

PRELIMINARY DRAINAGE REPORT

Kimsey Hotel & Apartment

7120 E. Indian School Road
Scottsdale, AZ 85251

Prepared For:

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Project Number: 200504

Revision Date: June 15, 2021 (DRB)

Case No.: 63-PA-2020
10-ZN-2020

Plan Check No.: TBD



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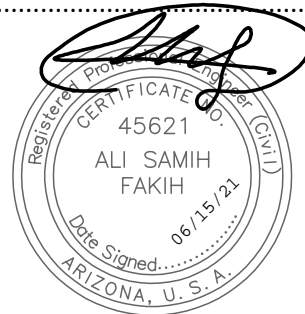
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1. INTRODUCTION

This Preliminary Drainage Report represents the storm water analysis for the HoJo Development (The Triangle) proposed in Scottsdale, Arizona. The purpose of this Preliminary Report is to provide the hydrologic and hydraulic analysis, required by the City of Scottsdale, to support the proposed development. This report includes discussions and calculations defining the storm water management concepts for the collection and conveyance necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 ¹, and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I² and Volume II³.

2. LOCATION AND PROJECT DESCRIPTION

2.1 LOCATION:

The subject property consists of land located south of the 3rd Avenue and Craftsman Court, the between 3rd Avenue and Indian School Road in Scottsdale, AZ:

- A portion of the southeast 1/4 of Section 22, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona.

Parcel ID:

- Parcel 173-50-034
- Parcel 173-50-108A
- Parcel 173-50-117B

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

2.2 EXISTING AND PROPOSED DEVELOPMENTS SURROUNDING THE SITE:

- West: The site is bound by an alley with the following across as follows:
Parcel 173-50-129; Marshall Way Plaza; Zoning is C-2
Parcel 173-50-114; Pink Plaza; Zoning is C-2
- East: Parcel 173-50-119E, 173-50-094, -100A; commercial shops, Zoning D-/OR-2
- North: Across 3rd Avenue: Parcel 173-50-019; Foxy Spray Tans; Zoning is C-2
Across 3rd Avenue: Parcel 173-50-146; Cadre Condominiums; Zoning is C-2
- South: Across Indian School Road are parcels:
Parcel 130-12-013, -012, -011; Commercial offices; Zoning is C-2.
Parcel 130-12-007A

2.3 EXISTING SITE DESCRIPTION:

The project area includes approximately 144,173 sf. ft. (3.310 acres) of land designated as D/DMU-2 PBD DO per C.O.S. zoning case 10-ZN-2020. The site is currently developed and includes three commercial developments with parking lots: Howard Johnson Inn, The Venue and a commercial building comprised of several retail stores. The developments are separated by parking areas.

Per Topographic Survey prepared by AWL Land Surveying, the site slopes from northwest to southeast at approximately 1.00%. Elevation varies from approximately 1266.24 at the northwest corner to approximately 1262.21 at the southeast corner. The site drains to the perimeter streets and alley.

Refer to **FIGURE 2** attached for an aerial of the site.

2.4 PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of the Howard Johnson Inn, The Venue structures and their designated parking lots as well as the construction of a new hotel, residential building and townhome complex. The development will include one proposed access on the north side to 3rd Avenue, two access entrances to the alley on the west, and will maintain the two existing driveway entrances to Indian School Road. An underground parking structure is proposed for the development. Refer to **Appendix III** - Grading Plan for site layout.

2.5 FLOOD HAZARD ZONE:

FIRM Map Number 04013C2235M dated September 18, 2020 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area.

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

3. EXISTING DRAINAGE CONDITIONS

3.1 OFF-SITE DRAINAGE PATTERNS

The topographic survey provides the following information for offsite drainage:

- There is an existing alley to the west approximately 16' wide that slopes from north to south. The alley conveys drainage from the site onto Indian School Road.
- The existing sidewalks to the north and south of the site drain into their adjacent streets, 3rd Avenue and Indian School Road, respectively.
- Adjacent roads have curb and gutters conveying flow within the rights-of-way. Flows from Indian School Road are collected at the southwest corner of the site by EX. CB-1 and at the center by EX. CB-2 with by-pass flowing east.
- An existing inlet, EX. CB-3, located east of the EX-3 drainage area concentration point, collects runoff from EX-3 and adjacent parking area. Refer to **Appendix IV** for site photos.
- Based on existing conditions obtained by the topo and site photos, the site sits 1-2' above the pavement grade along the east parcels. Therefore, it was concluded that the existing site is not affected by any offsite flows.
- Refer to Section 5.1 for additional discussion of safety of finish floor elevations.

3.2 ONSITE DRAINAGE

Based on the topographic information:

- Only drainage areas EX-1 and EX-2 located at the north end of the property drain to 3rd Avenue.
- The runoff along 3rd Avenue flows east where it is ultimately conveyed onto N. Scottsdale Road.
- Drainage area EX-3 and EX-4 drain to the neighboring parcel to the east, but stormwater ultimately makes its way to Indian School Road.
- Drainage area EX-7 drains to the alley adjacent to the west but ultimately discharges to Indian School Road.
- Drainage areas EX-5B and EX-6 drain to Indian School Road and flows are captured by catch basins along Indian School Road.

Refer to Appendix II for **Existing Conditions Drainage Area Map**.

The Rational Method was utilized to compute the on-site peak discharges. The Rational Method equation is calculated as shown below:

$$Q=C_{wt}IA$$

Where: C_{wt} = The runoff coefficient relating runoff to rainfall

I = Average rainfall intensity in inches/hour, lasting for T_c

T_c = The time of concentration (using five minutes for the developed areas)

A = The contributing drainage area in acres

Refer to section 4.3 for land characteristics.

Table 1 below is a summary of existing Q_{100} runoff:

TABLE 1:

Existing Runoff Calculations				
Drainage	Area	C_w	intensity	Q
<u>Area ID</u>	<u>(acres)</u>	<u>(-)</u>	<u>(in/hr)</u>	<u>(cfs)</u>
Contributing Areas to 3rd Ave				
EX-1	0.20	0.95	7.44	1.41
EX-2	0.67	0.95	7.44	4.74
Totals	0.87	0.95		6.15
Contributing Areas to Indian School Road				
EX-3	0.24	0.95	7.44	1.70
EX-4	0.36	0.95	7.44	2.54
EX-5A	0.12	0.95	7.44	0.85
EX-5B	0.36	0.94	7.44	2.52
EX-6	1.04	0.87	7.44	6.73
EX-7	0.19	0.95	7.44	1.34
Totals	2.31	0.91		15.68

Overall project area includes **3.18 Acres at $C_{wt} = 0.92$** (Existing conditions, to back of sidewalk)

Refer to the **Existing C_{wt} Exhibit (Exhibit A)** and **Existing Conditions Drainage Area Map (Exhibit C)** in **Appendix II**.

4. PROPOSED STORM WATER MANAGEMENT

4.1 DESIGN INTENT:

On-site drainage will be directed off-site via overland flow to the historical outlets. This is a re-development of existing commercial land; therefore, the City of Scottsdale specifies that on-site retention shall be provided as described in Section 4.2 below.

The majority of the entire site is proposed impervious with minor increases in runoff compared to existing conditions.

Refer to **Appendix II** for **Proposed Conditions Drainage Area Map**.

The Rational Method was utilized to compute the on-site peak discharges. The Rational Method equation is calculated as shown below:

$$Q=C_{wt}IA$$

Where: C_{wt} = The runoff coefficient relating runoff to rainfall

I = Average rainfall intensity in inches/hour, lasting for T_c

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Contributing Areas to 3rd Ave					
EX-1	0.20	0.95	7.44	1.41	CP-1
EX-2	0.67	0.95	7.44	4.74	CP-2
Totals	0.87	0.95		6.15	
Contributing Areas to Indian School Road					
EX-3	0.24	0.95	7.44	1.70	CP-3
EX-4	0.36	0.95	7.44	2.54	CP-4
EX-5A	0.12	0.95	7.44	0.85	CP-8
EX-5B	0.36	0.94	7.44	2.52	CP-5
EX-6	1.04	0.87	7.44	6.73	CP-6
EX-7	0.19	0.95	7.44	1.34	CP-7
Totals	2.31	0.91		15.68	

Overall project area includes **3.18 Acres at $C_{wt} = 0.92$** (Existing conditions, to back of sidewalk)

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The majority of the entire site is proposed impervious with minor increases in runoff compared to existing conditions.

Refer to **Appendix II for Proposed Conditions Drainage Area Map**.

Table 3 summarizes the calculated onsite peak flows for the 100-yr storm event under proposed and existing conditions.

TABLE 3:

Runoff Calculations Summary			
Outfall	Proposed	Existing	Difference
3rd Avenue	5.81	6.15	-0.34
Indian School Road	16.39	15.68	0.71

The increase in flow to Indian School Road is less than 1 cfs and the storm drains have the capacity to accommodate the project flow based on calculations in Appendix II and Section 4.6. A 24" roof drain will be installed connecting to existing catch basin EX. CB-2 from Building 6 which will transfer roof run-off directly into the public storm drain system.

4.4 STORMWATER RETENTION:

PRE VS POST: Based on topographic survey there is no retention provided on the existing development. Based on the performed calculations above, existing condition and proposed development storage requirements for the 100-yr, 2-hr storm event are calculated as follows:

TABLE 4:

Pre vs. Post Required Storage Volume Calculation Summary					
$V = A * (C_{wpost} - C_{wpre}) * D / 12$					
Area	C_{wpost}	C_{wpre}	Depth	Volume Req.	
<u>(acres)</u>	<u>(-)</u>	<u>(-)</u>	<u>(in)</u>	<u>(acre-ft)</u>	<u>(CF)</u>
3.18	0.94	0.92	2.16	0.011	498.67

FIRST FLUSH: First Flush storage required is calculated in accordance with COS– DS&PM. According to the DS&PM, sites less than one (1) acre in size may be waived from the First Flush requirement with approval from staff. The area considered in the first flush calculation is the disturbed area minus any true roof top area. As shown in the Proposed Conditions Roof Area Exhibit (Exhibit E) in Appendix II, the areas considered in the first flush calculation (**0.92 ac**) quantified to be less than 1 acre. As such, the site could be considered exempt from the first flush requirement.

Refer to **Proposed Conditions Roof Area Exhibit (Exhibit E)** in **Appendix II** for areas considered in the first flush calculation.

4.5 STORMWATER RETENTION WAIVER:

The proposed development includes an underground parking structure to the limits of the property thereby eliminating potential open or underground retention areas. Runoff to the north (3RD Avenue) is reduced by 0.34 cfs. The total increase to the south (Indian School Road) is 0.71 cfs and the street and storm drains have capacity to accommodate the project flows based on projected peak flows in Table 3 and offsite flows presented in section 4.6. First flush treatment is not required. Therefore, a Request for

Stormwater Storage Waiver for 499 cf will be applied for based on section 4-1.203 DS&PM. Refer to **Appendix IV** for Stormwater Retention Waiver.

4.6 OFFSITE STORM SYSTEM ANALYSIS:

For the purpose of this report, the calculated runoff was used to analyze the effects of the increase in runoff to the existing system based on the existing peak flows presented in the Lower Indian Bend Wash Area Drainage Master Study Hydrology and Hydraulics Report, Contract No.: FCD 2011C019, dated December 2017.

The hydraulic grade line and capacity was analyzed for the existing 48" RGRCP reach along E. Indian School Road. The reach begins at the upstream manhole, MJ8W2STEISRL, located at the Alley and E. Indian School Road intersection and continues east to N Scottsdale Road at manhole MJ23W2STSRL, refer to Appendix V for an excerpt of the Lower Indian Bend Wash ADMP corresponding to the analyzed reach along Indian School Road.

The onsite peak flows from Table 6 were calculated through the use of the Rational Method and indicate that there is a 0.71 cfs increase to Indian School Road. The hydraulic analysis was performed for the existing 36" storm drain (upstream) and the 48" (downstream) to verify the capacity of the existing system in respect to the additional flow. The analysis was performed using Flowmaster to analyze the existing 36" and 48" RGRCP reach based on the existing peak flow of 32.4 cfs and 71.5 cfs at pipes **C6W2STEISRL** and **C1W2STEISRL**, respectively, obtained from the Lower Indian Bend Wash ADMP, and the additional 0.71 cfs obtained from the calculated on-site peak flow. Refer to **Appendix V** for Inlet Summary Table and Pipe Discharge Tables in the Lower Indian Bend Wash ADMP.

36" Pipe C6W2STEISRL: 32.4 cfs (Existing) + 0.71 cfs (Post) = **33.11 cfs**

48" Pipe C1W2STEISRL: 71.5 cfs (Existing) + 0.71 cfs (Post) = **72.21 cfs**

Hydraulic calculations indicate that 52.94 cfs is available for the existing 36" RGRCP (S=0.63%) at full capacity and 114.01 cfs available for the existing 48" RGRCP (S=0.63%) at full capacity. The existing 36" and 48" RGRCP storm drains are capable of conveying the total post conditions flow increase of 0.71 cfs. Refer to **Appendix II** for pipe capacity calculations.

4.7 ADEQ WATER QUALITY REQUIREMENTS:

The total disturbed area of this site is approximately 3.18 acres. The Arizona Department of Environmental Quality requires that any site disturbance over an acre is required to submit an NOI. An NOI will be submitted to ADEQ for this site after the first submittal of the construction documents as this site disturbance is over 1 acre.

5. FLOOD SAFETY FOR DWELLINGS

5.1 FINISHED FLOOR ELEVATIONS

This project lies in an "X" Flood Zone. Therefore, the proposed building finished floor elevations will be set a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths and a minimum of 14 inches above the lowest top of curb of the lot. This will ensure that each building will be well above the 100-year water level. All buildings with the exception of Buildings 4 and 5 are set 14 inches above the lowest top of curb but are set more than 12 inches above the 100-year water surface elevation at the ultimate outfall. The site ultimate outfall is located at the southeast corner at an elevation of 1261.15. The ultimate outfall elevation is greater than 14" below the minimum finish floor elevation.

TABLE 5:

FFE Summary			
BLDG (ID)	Finish Floor Elevation (ft)	Lowest Top of Curb (ft)	Difference (in)
1	66.00	64.62	16.56
2	66.00	64.42	18.96
3	66.00	62.81	38.28
4	65.00	64.00	12.00
5	65.00	63.98	12.24
6	64.50	62.40	25.20

6. CONCLUSIONS

6.1 OVERALL PROJECT:

1. The finish floor elevations will be designed a minimum of 12 inches above the 100-year water surface in adjacent streets and drainage paths (with exception of buildings 4 & 5) and a minimum of 14 inches above the lowest top of curb of the lot.
2. A stormwater storage waiver will be requested for the redevelopment of the site.

6.2 PROJECT PHASING:

This project will be constructed in a single phase.

7. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

8. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – January 2018*
2. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, December 14, 2018*
3. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, December 14, 2018*

GRADING & DRAINAGE LANGUAGE

WARNING AND DISCLAIMER OF LIABILITY

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

WARNING AND DISCLAIMER OF LIABILITY

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

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

I have read and understand the above.

Plan Check #

Owner

Date



"LEED®ing and Developing Smart Projects"

