Drainage Reports

Abbreveated Water & Sewer Need Reports

Water Study

Wastewater Study

Stormwater Waiver Application

Engineering

Plan #
Case # 31-DR-2017
Q-S #

☑ Accepted
☐ Corrections

DG 10/9/17
Reviewed By Date

3 engineering

planning civil engineering surveying

Toy Barn at the Airpark

7800 E. Greenway Road
Preliminary Drainage Report
3 engineering Job #: 5008
September 12, 2017
COS# 314-PA-2017 & 31-DR-2017

3 engineering

planning civil engineering surveying

TOY BARN AT THE AIRPARK

PRELIMINARY DRAINAGE REPORT

Prepared for:

7800 E. Greenway, LLC
PO Box 26768
Scottsdale, Arizona 85255
Contact: Jason Phillips
Phone: (602) 920-3998

Expires 12/31/2018
Matthew J. Mancini, P.E.

September 12, 2017

Submittal to:

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

Prepared by:

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

Job Number 5008

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Appendix

1. Introduction

The purpose of this preliminary drainage report is to present the existing and proposed drainage plan for the project, The Toy Barn at the Airpark (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 2, 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 North of E. Greenway Road, and East of 78th Street, Scottsdale, Arizona 85254 (APN 215-47-003R). The Site is bound on the north and east by existing commercial development and an office building, respectively, on the south by Greenway Road, and on the west by 78th 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 18 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 northeast to southwest at approximately 1/2 percent (0.5 %). In addition, both adjacent roadways, Greenway Road, and 78th Street, are fully improved with curb, gutter, and sidewalk.

Federal Emergency Management Agency (FEMA) Designation

According to the current FEMA Flood Insurance Rate Map # 04013C0890L, 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 18-Unit 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 effected by offsite storm water from the north or east. To the north and east of the site are fully improved developments. These developments retain their respective 100 year storm water runoffs. See Appendix H for adjacent property plans.

4. Existing Drainage Conditions – Onsite

Referring to the Aerial Photograph in Appendix C, the Site drains predominately in a sheet flow condition from northeast to southwest. 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 east to west, 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, the following items shall be addressed for the underground tanks:

- **Water Quality**
  - The underground system is designed to connect to a dual-chamber drywell. Dual-chamber drywells utilize a sediment chamber which removes oils and pollutants from entering the ground water during disposal.
- **System Failure (No-Storage)**
  - 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 Greenway. Finished Floors are elevated above this onsite outfall elevation.
- **Vector Control (mosquito breeding)**
  - 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**
  - 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)**
  - 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.

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

To bleed off the site's retained storm water from drainage areas D, E, & F a drywell system has 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 to drain via basin bottom infiltration. In order to determine if the basins will drain within 36 hours, double ring infiltrometer tests will need to be completed and provided to the City of Scottsdale, along with the supporting percolation calculations, prior to the first submittal of the construction documents. This information shall be documented within Geotechnical Report signed by a professional registrant in the State of Arizona.

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.

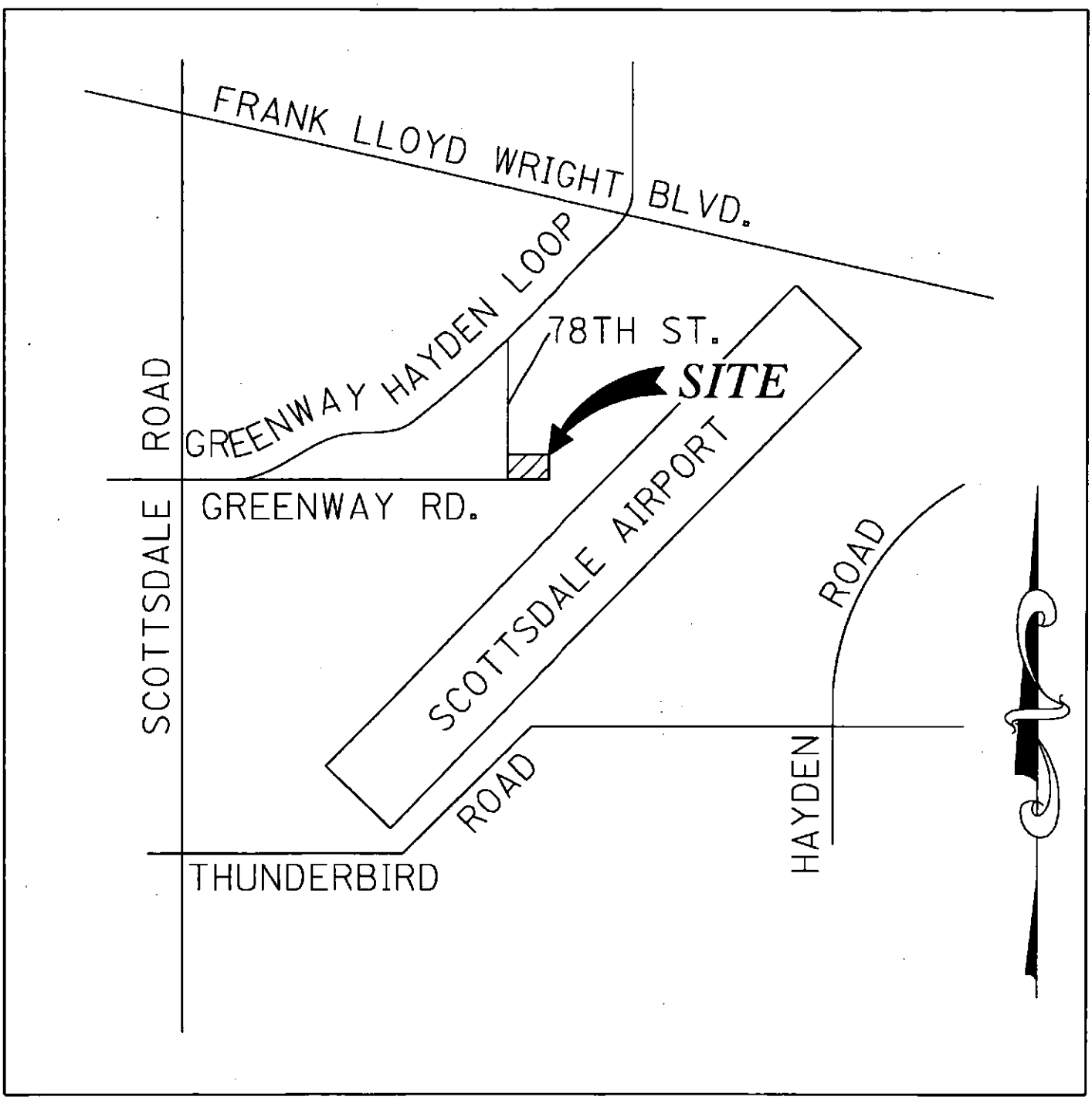
7. ***References***

1. City of Scottsdale, *Design Standards and Policies Manual*, January 2010.

2. Federal Emergency Management Agency, Flood Insurance Rate Maps for Maricopa County Arizona, and Incorporated Area, Map Number 04013C0890L, dated October 16, 2013.

APPENDIX A

Vicinity Map

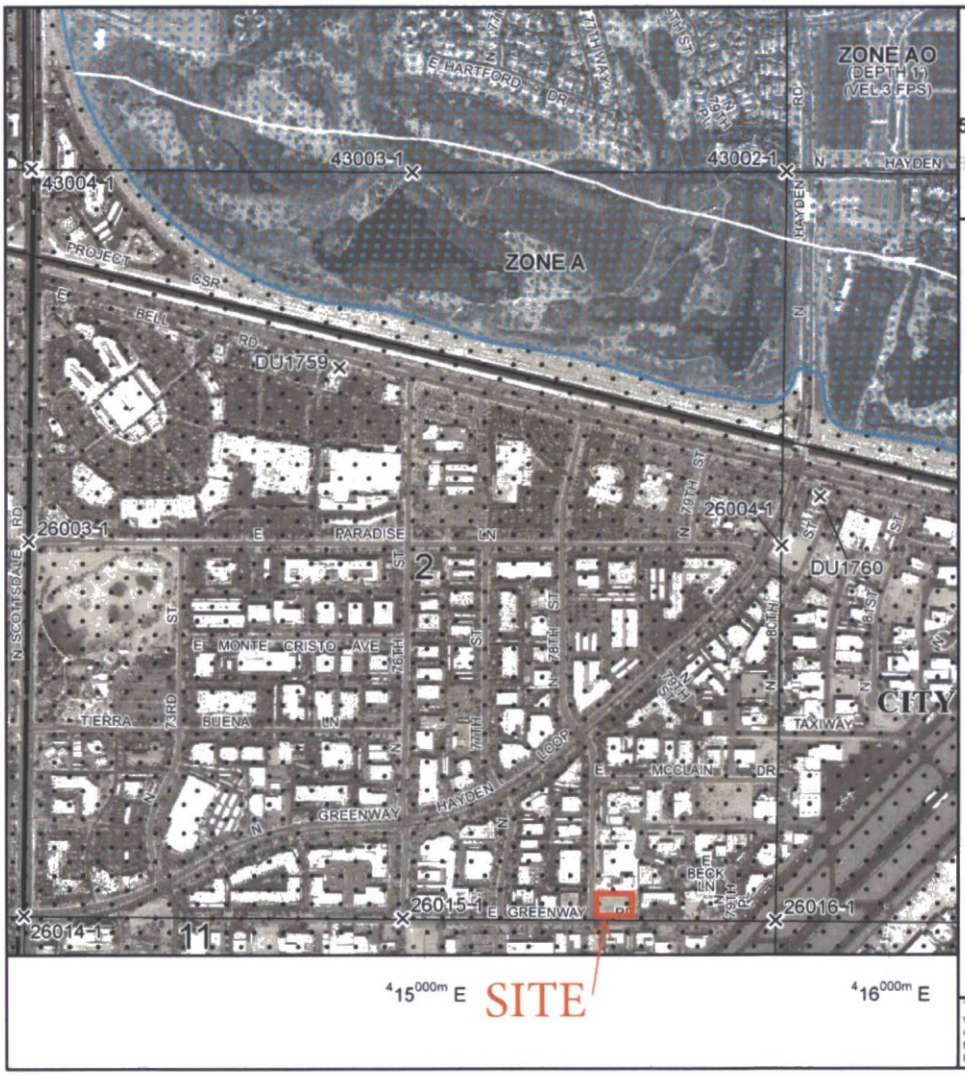


VICINITY MAP

N.T.S.

