	<b>4.86</b> (4.02-5.89)	<b>5.94</b> (4.84-7.19)	<b>6.77</b> (5.45–8.12)	<b>7.63</b> (6.02-9.14)	<b>8.48</b> (6.59–10.1)	<b>9.65</b> (7.30–11.6)	<b>10.5</b> (7.80–12.6)
10-min	<b>1.75</b> (1.45–2.14)	<b>2.29</b> (1.92–2.80)	<b>3.08</b> (2.56-3.76)	<b>3.70</b> (3.05-4.49)	<b>4.52</b> (3.68-5.47)	<b>5.15</b> (4.15–6.18)	<b>5.81</b> (4.58-6.96)	<b>6.46</b> (5.01–7.72)	<b>7.34</b> (5.55–8.79)	<b>8.00</b> (5.94-9.60)
15-min	<b>1.45</b> (1.20–1.77)	<b>1.89</b> (1.58–2.31)	<b>2.55</b> (2.11–3.10)	<b>3.06</b> (2.52–3.71)	<b>3.74</b> (3.04–4.52)	<b>4.26</b> (3.42–5.11)	<b>4.80</b> (3.79–5.75)	<b>5.34</b> (4.14-6.38)	<b>6.07</b> (4.59-7.26)	<b>6.62</b> (4.91–7.93)
30-min	<b>0.976</b> (0.810-1.19)	<b>1.28</b> (1.07–1.56)	<b>1.71</b> (1.42-2.09)	<b>2.06</b> (1.70–2.50)	<b>2.52</b> (2.05–3.04)	<b>2.87</b> (2.31–3.44)	<b>3.23</b> (2.55-3.87)	<b>3.59</b> (2.79-4.29)	<b>4.08</b> (3.09–4.89)	<b>4.45</b> (3.30-5.34)
60-min	<b>0.604</b> (0.501-0.737)	<b>0.789</b> (0.660-0.963)	<b>1.06</b> (0.880-1.29)	<b>1.27</b> (1.05–1.55)	<b>1.56</b> (1.27–1.88)	<b>1.78</b> (1.43-2.13)	<b>2.00</b> (1.58-2.40)	<b>2.22</b> (1.73–2.66)	<b>2.53</b> (1.91–3.03)	<b>2.76</b> (2.05-3.31)
2-hr	<b>0.353</b> (0.297-0.421)	<b>0.457</b> (0.386-0.546)	<b>0.608</b> (0.510-0.721)	<b>0.722</b> (0.601-0.857)	<b>0.882</b> (0.728-1.04)	<b>1.00</b> (0.814–1.18)	<b>1.12</b> (0.898–1.32)	<b>1.25</b> (0.982-1.46)	<b>1.41</b> (1.09–1.66)	<b>1.54</b> (1.16–1.82)
3-hr	<b>0.262</b> (0.221-0.320)	<b>0.335</b> (0.284-0.412)	<b>0.437</b> (0.368-0.535)	<b>0.518</b> (0.431-0.629)	<b>0.632</b> (0.518-0.763)	<b>0.723</b> (0.585-0.867)	<b>0.816</b> (0.649-0.978)	<b>0.915</b> (0.715-1.09)	<b>1.05</b> (0.796–1.25)	<b>1.16</b> (0.857-1.39)
6-hr	<b>0.158</b> (0.136-0.188)	<b>0.200</b> (0.171-0.238)	<b>0.255</b> (0.217-0.301)	<b>0.299</b> (0.252-0.351)	<b>0.359</b> (0.299-0.420)	<b>0.405</b> (0.332-0.473)	<b>0.453</b> (0.367-0.527)	<b>0.503</b> (0.400-0.587)	<b>0.570</b> (0.441-0.664)	<b>0.623</b> (0.471–0.727)
12-hr	<b>0.088</b> (0.076-0.104)	<b>0.111</b> (0.095-0.131)	<b>0.140</b> (0.119-0.164)	<b>0.162</b> (0.138-0.191)	<b>0.193</b> (0.162-0.226)	<b>0.216</b> (0.180-0.253)	<b>0.241</b> (0.197-0.280)	<b>0.265</b> (0.215-0.309)	<b>0.298</b> (0.235-0.349)	<b>0.323</b> (0.250-0.381)
24-hr	<b>0.052</b> (0.045-0.060)	<b>0.065</b> (0.057-0.076)	<b>0.084</b> (0.073-0.098)	<b>0.099</b> (0.086-0.115)	<b>0.120</b> (0.103-0.139)	<b>0.137</b> (0.117-0.158)	<b>0.154</b> (0.130-0.178)	<b>0.172</b> (0.143-0.198)	<b>0.197</b> (0.161–0.227)	<b>0.216</b> (0.175-0.251)