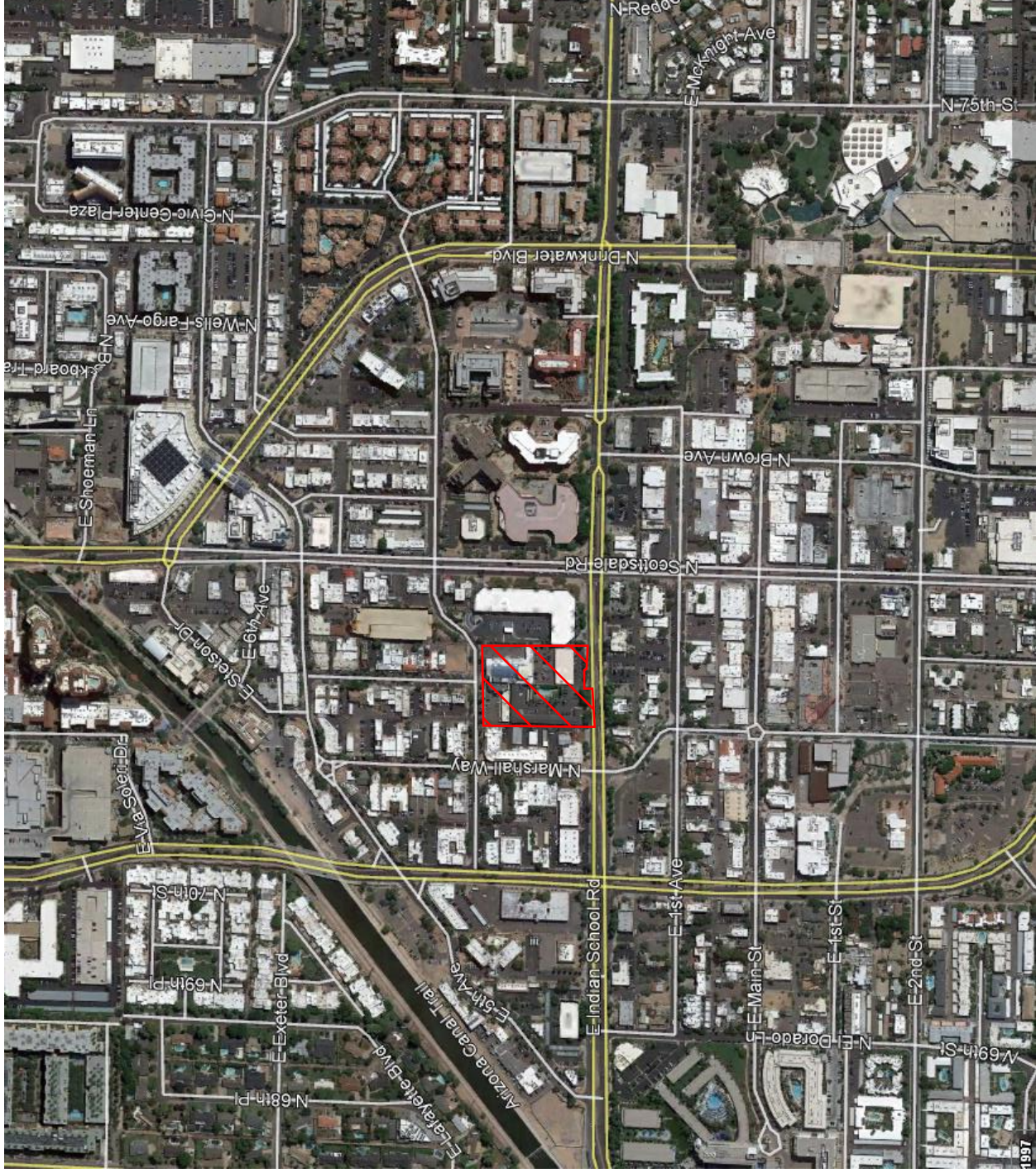


FIGURE 1
VICINITY MAP

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

info@azSEG.com 480.588.7226 www.azSEG.com

Sustainability Engineering Group



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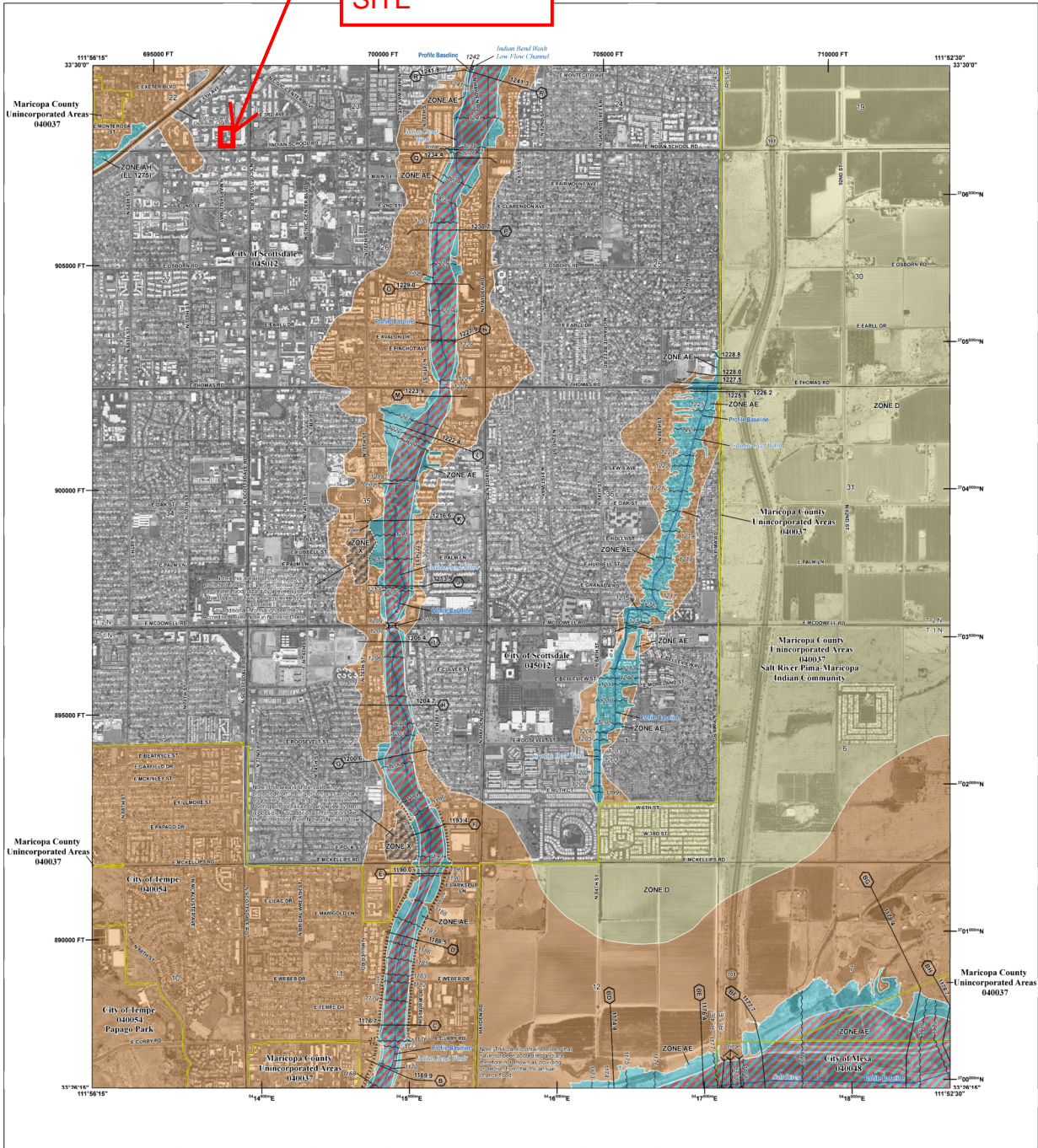
8280 E. Gelding Dr., Suite 101
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FIGURE 2
AERIAL MAP

PROJECT SITE



FLOOD HAZARD INFORMATION

SEE FIRM REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone AE, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard. Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS OF FLOOD HAZARD	Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
OTHER AREAS	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
GENERAL STRUCTURES	Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
OTHER FEATURES	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with the FIRM, including historic versions, the current map data file for this FIRM panel, how to order products, or the National Flood Insurance Program (NFIP), in general, please call the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued editions of this map, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered directly from the website.

Communities seeking hard or softcopy FIRM panels must obtain a current copy of the relevant panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

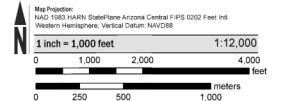
For community and countywide map data refer to the Flood Insurance Study Report for that jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-8602.

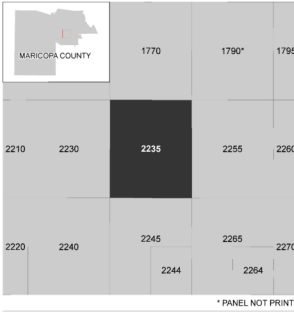
Base map information shown on this FIRM was derived from U.S. Census Bureau TIGER files, dated 2014, and digital data provided by the Flood Control District of Maricopa County. Digital orthorectification was provided by the Flood Control District of Maricopa County. The imagery was derived from 2014 and was produced with a 1:6 foot ground sample distance.

ACCURACY OF DATA: Users are advised to check with their local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, or the levee system shown as providing protection for areas on this panel. To mitigate flood risk in residential risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, increased protection, and other protective measures, visit the FEMA Website at <http://www.fema.gov/national-flood-insurance-program>.

SCALE



PANEL LOCATOR



National Flood Insurance Program

**NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP**

MARICOPA COUNTY, ARIZONA
 and Incorporated Areas

PANEL 2235 OF 4425

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2235	M
MESA, CITY OF	040048	2235	M
SCOTTSDALE, CITY OF	040012	2235	M
TEMPE, CITY OF	040054	2235	M

VERSION NUMBER 2.3.3.2
 MAP NUMBER 04013C2235M
 MAP REVISED September 18, 2020

APPENDIX I

Rainfall Data



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4955°, Longitude: -111.9279°
Elevation: 1262.91 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_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	0.183 (0.154-0.223)	0.240 (0.202-0.292)	0.326 (0.273-0.395)	0.392 (0.326-0.473)	0.481 (0.393-0.578)	0.550 (0.444-0.658)	0.620 (0.492-0.740)	0.693 (0.539-0.825)	0.789 (0.598-0.941)	0.862 (0.641-1.03)
10-min	0.279 (0.234-0.340)	0.365 (0.307-0.444)	0.496 (0.415-0.602)	0.596 (0.496-0.720)	0.733 (0.599-0.880)	0.838 (0.676-1.00)	0.944 (0.748-1.13)	1.05 (0.821-1.26)	1.20 (0.910-1.43)	1.31 (0.976-1.57)
15-min	0.345 (0.290-0.421)	0.452 (0.381-0.550)	0.614 (0.514-0.746)	0.739 (0.614-0.893)	0.908 (0.742-1.09)	1.04 (0.838-1.24)	1.17 (0.927-1.40)	1.31 (1.02-1.56)	1.49 (1.13-1.78)	1.63 (1.21-1.95)
30-min	0.465 (0.390-0.567)	0.609 (0.513-0.741)	0.827 (0.692-1.00)	0.995 (0.827-1.20)	1.22 (0.999-1.47)	1.40 (1.13-1.67)	1.58 (1.25-1.88)	1.76 (1.37-2.10)	2.00 (1.52-2.39)	2.19 (1.63-2.62)
60-min	0.576 (0.483-0.702)	0.754 (0.635-0.917)	1.02 (0.857-1.24)	1.23 (1.02-1.49)	1.51 (1.24-1.82)	1.73 (1.40-2.07)	1.95 (1.55-2.33)	2.18 (1.70-2.60)	2.48 (1.88-2.96)	2.71 (2.02-3.24)
2-hr	0.667 (0.569-0.796)	0.864 (0.736-1.03)	1.16 (0.983-1.38)	1.38 (1.16-1.64)	1.69 (1.40-1.99)	1.92 (1.57-2.26)	2.16 (1.74-2.54)	2.41 (1.91-2.83)	2.74 (2.12-3.22)	2.99 (2.26-3.54)
3-hr	0.726 (0.615-0.873)	0.931 (0.793-1.13)	1.22 (1.04-1.47)	1.46 (1.22-1.74)	1.78 (1.47-2.12)	2.04 (1.66-2.42)	2.31 (1.85-2.74)	2.59 (2.04-3.07)	2.98 (2.28-3.53)	3.30 (2.46-3.91)
6-hr	0.874 (0.757-1.03)	1.11 (0.963-1.30)	1.42 (1.23-1.67)	1.67 (1.43-1.95)	2.01 (1.70-2.33)	2.28 (1.90-2.63)	2.56 (2.10-2.95)	2.84 (2.28-3.29)	3.23 (2.53-3.75)	3.54 (2.71-4.11)
12-hr	0.977 (0.855-1.14)	1.24 (1.08-1.44)	1.57 (1.36-1.81)	1.83 (1.58-2.11)	2.17 (1.86-2.50)	2.44 (2.07-2.81)	2.72 (2.27-3.13)	3.00 (2.47-3.45)	3.38 (2.71-3.91)	3.67 (2.89-4.27)
24-hr	1.17 (1.04-1.32)	1.48 (1.32-1.67)	1.92 (1.71-2.17)	2.27 (2.02-2.55)	2.75 (2.42-3.09)	3.13 (2.74-3.51)	3.53 (3.07-3.96)	3.94 (3.40-4.42)	4.51 (3.85-5.06)	4.96 (4.19-5.58)
2-day	1.26 (1.13-1.42)	1.61 (1.44-1.82)	2.12 (1.89-2.38)	2.52 (2.24-2.83)	3.08 (2.72-3.46)	3.53 (3.10-3.96)	4.00 (3.49-4.50)	4.50 (3.89-5.06)	5.19 (4.44-5.85)	5.74 (4.86-6.49)
3-day	1.33 (1.19-1.50)	1.71 (1.52-1.92)	2.25 (2.00-2.53)	2.68 (2.37-3.01)	3.29 (2.90-3.69)	3.78 (3.31-4.24)	4.30 (3.74-4.83)	4.85 (4.18-5.45)	5.62 (4.79-6.32)	6.24 (5.26-7.04)
4-day	1.41 (1.25-1.59)	1.80 (1.60-2.03)	2.37 (2.11-2.67)	2.84 (2.51-3.19)	3.50 (3.08-3.92)	4.03 (3.52-4.51)	4.60 (3.99-5.15)	5.20 (4.47-5.84)	6.05 (5.14-6.79)	6.74 (5.67-7.58)
7-day	1.56 (1.39-1.76)	1.99 (1.78-2.25)	2.63 (2.34-2.97)	3.15 (2.79-3.55)	3.88 (3.42-4.36)	4.47 (3.91-5.02)	5.10 (4.43-5.73)	5.76 (4.96-6.48)	6.70 (5.70-7.54)	7.46 (6.28-8.41)
10-day	1.70 (1.51-1.91)	2.17 (1.93-2.44)	2.86 (2.54-3.22)	3.42 (3.03-3.84)	4.21 (3.70-4.71)	4.83 (4.23-5.40)	5.50 (4.78-6.15)	6.20 (5.35-6.94)	7.18 (6.12-8.05)	7.97 (6.72-8.94)
20-day	2.08 (1.86-2.33)	2.68 (2.39-3.00)	3.54 (3.16-3.95)	4.19 (3.73-4.67)	5.07 (4.48-5.65)	5.74 (5.06-6.40)	6.42 (5.64-7.17)	7.12 (6.22-7.95)	8.05 (6.97-9.02)	8.77 (7.53-9.84)
30-day	2.43 (2.17-2.73)	3.13 (2.79-3.50)	4.13 (3.67-4.61)	4.88 (4.34-5.44)	5.90 (5.21-6.57)	6.68 (5.88-7.43)	7.48 (6.55-8.32)	8.29 (7.23-9.23)	9.39 (8.12-10.5)	10.2 (8.78-11.4)
45-day	2.82 (2.52-3.15)	3.63 (3.25-4.06)	4.78 (4.28-5.34)	5.64 (5.03-6.29)	6.76 (6.01-7.54)	7.61 (6.74-8.49)	8.46 (7.47-9.45)	9.32 (8.18-10.4)	10.4 (9.11-11.7)	11.3 (9.79-12.7)
60-day	3.12 (2.80-3.48)	4.03 (3.62-4.49)	5.30 (4.75-5.90)	6.22 (5.56-6.92)	7.42 (6.62-8.26)	8.31 (7.39-9.25)	9.20 (8.15-10.2)	10.1 (8.89-11.2)	11.2 (9.84-12.5)	12.1 (10.5-13.5)

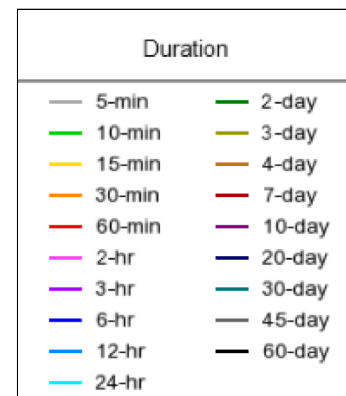
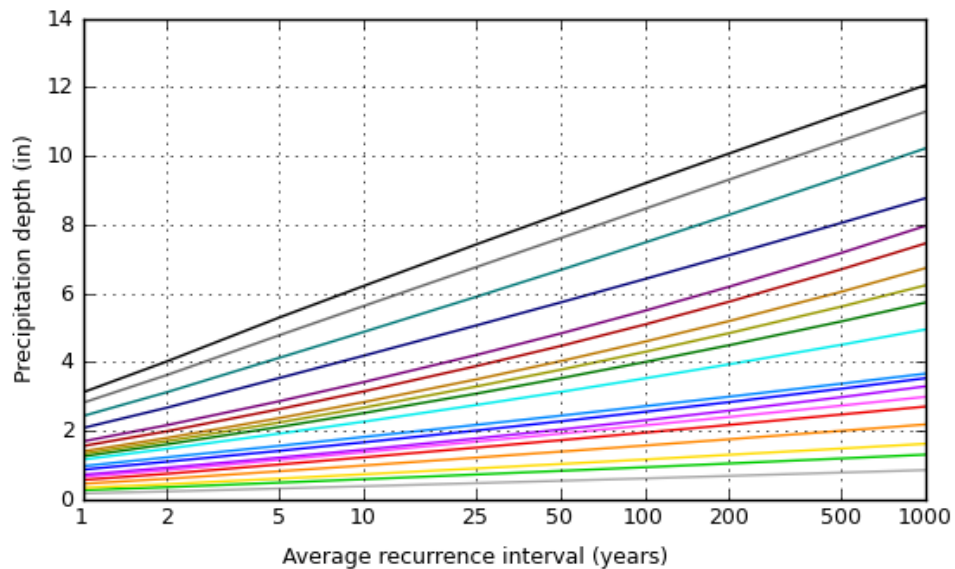
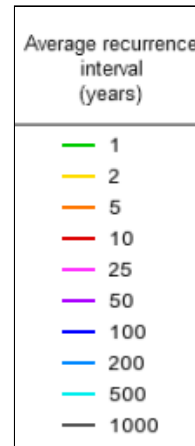
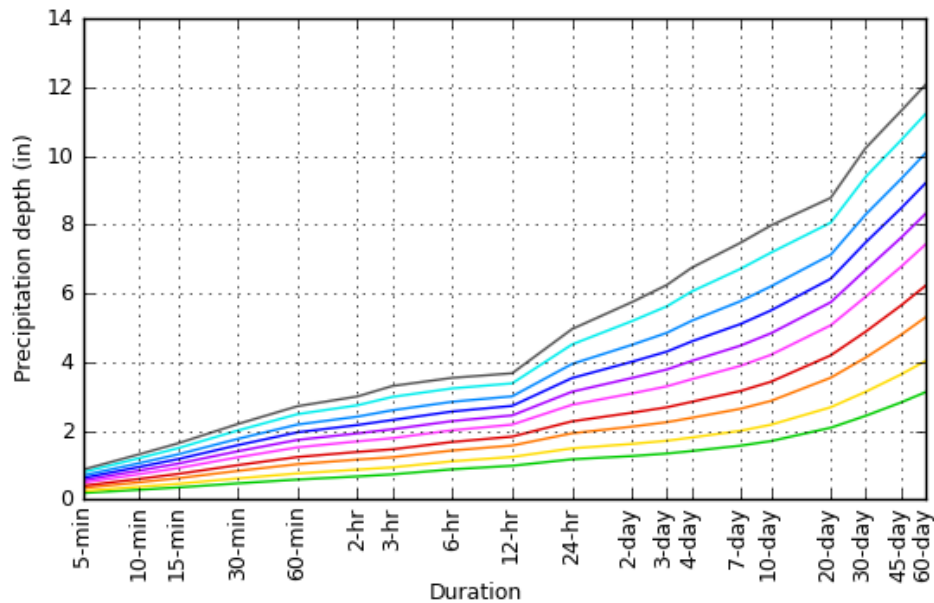
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average 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: 33.4955°, Longitude: -111.9279°