APPENDIX B

Current FIRM Map



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET METE

NFIP

PANEL 1320L

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

PANEL 1320 OF 4425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1320	L
PHOENIX, CITY OF	040051	1320	L
SCOTTSDALE, CITY OF	045012	1320	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
04013C1320L

MAP REVISED
OCTOBER 16, 2013

Federal Emergency Management Agency

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

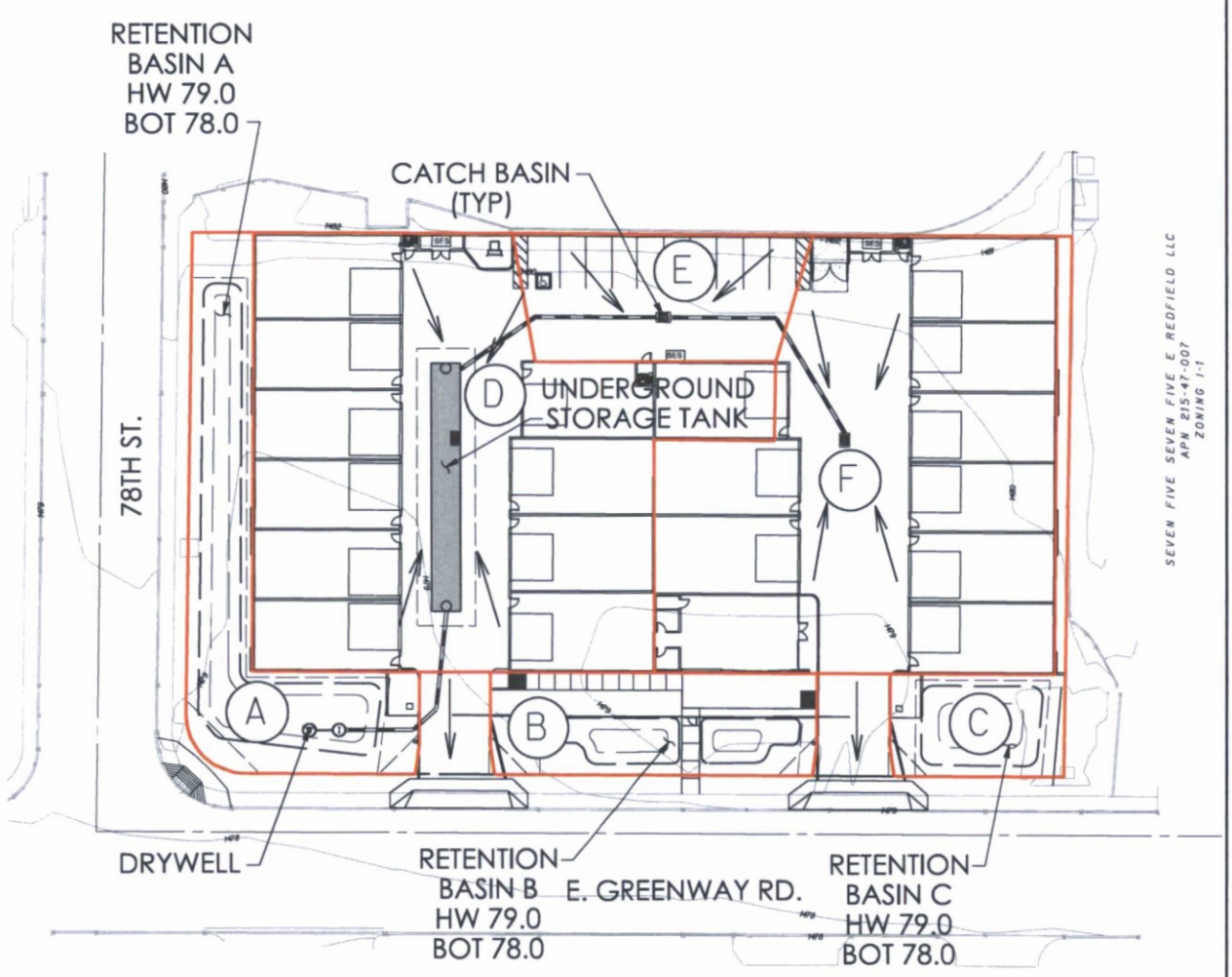
APPENDIX C

Aerial Photograph of Site

AERIAL PHOTO -Toy Barn at the Airpark

APPENDIX D

Onsite Drainage Map



1"=40'

TOY BARN AT THE AIRPARK
SCOTTSDALE, ARIZONA 85254

3Deengineering
planning civil engineering surveying

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

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

[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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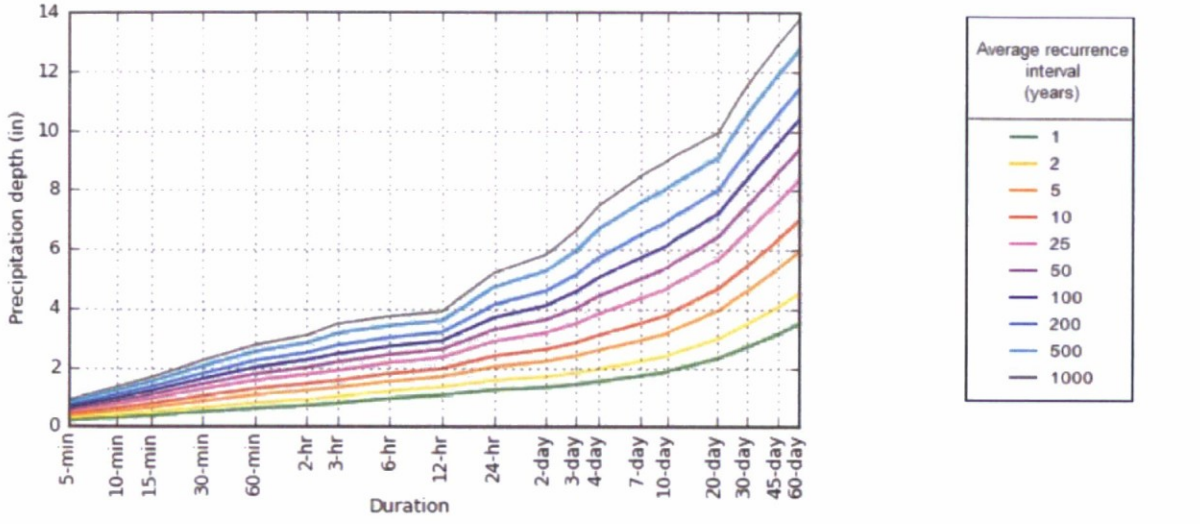
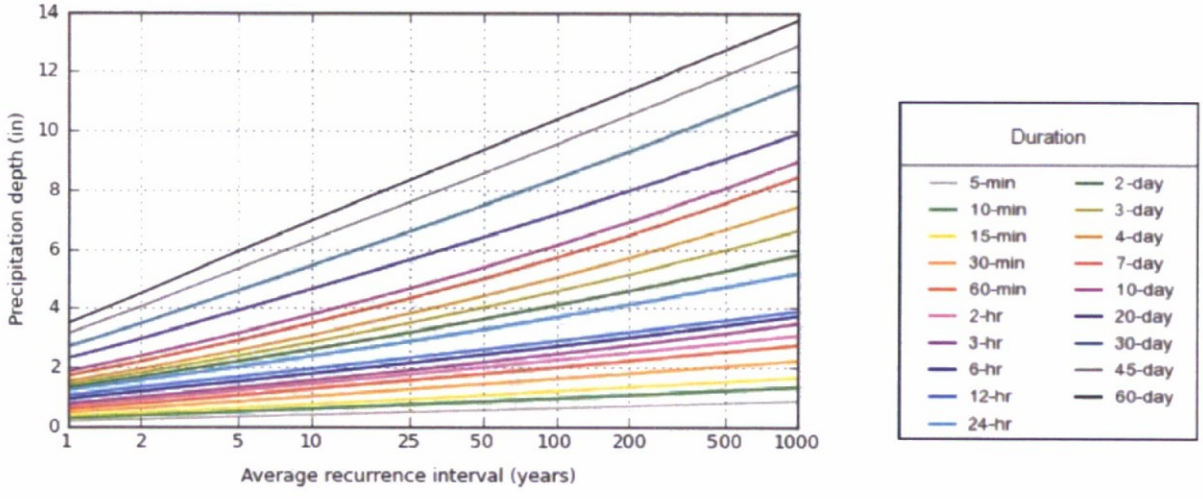
PF graphical

PDS-based 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

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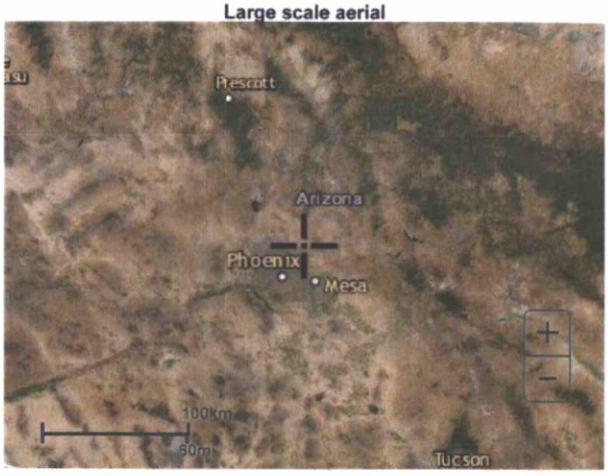
Maps & aerials

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial



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

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

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

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

Please refer to NOAA Atlas 14 document for more information.