2-day	<b>0.028</b> (0.024-0.032)	<b>0.035</b> (0.030-0.041)	<b>0.046</b> (0.040-0.053)	<b>0.054</b> (0.047-0.063)	<b>0.066</b> (0.057–0.077)	<b>0.076</b> (0.064-0.087)	<b>0.085</b> (0.072-0.099)	<b>0.096</b> (0.079-0.111)	<b>0.110</b> (0.090-0.128)	<b>0.121</b> (0.097-0.141)
3-day	<b>0.020</b> (0.017-0.023)	<b>0.025</b> (0.022-0.029)	<b>0.033</b> (0.029-0.038)	<b>0.040</b> (0.034-0.045)	<b>0.049</b> (0.042-0.056)	<b>0.056</b> (0.048-0.064)	<b>0.063</b> (0.054-0.073)	<b>0.072</b> (0.060-0.082)	<b>0.083</b> (0.069-0.096)	<b>0.092</b> (0.075-0.107)
4-day	<b>0.016</b> (0.014-0.018)	<b>0.020</b> (0.018-0.023)	<b>0.027</b> (0.024-0.031)	<b>0.032</b> (0.028-0.037)	<b>0.040</b> (0.035-0.045)	<b>0.046</b> (0.040-0.052)	<b>0.052</b> (0.045-0.060)	<b>0.059</b> (0.051-0.068)	<b>0.069</b> (0.058-0.080)	<b>0.078</b> (0.064-0.089)
7-day	<b>0.010</b> (0.009-0.012)	<b>0.013</b> (0.011–0.015)	<b>0.017</b> (0.015-0.020)	<b>0.021</b> (0.018-0.024)	<b>0.026</b> (0.022-0.029)	<b>0.030</b> (0.026-0.034)	<b>0.034</b> (0.029-0.039)	<b>0.039</b> (0.033-0.044)	<b>0.045</b> (0.037-0.052)	<b>0.050</b> (0.041–0.058)
10-day	<b>0.008</b> (0.007-0.009)	<b>0.010</b> (0.009–0.011)	<b>0.013</b> (0.012-0.015)	<b>0.016</b> (0.014-0.018)	<b>0.019</b> (0.017–0.022)	<b>0.022</b> (0.019-0.025)	<b>0.026</b> (0.022-0.029)	<b>0.029</b> (0.024-0.033)	<b>0.034</b> (0.028-0.038)	<b>0.037</b> (0.031-0.043)
20-day	<b>0.005</b> (0.004-0.005)	<b>0.006</b> (0.005-0.007)	<b>0.008</b> (0.007-0.009)	<b>0.010</b> (0.008-0.011)	<b>0.012</b> (0.010-0.013)	<b>0.013</b> (0.012-0.015)	<b>0.015</b> (0.013-0.017)	<b>0.017</b> (0.014-0.019)	<b>0.019</b> (0.016-0.022)	<b>0.021</b> (0.017-0.024)
30-day	<b>0.004</b> (0.003-0.004)	<b>0.005</b> (0.004-0.005)	0.006 (0.006-0.007)	<b>0.008</b> (0.007-0.009)	<b>0.009</b> (0.008-0.010)	<b>0.010</b> (0.009–0.012)	<b>0.012</b> (0.010-0.013)	<b>0.013</b> (0.011–0.015)	<b>0.015</b> (0.012–0.017)	<b>0.016</b> (0.014-0.018)
45-day	0.003 (0.003-0.003)	<b>0.004</b> (0.003-0.004)	<b>0.005</b> (0.004-0.006)	<b>0.006</b> (0.005-0.007)	<b>0.007</b> (0.006-0.008)	<b>0.008</b> (0.007-0.009)	<b>0.009</b> (0.008-0.010)	<b>0.010</b> (0.008-0.011)	<b>0.011</b> (0.009-0.013)	<b>0.012</b> (0.010-0.014)
60-day	<b>0.002</b> (0.002-0.003)	<b>0.003</b> (0.003-0.004)	<b>0.004</b> (0.004-0.005)	<b>0.005</b> (0.004-0.005)	<b>0.006</b> (0.005-0.007)	<b>0.006</b> (0.006-0.007)	<b>0.007</b> (0.006-0.008)	<b>0.008</b> (0.007-0.009)	<b>0.009</b> (0.008-0.010)	<b>0.010</b> (0.008-0.011)