[Back to Top](#)

Maps & aerials

Small scale terrain



NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.4955°, Longitude: -111.9279°
Elevation: 1262.91 ft**



* source: ESRI Maps
 ** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_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	2.20 (1.85-2.68)	2.88 (2.42-3.50)	3.91 (3.28-4.74)	4.70 (3.91-5.68)	5.77 (4.72-6.94)	6.60 (5.33-7.90)	7.44 (5.90-8.88)	8.32 (6.47-9.90)	9.47 (7.18-11.3)	10.3 (7.69-12.4)
10-min	1.67 (1.40-2.04)	2.19 (1.84-2.66)	2.98 (2.49-3.61)	3.58 (2.98-4.32)	4.40 (3.59-5.28)	5.03 (4.06-6.01)	5.66 (4.49-6.76)	6.32 (4.93-7.54)	7.20 (5.46-8.59)	7.87 (5.86-9.41)
15-min	1.38 (1.16-1.68)	1.81 (1.52-2.20)	2.46 (2.06-2.98)	2.96 (2.46-3.57)	3.63 (2.97-4.36)	4.15 (3.35-4.97)	4.68 (3.71-5.59)	5.23 (4.07-6.23)	5.95 (4.52-7.10)	6.51 (4.84-7.78)
30-min	0.930 (0.780-1.13)	1.22 (1.03-1.48)	1.65 (1.38-2.01)	1.99 (1.65-2.40)	2.45 (2.00-2.94)	2.80 (2.26-3.34)	3.15 (2.50-3.76)	3.52 (2.74-4.19)	4.01 (3.04-4.78)	4.38 (3.26-5.24)
60-min	0.576 (0.483-0.702)	0.754 (0.635-0.917)	1.02 (0.857-1.24)	1.23 (1.02-1.49)	1.51 (1.24-1.82)	1.73 (1.40-2.07)	1.95 (1.55-2.33)	2.18 (1.70-2.60)	2.48 (1.88-2.96)	2.71 (2.02-3.24)
2-hr	0.334 (0.284-0.398)	0.432 (0.368-0.517)	0.578 (0.492-0.688)	0.690 (0.580-0.820)	0.843 (0.700-0.994)	0.960 (0.786-1.13)	1.08 (0.872-1.27)	1.20 (0.953-1.41)	1.37 (1.06-1.61)	1.50 (1.13-1.77)
3-hr	0.242 (0.205-0.291)	0.310 (0.264-0.375)	0.408 (0.345-0.490)	0.485 (0.407-0.580)	0.593 (0.491-0.705)	0.679 (0.554-0.805)	0.769 (0.616-0.911)	0.863 (0.680-1.02)	0.993 (0.759-1.18)	1.10 (0.818-1.30)
6-hr	0.146 (0.126-0.172)	0.185 (0.161-0.218)	0.237 (0.205-0.278)	0.279 (0.239-0.325)	0.336 (0.284-0.389)	0.380 (0.317-0.440)	0.427 (0.350-0.493)	0.474 (0.381-0.549)	0.539 (0.423-0.625)	0.591 (0.452-0.687)
12-hr	0.081 (0.071-0.094)	0.103 (0.090-0.119)	0.130 (0.113-0.150)	0.151 (0.131-0.175)	0.181 (0.154-0.208)	0.203 (0.171-0.233)	0.226 (0.188-0.260)	0.249 (0.205-0.287)	0.280 (0.225-0.324)	0.305 (0.240-0.355)
24-hr	0.049 (0.043-0.055)	0.062 (0.055-0.070)	0.080 (0.071-0.090)	0.095 (0.084-0.106)	0.115 (0.101-0.129)	0.131 (0.114-0.146)	0.147 (0.128-0.165)	0.164 (0.142-0.184)	0.188 (0.160-0.211)	0.206 (0.174-0.232)
2-day	0.026 (0.023-0.030)	0.034 (0.030-0.038)	0.044 (0.039-0.050)	0.053 (0.047-0.059)	0.064 (0.057-0.072)	0.074 (0.065-0.083)	0.083 (0.073-0.094)	0.094 (0.081-0.105)	0.108 (0.092-0.122)	0.120 (0.101-0.135)
3-day	0.019 (0.017-0.021)	0.024 (0.021-0.027)	0.031 (0.028-0.035)	0.037 (0.033-0.042)	0.046 (0.040-0.051)	0.052 (0.046-0.059)	0.060 (0.052-0.067)	0.067 (0.058-0.076)	0.078 (0.067-0.088)	0.087 (0.073-0.098)
4-day	0.015 (0.013-0.017)	0.019 (0.017-0.021)	0.025 (0.022-0.028)	0.030 (0.026-0.033)	0.036 (0.032-0.041)	0.042 (0.037-0.047)	0.048 (0.042-0.054)	0.054 (0.047-0.061)	0.063 (0.054-0.071)	0.070 (0.059-0.079)
7-day	0.009 (0.008-0.010)	0.012 (0.011-0.013)	0.016 (0.014-0.018)	0.019 (0.017-0.021)	0.023 (0.020-0.026)	0.027 (0.023-0.030)	0.030 (0.026-0.034)	0.034 (0.030-0.039)	0.040 (0.034-0.045)	0.044 (0.037-0.050)
10-day	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.012 (0.011-0.013)	0.014 (0.013-0.016)	0.018 (0.015-0.020)	0.020 (0.018-0.023)	0.023 (0.020-0.026)	0.026 (0.022-0.029)	0.030 (0.025-0.034)	0.033 (0.028-0.037)
20-day	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.007-0.008)	0.009 (0.008-0.010)	0.011 (0.009-0.012)	0.012 (0.011-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.017)	0.017 (0.015-0.019)	0.018 (0.016-0.020)
30-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.014 (0.012-0.016)
45-day	0.003 (0.002-0.003)	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.008-0.011)	0.010 (0.009-0.012)
60-day	0.002 (0.002-0.002)	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.008 (0.007-0.009)

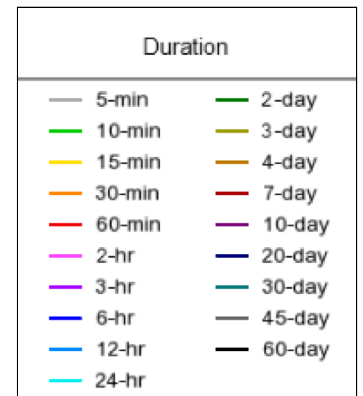
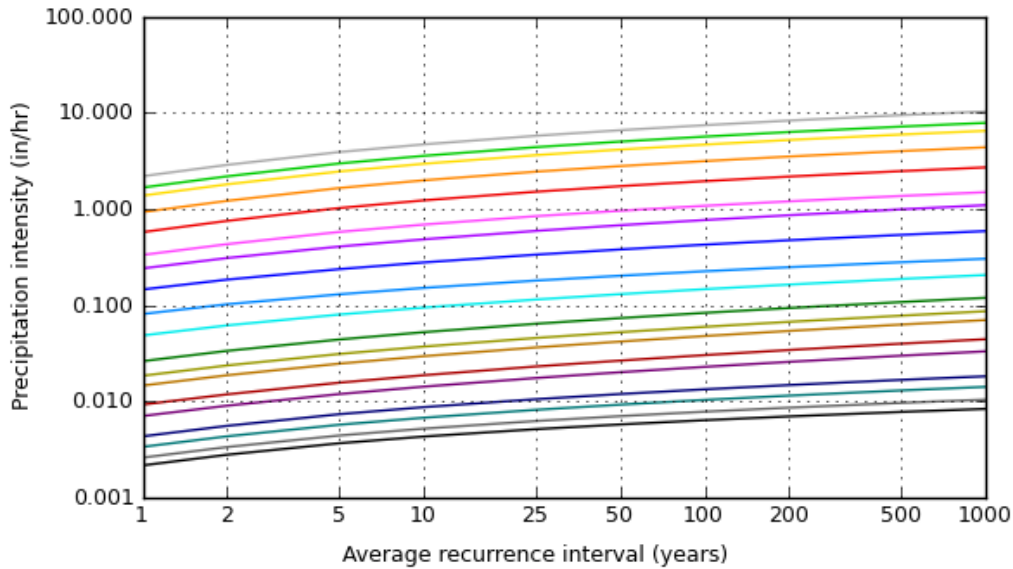
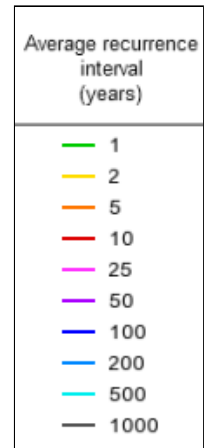
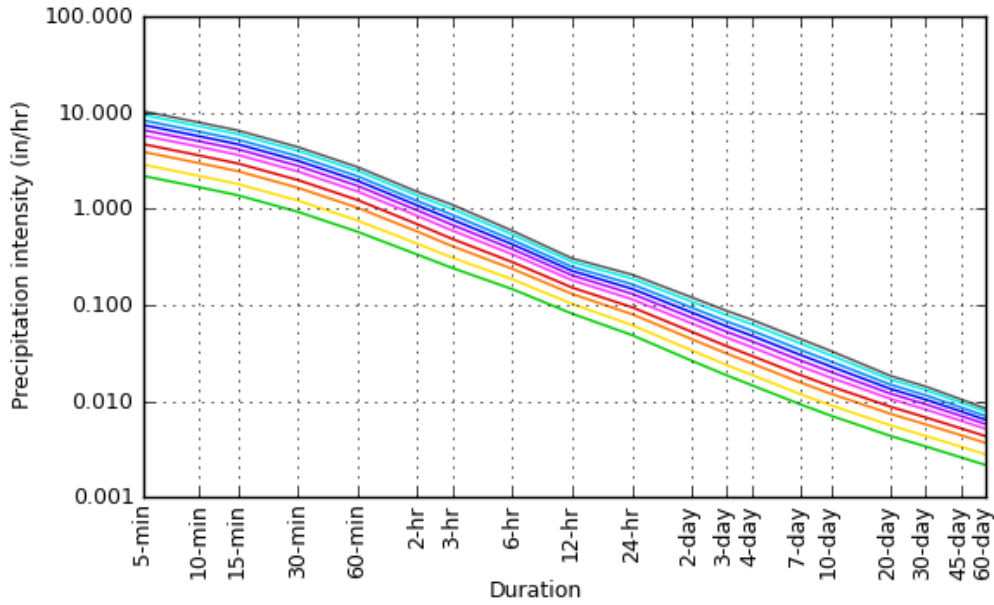
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average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

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PF graphical

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

Latitude: 33.4955°, Longitude: -111.9279°



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Maps & aerials

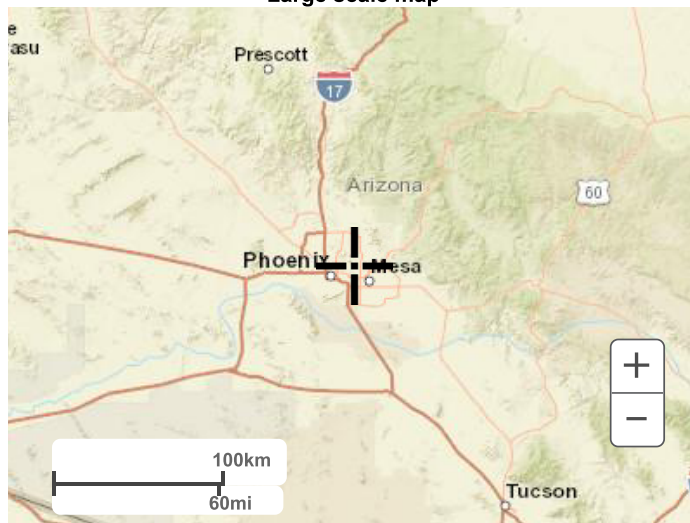
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



“LEED®ing and Developing Smart Projects”

APPENDIX II

Calculations

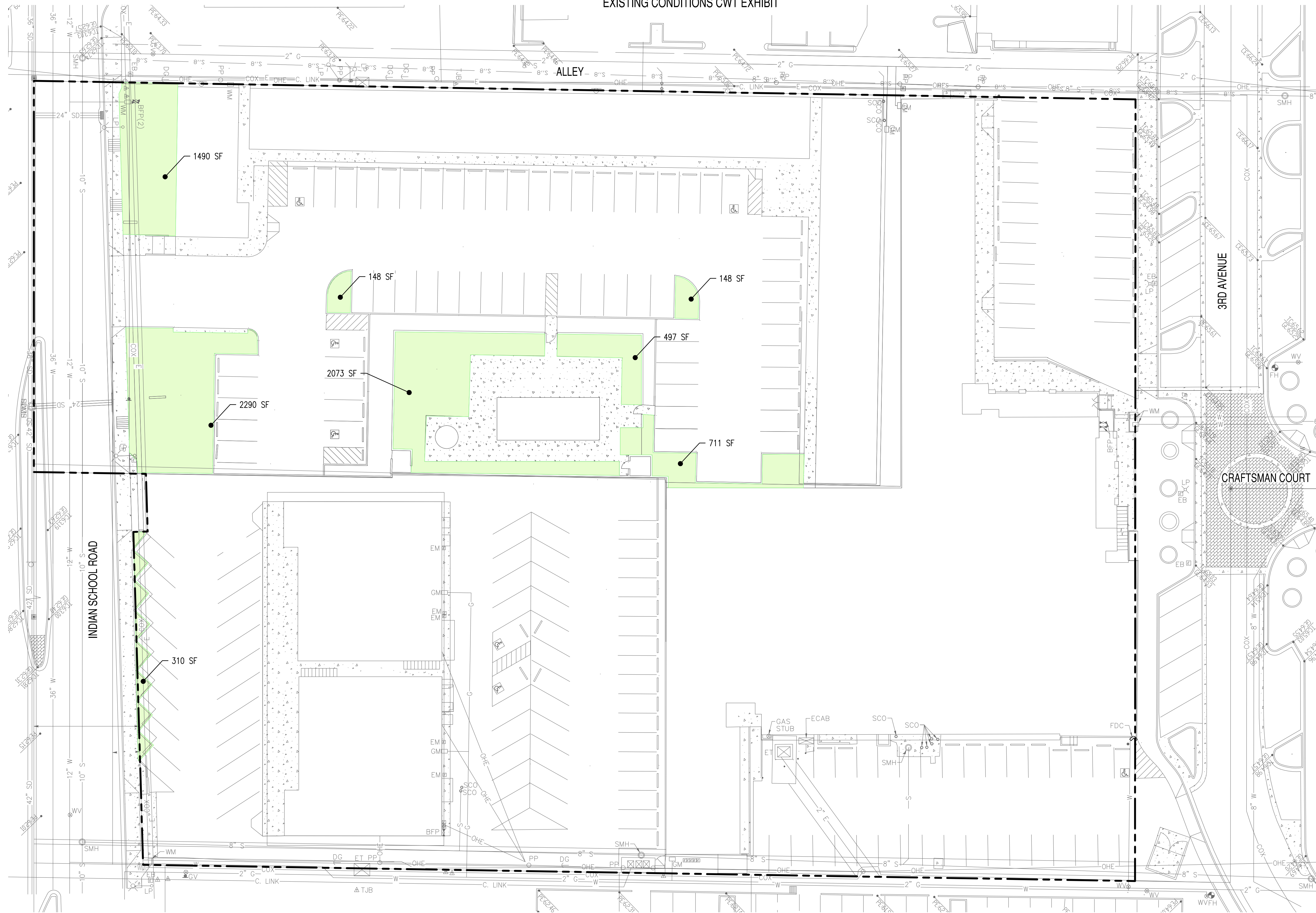
Weighted Runoff Coefficient-Calculations (C_w)

PROPOSED OVERALL SITE C_w					
	BUILDING or CONCRETE	ASPHALT	DESERT LANDSCAPE	TOTAL AREA	C _w
C-VALUE	0.95	0.95	0.45		
AREA (ac)	2.44	0.65	0.09	3.18	0.94
DA-1	0.42	0.00	0.00	0.42	0.95
DA-2	0.13	0.26	0.02	0.41	0.93
DA-3	1.03	0.05	0.01	1.09	0.95
DA-4A	0.12	0.00	0.00	0.12	0.95
DA-4B	0.19	0.16	0.01	0.36	0.94
DA-5	0.46	0.00	0.05	0.51	0.90
DA-6	0.09	0.18	0.00	0.27	0.95

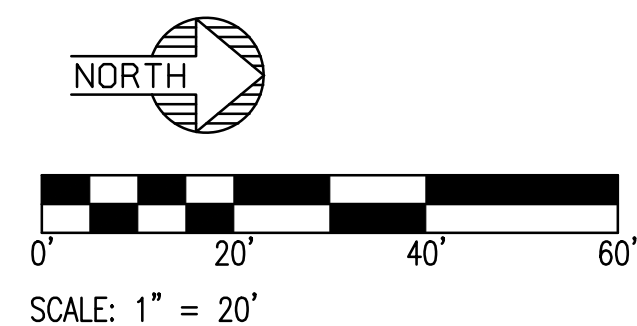
EXISTING OVERALL SITE C_w					
	BUILDING or CONCRETE	ASPHALT	DESERT LANDSCAPE	TOTAL AREA	C _w
C-VALUE	0.95	0.95	0.45		
AREA (ac)	1.66	1.34	0.18	3.18	0.92
EX-1	0.20	0.00	0.00	0.20	0.95
EX-2	0.67	0.00	0.00	0.67	0.95
EX-3	0.00	0.24	0.00	0.24	0.95
EX-4	0.00	0.36	0.00	0.36	0.95
EX-5A	0.12	0.00	0.00	0.12	0.95
EX-5B	0.35	0.00	0.01	0.36	0.94
EX-6	0.13	0.74	0.17	1.04	0.87
EX-7	0.19	0.00	0.00	0.19	0.95