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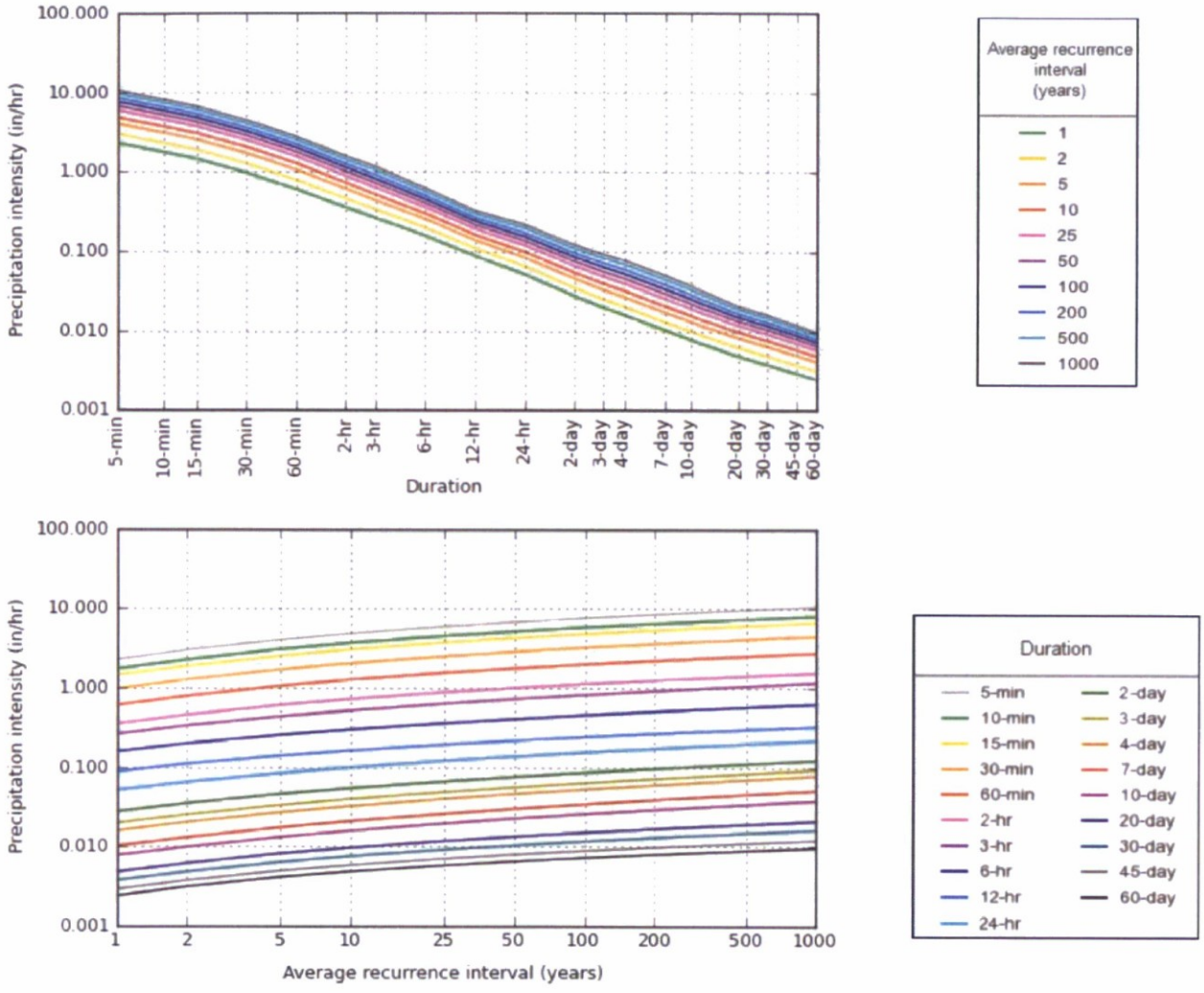
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 33.6258°, Longitude: -111.9123°



NOAA Atlas 14, Volume 1, Version 5

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

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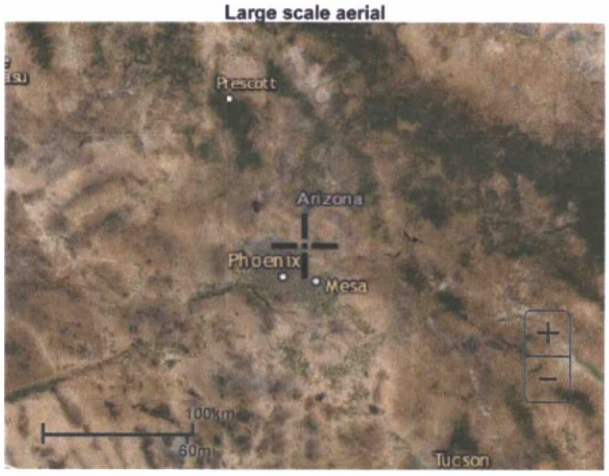
Maps & aerials

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial



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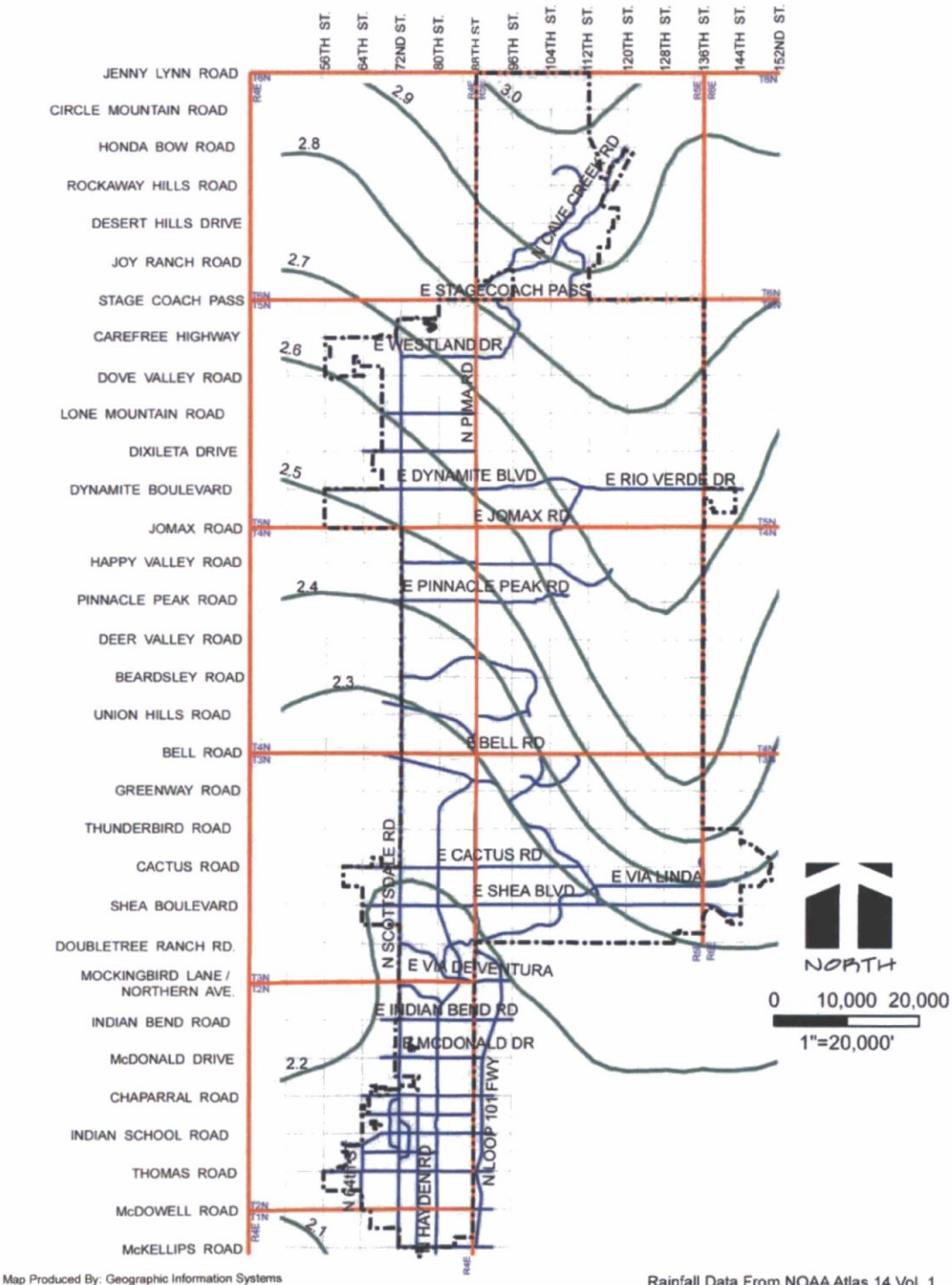
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

ISOPLUVIALS

100 Year 2 Hour Precipitation in Inches



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

Rainfall Data From NOAA Atlas 14 Vol. 1

2. Time of Concentration

Time of concentration "**Tc**" is the total time of travel from the most hydraulically remote part of the watershed to the concentration point of interest. The calculation of "Tc" must follow FCDMC Hydrology Manual procedures.