<sup>&</sup>lt;sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

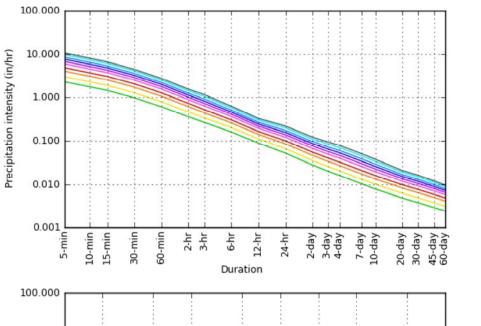
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

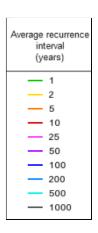
Please refer to NOAA Atlas 14 document for more information.

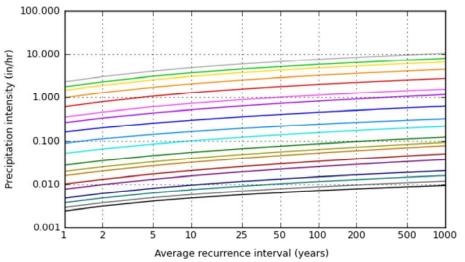
Back to Top

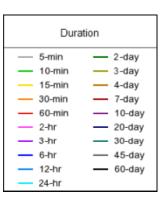
#### PF graphical









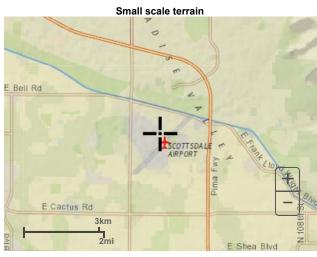


NOAA Atlas 14, Volume 1, Version 5

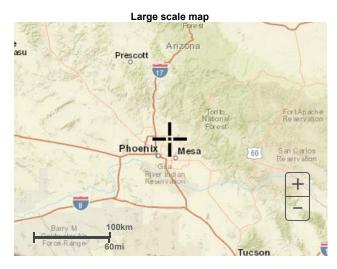
Created (GMT): Mon Jul 10 21:09:55 2017

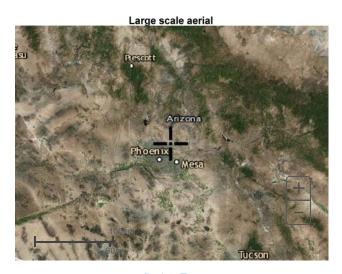
Back to Top

#### Maps & aerials







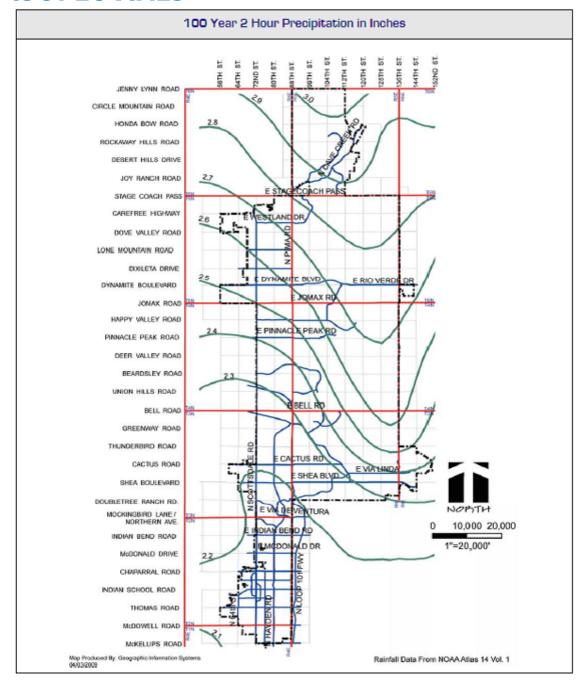


Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

## **ISOPLUVIALS**



2. A rainfall runoff model using the USACE's HEC 1 Flood Hydrograph Package (generally used for watersheds that are larger than 160 acres, irregular in shape and contour, or if routing of flows is necessary).

#### **B. Watershed Conditions**

Watersheds are subject to change. Grading and drainage plans shall consider all watershed conditions that would result in the greatest peak discharge rate, to:

- 1. Size drainage facilities, and
- 2. Determine lowest floor elevations.

#### **C. Split-Flow Conditions**

Projects in northern parts of Scottsdale must address split-flow channel conditions where applicable. These splits in the alluvial channels usually include highly erosive soils and are generally unstable and unpredictable. In setting lowest floor elevations relative to upstream splits, assume that 100% of the flow could go either direction in any given flood event. For infrastructure design, the estimate of the actual split, based on a hydraulic analysis of the current channel cross sections, must include a minimum safety factor of 30% of the total flow. If there are extenuating factors affecting the stability of the split, the safety factor should be increased accordingly.

#### D. Environmentally Sensitive Lands

For special considerations regarding Environmentally Sensitive Lands, refer to the City Zoning Ordinance and DSPM Chapter 2 Section 2-2. Modification of natural watercourses with a flow of 50 cfs or greater are addressed in the City Zoning Ordinance.

#### E. The Rational Method

- 1. Precipitation. Precipitation input is rainfall intensity, "i," and can be obtained directly from NOAA 14.
- 2. Time of Concentration. Time of concentration "t<sub>c</sub>" is the total time of travel from the most hydraulically remote part of the watershed to the concentration point of interest. The calculation of "t<sub>c</sub>" must follow FCDMC Hydrology Manual procedures.
- 3. Runoff Coefficients. Use Fig. 4-1.5, Runoff Coefficients for Use with Rational Method, or equivalent to obtain the runoff coefficients or "C" values. Composite "C" values for the appropriate zoning category or weighted average values calculated for the specific site are both acceptable approaches.

#### **RUNOFF COEFFICIENTS - "C" VALUE**

L	AND USE	STORM F	:Υ	
	Composite Area-wide Values	2-25	50	100
		Year	Yea	Yea
			r	r
Ι	Commercial & Industrial Areas	0.80	0.83	0.86
	Residential Areas – Single Family, slopes			
	10% or less			
	R1-190	0.33	0.50	0.53
	R1-130	0.35	0.51	0.59