KIMSEY HOTEL & APARTMENT

7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ. 85251
EXISTING CONDITIONS CWT EXHIBIT



	ON-SITE PERVIOUS =	0.18 AC	Cwt=0.45
	ON-SITE IMPERVIOUS =	3.00 AC	Cwt=0.95
	TOTAL Cwt	= 3.18 AC	@ Cwt=0.92



LOCATION: Z:\SHARED\PROJECTS\GENSLER\HOJO APARTMENTS SCOTTSDALE 200504\11 CAD (SEG)\11.3 CD\S\200504-CD-EX-CWT.DWG SAVED BY: LAPTOP02 DATE: 6/10/2021

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Gensler



KIMSEY HOTEL & APARTMENT
DRAWN: LP 6/10/2021
DESIGNED: LP 6/10/2021
QC: SC 6/10/2021
FINAL QC: AF
PROJ. MGR.: AF
DATE: 06/10/2021
ISSUED FOR: REVIEW

LOCATION
7120 E. INDIAN SCHOOL ROAD,
SCOTTSDALE, AZ. 85251

REVISION NO.: DATE:
JOB NO.: 200504
SHEET TITLE:

EXISTING CONDITIONS
DRAINAGE AREA MAP
PAGE NO.: SHEET NO.:
EXHIBIT A

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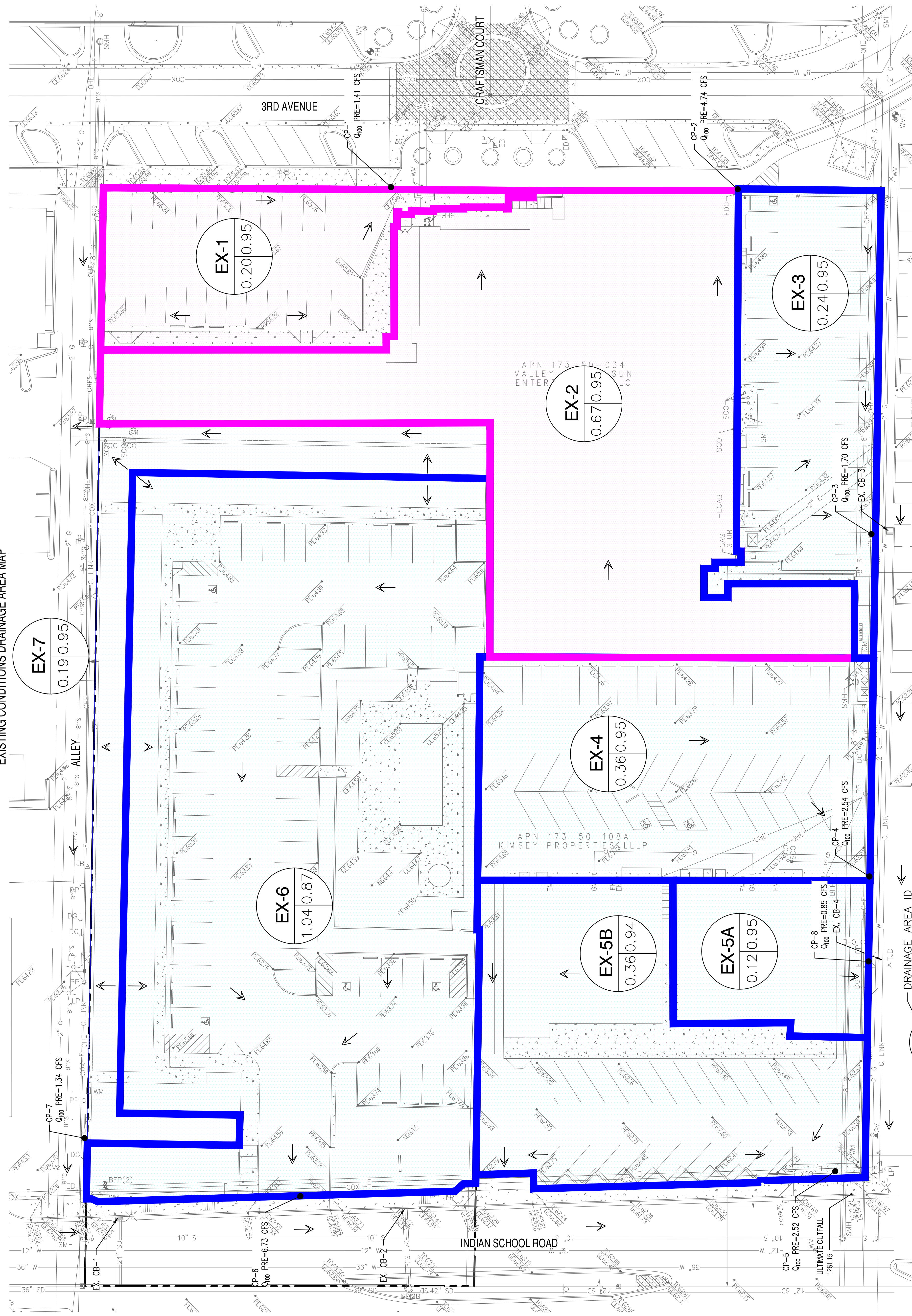
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 ARCHITECTS
 1720 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ 85251

PROJECT & APARTMENT	KIMSEY HOTEL & APARTMENT
LOCATION	7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ 85251
DESIGNED	LP 6/14/2021
FINAL DC	SC 6/14/2021
PROJ. NO.	AF 6/15/2021
ISSUED FOR:	DRB
DATE:	06/15/2021
PERSON NO.:	DRB
DATE:	
SHEET TITLE:	200504
APR. NO.:	200504
EXISTING CONDITIONS	DRAINAGE AREA MAP
PAGE NO.:	SHEET NO.:
	EXHIBIT C

KIMSEY HOTEL & APARTMENT
 7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ. 85251
 EXISTING CONDITIONS DRAINAGE AREA MAP



LEGEND

- DRAINAGE AREAS CONTRIBUTING TO 3RD AVE
- DRAINAGE AREAS CONTRIBUTING TO INDIAN SCHOOL RD
- FLOW ARROW

AREA IN ACRES — RUNOFF COEFFICIENT

DRAINAGE AREA KEY

0 20 40 60

SCALE: 1" = 20'

NORTH

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 PROPOSED CONDITIONS DRAINAGE AREA MAP

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GENSLER
 ARCHITECTS
 17120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ 85251

PROJECT: KIMSEY HOTEL & APARTMENT
 LOCATION: 7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ 85251

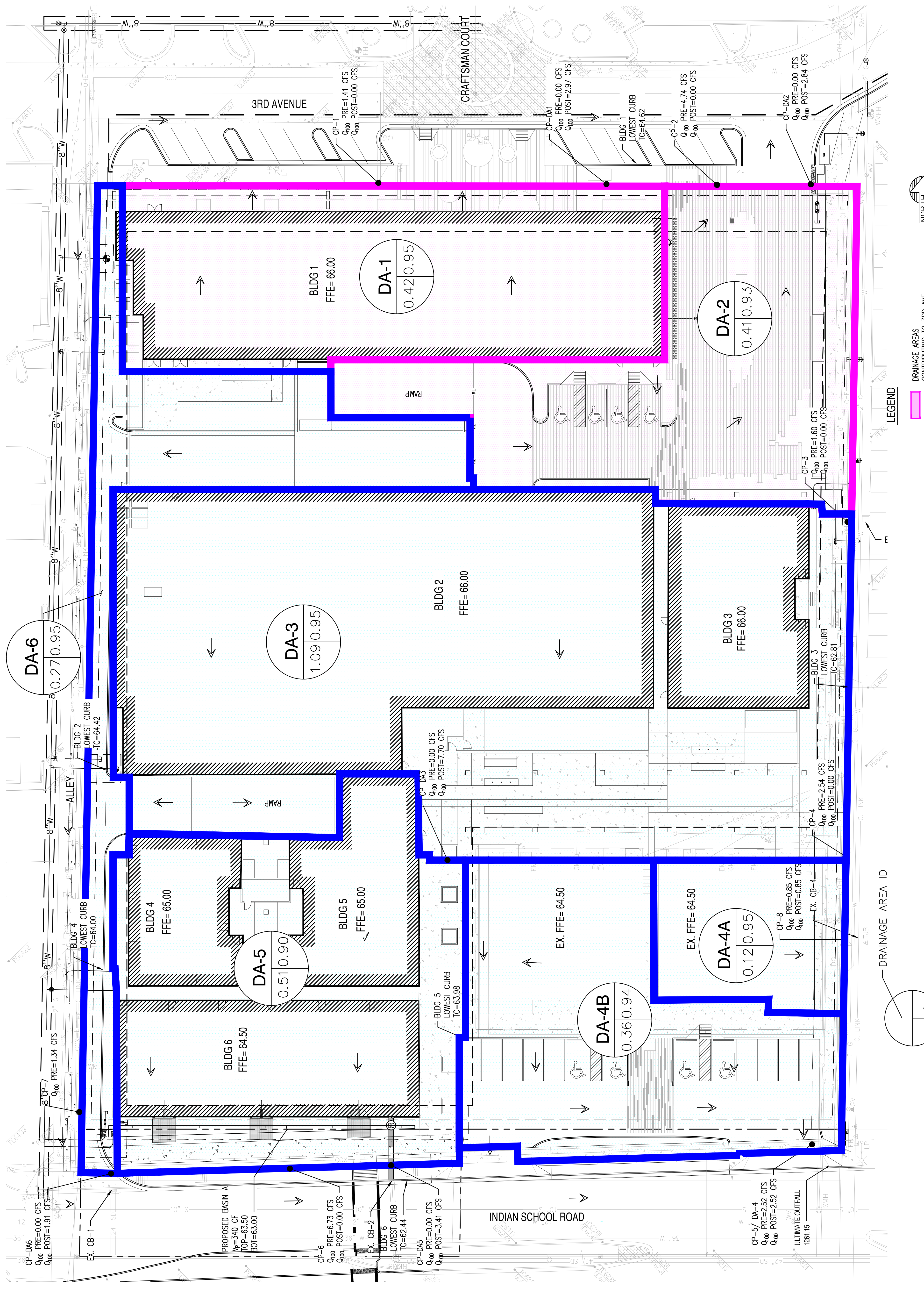
DATE: 06/15/2021
 ISSUED FOR: DRB

REVISION NO.:
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JOB NO.: 200504
 SHEET TITLE: PROPOSED CONDITIONS DRAINAGE AREA MAP

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CASE NO.: 10-ZN-2020



LEGEND

- DRAINAGE AREAS CONTRIBUTING TO 3RD AVE
- DRAINAGE AREAS CONTRIBUTING TO INDIAN SCHOOL RD
- FLOW ARROW

AREA IN ACRES RUNOFF COEFFICIENT

DRAINAGE AREA ID

SCALE: 1" = 20'

0' 20' 40' 60'

NORTH

DRAINAGE AREA KEY

36" at S=0.0063 ft/ft; d/D=1.0

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.006 ft/ft
Normal Depth	36.0 in
Diameter	36.0 in

Results	
Discharge	52.94 cfs
Flow Area	7.1 ft ²
Wetted Perimeter	9.4 ft
Hydraulic Radius	9.0 in
Top Width	0.00 ft
Critical Depth	28.4 in
Percent Full	100.0 %
Critical Slope	0.007 ft/ft
Velocity	7.49 ft/s
Velocity Head	0.87 ft
Specific Energy	3.87 ft
Froude Number	(N/A)
Maximum Discharge	56.94 cfs
Discharge Full	52.94 cfs
Slope Full	0.006 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	36.0 in
Critical Depth	28.4 in
Channel Slope	0.006 ft/ft
Critical Slope	0.007 ft/ft

48" at S=0.0063 ft/ft; d/D=1.0

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Roughness Coefficient	0.013
Channel Slope	0.006 ft/ft
Normal Depth	48.0 in
Diameter	48.0 in

Results	
Discharge	114.01 cfs
Flow Area	12.6 ft ²
Wetted Perimeter	12.6 ft
Hydraulic Radius	12.0 in
Top Width	0.00 ft
Critical Depth	38.7 in
Percent Full	100.0 %
Critical Slope	0.007 ft/ft
Velocity	9.07 ft/s
Velocity Head	1.28 ft
Specific Energy	5.28 ft
Froude Number	(N/A)
Maximum Discharge	122.64 cfs
Discharge Full	114.01 cfs
Slope Full	0.006 ft/ft
Flow Type	Undefined

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	48.0 in
Critical Depth	38.7 in
Channel Slope	0.006 ft/ft
Critical Slope	0.007 ft/ft

APPENDIX III

Preliminary Grading and Drainage Plans

KIMSEY HOTEL & APARTMENT GRADING & DRAINAGE PLAN

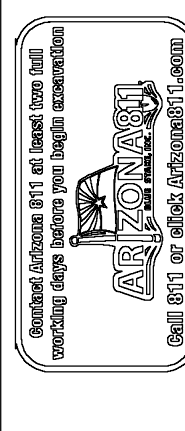
7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ. 85251

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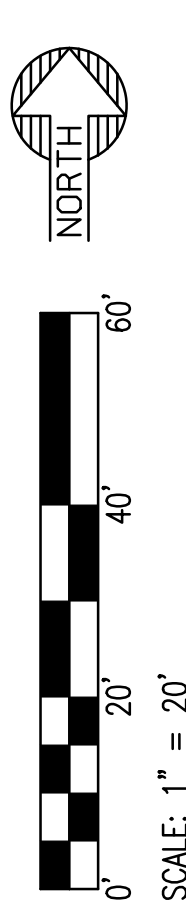
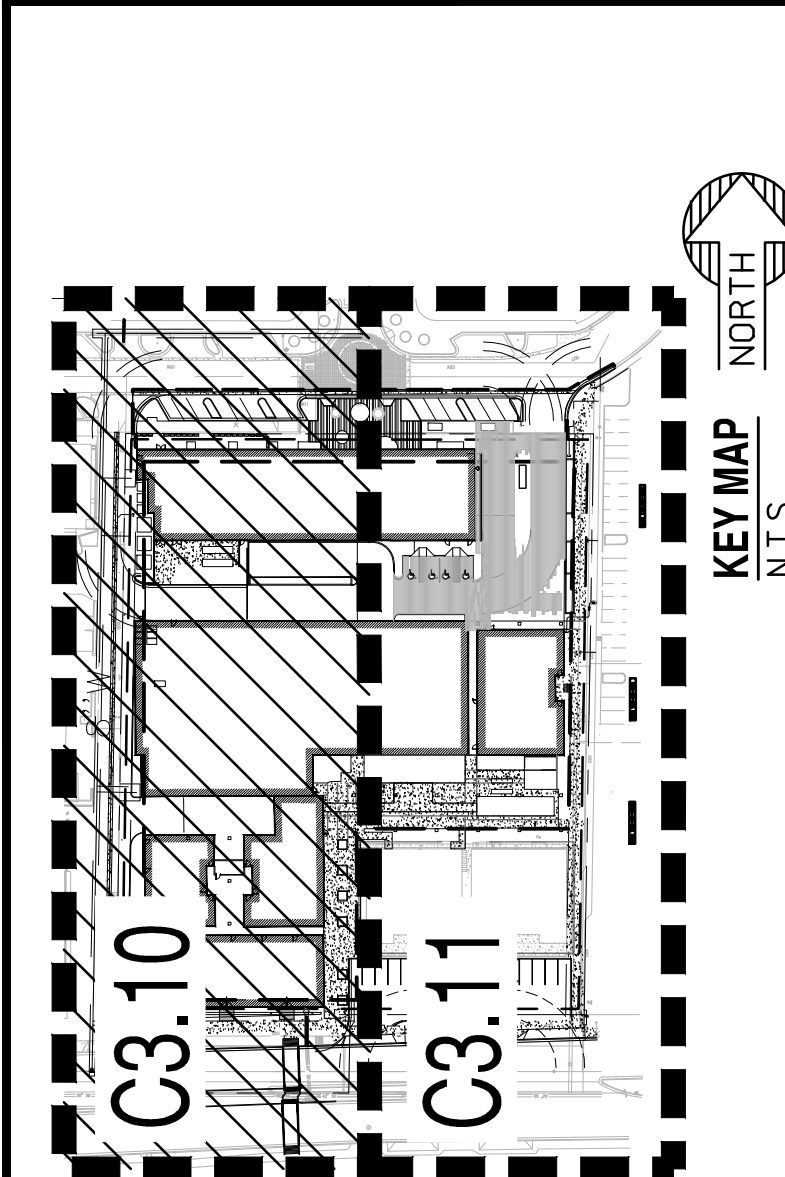
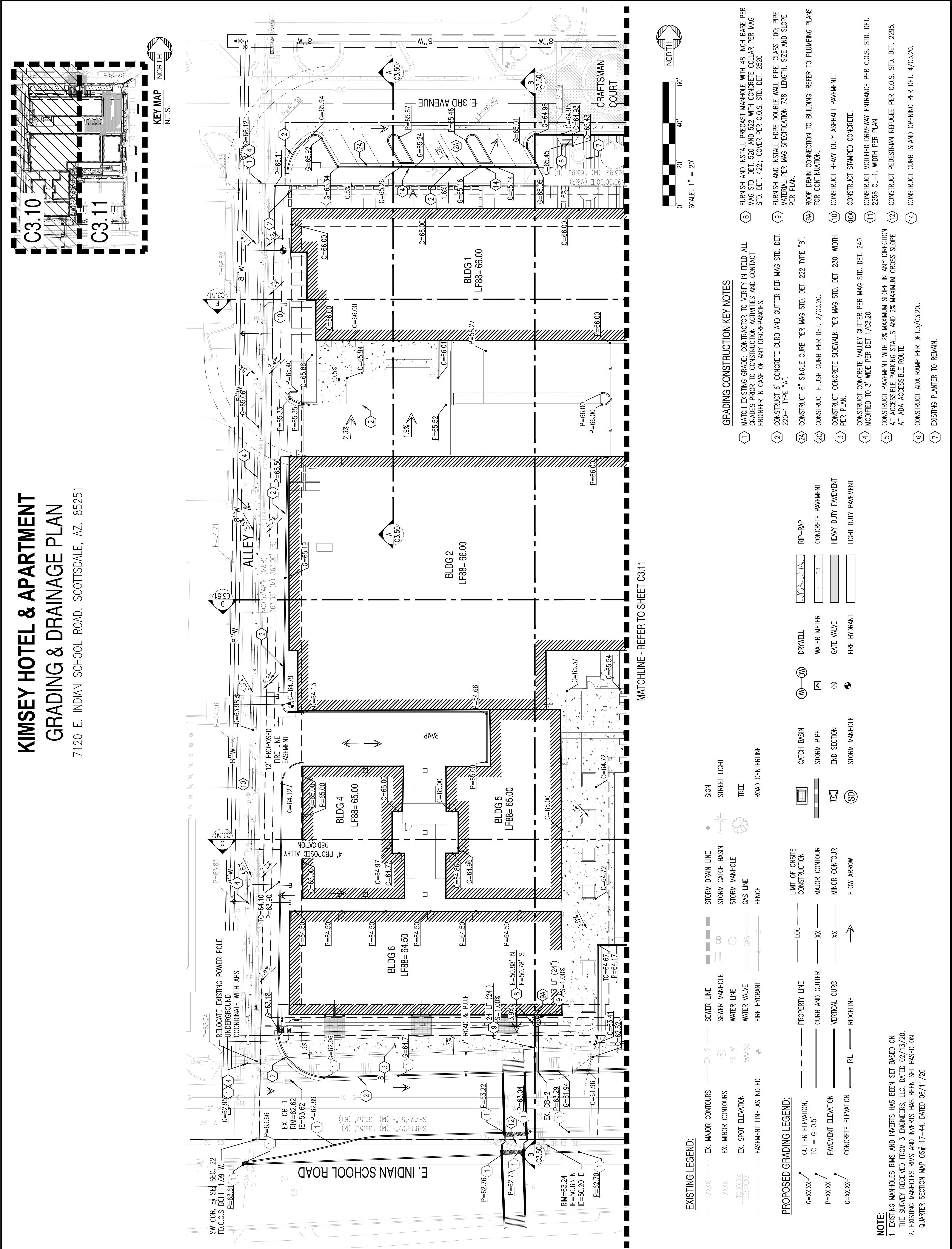
PROJECT: KIMSEY HOTEL & APARTMENT
LOCATION: 7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ. 85251
DRAWN: LP 6/14/2021
DESIGNED: LP 6/14/2021
CHECKED: SC 6/15/2021
FINAL: SC
PROJ. MGR.: AF
DATE: 06/15/2021
ISSUED FOR: DRB