***Note:** **Do not add a standard set amount of time to the estimated "Tc" for lot runoff delay (such as 5 or 10 minutes).** Natural land slopes are too variable in Scottsdale to add a set amount of time for lot runoff.

3. Runoff Coefficients

Use Figure 4.1-4 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			
Land Use	Storm Frequency		
Composite Area-wide Values	2-25 Year	50 Year	100 Year
Commercial & Industrial Areas	0.80	0.83	0.86
Residential Areas-Single Family (average lot size)			
R1-1-1901	0.33	0.50	0.53
R1-130	0.35	0.51	0.59
R1-70	0.37	0.52	0.60
R1-43	0.38	0.55	0.61
R1-35 (35,000 square feet/lot)	0.40	0.56	0.62
R1-18 (18,000 square feet/lot)	0.43	0.58	0.64
R1-10 (10,000 square feet/lot)	0.47	0.62	0.67
R1-7 (7,000 square feet/lot)	0.51	0.64	0.94
Townhouses (R-2, R-4)	0.63	0.74	0.94
Apartments & Condominiums (R-3, R-5)	0.76	0.83	0.94
Specific Surface Type Values			
Paved streets, parking lots (concrete or asphalt), roofs, drive-ways, etc.	0.90	0.93	0.95
Lawns, golf courses, & parks (grassed areas)	0.20	0.25	0.30
Undisturbed natural desert or desert landscaping (no impervious weed barrier)	0.37	0.42	045
Desert landscaping (with impervious weed barrier)	0.63	0.73	0.83
Mountain terrain – slopes greater than 10%	0.60	0.70	0.80
Agricultural areas (flood-irrigated fields)	0.16	0.18	0.20

FIGURE 4.1-4 RUNOFF COEFFICIENTS FOR USE WITH RATIONAL METHOD

Post-Development Rational Method Calculations

Sub-Area	Area	C_{10}	C_{100}	Tc	i_{10}	i_{100}	Local Q_{10}	Local Q_{100}
	(acres)	DS&PM	DS&PM	(min)	(in/hr)	(in/hr)	(cfs)	(cfs)
A	0.13	0.80	0.86	10	3.70	5.81	0.38	0.65
B	0.09	0.80	0.86	10	3.70	5.81	0.27	0.45
C	0.06	0.80	0.86	10	3.70	5.81	0.18	0.30
D	0.45	0.80	0.86	10	3.70	5.81	1.33	2.25
E	0.09	0.80	0.86	10	3.70	5.81	0.27	0.45
F	0.40	0.80	0.86	10	3.70	5.81	1.18	2.00

Grated Inlet Capacity - Weir Condition

Inlet Type	Inlet Area	Q_{100}	Inlet Capacity w/ 50% clogging	d	Cw	P[1]
		(cfs)	(cfs)	(ft)		(ft)
M.A.G. type "F"	D	2.25	9.90	0.50	3	18.67
M.A.G. type "F"	E	0.45	9.90	0.50	3	18.67
M.A.G. type "F"	F	2.00	9.90	0.50	3	18.67

Q=Cw*P*d^1.5

Cw= 3.0 weir coefficient
Q = discharge capacity
P = inlet perimeter
d = flow depth

[1] **Wetted Perimeter**	**ft**
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	C	P	Volume	Volume
-	(SF)	(AC)	-	inches	CF	AF
A	5861	0.13	0.86	2.25	**945**	**0.02**
B	3906	0.09	0.86	2.25	**630**	**0.01**
C	2727	0.06	0.86	2.25	**440**	**0.01**
D	19798	0.45	0.86	2.25	**3192**	**0.07**
E	4049	0.09	0.86	2.25	**653**	**0.01**
F	17372	0.40	0.86	2.25	**2801**	**0.06**

Retention Volume Formula V=CPA/12

Basin Volume - Basin A

Elevation	Area	Average Area	TOTAL
FT	SF	SF	CF
78	1459		
79	3114	2287	2287
		TOTAL:	**2287** CF

Vol Req. CF **945** **OK**

Basin Volume - Basin B

Elevation	Area	Average Area	TOTAL
FT	SF	SF	CF
78	309		
79	1051	680	680
		TOTAL:	**680** CF

Vol Req. CF **630** **OK**

Basin Volume - Basin C

Elevation	Area	Average Area	TOTAL
FT	SF	SF	CF
78	417		
79	1085	751	751
		TOTAL:	**751** CF

Vol Req. CF **440** **OK**

Underground Storage Tank

Diameter	X-section Area	Length	TOTAL
FT	SF	LF	CF
10	78.5	85	6673
		TOTAL:	**6673** CF

Vol Req. CF **6647** **OK**

TOTAL: **10390** CF **8661** **OK**

Drywell Calculations

Sub-Area	Drywell Design Rate of Bleedoff	Drywells Provided	Total Drywell Design Rate	Total Bleed Off Rate	Underground Volume Provided	Dry-Up Time
	(cfs)	#	(cfs)	cfs	(cf)	(hr)
D, E, F	0.1	1	0.1	0.1000	6673	18.5

APPENDIX F

Warning & Disclaimer of Liability

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.

314-PA-2017		7/10/17
Plan Check No.	Owner or Agent	Date

APPENDIX G

Improvement Plans

PRELIMINARY IMPROVEMENT PLANS
FOR
"TOY BARN AT THE AIRPARK"
SCOTTSDALE, ARIZONA

LOCATED IN A PORTION OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST
OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA

LEGAL DESCRIPTION:

THAT PORTION OF THE SOUTHEAST QUARTER OF SECTION 2, TOWNSHIP 3 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 2;

THENCE WESTERLY ALONG THE SOUTH LINE OF SAID SECTION 2, NORTH [illegible] WEST, A DISTANCE OF [illegible] FEET;

THENCE NORTH [illegible] EAST, A DISTANCE OF 20.00 FEET TO THE NORTHERLY LINE OF GREENWAY ROAD, AS SHOWN IN BOOK [illegible] OF MAPS, PAGE [illegible], RECORDS OF MARICOPA COUNTY, ARIZONA, AND THE TRUE POINT OF BEGINNING OF THE PARCEL OF LAND DESCRIBED HEREIN;

THENCE CONTINUING NORTH [illegible] EAST, A DISTANCE OF [illegible] FEET;

THENCE WESTERLY, PARALLEL WITH SAID NORTHERLY LINE, NORTH [illegible] WEST, A DISTANCE OF [illegible] FEET TO THE EASTERLY LINE OF 78TH STREET, AS SHOWN ON SAID MAP;

THENCE EAST ALONG SAID NORTHERLY LINE TO THE TRUE POINT OF BEGINNING.

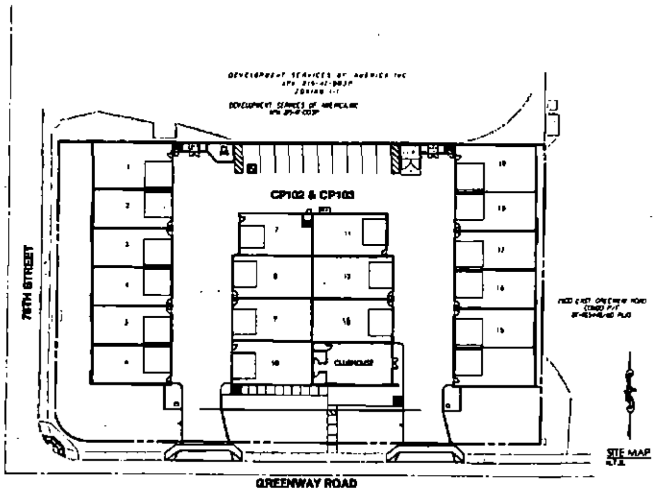
EXCEPT ANY PORTION OF SAID LAND LYING WITHIN 78TH STREET AND GREENWAY ROAD, AS DEDICATED ON THE MAP OF DEDICATION SCOTTSDALE NORTHWEST AIRPARK, RECORDED IN BOOK [illegible] OF MAPS, PAGE [illegible].

CURRENT FLOOD INSURANCE RATE MAP (FIRM) INFORMATION:

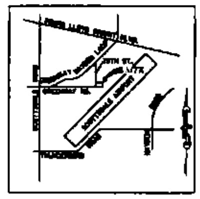
COMMUNITY NUMBER	PANEL NUMBER	PANEL DATE	SUFFIX	FIRM DATE	FIRM ZONE	BASE FLOOD ELEVATION
[illegible]	[illegible]	OCTOBER [illegible], 2013	L	OCTOBER [illegible], 2013	X-SHADED	N/A

FLOOD ZONE INFORMATION:
ZONE "X"
AREAS 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.

PAVEMENT MORATORIUM:
THERE IS A PAVEMENT MORATORIUM ON BOTH GREENWAY & 78TH STREET FROM [illegible] TO [illegible]. ANY UTILITY CUTS OR SAWCUTS WILL BE SUBJECT TO A STREET CUT SURCHARGE.



SITE MAP
N.T.S.



VICINITY MAP
N.T.S.

APPLICANT:
7800 E. GREENWAY, L.L.C.
P.O. BOX [illegible]
SCOTTSDALE, AZ [illegible]
CONTACT: JASON PHILLIPS
PHONE: (602) [illegible]

ENGINEER:
3 ENGINEERING, L.L.C.
[illegible] E. THOMAS ROAD, SUITE 200
SCOTTSDALE, ARIZONA [illegible]
CONTACT: MATTHEW J. MANCINI, P.E.
PHONE: (602) 334-4387

PROJECT DESCRIPTION:
[illegible] PREMIUM GARAGE STORAGE UNITS AND CLUBHOUSE

ZONING (EXISTING/PROPOSED):
I-1

UTILITIES:

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

BENCHMARK:
GRACE POINT# [illegible]
NORTH 1/4 CORNER OF SECTION 11
BRASS CAP IN HANDHOLE
ELEV=[illegible] NAVD '88

BASIS OF BEARING:
THE MONUMENT LINE OF GREENWAY ROAD, BEARS [illegible], PER BOOK [illegible] OF MAPS, PAGE [illegible], M.C.R.