**Design Standards & Policies Manual** 



**Post-Development Rational Method Calculations** 

Sub-Area	Area	C <sub>10</sub>	C <sub>100</sub>	Tc	<b>İ</b> 10	<b>İ</b> 100	Local Q <sub>10</sub>	Local Q <sub>100</sub>
	(acres)	DS&PM	DS&PM	(min)	(in/hr)	(in/hr)	(cfs)	(cfs)
Α	0.05	0.80	0.86	10	3.70	5.81	0.15	0.26
В	0.11	0.80	0.86	10	3.70	5.81	0.33	0.55
С	0.26	0.80	0.86	10	3.70	5.81	0.76	1.28
D	0.25	0.80	0.86	10	3.70	5.81	0.74	1.24
E	0.41	0.80	0.86	10	3.70	5.81	1.22	2.06
F	0.37	0.80	0.86	10	3.70	5.81	1.10	1.86
G	0.28	0.80	0.86	10	3.70	5.81	0.83	1.40
Н	0.28	0.80	0.86	10	3.70	5.81	0.83	1.41
I	0.32	0.80	0.86	10	3.70	5.81	0.93	1.58
J	0.41	0.80	0.86	10	3.70	5.81	1.23	2.07
K	0.41	0.80	0.86	10	3.70	5.81	1.23	2.07
L	0.41	0.80	0.86	10	3.70	5.81	1.22	2.07
M	0.26	0.80	0.86	10	3.70	5.81	0.77	1.30



**Grated Inlet Capacity - Weir Condition** 

-	Ī		Inlet Capacity			
	Inlet		w/ 50%			
	_				_	P <sup>(1)</sup>
Inlet Type	Area	<b>Q</b> 100	clogging	d	Cw	P
		(cfs)	(cfs)	(ft)		(ft)
M.A.G. type "F"	Α	Р	6.27	0.50	3	11.83
M.A.G. type "F"	В	0.55	6.27	0.50	3	11.83
M.A.G. type "F"	С	1.28	6.27	0.50	3	11.83
M.A.G. type "F"	D	1.24	6.27	0.50	3	11.83
M.A.G. type "F"	Е	2.06	6.27	0.50	3	11.83
M.A.G. type "F"	F	1.86	6.27	0.50	3	11.83
M.A.G. type "F"	G	1.40	6.27	0.50	3	11.83
M.A.G. type "F"	Н	1.41	6.27	0.50	3	11.83
M.A.G. type "F"		1.58	6.27	0.50	3	11.83
M.A.G. type "F"	J	2.07	6.27	0.50	3	11.83
M.A.G. type "F"	K	2.07	6.27	0.50	3	11.83
M.A.G. type "F"	L	2.07	6.27	0.50	3	11.83
M.A.G. type "F"	М	1.30	6.27	0.50	3	11.83

Q=Cw\*P\*d^1.5 Cw= 3.0 weir coefficient

Q = discharge capacityP = inlet perimeterd = flow depth

(1) Wetted Perimeter 1 Type F Catch Basins 11.83 2 Type F Catch Basins 18.67 3 Type F Catch Basins 25.50 4 Type F Catch Basins 32.33



100-yr 2-hr Retention Required Calculation

AREA	Site Area	Site Area	С	Р	Volume	Volume
-	(SF)	(AC)	•	inches	CF	AF
Α	2248	0.05	0.86	2.25	362	0.01
В	4814	0.11	0.86	2.25	776	0.02
С	11128	0.26	0.86	2.25	1794	0.04
D	10820	0.25	0.86	2.25	1745	0.04
Е	17992	0.41	0.86	2.25	2901	0.07
F	16201	0.37	0.86	2.25	2612	0.06
G	12179	0.28	0.86	2.25	1964	0.05
Н	12268	0.28	0.86	2.25	1978	0.05
I	13745	0.32	0.86	2.25	2216	0.05
J	18037	0.41	0.86	2.25	2908	0.07
K	18037	0.41	0.86	2.25	2908	0.07
L	18016	0.41	0.86	2.25	2905	0.07
M	11357	0.26	0.86	2.25	1831	0.04

Retention Volume Formula V=CPA/12



#### **RETENTION PROVIDED**

#### Basin Volume - Basin A

		Average		
Elevation	Area	Area	TOTAL	TOTAL
FT	SF	SF	CF	AF
51	126			0.00
52	452	289	289	0.01
				0.00
				0.00
		TOTAL	280	CE

TOTAL	289	CF

Values Bandad	
Volume Required	
Subbasin	
A	
(CF)	
362	
Volume SHORT	CF
EXCESS TO TANK 2	73

#### Basin Volume - Basin B

		Average		
Elevation	Area	Area	TOTAL	TOTAL
FT	SF	SF	CF	AF
51.5	187			0.00
52.5	646	417	417	0.01
				0.00
				0.00
		ΤΩΤΔΙ	<i>4</i> 17	CF

Volume Required	
Subbasin	
В	
(CF)	
776	
Volume SHORT	CF
EXCESS TO TANK 2	360

#### Basin Volume - Basin C

		Average		
Elevation	Area	Area	TOTAL	TOTAL
FT	SF	SF	CF	AF
53	195			0.00
54	892	544	544	0.01
				0.00
				0.00
		TOTAL	5 <i>1.</i> 1	CE

	-
Volume Required	
Subbasin	
С	
(CF)	
1794	
Volume SHORT	CF
EXCESS TO TANK 1	1251