REVISION NO.	DATE
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GRADING &
DRAINAGE PLAN

SHEET NO.: C3.10
PAGE NO.: 3 OF 9

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CASE NO.: 10-ZN-2020



GRADING CONSTRUCTION KEY NOTES

1. MATCH EXISTING GRADE; CONTRACTOR TO VERIFY IN FIELD ALL GRADES PRIOR TO CONSTRUCTION ACTIVITIES AND CONTACT ENGINEER IN CASE OF ANY DISCREPANCIES.
2. CONSTRUCT 6" CONCRETE CURB AND GUTTER PER MAG STD. DET. 220-1 TYPE "A".
- 2A. CONSTRUCT 6" SINGLE CURB PER MAG STD. DET. 222 TYPE "B".
- 2C. CONSTRUCT FLUSH CURB PER DET. 2/C3.20.
3. CONSTRUCT CONCRETE SIDEWALK PER MAG STD. DET. 230. WIDTH PER PLAN.
4. CONSTRUCT CONCRETE VALLEY GUTTER PER MAG STD. DET. 240 MODIFIED TO 3" WIDE PER DET 1/C3.20.
5. CONSTRUCT PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ADA ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
6. CONSTRUCT ADA RAMP PER DET.3/C3.20.
7. EXISTING PLANTER TO REMAIN.
8. FURNISH AND INSTALL PRECAST MANHOLE WITH 48-INCH BASE PER MAG STD. DET. 520 AND 522 WITH CONCRETE COLLAR PER MAG STD. DET. 422; COVER PER C.O.S. STD. DET. 2520
9. FURNISH AND INSTALL HOPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.
- 9A. ROOF DRAIN CONNECTION TO BUILDING. REFER TO PLUMBING PLANS FOR CONTINUATION.
10. CONSTRUCT HEAVY DUTY ASPHALT PAVEMENT.
- 10A. CONSTRUCT STAMPED CONCRETE.
11. CONSTRUCT MODIFIED DRIVEWAY ENTRANCE PER C.O.S. STD. DET. 2256 CL-1. WIDTH PER PLAN.
12. CONSTRUCT PEDESTRIAN REFUGEE PER C.O.S. STD. DET. 2295.
14. CONSTRUCT CURB ISLAND OPENING PER DET. 4/C3.20.

EXISTING LEGEND:	EX. MAJOR CONTOURS	EX. S	SEWER LINE	SEWER MANHOLE	EX. W	WATER LINE	WATER VALVE	FIRE HYDRANT	SEWER DRAIN LINE	SIGN	STREET LIGHT	STORM CATCH BASIN	STORM MANHOLE	GAS LINE	FENCE	ROAD CENTERLINE		
PROPOSED GRADING LEGEND:	G=XX.XX'	LOC	PROPERTY LINE	CURB AND GUTTER	XX	MAJOR CONTOUR	XX	MINOR CONTOUR	FLOW ARROW	LIMIT OF ONSITE CONSTRUCTION	MAJOR CONTOUR	MINOR CONTOUR	VERTICAL CURB	RIDGELINE	GUTTER ELEVATION,	TC = G+0.5'	PAVEMENT ELEVATION	CONCRETE ELEVATION
	P=XX.XX'	XX	PROPERTY LINE	CURB AND GUTTER	XX	MAJOR CONTOUR	XX	MINOR CONTOUR	FLOW ARROW	LIMIT OF ONSITE CONSTRUCTION	MAJOR CONTOUR	MINOR CONTOUR	VERTICAL CURB	RIDGELINE	CATCH BASIN	STORM PIPE	END SECTION	STORM MANHOLE
	C=XX.XX'	XX	PROPERTY LINE	CURB AND GUTTER	XX	MAJOR CONTOUR	XX	MINOR CONTOUR	FLOW ARROW	LIMIT OF ONSITE CONSTRUCTION	MAJOR CONTOUR	MINOR CONTOUR	VERTICAL CURB	RIDGELINE	DRYWELL	WATER METER	GATE VALVE	FIRE HYDRANT
			PROPERTY LINE	CURB AND GUTTER	XX	MAJOR CONTOUR	XX	MINOR CONTOUR	FLOW ARROW	LIMIT OF ONSITE CONSTRUCTION	MAJOR CONTOUR	MINOR CONTOUR	VERTICAL CURB	RIDGELINE	CONCRETE PAVEMENT	HEAVY DUTY PAVEMENT	LIGHT DUTY PAVEMENT	

NOTE:
1. EXISTING MANHOLES RIMS AND INVERTS HAS BEEN SET BASED ON THE SURVEY RECEIVED FROM 3 ENGINEERS, LLC. DATED 02/13/20.
2. EXISTING MANHOLES RIMS AND INVERTS HAS BEEN SET BASED ON QUARTER SECTION MAP 05# 17-44. DATED 06/11/20

KIMSEY HOTEL & APARTMENT GRADING & DRAINAGE PLAN

7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ. 85251

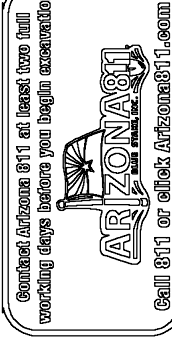
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PROJECT & APARTMENT
KIMSEY HOTEL

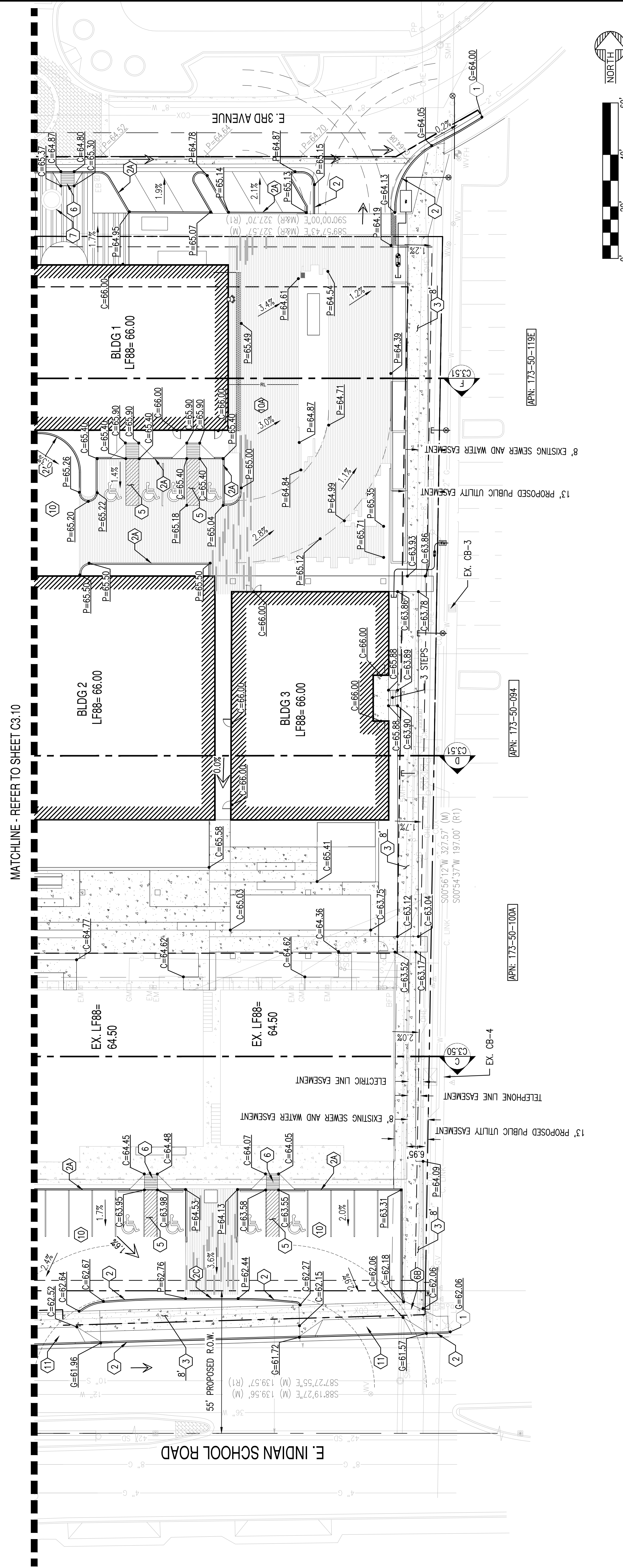
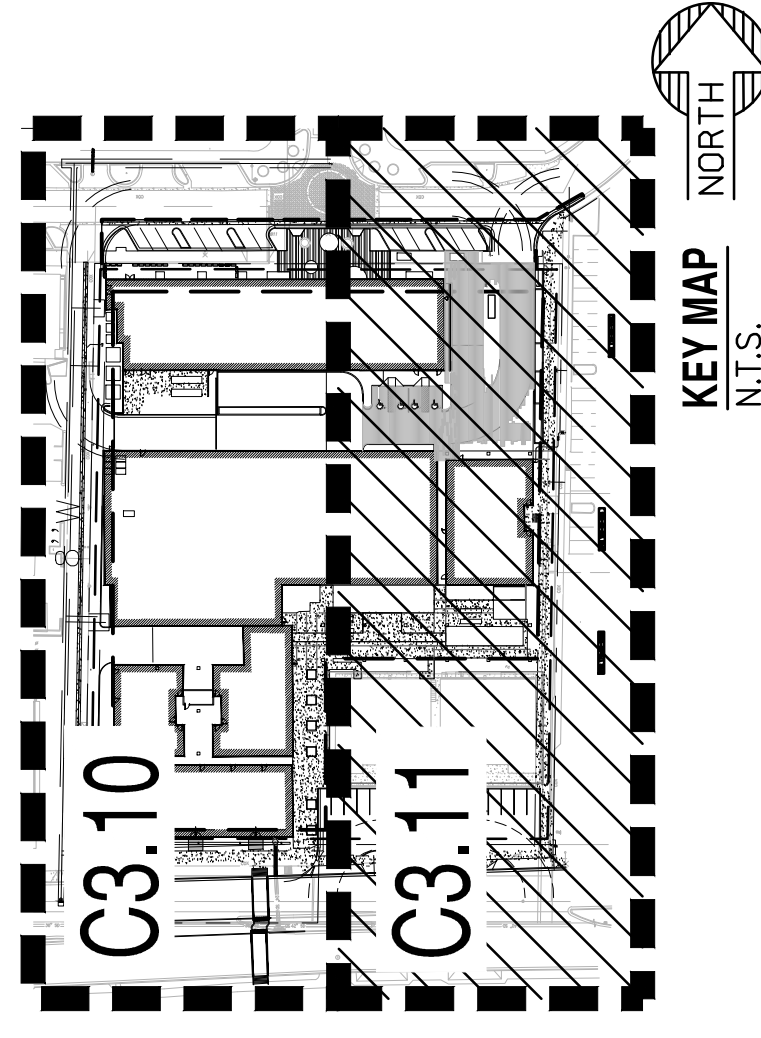
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FINAL SC 6/16/2021
PROJ. NO. AF
DATE: 06/15/2021
ISSUED FOR: DRB