SITE DATA:
SITE AREA: [illegible] AC
BUILDING AREA: [illegible] SF
ZONING: I-1
PARCEL NUMBER: [illegible]

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
CP01	COVER SHEET
CP02	PRELIMINARY GRADING AND DRAINAGE PLAN
CP03	PRELIMINARY WATER/SEWER/FIRE PLAN

LEGEND

DENOTES PROPERTY / BOUNDARY LINE	DENOTES PROPOSED CATCH BASIN
DENOTES EXISTING CONTOUR ELEVATION	DENOTES PROPOSED STORM DRAIN PIPE
DENOTES PROPOSED CONTOUR ELEVATION	DENOTES PROPOSED STORM DRAIN MANHOLE
DENOTES EXISTING TOP OF CURB ELEVATION / DENOTES EXISTING GUTTER ELEVATION	DENOTES PROPOSED FIRE HYDRANT
DENOTES EXISTING GROUND ELEVATION	DENOTES EXISTING FIRE HYDRANT
DENOTES EXISTING PAVEMENT ELEVATION	DENOTES EXISTING STORM DRAIN PIPE
DENOTES EXISTING CONCRETE ELEVATION	DENOTES EXISTING SEWER LINE & SIZE
DENOTES PROPOSED GROUND ELEVATION	DENOTES EXISTING WATER LINE, VALVE & SIZE
DENOTES DIRECTION OF FLOW & SLOPE	DENOTES EXISTING BURIED ELECTRIC CONDUIT
DENOTES GRADE BREAK	DENOTES EXISTING GAS LINE
DENOTES PROPOSED PAVEMENT ELEVATION	DENOTES EXISTING OVERHEAD ELECTRIC
DENOTES PROPOSED TOP OF CONC. ELEVATION	DENOTES EXISTING POWER POLE
DENOTES PROPOSED GUTTER ELEVATION	DENOTES EXISTING LIGHT POLE
DENOTES LOWEST FINISH FLOOR ELEVATION	DENOTES EXISTING ELECTRIC TRANSFORMER
DENOTES PROPOSED WATERLINE	DENOTES EXISTING ELECTRIC BOX
DENOTES PROPOSED SEWERLINE	DENOTES EXISTING WATER METER
DENOTES PROPOSED METER	DENOTES EXISTING BACKFLOW PREVENTER VALVE
DENOTES PROPOSED SEWER CLEANOUT	

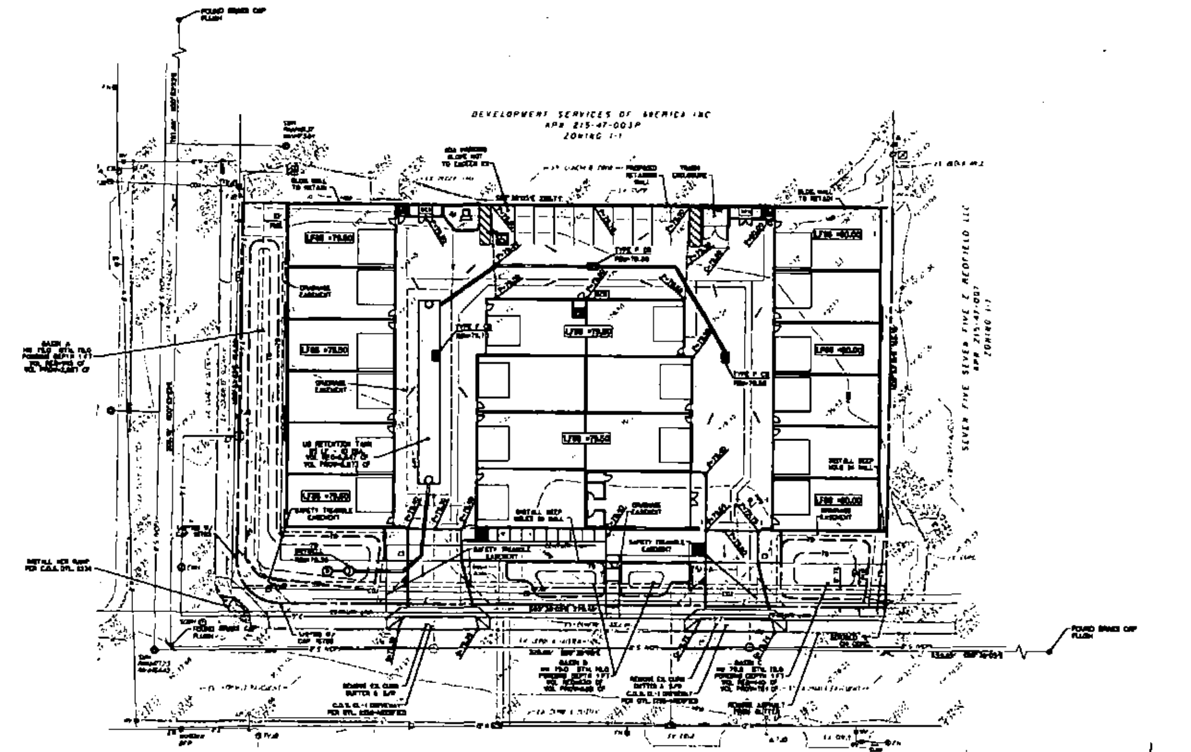
TOY BARN AT THE AIRPARK
7800 E. GREENWAY ROAD SCOTTSDALE, AZ 85260
PRELIMINARY IMPROVEMENT PLANS

3engineering

5008

CP101
1 of 3

314-PA-2017 31-DR-2017



RETENTION SUMMARY:

TOTAL VOLUME REQUIRED: [illegible] CF
BASIN A VOLUME PROVIDED: [illegible] CF
BASIN B VOLUME PROVIDED: [illegible] CF
BASIN C VOLUME PROVIDED: [illegible] CF
[illegible] DIA. CMP UNDERGROUND TANK VOLUME: [illegible] CF
TOTAL VOLUME PROVIDED: [illegible] CF

OFFSITE DRAINAGE NOTE:

THERE ARE NO IMPACTS FROM OFFSITE DRAINAGE. THE SITES TO THE NORTH AND EAST RETAIN THEIR RESPECTIVE 100-YEAR STORM WATER RUNOFF.

PERCOLATION/DRYWELL NOTE:

SITE MUST DRAIN WITHIN 36-HOURS. UNDERGROUND RETENTION WILL BLEED-OFF VIA DRYWELL. SURFACE BASINS A, B & C SHALL DRAIN VIA BASIN PERCOLATION. A DOUBLE RING INFILTROMETER TEST SHALL BE COMPLETED PRIOR TO FIRST FINAL PLAN SUBMITTAL TO DETERMINE THE BASIN PERCOLATION RATE AND IF ADDITIONAL DRYWELLS ARE REQUIRED.