**Underground Storage Tank - 1** 

	X-		
	section		
Diameter	Area	Length	TOTAL
FT	SF	LF	CF
10	78.5	140	10990

TOTAL: 10990 CF

Volume Required	
Subbasin/Excess	
D,E,F,G, Excess from Basin A	
(CF)	
10473	
Volume OK	

**Underground Storage Tank - 2** 

	X-	<u> </u>	
	section		
Diameter	Area	Length	TOTAL
FT	SF	LF	CF
10	78.5	200	15700

TOTAL: 15700 CF

Volume Required	
Subbasin/Excess	
H,I,J,K,L,M, Excess from Basin A&B	
(CF)	
15181	
Volume OK	CF



**Drywell Calculations** 

bi j well ealediations						
	Drywell		Total			
	Design		Drywell	Total	Underground	
	Rate of	Drywells	Design	Bleed	Volume	Dry-Up
Sub-Area	Bleedoff	Provided	Rate	Off Rate	Provided	Time
	(cfs)	#	(cfs)	cfs	(cf)	(hr)
Tank 1	0.1	1	0.1	0.1000	10990	30.5
Tank 2	0.1	2	0.2	0.2000	15700	21.8

1 - DRYWELL NEEDED

2 - DRYWELL NEEDED

# APPENDIX F

Warning & Disclaimer of Liability

## **GRADING & DRAINAGE LANGUAGE**

#### WARNING AND DISCLAIMER OF LIABILITY

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

WARNING AND DISCLAIMER OF LIABILITY

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

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

I have read and understand the above.

22-PA-2021		3/5/21
Plan Check #	Owner	Date

# APPENDIX G Improvement Plans

# PRELIMINARY IMPROVEMENT PLANS

# "TOY BARN SCOTTSDALE" SCOTTSDALE, ARIZONA

LOCATED IN A PORTION OF SECTION 11, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

## LEGAL DESCRIPTION:

LOT 1, OF MINOR LAND DIVISION PLAT 7317 & 7333 E. HELM DRIVE, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 1524 OF MAPS, PAGE 48. EXCEPT ALL URANIUM, THORIUM, AND ALL OTHER MATERIAL WHICH IS OR MAY BE CONSIDERED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN THE PATENT FROM THE UNITED STATES OF AMERICA.

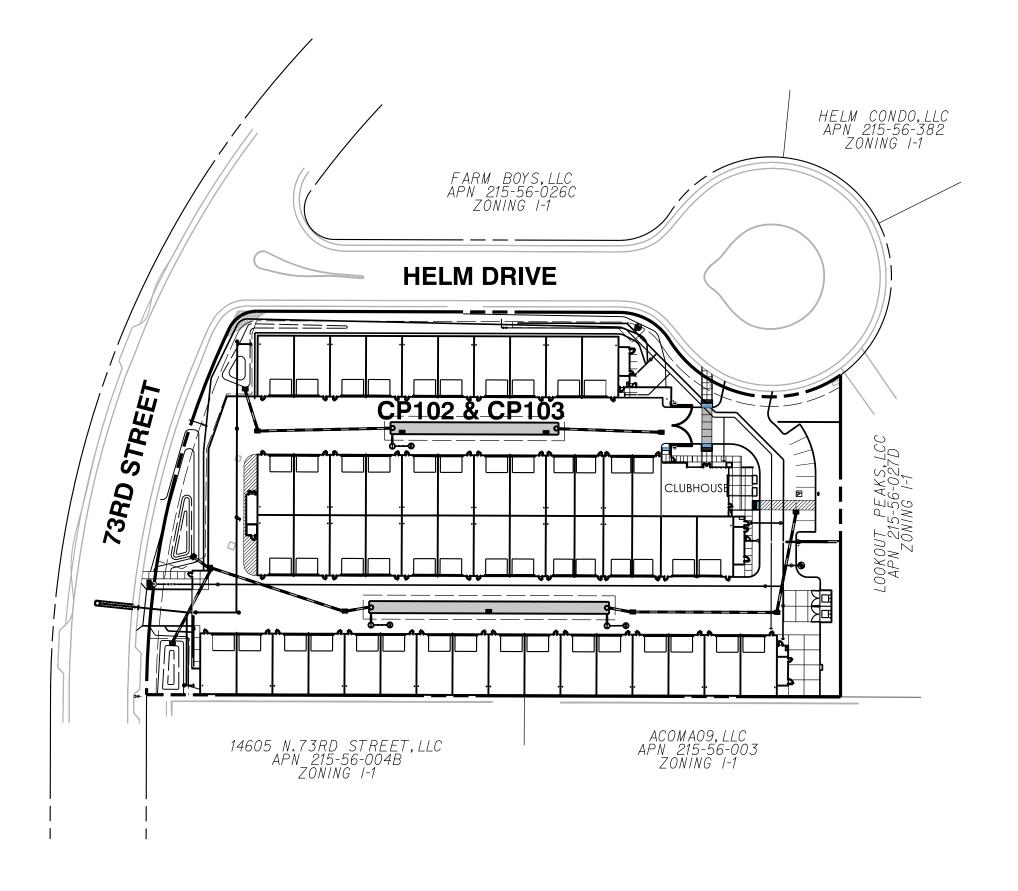
LOT 26, OF THUNDERBIRD INDUSTRIAL AIRPARK NO. 2, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA, RECORDED IN BOOK 118 OF MAPS, PAGE 10. EXCEPT ALL URANIUM, THORIUM, AND ALL OTHER MATERIAL WHICH IS OR MAY BE CONSIDERED TO BE PECULIARLY ESSENTIAL TO THE PRODUCTION OF FISSIONABLE MATERIALS, WHETHER OR NOT OF COMMERCIAL VALUE, AS RESERVED IN THE PATENT FROM THE UNITED STATES OF AMERICA.