REVISION NO.:
DATE:
JOB NO.: 200504

GRADING &
DRAINAGE PLAN

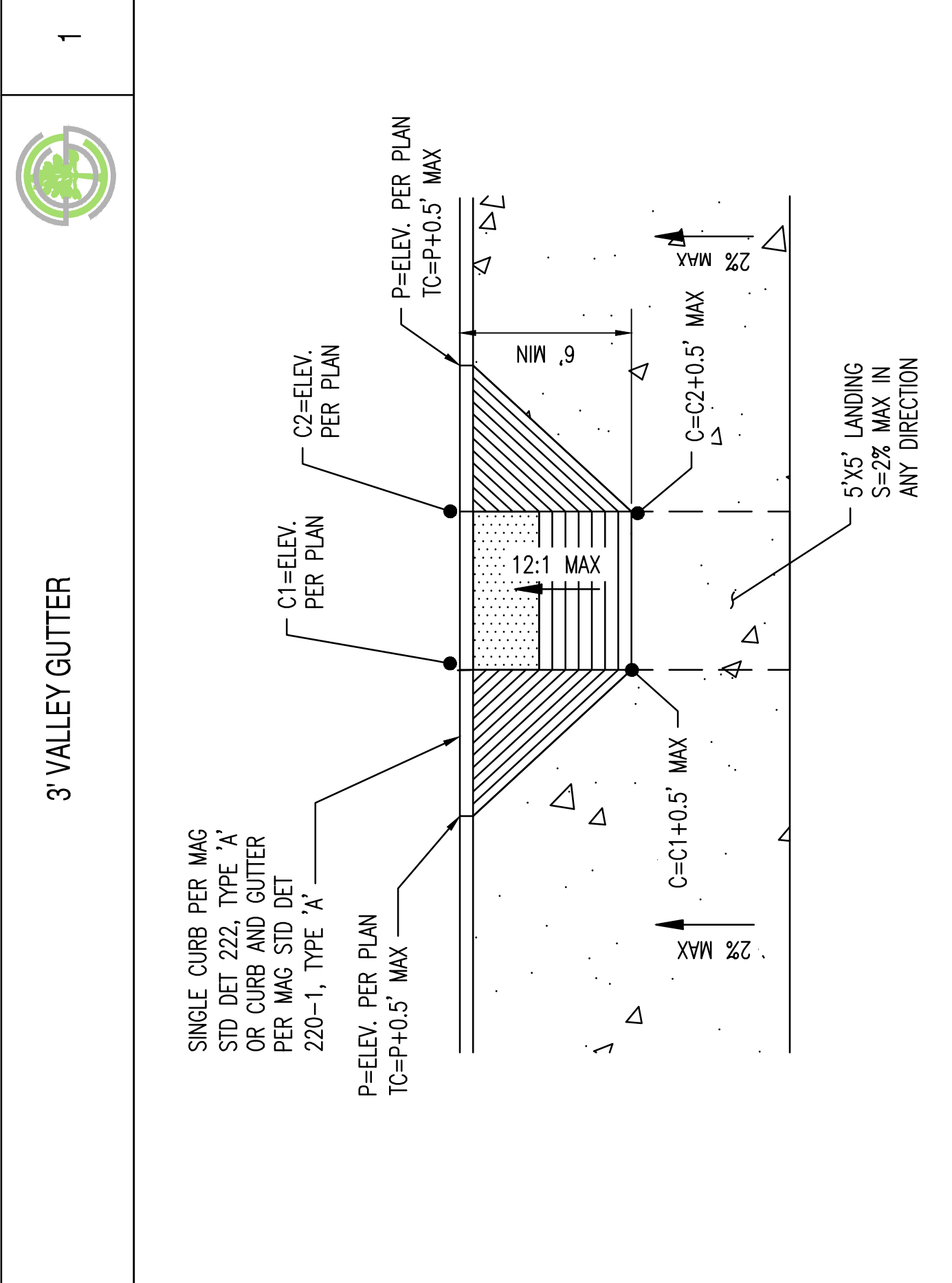
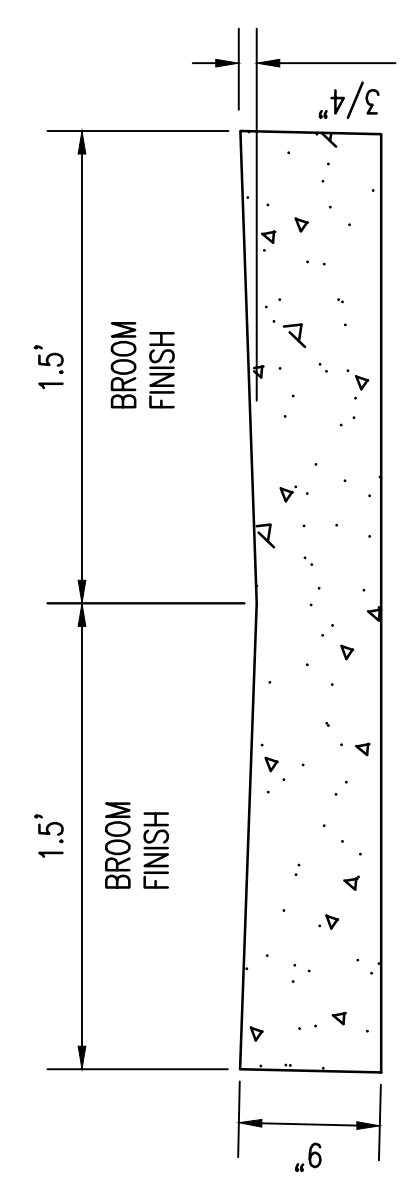
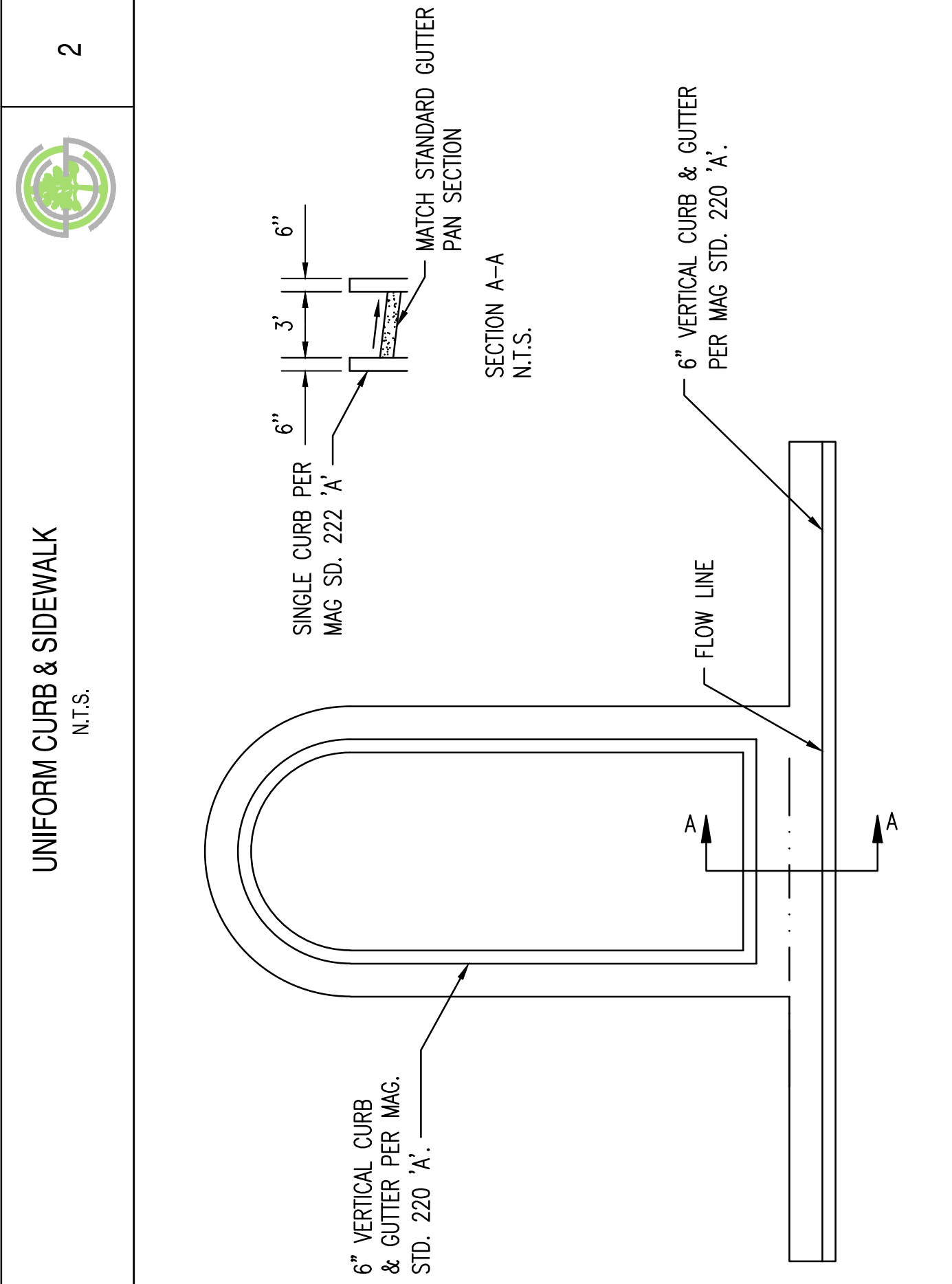
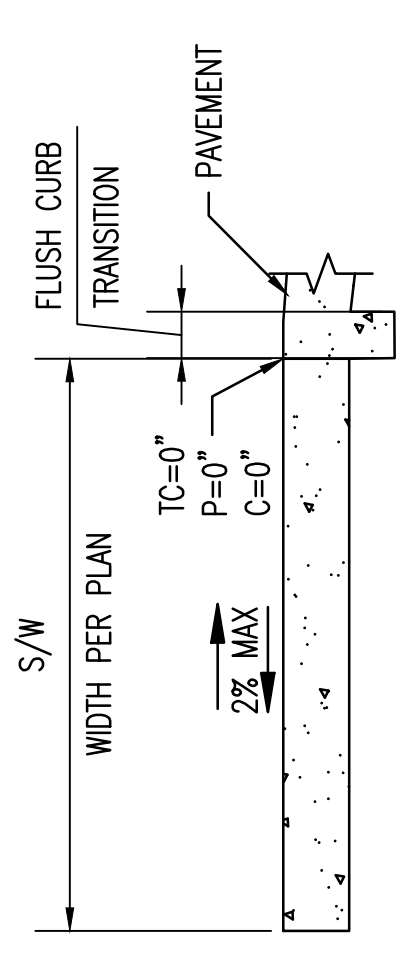
3 OF 9
PAGE NO.:
SHEET NO.:
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LOCATION: Z:\SHARE\PRODUCTS\GENSLER\H040 APARTMENTS SCOTTSDALE 200504\11 CAD (SEG)\113 CD\200504-CD-C3.00.DWG
DATE: 6/15/2021
SAVED BY: LAPTOP2



- EXISTING LEGEND:**
- EX. MAJOR CONTOURS
 - EX. MINOR CONTOURS
 - EX. SPOT ELEVATION
 - EASEMENT LINE AS NOTED
 - SEWER LINE
 - SEWER MANHOLE
 - WATER LINE
 - WATER VALVE
 - FIRE HYDRANT
 - STORM DRAIN LINE
 - STORM CATCH BASIN
 - STORM MANHOLE
 - GAS LINE
 - FENCE
 - STREET LIGHT
 - TREE
 - ROAD CENTERLINE
- PROPOSED GRADING LEGEND:**
- GUTTER ELEVATION, TC = G+0.5'
 - PAVEMENT ELEVATION
 - CONCRETE ELEVATION
 - PROPERTY LINE
 - CURB AND GUTTER
 - VERTICAL CURB
 - RIDGELINE
 - CATCH BASIN
 - STORM PIPE
 - END SECTION
 - STORM MANHOLE
 - LIMIT OF ONSITE CONSTRUCTION
 - MAJOR CONTOUR
 - MINOR CONTOUR
 - FLOW ARROW
- GRADING CONSTRUCTION KEY NOTES:**
- MATCH EXISTING GRADE; CONTRACTOR TO VERIFY IN FIELD ALL GRADES PRIOR TO CONSTRUCTION ACTIVITIES AND CONTACT ENGINEER IN CASE OF ANY DISCREPANCIES.
 - CONSTRUCT 6" CONCRETE CURB AND GUTTER PER MAG STD. DET. 220-1 TYPE "A".
 - CONSTRUCT 6" SINGLE CURB PER MAG STD. DET. 222 TYPE "B".
 - CONSTRUCT FLUSH CURB PER DET. 2/C3.20.
 - CONSTRUCT CONCRETE SIDEWALK PER MAG STD. DET. 230. WIDTH PER PLAN.
 - CONSTRUCT CONCRETE VALLEY GUTTER PER MAG STD. DET. 240 MODIFIED TO 3' WIDE PER DET 17/C3.20.
 - CONSTRUCT PAVEMENT WITH 2% MAXIMUM SLOPE IN ANY DIRECTION AT ACCESSIBLE PARKING STALLS AND 2% MAXIMUM CROSS SLOPE AT ADA ACCESSIBLE ROUTE.
 - CONSTRUCT ADA RAMP PER DET.3/C3.20.
 - EXISTING PLANTER TO REMAIN.
 - FURNISH AND INSTALL PRECAST MANHOLE WITH 48-INCH BASE PER MAG STD. DET. 520 AND 522 WITH CONCRETE COLLAR PER MAG STD. DET. 422; COVER PER C.O.S. STD. DET. 2520
 - FURNISH AND INSTALL HDPE DOUBLE WALL PIPE, CLASS 100; PIPE MATERIAL PER MAG SPECIFICATION 738. LENGTH, SIZE AND SLOPE PER PLAN.
 - ROOF DRAIN CONNECTION TO BUILDING. REFER TO PLUMBING PLANS FOR CONTINUATION.
 - CONSTRUCT HEAVY DUTY ASPHALT PAVEMENT.
 - CONSTRUCT STAMPED CONCRETE.
 - CONSTRUCT MODIFIED DRIVEWAY ENTRANCE PER C.O.S. STD. DET. 2256 CL-1. WIDTH PER PLAN.
 - CONSTRUCT PEDESTRIAN REFUGEE PER C.O.S. STD. DET. 2295.
 - CONSTRUCT CROSSWALK PER C.O.S. STD. DET. 2235-1.
 - CONSTRUCT CURB ISLAND OPENING PER DET. 4/C3.20.
- LEGEND:**
- DRYWELL
 - WATER METER
 - GATE VALVE
 - FIRE HYDRANT
 - RIP-RAP
 - CONCRETE PAVEMENT
 - HEAVY DUTY PAVEMENT
 - LIGHT DUTY PAVEMENT
- SCALE:** 1" = 20'
- APNs:** 175-50-100A, 175-50-094, 175-50-119E

NOTE:
1. EXISTING MANHOLES RIMS AND INVERTS HAS BEEN SET BASED ON THE SURVEY RECEIVED FROM 3 ENGINEERS, LLC. DATED 02/13/20.
2. EXISTING MANHOLES RIMS AND INVERTS HAS BEEN SET BASED ON QUARTER SECTION MAP 05# 17-44. DATED 06/11/20



2
UNIFORM CURB & SIDEWALK
N.T.S.

1
3" VALLEY GUTTER

4
CURB ISLAND OPENING DETAIL

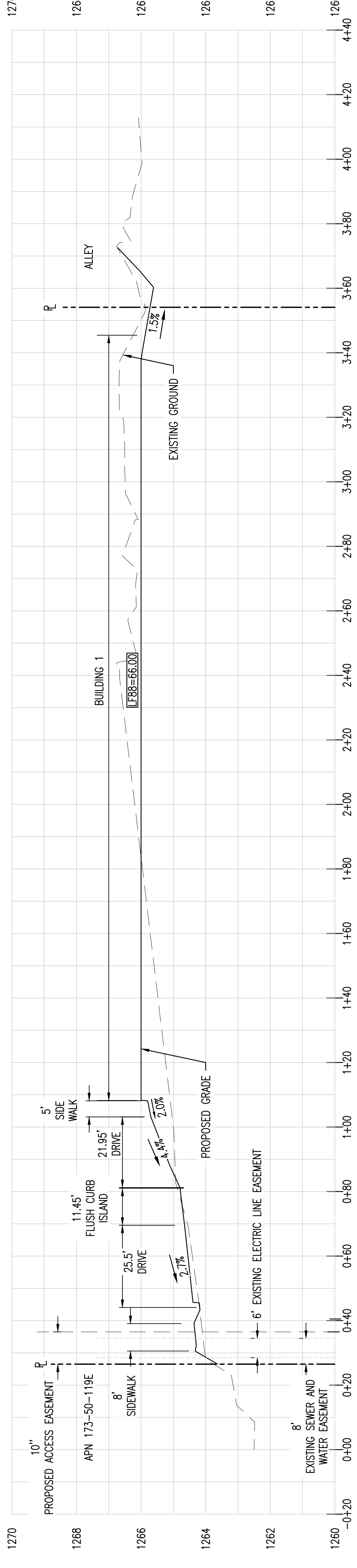
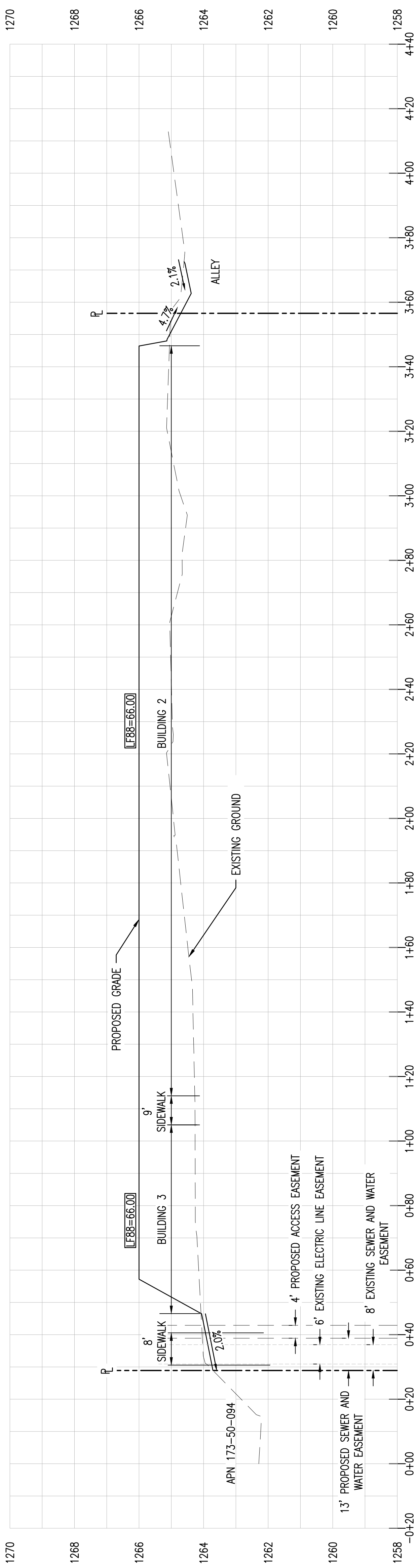
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ADA ACCESSIBLE RAMP

DATE:	06/15/2021
ISSUED FOR:	DRB
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JOB NO.:	200504
SHEET TITLE:	
PROJECT & APARTMENT:	KIMSEY HOTEL
LOCATION:	7120 E. INDIAN SCHOOL ROAD, SCOTTSDALE, AZ 85251
DRAWN:	LP
DESIGNED:	LP
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FINAL DC:	SC
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8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
 WWW.AZSEEG.COM TEL. 480.588.7226 FAX 480.259.3534
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 SUSTAINABILITY ENGINEERING GROUP