TOY BARN AT THE AIRPARK
7600 E. GREENWAY ROAD SCOTTSDALE, AZ 85260

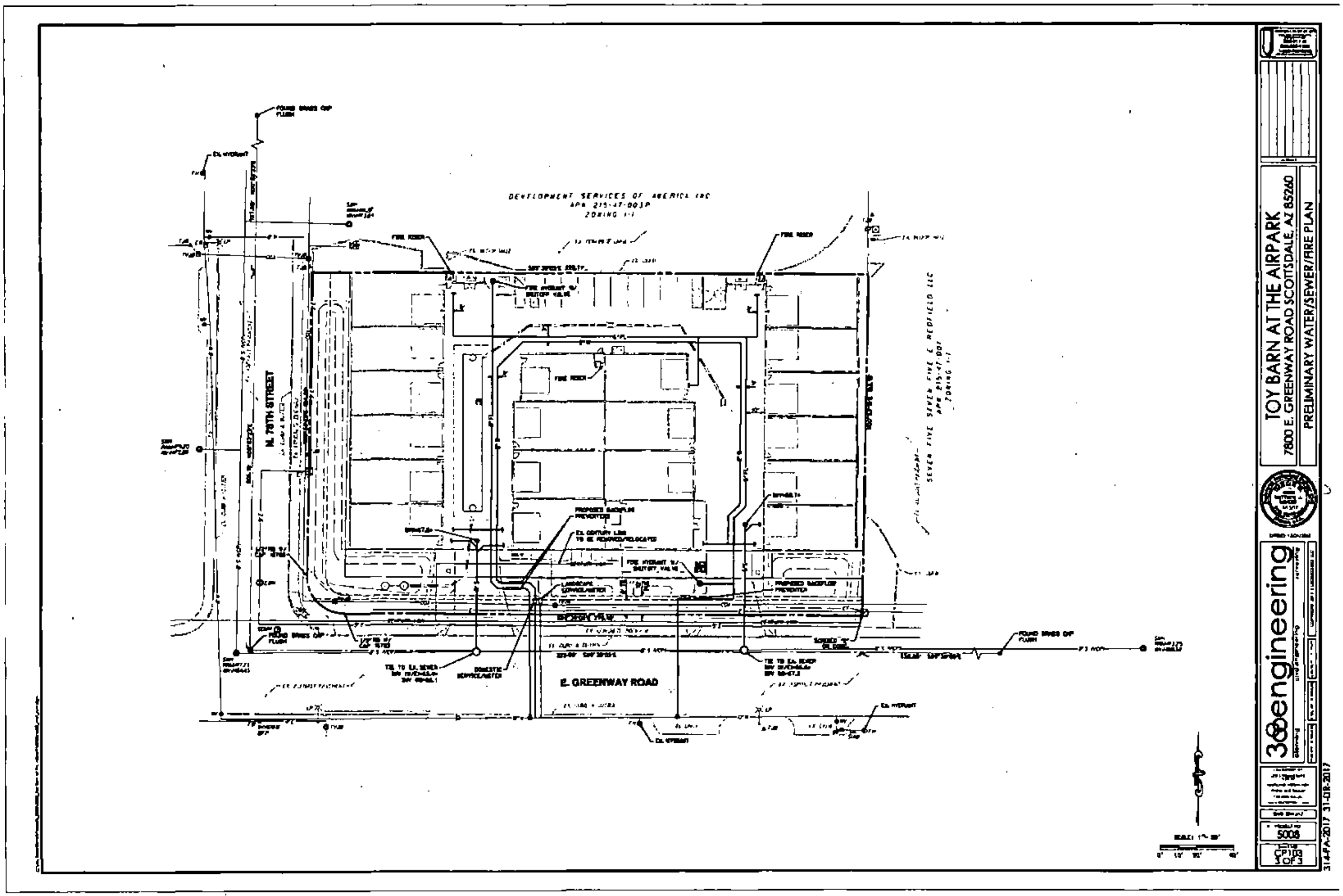
PRELIMINARY GRADING & DRAINAGE PLAN

380engineering

5008

CP102
2 OF 3

314-PA-2017 31-DR-2017



DEVELOPMENT SERVICES OF AMERICA INC
APN 215-47-003P
ZONING I-1
N. 78TH STREET
E. GREENWAY ROAD
FIRE RISER
PROPOSED BACKFLOW PREVENTER
DOMESTIC SERVICE/METER
EX. HYDRANT
TOY BARN AT THE AIRPARK
7800 E. GREENWAY ROAD SCOTTSDALE, AZ 85260
PRELIMINARY WATER/SEWER/FIRE PLAN
38engineering
5008
CP103
3 OF 3

APPENDIX H

Adjacent Property Plans

PROPERTY NORTH OF SITE

SERVICE GROUP OF AMERICA AT 15525, 15535, 15545, & 15555 78TH STREET SCOTTSDALE AIRPARK APN 215-47-003N / 215-47-003P SITE IMPROVEMENT PLANS SCOTTSDALE, AZ 85260

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

LEGEND

[illegible]

QUANTITIES

DESCRIPTION	QTY	UNITS
[illegible]	[illegible]	[illegible]

CONSTRUCTION GENERAL NOTES

[illegible]

STORMWATER RETENTION

[illegible]

INDEMNITY AGREEMENTS:

[illegible]

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	REPRESENTATIVE	PHONE	DATE
ELECTRIC	ARIZONA PUBLIC SERVICE	[illegible]	[illegible]	[illegible]
TELEPHONE	QWEST	[illegible]	602-630-0466	2/12/07
NATURAL GAS	SOUTHWEST GAS	SAM McCONNELL	602-395-4060	7/05/07
CABLE TV	N/A			
[illegible]	N/A			

[illegible]

MARCELLUS LIGOTTA, P.E. 5/1/07 DATE

LEGAL DESCRIPTION

[illegible]

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

[illegible]

CERTIFICATION

[illegible]

REGISTERED ENGINEER/LAND SURVEYOR 10/5/07 DATE

EARTHWORK QUANTITIES

[illegible]

CIVIL APPROVAL

REVIEW AND RECOMMENDED APPROVAL BY:

[illegible]

ENGINEERING COORDINATION MGR. (OR DESIGNEE) 5/18/07 DATE

VICINITY MAP

N.T.S.

SHEET INDEX:

[illegible]

PROPERTY DATA

[illegible]

NATIVE PLANT CASE NO.

[illegible]

OWNER

[illegible]

ARCHITECT

[illegible]

ENGINEER:

[illegible]

BENCHMARK:

[illegible]

BASIS OF BEARING:

[illegible]

PROJECT STATIONING

[illegible]

UTILITY PROVIDERS

[illegible]

ABBREVIATIONS:

[illegible]

56483

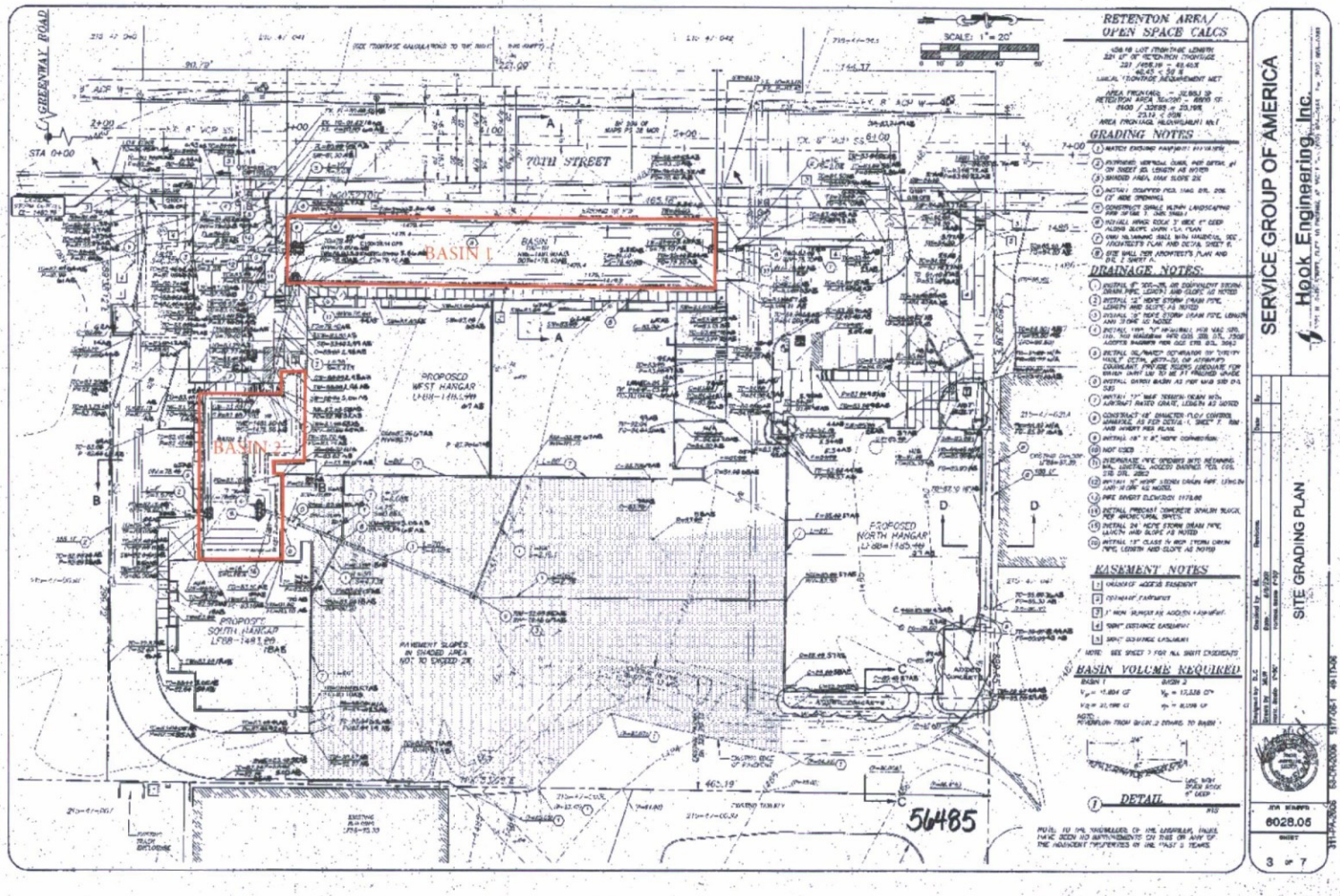
SERVICE GROUP OF AMERICA

Hook Engineering, Inc.

COVER SHEET

8328.05

1 of 7


GREENWAY ROAD
70TH STREET
BASIN 1
BASIN 2
PROPOSED WEST HANGAR
PROPOSED NORTH HANGAR
PROPOSED SOUTH HANGAR
PAVEMENT SLOPES NOT TO EXCEED 2%
SCALE: 1" = 20'
RETENTION AREA/ OPEN SPACE CALCS
GRADING NOTES
DRAINAGE NOTES:
EASEMENT NOTES
BASIN VOLUME REQUIRED
DETAIL
56485
SERVICE GROUP OF AMERICA
Hook Engineering, Inc.
SITE GRADING PLAN
6028.06
3 OF 7

FACILITY FOR SWEDISH BEAUTY
CIVIL IMPROVEMENT PLANS
SCOTTSDALE AIRPARK, LOT A-7
7879 E. BECK LANE
SCOTTSDALE, ARIZONA

PROPERTY NORTHEAST OF SITE

GENERAL NOTES:

1. ALL CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND THE CITY OF SCOTTSDALE (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE LATTER SHALL GOVERN.
2. THE ENGINEERING DESIGN ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (TELEPHONE 391-5750).
5. WHENEVER EXCAVATION IS TO BE DONE, CALL THE "BLUE STAKE CENTER", 263-1100, TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES ARE IDENTIFIED FOR THIS PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHT-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY UPON RECEIPT OF PAYMENT OF A BASE FEE PLUS A FEE FOR INSPECTION SERVICES TO BE PROVIDED BY THE CITY. COPIES OF ALL PERMITS SHALL BE RETAINED ONSITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS SHALL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING WHICH IS NOT IN THE PUBLIC RIGHT-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.
8. SIGNS REQUIRE SEPARATE APPROVALS AND PERMITS.
9. THE WATER SYSTEM FOR THIS PROJECT SHALL MEET REQUIRED HEALTH STANDARDS AND BE IN SUFFICIENT VOLUME AND PRESSURE FOR DOMESTIC USE AND FIRE PROTECTION.