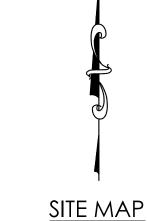
### CURRENT FLOOD INSURANCE RATE MAP (FIRM) INFORMATION:

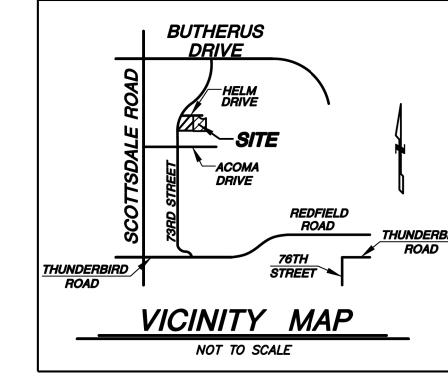
COMMUNITY NUMBER	PANEL NUMBER	PANEL DATE	SUFFIX	FIRM DATE	FIRM ZONE	BASE FLOOD ELEVATION
045012	1760	OCTOBER 16, 2013	L	OCTOBER 16, 2013	X-SHADED	N/A

# FLOOD ZONE INFORMATION:

AREA OF 500-YEAR FLOOD; AREAS OF 100-YEAR FLOOD WITH AN AVERAGE DEPTH OF LESS THAN 1-FT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREA PROTECTED BY LEVEES FROM 100-YEAR FLOOD.







APPLICANT:

WESLEY DEVELOPMENT, L.L.C. P.O. BOX 26768 SCOTTSDALE, AZ 85255 CONTACT: JASON PHILLIPS PHONE: (602) 920-3998

**ENGINEER:** 

3 ENGINEERING, L.L.C. 6370 E. THOMAS ROAD, SUITE 200 SCOTTSDALE, ARIZONA 85251

CONTACT: MATTHEW J. MANCINI, P.E. PHONE: (602) 334-4387

**PROJECT DESCRIPTION:** 

52 PREMIUM GARAGE STORAGE UNITS, AND CLUBHOUSE

ZONING (EXISTING/PROPOSED)

**UTILITIES:** 

**TELEPHONE** COX/CENTURYLINK ELECTRIC SOUTHWEST GAS CABLE TV SEWER/WATER CITY OF SCOTTSDALE CITY OF SCOTTSDALE POLICE CITY OF SCOTTSDALE FIRE CITY OF SCOTTSDALE REFUSE

BENCHMARK:

SANITATION

BENCHMARK GDACS POINT 26023-2 W1/4 COR SEC. 11 BRASS CAP IN HANDHOLE ELEV.=1449.36 NAVD '88

BASIS OF BEARING:

MONUMENT LINE OF HELM DRIVE, USING A BEARING OF NORTH 89 DEGREES 49 MINUTES OO SECONDS WEST PER PLAT OF THUNDERBIRD INDUSTRIAL PARK NO: 2 RECORDED IN BOOK 118, PAGE 10, RECORDS OF MARICOPA COUNTY, ARIZONA.

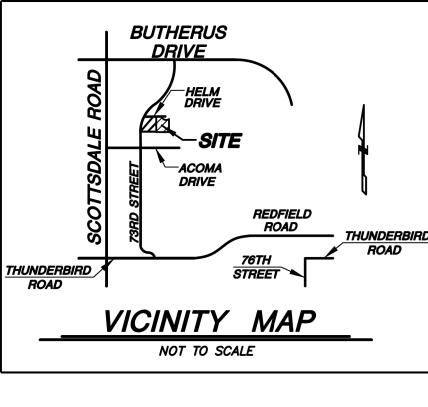
CITY OF SCOTTSDALE

SITE DATA:

SITE AREA: 3.86 AC BUILDING AREA: 81,270 SF± ZONING:

PARCEL NUMBER: 215-56-027C & 215-56-029

	INDEX OF SHEETS
SHEET NO.	DESCRIPTION
CP01	COVER SHEET
CP02	PRELIMINARY GRADING AND DRAINAGE PLAN
CP03	PRELIMINARY UTILITY PLAN



EXPIRES: 12/31/2021

	INDEX OF SHEETS
SHEET NO.	DESCRIPTION
CP01	COVER SHEET
CP02	PRELIMINARY GRADING AND DRAINAGE PLAN
CP03	PRELIMINARY UTILITY PLAN

3 ENGINEERING, LLC 6370 E. THOMAS ROAD, SUITE 200 SCOTTSDALE, AR<mark>I</mark>ZONA 85251 PHONE: (602) 334-4387 FAX: (602) 490-3230 WWW.3ENGINEERING.CO