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APPENDIX IV

Site Visit Photos

EAST BOUNDARY SITE PHOTOS 8/27/2020



NORTHEAST BOUNDARY OF PARCEL 173-50-119E



PARCEL 173-50-119E EXISTING INLET STRUCTURE, EX. CB-3



EAST BOUNDARY BETWEEN PARCELS 173-50-108A AND 173-50-094 LOOKING NORTH



EAST BOUNDARY BETWEEN PARCELS 173-50-108A AND 173-50-094 LOOKING SOUTH



SOUTHEAST BOUNDARY BETWEEN PARCELS
173-50-108A AND 173-50-100A LOOKING NORTH



SOUTHEAST BOUNDARY BETWEEN THE TRIANGLE
BUILDING AND PARCEL 173-50-100A LOOKING NORTH



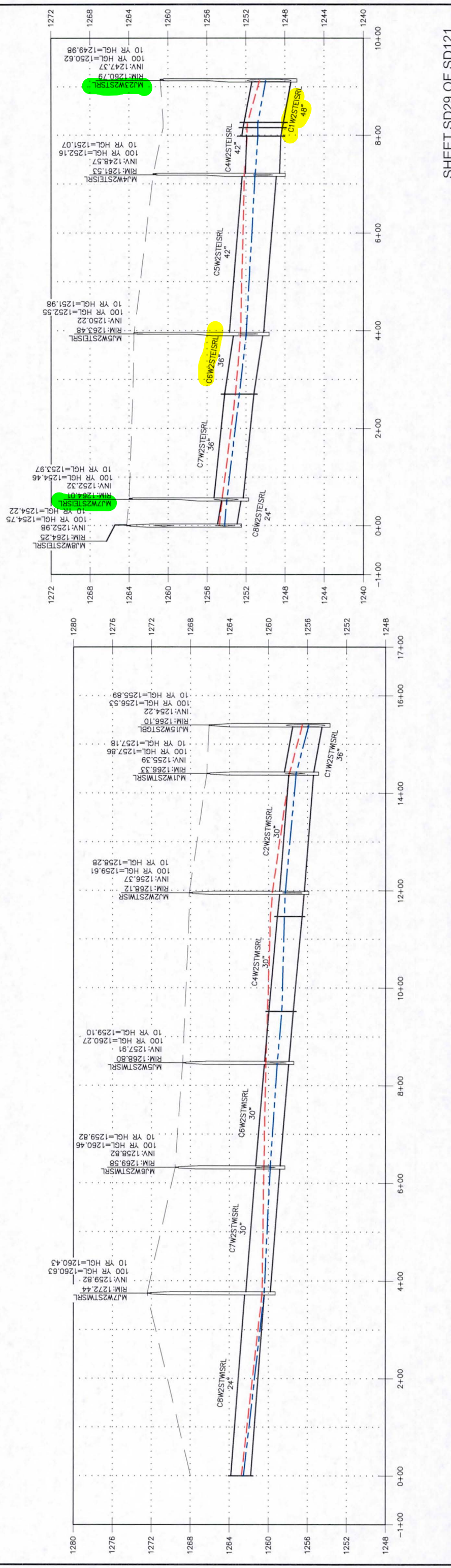
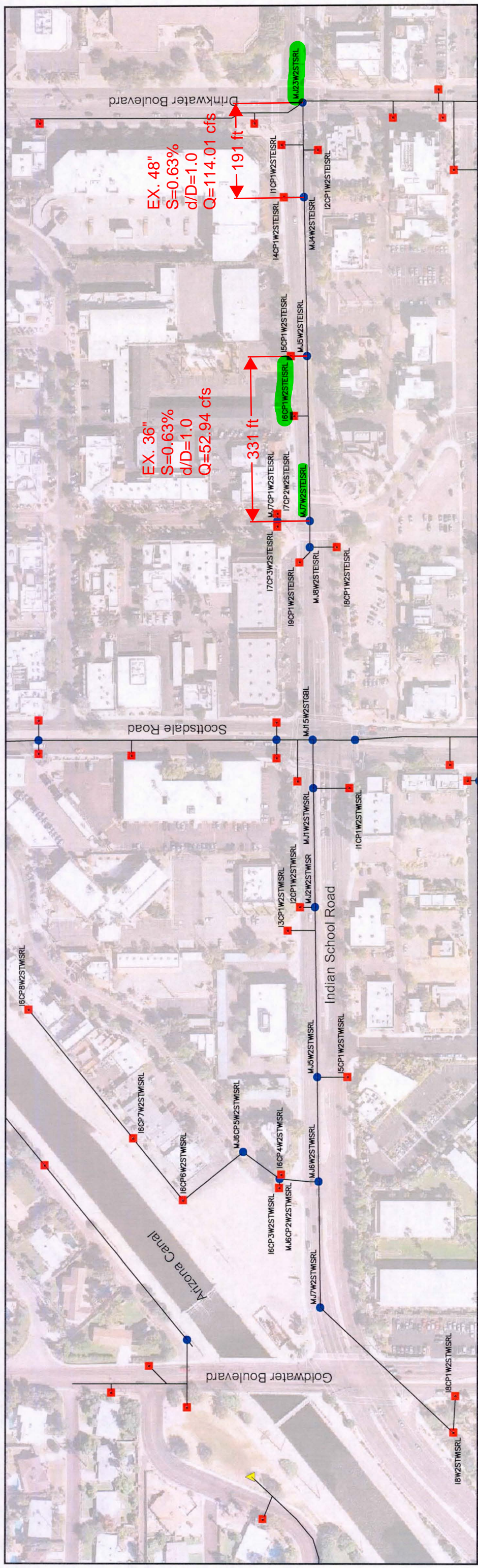
SOUTHWEST CORNER OF PARCEL 173-50-100A



EXISTING INLET, EX. CB-4, IN PARCEL 173-50-100A

APPENDIX V

Lower Indian Bend Wash ADMP Excerpt



**LOWER INDIAN BEND WASH ADMS/P
STUDY AREA - SOUTH**

SHEET SD29 OF SD121

Legend (Plan)

- Inlet & SWMM Identifier
- Manhole & SWMM Identifier
- Outlet & SWMM Identifier
- Storm Drain Pipes

Legend (Profile)

- Ground Elevation
- Hydraulic Grade Line (100yr. 6-hr)
- Hydraulic Grade Line (10yr. 6-hr)

Gavan & Barker
engineers, planners, scientists

TYLIN INTERNATIONAL
engineers, planners, scientists

Scale: 1" = 200' Horizontal
1" = 10' Vertical

Prepared	AJA	Date	12/18/2017
Checked	MTG	By	MTG

SWMM Outfall: **W2STBOUTFALL**
(West 2nd Street S.D. Outfall)

Inlet Summary Table

SWM M Name		FLO-2D/SWMM Model									
Inlet	Connector Pipe	100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr		10-yr, 6-hr	
		Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)
I2CPW2STSR	C32CPW2ST	14.4	0.5	0.5	0.5	0.3	0.3	0.4	0.4	0.4	0.4
I3CPW2STSR	C32CPW2ST	14.4	0.9	0.9	10	0.6	0.6	0.7	0.7	0.7	0.7
I2CPW2STSR	C2CPW2STSR	7.2	4.9	4.9	54	3.4	3.4	4.0	4.0	4.0	4.0
I1CPW2STSR	C1CPW2STSR	7.2	15	14	30	0.5	0.5	0.6	0.6	0.6	0.6
I4CPW2STSR	C4CPW2STSR	7.2	56	56	64	2.5	2.5	3.5	3.5	3.5	3.5
I6CPW2STSR	C6CPW2STSR	4.8	15	15	17	10	10	12	12	12	12
I7CPW2STSR	C7CPW2STSR	9.6	7.3	7.3	8.6	4.0	4.0	5.1	5.1	5.1	5.1
I8CPW2STSR	C8CPW2STSR	4.8	0.7	0.7	0.8	10	10	0.5	0.5	0.5	0.5
I9CPW2STSR	C9CPW2STSR	4.8	0.9	0.9	18	0.6	0.6	0.7	0.7	0.7	0.7
I5CPW2STSR	C5CPW2STSR	9.6	6.7	6.7	8.1	3.8	3.8	4.7	4.7	4.7	4.7
I6CPW2STSR	C6CPW2STSR	14.4	4.8	4.8	14.7	15.6	11.4	12.7	12.7	12.7	12.7
I2ICPW2STSR	C2ICPW2STSR	12.0	4.7	4.6	5.9	5.8	2.7	3.3	3.3	3.3	3.3
I20CPW2STSR	C20CPW2STSR	12.0	2.7	2.7	4.0	4.0	15	18	18	18	18
I18CPW2STSR	C18CPW2STSR	12.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
I17CPW2STSR	C17CPW2STSR	4.8	1.1	1.1	13	0.6	0.6	0.7	0.7	0.7	0.7
I16CPW2STSR	C16CPW2STSR	4.8	1.9	1.9	2.2	2.2	0.9	1.1	1.1	1.1	1.1
I15CPW2STSR	C15CPW2STSR	4.8	4.0	4.0	4.2	2.9	2.9	3.3	3.3	3.3	3.3
I14CPW2STSR	C14CPW2STSR	4.8	2.0	2.0	3.0	0.3	0.3	0.4	0.4	0.4	0.4
I13CPW2STSR	C13CPW2STSR	7.2	3.3	3.2	3.8	3.8	16	15	2.0	2.0	2.0
I10CPW2STSR	C10CPW2STSR	12.0	13.8	13.8	150	6.7	6.7	9.2	9.2	9.2	9.2
I10CPW2STSR	C10CPW2STSR	12.0	12	12	3.2	3.1	0.5	0.6	0.6	0.6	0.6
I12CPW2STSR	C12CPW2STSR	12.0	16	15	2.1	2.0	0.7	0.9	0.9	0.9	0.9
I8CPW2STSR	C8CPW2STSR	14.4	8.4	8.3	9.9	9.8	5.3	6.2	6.2	6.2	6.2
I8CPW2STSR	C8CPW2STSR	8.7	1.1	9.4	14	11.2	0.5	5.7	0.6	6.8	6.8
I20CPW2ST	C20CPW2ST	32.2	1.1	1.1	2.0	2.3	0.3	0.5	0.5	0.5	0.5
I2ICPW2ST	C2ICPW2ST	32.2	9.7	9.7	14.5	14.5	3.5	5.3	5.3	5.3	5.3
I20CPW2ST	C20CPW2ST	32.2	0.8	0.8	16	16	0.3	0.4	0.4	0.4	0.4
I1W2STBAL	C1W2STBAL	32.2	119	290	15.8	34.7	5.5	20.9	7.3	23.4	23.4
I24CPW2ST	C24CPW2ST	2.6	16	16	2.0	2.0	10	10	12	12	12
I24CPW2ST	C24CPW2ST	2.6	19	19	2.3	2.2	1.1	1.1	1.4	1.4	1.4
I33CPW2ST	C33CPW2ST	20.0	15	15	19	0.9	0.9	1.1	1.1	1.1	1.1
I34CPW2ST	C34CPW2ST	20.0	13	12	16	0.7	0.7	0.9	0.9	0.9	0.9
I35CPW2ST	C35CPW2ST	20.0	18	18	2.3	2.3	10	12	12	12	12
I37CPW2ST	C37CPW2ST	32.2	8.9	8.9	10.4	10.4	5.8	5.8	7.0	7.0	7.0
I37CPW2ST	C37CPW2ST	32.2	3.0	3.0	3.6	3.6	18	18	2.2	2.2	2.2
I36CPW2ST	C36CPW2ST	20.0	8.7	8.7	10.6	10.6	4.7	6.1	6.1	6.1	6.1
I43CPW2ST	C43CPW2ST	32.2	110	110	13.2	13.1	5.5	6.7	6.7	6.7	6.7
I47CPW2ST	C47CPW2ST	32.2	5.8	5.8	6.7	6.7	3.7	4.5	4.5	4.5	4.5
I46CPW2ST	C46CPW2ST	17.4	16	16	2.0	2.0	0.8	1.1	1.1	1.1	1.1
I2CPW2ST69STL	C2CPW2ST69STL	2.6	0.9	0.9	10	10	0.5	0.6	0.6	0.6	0.6
I1CPW2ST69STL	C1CPW2ST69STL	2.6	3.1	3.1	3.2	3.2	1.7	2.0	2.0	2.0	2.0
I9CPW2STBAL	C9CPW2STBAL	2.6	18	3.9	3.2	6.2	19	3.7	2.1	4.0	4.0
I9CPW2STBAL	C9CPW2STBAL	2.6	19	2.0	3.1	3.0	2.0	2.2	2.0	2.1	2.1
I7CPW2STBAL	C7CPW2STBAL	2.6	2.0	1.9	2.6	2.5	4.3	1.9	2.1	2.1	2.1
I4CPW2STBAL	C4CPW2STBAL	3.6	5.5	5.4	5.9	5.4	5.3	5.4	5.4	5.3	5.3

INLET SUMMARY TABLE NOTES:

- The curb high/soffit high inflow discharge were calculated according to the procedures outlined in the District's Hydraulics Manual.
- The inflow discharge is the peak hydrograph discharge taken from the SWMMQIN.OUT file.
- The pipe Max Discharge is the peak hydrograph discharge taken from the 'Link Results' in the SWMM.RTP file.

Inlet Summary Table

SWM M Name		FLO-2D/SWMM Model									
Inlet	Connector Pipe	100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr		10-yr, 6-hr	
		Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)
I2CPW2STSR	C2CPW2STSR	17.4	7.9	7.9	10.5	10.6	3.1	3.1	4.5	4.5	4.5
I1CPW2STSR	C1CPW2STSR	20.0	10.1	10.0	13.1	13.0	3.5	3.6	5.6	5.6	5.6
I26CPW2STSR	C26CPW2STSR	4.8	5.8	5.7	7.6	7.5	3.6	3.6	4.4	4.4	4.4
I5CPW2STSR	C5CPW2STSR	13.9	7.2	7.2	7.8	7.8	5.1	5.1	6.1	6.1	6.1
I4CPW2STSR	C4CPW2STSR	20.0	14.9	14.9	17.0	17.0	10.7	10.7	12.2	12.2	12.1
I6CPW2STSR	C6CPW2STSR	3.4	3.9	3.9	4.3	4.3	2.7	2.7	3.2	3.2	3.2
I9CPW2STSR	C9CPW2STSR	17.4	7.1	7.1	8.2	8.2	5.0	5.0	5.9	5.9	5.8
I8CPW2STSR	C8CPW2STSR	3.1	2.3	2.3	2.7	2.7	1.6	1.6	1.9	1.9	1.9
I7CPW2STSR	C7CPW2STSR	5.2	8.5	8.5	8.9	8.8	5.5	5.5	6.2	6.2	6.2
I7CPW2STSR	C7CPW2STSR	13.1	10.9	10.8	12.7	12.7	7.4	7.3	8.9	8.9	8.9
I3CPW2STSR	C3CPW2STSR	7.8	7.2	7.1	8.4	8.4	4.7	4.7	5.5	5.5	5.5
I3CPW2STSR	C3CPW2STSR	5.4	9.2	9.1	10.6	10.6	5.6	5.6	7.0	7.0	6.9
I1CPW2STSR	C1CPW2STSR	4.8	3.9	3.9	4.6	4.6	2.5	2.5	2.9	2.9	2.9
I16CPW2STSR	C16CPW2STSR	17.4	3.9	3.9	4.4	4.4	2.6	2.6	3.1	3.1	3.1
I8W2STSR	C8W2STSR	5.0	3.6	4.6	4.3	5.4	2.2	2.8	2.7	3.4	3.4
I5CPW2STSR	C5CPW2STSR	4.8	4.0	4.0	4.3	4.3	3.1	3.1	3.4	3.4	3.4
I8CPW2STSR	C8CPW2STSR	3.1	10	10	12	12	0.7	0.7	0.8	0.8	0.8
I6CPW2STSR	C6CPW2STSR	5.0	13	4.1	16	4.8	0.7	2.3	0.8	2.8	2.8
I6CPW2STSR	C6CPW2STSR	5.0	2.0	2.8	2.4	3.3	1.2	1.6	1.5	2.0	2.0
I6CPW2STSR	C6CPW2STSR	2.6	17	1.7	2.0	2.0	1.3	1.3	1.5	1.5	1.5
I6CPW2STSR	C6CPW2STSR	2.6	17	1.7	2.0	2.0	1.3	1.3	1.5	1.5	1.5
I6CPW2STSR	C6CPW2STSR	5.0	0.7	0.7	0.9	0.9	0.4	0.4	0.5	0.5	0.5
I5CPW2STSR	C5CPW2STSR	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I5CPW2STSR	C5CPW2STSR	7.2	6.1	6.0	7.4	7.1	3.5	3.4	4.3	4.3	4.3
I2CPW2STSR	C2CPW2STSR	5.2	12	4.7	16	5.9	0.6	2.5	0.8	3.1	3.1
I2CPW2STSR	C2CPW2STSR	5.2	3.5	3.5	4.4	4.4	1.8	2.3	2.3	2.3	2.3
I3CPW2STSR	C3CPW2STSR	17.4	7.3	7.3	9.1	9.1	3.6	3.6	4.7	4.7	4.6
I4CPW2STSR	C4CPW2STSR	7.8	7.6	7.5	8.1	8.0	5.1	5.1	5.9	5.9	5.9
I4CPW2STSR	C4CPW2STSR	5.2	15	15	18	18	0.8	0.8	1.0	1.0	1.0
I6CPW2STSR	C6CPW2STSR	3.6	18	18	2.1	2.1	1.3	1.3	1.5	1.5	1.5
I5CPW2STSR	C5CPW2STSR	17.4	6.4	6.4	8.0	8.0	3.3	3.3	4.4	4.4	4.4
I7CPW2STSR	C7CPW2STSR	11.3	4.3	4.3	5.0	5.0	2.8	2.8	3.3	3.3	3.3
I7CPW2STSR	C7CPW2STSR	5.2	3.8	3.8	4.3	4.3	2.7	2.7	3.1	3.1	3.1
I8CPW2STSR	C8CPW2STSR	5.2	0.5	0.5	0.6	0.6	0.3	0.3	0.4	0.4	0.4
I9CPW2STSR	C9CPW2STSR	17.4	3.7	3.6	5.6	5.5	0.9	0.9	1.4	1.4	1.3
I10CPW2STSR	C10CPW2STSR	17.4	5.8	5.8	6.9	6.9	3.4	3.4	4.1	4.1	4.1
I10CPW2STSR	C10CPW2STSR	7.8	4.1	4.1	4.7	4.7	2.7	2.7	3.2	3.2	3.2
I11CPW2STSR	C11CPW2STSR	17.4	8.4	8.3	10.2	10.1	4.3	4.3	5.8	5.7	5.7
I17CPW2STSR	C17CPW2STSR	17.4	3.8	3.8	4.8	4.7	2.2	2.2	2.8	2.8	2.8
I17CPW2STSR	C17CPW2STSR	17.4	3.1	3.1	3.8	3.8	1.9	1.9	2.4	2.4	2.4
I18CPW2STSR	C18CPW2STSR	17.4	3.5	3.5	4.7	4.7	1.5	1.5	2.0	2.0	2.0
I2ICPW2STSR	C2ICPW2STSR	4.8	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
I2ICPW2STSR	C2ICPW2STSR	5.0	0.2	0.2	0.3	0.3	0.1	0.1	0.2	0.2	0.2
I2ICPW2STSR	C2ICPW2STSR	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I9CPW2STSR	C9CPW2STSR	7.0	2.5	2.5	3.0	3.0	1.5	1.5	1.9	1.9	1.9

SHEET SD30 OF SD121

SWMM Outfall:

W2ST18WOUTFALL
(West 2nd Street S.D. Outfall)