ADDITIONAL NOTES

A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATION OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN THE AREA.

GRADING AND DRAINAGE PLAN APPROVAL INCLUDES: CONSTRUCTION OF ALL ONSITE SURFACE IMPROVEMENTS SHOWN ON THE APPROVED GRADING AND DRAINAGE PLAN, INCLUDING BUT NOT LIMITED TO RETENTION AREAS AND/OR OTHER DRAINAGE FACILITIES, DRAINAGE PATTERNS, WALLS, CURBING, ASPHALT PAVEMENT AND BUILDING FLOOR ELEVATIONS.

THE ENGINEER MAKES NO REPRESENTATION OR GUARANTEE REGARDING EARTHWORK QUANTITIES OR THAT THE EARTHWORK FOR THIS PROJECT WILL BALANCE DUE TO THE VARYING FIELD CONDITIONS, CHANGING SOIL TYPES, ALLOWABLE CONSTRUCTION TOLERANCES AND CONSTRUCTION METHODS THAT ARE BEYOND THE CONTROL OF THE ENGINEER.

PRIOR TO BIDDING THE WORK THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS, EARTHWORK QUANTITIES, IF ANY. NO CLAIM SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.

THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST THE OWNER OR THE ENGINEER REGARDING ALLEGED INACCURACY OF CONSTRUCTION STAKES SET BY THE ENGINEER UNLESS ALL SURVEY STAKES SET BY THE ENGINEER ARE MAINTAINED INTACT AND CAN VERIFIED AS TO THEIR ORIGIN. IF, IN THE OPINION OF THE ENGINEER, THE STAKES ARE NOT MAINTAINED INTACT AND CANNOT BE VERIFIED AS TO THEIR ORIGIN, ANY REMEDIAL WORK REQUIRED TO CORRECT ANY ITEM OR IMPROPER CONSTRUCTION WORK IN THIS DEVELOPMENT SHALL BE PERFORMED AT THE SOLE EXPENSE OF THE RESPONSIBLE CONTRACTOR OR SUBCONTRACTOR.

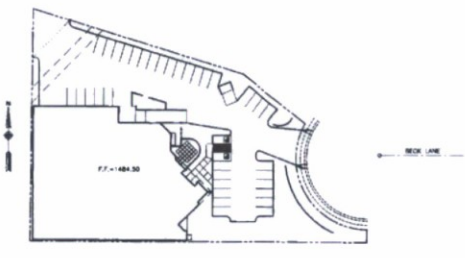
NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.

THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FOR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND HE WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACTOR DOCUMENTS.

ALL EARTHWORK CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS STANDARD DETAILS AND/OR SPECIFICATIONS INCLUDING ANY SUPPLEMENTS THERETO AND THE SOILS REPORT PREPARED BY

CONSTRUCTION INSPECTION AND TESTING, 2002 W NORTH LANE, PHOENIX, ARIZONA 85021.

DATA FOR EARTHWORK CALCULATIONS IS PROVIDED IN THE SOILS REPORT AND ANY SUPPLEMENTS THERETO.



SHEET INDEX MAP
N.T.S.

INDEX OF SHEETS

APPROXIMATE QUANTITIES PAVING (ON SITE)			
NO.	DESCRIPTION	QUANTITY	UNITS
1	PAVEMENT 3" AC / 4" ABC	726	SY
2	PAVEMENT 3" AC / 6" ABC	1,287	SY
3	PAVEMENT SAWCUT AND REMOVE	38	SY
4	6" EXTRUDED CURB	571	LF
5	CONSTRUCT TRASH ENCLOSURE PER C.O.S. DET. 2146	1	EA.
6	PAVEMENT TERMINATION	49	LF
7	4" C-900 FIRE LINE	37	LF
8	CONSTRUCT CONCRETE CURB OPENING PER DETAIL	4	EA.
9	6" D.I.P. FIRE LINE	127	LF
10	1.5" WATER LINE	148	LF
11	MONITORING MANHOLE PER MAG STD. DET. 420 & 422	1	EA.
12	1.5" BACKFLOW PREVENTER	1	EA.
13	4" SEWER LINE	129	LF
14	2-WAY SEWER CLEANOUT	1	EA.
15	4" SEWER LINE	125	LF

APPROXIMATE QUANTITIES GRADING/DRAINAGE			
NO.	DESCRIPTION	QUANTITY	UNITS
1	EXCAVATION	286	CY
2	EMBANKMENT	2360	CY

NOTE: THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND SHALL REMAIN THE PROPERTY OF D & M ENGINEERING. ANY UNAUTHORIZED REPRODUCTIONS, REVISIONS, ADDITIONS, OR ALTERATIONS OF THESE DRAWINGS IS STRICTLY PROHIBITED, AND WILL BE CONSIDERED TO BE IN VIOLATION OF ARIZONA STATE TECHNICAL BOARD, CODE 32-125 AND 32-142.

APPROXIMATE QUANTITIES (OFF SITE)			
NO.	DESCRIPTION	QUANTITY	UNITS
1	PAVEMENT SAWCUT AND REMOVE	38	SY
2	REMOVE CONCRETE SIDEWALK	197	SF
3	REMOVE CONCRETE CURB AND GUTTER	27	LF
4	CONSTRUCT DRIVEWAY TYPE CL-1 PER COS STD DET 2256	1	EA.
5	4" MANHOLE TAP	1	EA.
6	4" SEWER PIPE	72	LF
7			
8			
9			

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
045012	1245 / 9-30-95	F	9-30-95	B	N/A

ENGINEER'S CERTIFICATION:

THE FINISH FLOOR ELEVATIONS AND/OR FLOODPROOFING ELEVATION(S) ON THIS PLAN ARE SUFFICIENTLY HIGH TO PROVIDE PROTECTION FROM FLOODING CAUSED BY A ONE-HUNDRED YEAR STORM, AND ARE IN ACCORDANCE WITH CITY OF SCOTTSDALE REVISED CODE, CHAPTER 37 – FLOODWAYS & FLOODPLAINS ORDINANCE.

27243

VICINITY
N.T.S.

BENCHMARK

ARIZONA HIGHWAY DEPARTMENT BRASS CAP FLUSH CENTER OF BECK LANE CUL-DE-SAC

ELEVATION: 1483.210 (CITY OF SCOTTSDALE DATUM 1980)

DEVELOPER/OWNER

SWEDISH BEAUTY
7702 E. GREY RD.
SCOTTSDALE, ARIZONA 85260
(602) 991-3801

ARCHITECT

THE JANOS COMPANY
BOX 10511, PAPAGO STATION
SCOTTSDALE, ARIZONA 85271
(602) 941-1275

SITE DATA

ZONING: I-1
WATER: CITY OF SCOTTSDALE WATER SYSTEM
SEWER: CITY OF SCOTTSDALE
ASSESSOR'S PARCEL NO. 215-47-003F
SITE ADDRESS: 7879 E. BECK LANE

UTILITY COMPANIES

COMPANY NAME	TYPE OF UTILITY	DATE NOTIFIED
ARIZONA PUBLIC SERVICE	ELECTRIC	
US WEST COMMUNICATIONS	TELEPHONE	
SOUTHWEST GAS CORP.	GAS	
TCI CABLE OF SCOTTSDALE	CABLE TV	
CITY OF SCOTTSDALE	SEWER, WATER & REFUSE	

SUBMITTED BY:

REGISTERED CIVIL ENGINEER 6-3-97 DATE

263-1100

CITY OF SCOTTSDALE
REVIEW AND RECOMMENDED APPROVAL BY:

TRAFFIC: NA

APPROVED BY: 10-25-95

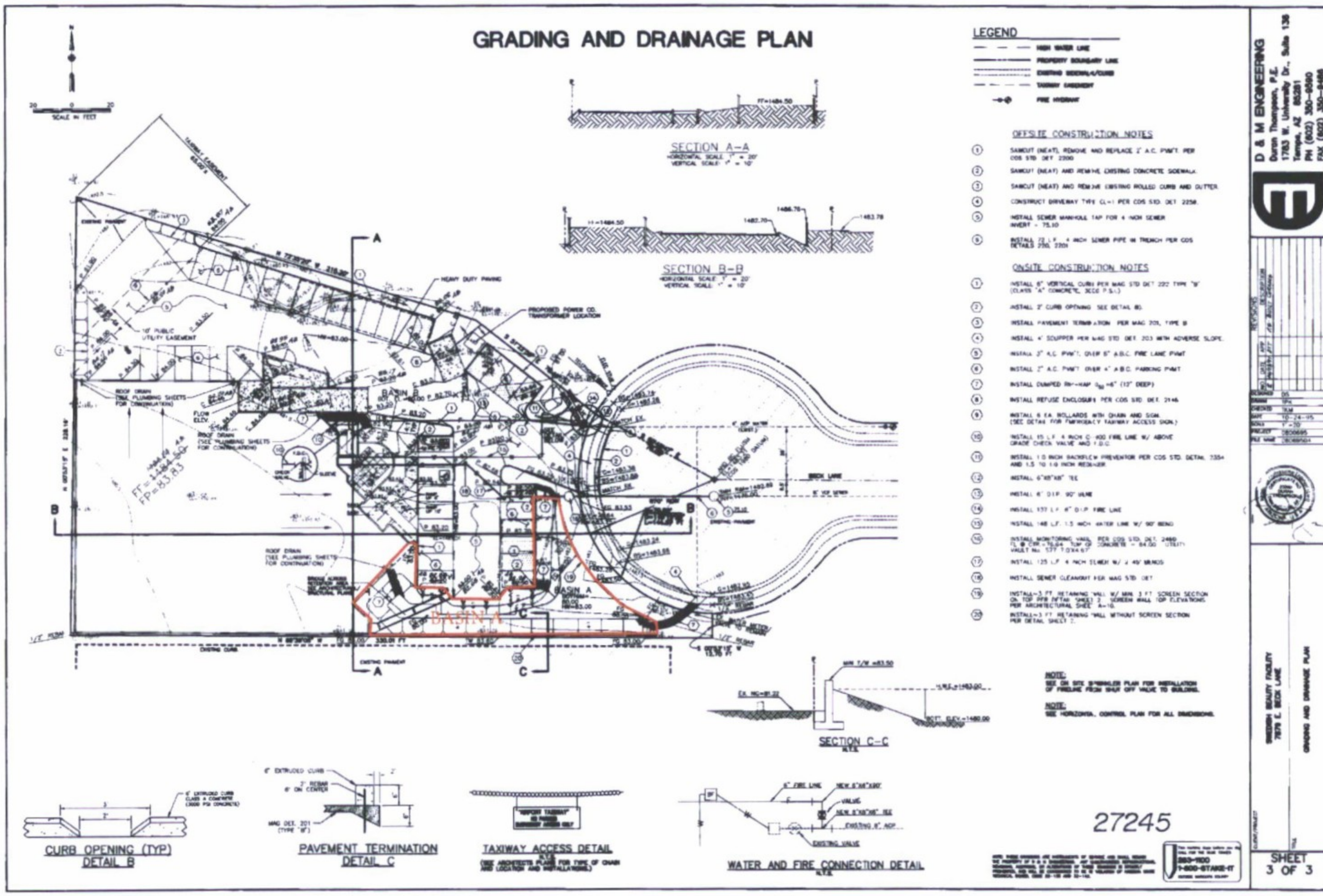
D & M ENGINEERING
Duran Thompson, P.E.
1783 W. University Dr., Suite 136
Tempe, AZ 85281
PH (602) 350-9590
FAX (602) 350-9486

SWEDISH BEAUTY FACILITY
7879 E. BECK LANE

COVER SHEET

SHEET 1 OF 3

12 DR 95 702335


GRADING AND DRAINAGE PLAN
SECTION A-A
SECTION B-B
SECTION C-C
LEGEND
OFFSITE CONSTRUCTION NOTES
ONSITE CONSTRUCTION NOTES
BASIN A
CURB OPENING (TYP) DETAIL B
PAVEMENT TERMINATION DETAIL C
TAXIWAY ACCESS DETAIL
WATER AND FIRE CONNECTION DETAIL
27245
D & M ENGINEERING
SHEET 3 OF 3

PROPERTY EAST OF SITE

ALI INDUSTRIAL PARK

IMPROVEMENT PLANS

BENCHMARK

CHISEL MARK ON TOP OF CURB @ WEST CURB RETURN S.W. CORNER OF THIRD STREET & GREENWAY ROAD
ELEVATION: 1410.70
CITY OF SCOTTSDALE DATUM

2 BRASS CAP @ S.E. CORNER OF SEC. 2, T3N, R4E, G & S R B & M
ELEVATION: 1450.49
CITY OF SCOTTSDALE DATUM

LEGEND:

B.C.	BACK OF CURB
FL	FLOW LINE
G.B.	GRADE BREAK
F.F.	FINISH FLOOR
PL	PROPERTY LINE
	FINISHED TOP OF CURB ELEVATION
	FINISHED GUTTER ELEVATION
	EXIST TOP OF CURB ELEVATION
	EXIST GUTTER ELEVATION
	EXIST CONTOUR ELEVATIONS
	WATER LINE & SIZE
	SEWER LINE & SIZE
	DIRECTION OF SLOPE, IN FT PER FT

NOTE: ESTIMATED COST OF LANDSCAPING IN PUBLIC RIGHT-OF-WAY (FOR PERMIT PURPOSES ONLY) = $1,000±.

APPROVED IN SCOPE
NOT IN DETAIL
R.F. 2/4/82

APPROVED
BY Donald Conroy DATE 1/6/82
MARICOPA COUNTY HEALTH DEPT. (SANITATION ENGINEER)

AS-BUILT CERTIFICATION
"I HEREBY CERTIFY THAT THE "AS-BUILT" MEASUREMENTS AS SHOWN HEREON OR AS NOTED WERE MADE UNDER MY SUPERVISION."

AS-BUILT LEGEND

SHEET INDEX

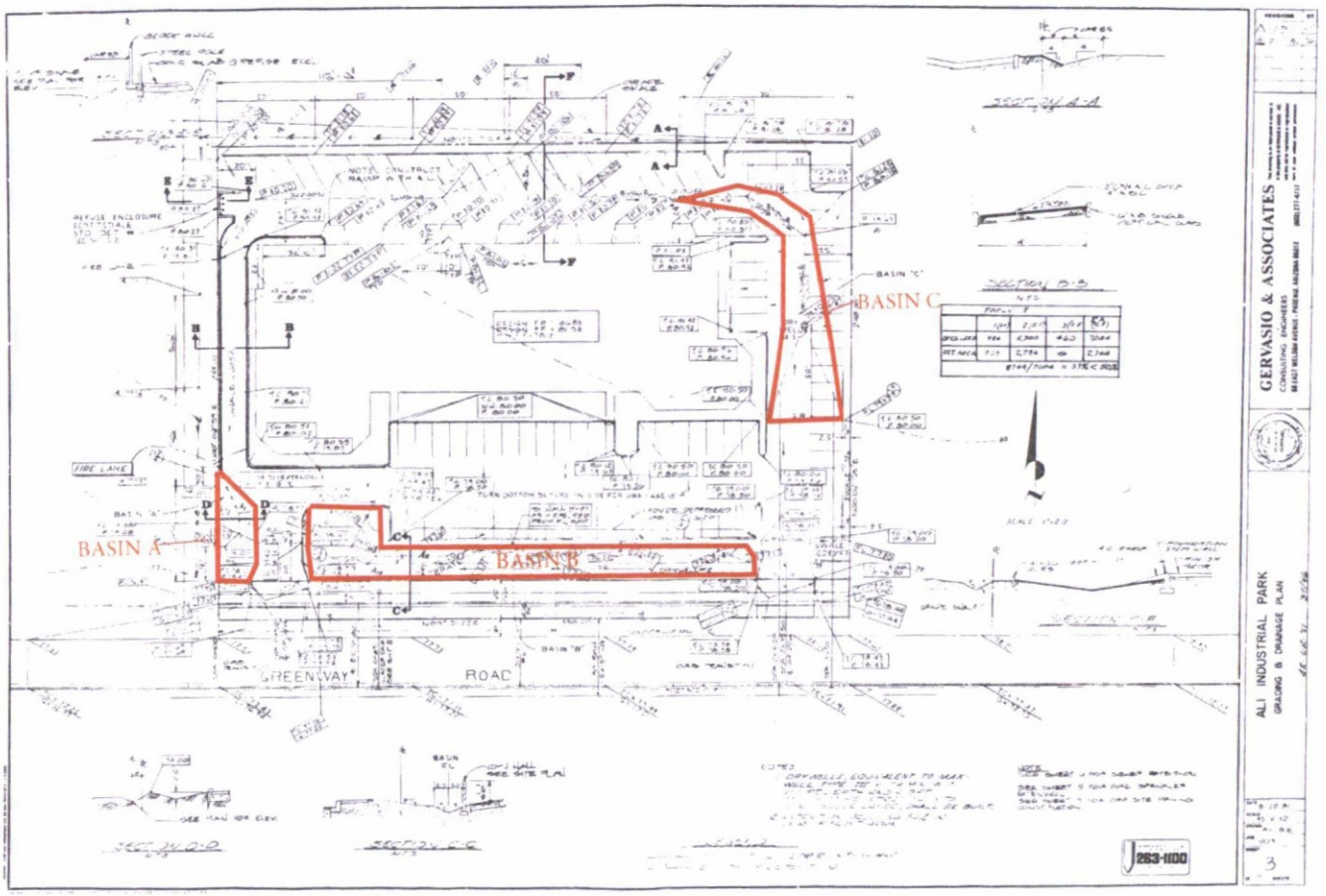
SHEET NO.	CONTENTS
1	COVER SHEET
2	NOTES & SPECIFICATIONS
3	GRADING PLAN
4	GRADING DET. SPECIFICATION
5	WATER PLAN
6	SEWER PLAN & PROFILE
7	PAVING PLAN & PROFILE

CITY OF SCOTTSDALE

REVIEWED BY				RECOMMENDED APPROVAL BY
FIRE DEPARTMENT		PRIVATE DEVELOPMENT ENGINEERING		William C. Mark 2/10/82 PRIVATE DEVELOPMENT ENGINEERING MANAGER DATE
TRAFFIC ENGINEERING		PLANNING DEPARTMENT		APPROVED BY
FIELD SERVICES		MUNICIPAL UTILITIES DEPARTMENT		Dick Ehlann 2/4/82 ENGINEERING SERVICES DIRECTOR DATE
PARKS DEPARTMENT		CAPITOL IMPROVEMENTS		

GERVASIO & ASSOCIATES
CONSULTING ENGINEERS

ALI INDUSTRIAL PARK
COVER SHEET


BASIN A
BASIN B
BASIN C
GREENWAY
ROAD
FIRE LANE
GERVASIO & ASSOCIATES
ALI INDUSTRIAL PARK
GRADING & DRAINAGE PLAN
263-1100