CALL TWO WORKING DAY BEFORE YOU DIG Dial 811 or

602-263-1100 1-800-782-5348 (OUTSIDE MARICOPA COUNTY

OVEMENT

**IMPR**(

**RELIMINARY** 

 $\square$ 

45652 MATTHEW J.

MANCINI

4/30/21 Signed.ref

ARIZONA, U.S.A

9-DR-2021 5/12/2021

# ---- INDICATES PROPERTY / BOUNDARY LINE

+ 62.52

+ P: 60.11

+ C: 56.69

LEGEND

1560 INDICATES EXISTING CONTOUR ELEVATION ——58 — INDICATES PROPOSED CONTOUR ELEVATION

INDICATES EXISTING TOP OF CURB ELEVATION INDICATES EXISTING GUTTER ELEVATION INDICATES EXISTING GROUND ELEVATION

INDICATES EXISTING PAVEMENT ELEVATION INDICATES EXISTING CONCRETE ELEVATION

INDICATES PROPOSED GROUND ELEVATION

INDICATES DIRECTION OF FLOW & SLOPE INDICATES GRADE BREAK

INDICATES PROPOSED PAVEMENT ELEVATION INDICATES PROPOSED TOP OF CONC. ELEVATION INDICATES PROPOSED GUTTER ELEVATION

INDICATES LOWEST FINISH FLOOR ELEVATION

-----W----- INDICATES PROPOSED WATERLINE INDICATES PROPOSED SEWERLINE

INDICATES PROPOSED SEWER CLEANOUT

INDICATES PROPOSED FIRE HYDRANT INDICATES EXISTING FIRE HYDRANT INDICATES EXISTING STORM DRAIN PIPE INDICATES EXISTING SEWER LINE & SIZE INDICATES EXISTING WATER LINE, VALVE & SIZE -12"W (ACP)---INDICATES EXISTING BURIED ELECTRIC CONDUIT INDICATES EXISTING GAS LINE INDICATES EXISTING OVERHEAD ELECTRIC ----OHE-----INDICATES EXISTING POWER POLE INDICATES EXISTING LIGHT POLE INDICATES EXISTING ELECTRIC TRANSFORMER

INDICATES PROPOSED CATCH BASIN

INDICATES PROPOSED STORM DRAIN PIPE

INDICATES PROPOSED STORM DRAIN MANHOLE

INDICATES EXISTING ELECTRIC BOX

INDICATES EXISTING WATER METER

INDICATES PROPOSED METER

 $WM \Box$ BWV∞⊲

 $\times$  LP

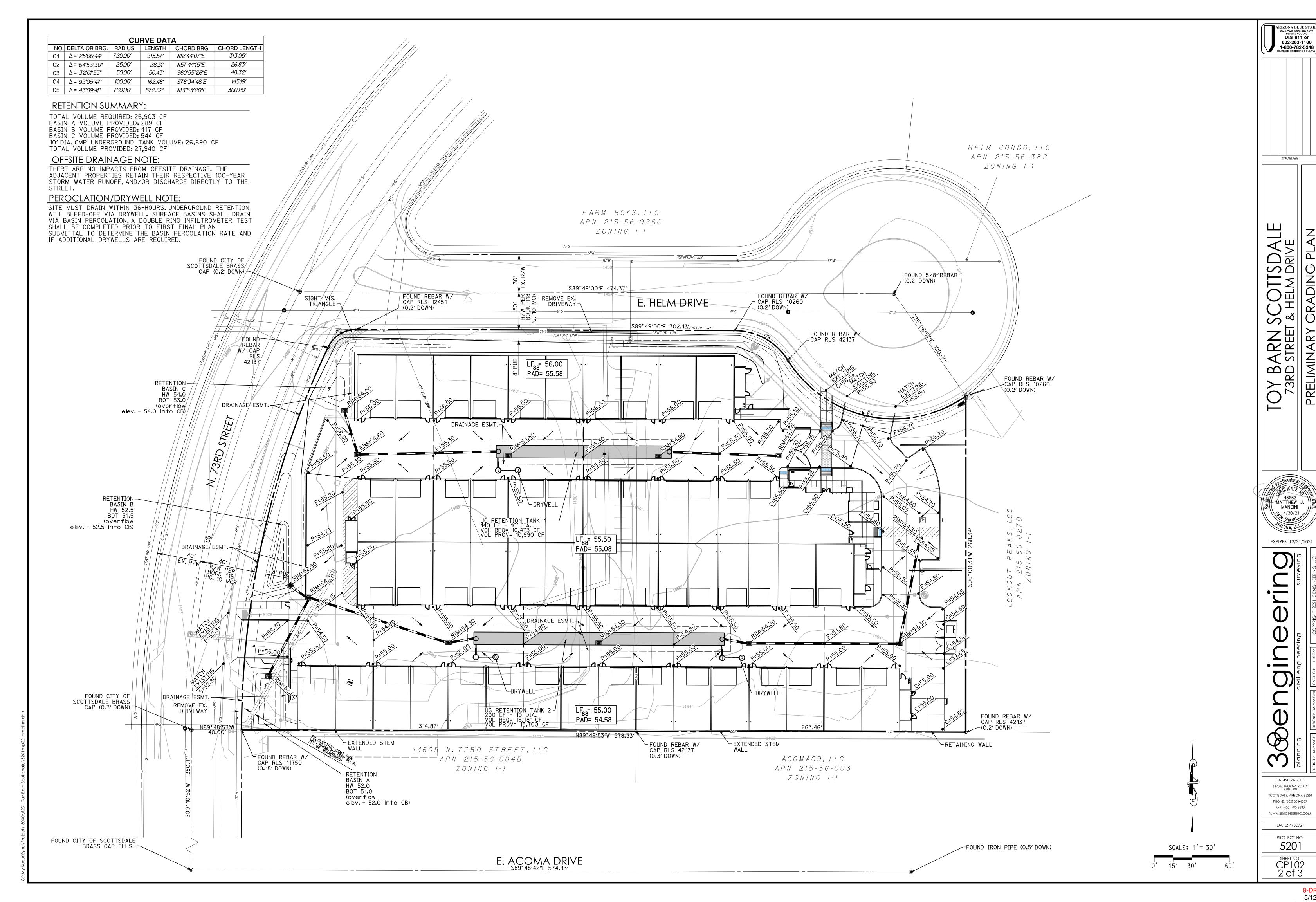
 $\mathit{ET}oxtimes$ 

EB 🛮

FH 🕀

INDICATES EXISTING BACKFLOW PREVENTER VALVE

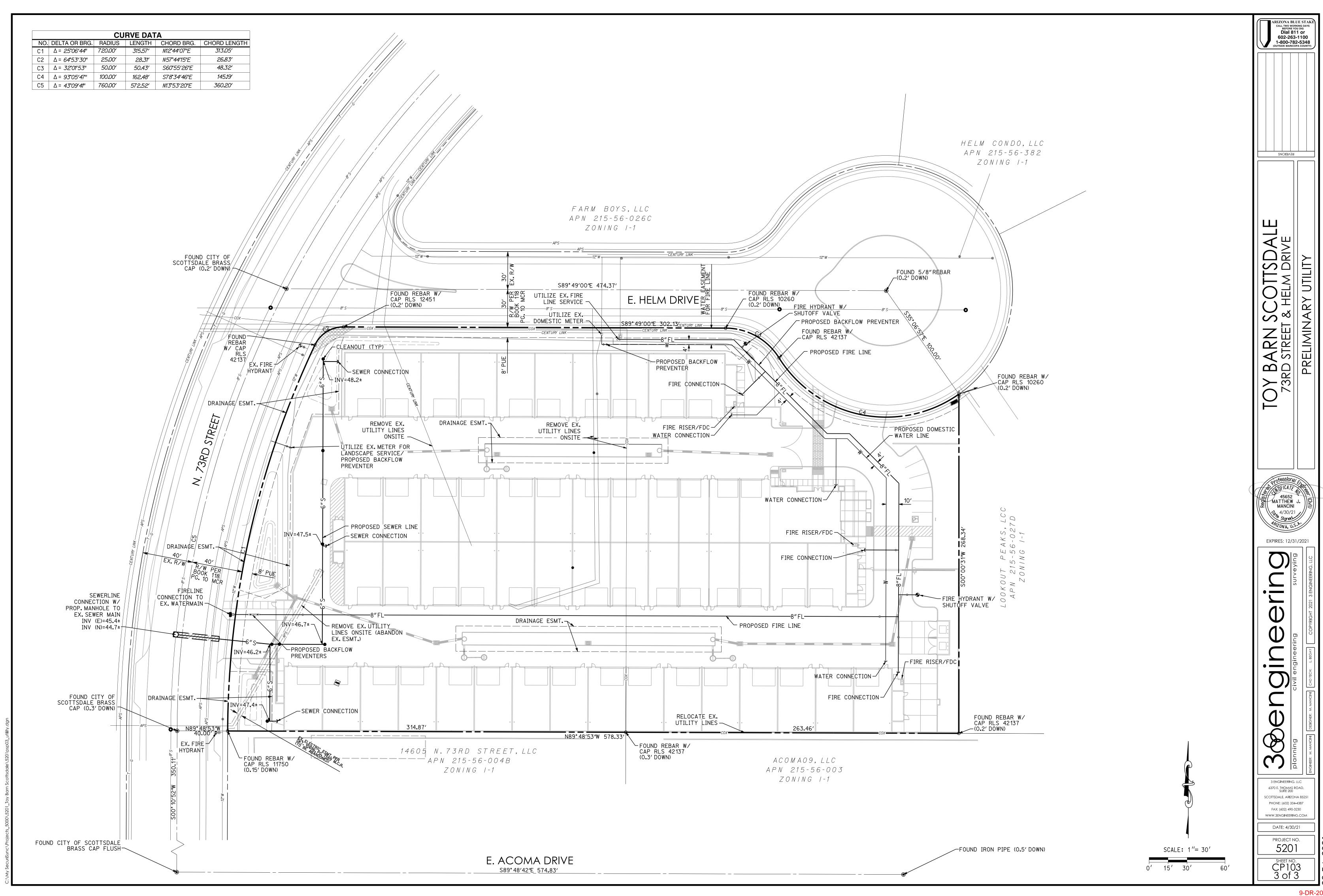
1 of 3



GRADING

RELIMINARY

9-DR-2021 5/12/2021



9-DR-2021 5/12/2021

# APPENDIX H

Scottsdale Topo Mapping