Prepared	AJA	Date	12/18/2017
Checked	MIG		12/18/2017

**LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH**

Gavan & Barker
INC.
engineers | planners | scientists



Inlet Summary Table

SWM M Name		FLO-2D/SWMM Model											
Inlet	Connector/Pipe	Curb High / Soffit High Inflow		100-yr, 24-hr		100-yr, 6-hr		10-yr, 24-hr		10-yr, 6-hr			
		(cfs)		Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)	Inflow (cfs)	Pipe Max (cfs)		
I18CP2W2STGBL	C19CP2W2STGBL	7.0		4.3	4.3	4.9	4.9	2.8	2.7	3.3	3.3		
I20CP7W2STGBL	C20CP7W2STGBL	5.0		0.7	0.7	0.8	0.8	0.4	0.4	0.5	0.5		
I20CP10W2STGBL	C20CP10W2STGBL	7.0		0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2		
I20CP9W2STGBL	C20CP9W2STGBL	7.0		5.9	5.9	6.9	6.9	3.8	3.8	4.6	4.6		
I20CP4W2STGBL	C20CP4W2STGBL	7.0		5.2	5.2	5.8	5.8	3.6	3.6	4.2	4.2		
I20CP5W2STGBL	C20CP5W2STGBL	7.0		2.0	2.0	2.5	2.4	1.2	1.2	1.4	1.4		
I20CP2W2STGBL	C20CP2W2STGBL	5.0		1.3	1.3	1.5	1.5	0.7	0.7	0.8	0.8		
I8CP2W2STBAL	C8CP2W2STBAL	3.1		1.0	1.0	1.1	1.1	0.7	0.7	1.0	1.1		
I29CP1W2STSR	C29CP1W2STSR	11.3		11.3	11.2	12.4	12.4	8.6	8.5	9.6	9.6		
I7CP1W2ST	C7CP1W2ST	3.4		1.5	1.5	1.7	1.6	1.1	1.1	1.2	1.2		
I9CP1W2ST	C9CP1W2ST	3.4		2.7	2.7	2.9	2.9	2.1	2.1	2.3	2.3		
I6ACP1W2ST	C6ACP1W2ST	5.2		10.2	10.2	10.8	10.9	8.3	8.3	8.6	8.6		
I5CP1W2STCCL	C5CP1W2STCCL	10.8		0.6	0.6	0.7	0.7	0.4	0.4	0.4	0.4		
I8CP1W2STCCL	C8CP1W2STCCL	2.5		2.5	2.5	2.9	2.9	1.6	1.6	1.9	1.9		
I4CP3W2STCCL	C4CP3W2STCCL	2.5		2.3	2.3	2.8	2.8	1.3	1.3	1.6	1.6		
I4CP2W2STCCL	C4CP2W2STCCL	2.5		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
I1CP1W2STCCL	C1CP1W2STCCL	2.5		0.4	1.1	0.5	1.3	0.2	0.6	0.3	0.8		
I1CP2W2STCCL	C1CP2W2STCCL	2.5		0.7	0.7	0.9	0.9	0.4	0.4	0.5	0.5		
I1CP3W2STCCL	C1CP3W2STCCL	2.5		0.5	2.0	0.5	2.4	0.3	1.2	0.4	1.5		
I1CP4W2STCCL	C1CP4W2STCCL	2.5		1.6	1.6	1.9	1.9	0.9	0.9	1.2	1.2		
I10CP1W2STCCL	C10CP1W2STCCL	2.5		0.9	0.9	1.0	1.0	0.5	0.5	0.6	0.6		
I9CP1W2STCCL	C9CP1W2STCCL	2.5		1.4	1.4	1.7	1.7	0.9	0.9	1.1	1.1		
I6CP1W2STCCL	C6CP1W2STCCL	10.8		0.4	0.4	0.5	0.5	0.2	0.2	0.3	0.3		
I7CP1W2STCCL	C7CP1W2STCCL	2.5		1.6	1.6	2.0	2.0	0.8	0.8	1.1	1.1		
I2CP2W2STBAL	C2CP2W2STBAL	4.4		3.0	3.0	3.3	3.3	2.4	2.3	2.6	2.6		
I2CP1W2STBAL	C2CP1W2STBAL	2.6		1.8	4.8	2.1	5.4	1.1	3.5	1.4	4.0		
I37ACP2W2ST	C37ACP2W2ST	2.6		3.3	3.3	3.7	3.7	2.6	2.6	2.9	2.9		
I10ACP1W2ST	C10ACP1W2ST	3.5		3.0	3.0	3.3	3.3	2.4	2.4	2.6	2.6		
I10ACP2W2ST	C10ACP2W2ST	3.6		1.8	1.8	2.0	2.0	1.1	1.1	1.4	1.3		
I3CP5W2STDBL	C3CP5W2STDBL	17.0		11.1	11.0	11.7	11.7	5.9	5.9	7.3	7.2		
I3CP4W2STDBL	C3CP4W2STDBL	11.0		8.5	32.3	17.9	38.2	1.4	17.4	1.9	21.5		
I3CP6W2STDBL	C3CP6W2STDBL	17.0		14.7	14.2	14.8	14.0	10.3	10.2	12.6	12.6		
I3CP2W2STDBL	C3CP2W2STDBL	17.0		9.2	9.1	10.0	9.7	4.7	4.7	5.9	5.9		
I3CP1W2STDBL	C3CP1W2STDBL	20.4		2.4	19.4	6.1	22.4	1.0	10.0	1.3	12.4		
I3CP3W2STDBL	C3CP3W2STDBL	17.0		8.5	8.5	9.3	9.9	4.5	4.5	5.5	5.5		
I2BCP1W2ST	C12BCP1W2ST	4.7		0.3	0.3	0.4	1.3	0.2	0.2	0.2	0.2		
I11BCP2W2ST	C11BCP2W2ST	31.4		4.3	4.3	5.0	4.9	2.9	2.9	3.4	3.4		
I11BCP1W2ST	C11BCP1W2ST	19.5		2.4	6.7	3.0	7.8	1.4	4.3	1.7	5.1		
I11ACP1W2ST	C11ACP1W2ST	3.6		0.5	0.5	0.6	0.6	0.3	0.3	0.3	0.3		
I2BCP2W2ST	C12BCP2W2ST	3.5		0.9	0.9	1.0	1.2	0.6	0.6	0.7	0.7		
I11BCP4W2ST	C11BCP4W2ST	7.6		8.8	8.8	10.3	10.1	5.2	5.2	6.3	6.3		
I11BCP5W2ST	C11BCP5W2ST	7.8		5.5	5.5	6.8	6.6	2.8	2.8	3.6	3.5		
I19BCP2W2ST	C19BCP2W2ST	3.5		2.5	2.5	2.9	2.9	1.6	1.5	1.9	1.9		
I19BCP1W2ST	C19BCP1W2ST	3.2		1.9	4.3	2.4	5.3	1.2	2.8	1.4	3.2		
I19ACP1W2ST	C19ACP1W2ST	3.4		1.3	1.3	1.7	1.6	0.8	0.8	1.0	1.0		

INLET SUMMARY TABLE NOTES:

1. The curb high/soffit high inflow discharge were calculated according to the procedures outlined in the District's Hydraulics Manual.
2. The inflow discharge is the peak hydrograph discharge taken from the SWMMQIN.OUT file.
3. The pipe Max Discharge is the peak hydrograph discharge taken from the 'Link Results' in the SWMM.RTP file.

SHEET SD31 OF SD121

SWMM Outfall:		W2ST1BWOITFALL (West 2nd Street S.D. Outfall)
Prepared	By	AJA
Checked	By	MIG
	Date	12/18/2017
		12/18/2017

LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH



Conduit Name	Normal Depth Capacity (cfs)	FLO-2D/SWMM Model Discharge			
		10-yr, 24-hr (cfs)	10-yr, 6-hr (cfs)	10-yr, 6-hr (cfs)	
C1W2ST	246.4	485.0	550.2	272.7	334.0
C2W2ST	337.3	484.5	549.8	274.2	334.2
C3W2ST	329.8	482.8	549.8	274.1	335.0
C4W2ST	344.7	484.4	549.9	272.4	331.1
C5W2ST	270.9	484.4	549.7	271.6	330.1
C6AW2ST	277.9	480.7	545.2	270.2	328.2
C6W2ST	272.4	470.3	534.2	263.4	320.3
C7W2ST	235.5	470.3	534.2	278.9	319.9
C8W2ST	254.7	468.9	533.0	270.1	322.5
C9W2ST	204.0	468.9	533.0	271.5	325.6
C10AW2ST	229.5	466.4	530.2	271.6	326.3
C10W2ST	288.4	462.3	525.6	271.4	335.3
C14W2ST	240.9	462.2	525.8	263.9	321.4
C18W2ST	283.6	462.1	525.6	269.4	320.1
C22AW2ST	274.9	449.6	52.3	258.7	322.8
C28W2ST	288.4	449.5	52.0	259.2	319.3
C2C2W2ST	282.7	449.2	511.8	258.6	316.4
C3W2ST	204.0	449.2	52.0	263.4	319.0
C4W2ST	228.7	448.9	511.8	265.5	319.2
C15AW2ST	268.7	449.0	511.6	260.5	313.6
C18W2ST	245.8	402.9	449.7	243.2	284.9
C16W2ST	257.1	402.8	449.6	245.6	284.2
C17W2ST	987.1	402.8	449.7	253.3	284.3
C18W2ST	866.0	394.9	442.9	248.7	282.9
C19AW2ST	976.5	394.8	442.9	246.7	297.6
C19BW2ST	941.6	393.8	441.7	245.4	301.5
C19C2W2ST	938.8	389.9	437.0	242.8	296.4
C20W2ST	948.6	387.2	437.0	236.4	295.8
C21W2ST	946.1	389.8	433.3	235.3	291.6
C22W2ST	644.9	342.3	386.7	203.9	260.7
C23W2ST	353.3	345.3	386.4	217.8	291.2
C24W2ST	494.4	351.9	386.6	205.6	255.5
C25W2ST	486.3	345.0	383.0	206.3	253.9
C26W2ST	508.6	345.4	385.0	208.8	254.0
C27W2ST	510.7	345.8	388.5	207.4	252.7
C28W2ST	512.4	347.4	390.9	206.0	251.5
C29W2ST	1516.1	349.7	391.6	206.4	251.2
C30W2ST	275.1	176.9	166.5	105.3	128.2
C31W2ST	266.9	177.0	166.7	105.5	128.3
C32W2ST	276.6	176.9	166.9	105.6	128.3
C33W2ST	273.5	176.3	165.9	105.3	127.9
C34W2ST	133.9	175.1	164.8	104.7	127.3
C35W2ST	272.8	174.1	164.2	104.2	126.9
C36W2ST	423.5	172.6	163.6	103.6	125.9
C37AW2ST	413.9	164.4	165.2	99.3	119.9

Conduit Name	Normal Depth Capacity (cfs)	FLO-2D/SWMM Model Discharge			
		10-yr, 24-hr (cfs)	10-yr, 6-hr (cfs)	10-yr, 6-hr (cfs)	
C37BW2ST	485.6	160.5	189.3	96.5	116.9
C38W2ST	322.2	149.6	175.5	89.5	108.5
C39W2ST	52.8	148.7	174.5	88.9	108.0
C40W2ST	627.2	148.3	174.1	88.7	107.8
C41W2ST	201.6	21.4	25.1	11.8	14.4
C42W2ST	96.8	21.5	25.2	11.8	14.4
C43W2ST	59.5	21.5	25.2	11.8	14.5
C44W2ST	77.0	10.8	12.4	6.5	8.0
C45W2ST	79.4	10.9	12.6	6.6	8.1
C1W2STGBL	635.7	127.1	149.3	77.1	93.8
C2W2STGBL	108.3	127.0	149.2	77.1	93.7
C3W2STGBL	109.4	123.0	144.0	75.1	91.2
C4W2STGBL	108.8	115.9	135.4	71.6	86.7
C5W2STGBL	109.0	107.0	125.9	65.7	79.8
C6W2STGBL	87.9	101.0	118.8	62.5	75.6
C7W2STGBL	108.0	99.3	116.8	61.3	74.1
C8W2STGBL	110.6	91.6	108.1	56.0	67.9
C9W2STGBL	111.5	91.6	107.8	55.8	67.3
C10W2STGBL	111.0	88.4	103.1	54.5	65.7
C11W2STGBL	112.5	78.7	91.9	48.9	58.9
C12W2STGBL	111.5	70.5	82.2	44.4	53.0
C13W2STGBL	111.1	70.7	82.5	44.5	53.0
C14W2STGBL	111.1	70.8	82.7	44.6	53.1
C15W2STGBL	172.5	70.9	82.8	44.7	53.3
C16W2STGBL	262.7	36.5	43.3	22.2	26.7
C17W2STGBL	262.2	32.6	39.0	19.6	23.7
C18W2STGBL	61.9	25.7	30.5	15.4	18.6
C19W2STGBL	61.9	22.3	26.0	14.2	16.8
C20W2STGBL	36.5	15.6	18.2	10.0	11.8
C21W2STGBL	7.8	0.4	0.5	0.3	0.3
C1W2STSR	2055.1	173.8	195.6	105.0	122.7
C2W2STSR	1790.3	172.7	205.7	104.4	122.2
C3W2STSR	1925.0	168.3	193.4	100.9	118.3
C4W2STSR	164.5	168.3	197.4	100.8	118.2
C5W2STSR	164.1	163.4	191.2	99.0	116.6
C6W2STSR	163.6	142.2	168.0	84.5	97.5
C7W2STSR	100.9	140.9	166.6	84.3	96.5
C8W2STSR	163.9	134.0	168.3	81.5	92.2
C9W2STSR	167.5	133.2	157.5	85.1	93.4
C10W2STSR	164.0	132.1	155.4	85.1	97.1
C11W2STSR	164.1	116.8	137.2	76.8	90.0
C12W2STSR	98.3	116.8	137.1	76.6	90.3
C13W2STSR	139.6	115.5	135.5	76.0	90.8
C14W2STSR	76.2	112.5	131.9	74.5	90.1
C15W2STSR	139.4	110.7	129.2	74.0	91.2

Conduit Name	Normal Depth Capacity (cfs)	FLO-2D/SWMM Model Discharge			
		10-yr, 24-hr (cfs)	10-yr, 6-hr (cfs)	10-yr, 24-hr (cfs)	10-yr, 6-hr (cfs)
C16W2STSR	138.7	106.7	124.8	69.2	89.1
C17W2STSR	139.7	104.9	122.5	65.5	87.2
C18W2STSR	139.3	103.9	121.3	65.9	84.4
C19W2STSR	136.9	95.4	111.1	59.9	75.1
C20W2STSR	87.9	95.3	110.9	63.8	72.2
C21W2STSR	139.5	92.8	107.3	55.5	71.1
C22W2STSR	135.8	88.2	102.1	54.9	70.4
C23W2STSR	62.2	89.1	102.2	60.9	67.2
C24W2STSR	98.3	21.1	20.5	15.7	18.1
C25W2STSR	110.8	23.4	19.3	14.5	16.4
C26W2STSR	85.8	19.5	19.7	10.5	18.0
C27W2STSR	85.5	11.4	11.9	9.0	11.2
C28W2STSR	595.5	11.2	12.3	8.4	9.5
C29W2STSR	101.7	11.2	12.3	8.5	9.5
C30W2STSR	96.4	0.0	0.0	0.0	0.0
C1W2STWISRL	62.5	34.8	39.6	23.0	27.1
C2W2STWISRL	25.7	31.1	35.1	20.4	24.2
C3W2STWISRL	27.7	24.5	27.5	15.9	18.8
C4W2STWISRL	27.6	16.1	18.4	10.5	12.1
C5W2STWISRL	26.5	15.7	18.4	10.5	12.2
C6W2STWISRL	26.7	12.1	13.8	7.6	9.0
C7W2STWISRL	25.6	4.6	5.4	2.8	3.3
C8W2STWISRL	13.9	4.6	5.4	2.8	3.4
C1W2STEISRL	139.1	71.5	83.4	44.3	53.4
C2W2STEISRL	101.6	61.4	69.7	40.2	48.0
C3W2STEISRL	128.5	53.7	59.4	37.1	43.8
C4W2STEISRL	39.2	53.3	59.7	37.3	43.6
C5W2STEISRL	64.0	39.2	43.3	26.6	31.2
C6W2STEISRL	57.7	32.4	36.3	21.6	25.5
C7W2STEISRL	48.0	28.5	32.1	19.1	22.6
C8W2STEISRL	20.9	9.4	10.8	6.6	7.7

Pipe Discharge Summary Table

Pipe Discharge Summary Table

Pipe Discharge Summary Table

PIPE DISCHARGE SUMMARY TABLE NOTES:

1. The normal depth capacity discharges were obtained from the SWMM.RPT file.
2. The pipe discharge is the peak hydrograph discharge taken from the 'Link Results' in the SWMM.RTP file.

SWMM Outfall:		W2ST18WOUTFALL	Date
		(West 2nd Street S.D. Outfall)	12/18/2017
Prepared	By	AJA	
Checked	By	MIC	12/18/2017



LOWER INDIAN BEND WASH ADMS/P
STUDY AREA-SOUTH

APPENDIX VI

Stormwater Storage Waiver

Request for Stormwater Storage Waiver



City of Scottsdale Plan/Case Numbers:

10-ZN-2020 _____ - DR - _____ - PP - _____ PC# _____

Requests for stormwater storage waivers are reviewed as part of case submittals for the associated project. This form should be included in the preliminary drainage report with the applicant's portion completed. The preliminary drainage report shall include supporting documentation and analysis as needed to support the requested waiver.

Date 10-16-2020 Project Name The Triangle
Project Location 3rd Avenue and Indian School Road, Scottsdale AZ
Applicant Contact Ali Fakh Company Name SEG
Phone 480-588-7226 E-mail ali@azseg.com
Address 8280 E. Gelding Dr. Suite 101, Scottsdale, AZ 85260

Waiver Criteria

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

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

It should be noted that reductions in stormwater storage relating to

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

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

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

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

100-year/2-hour storage is allowed, but not required for redevelopment projects and development within the ESL zoning overlay. Rather, these projects must store enough stormwater to attenuate post-development flows to predevelopment levels, considering the 10- and 100-year storm events (S.R.C. Sections 37-50 and 37-51).

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

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 • Phone: 480-312-2500

Request for Stormwater Storage Waiver



City of Scottsdale Plan/Case Numbers:

10-ZN-2020 _____ - DR - _____ - PP - _____ PC# _____

CITY STAFF TO COMPLETE THIS PAGE

Project Name The Triangle

Check Appropriate Boxes:

Meets waiver criteria (specify): 1 2 3

Recommended Conditions of Waiver:

- All storage requirements waived.
- Post-development peak discharge rates do not exceed pre-development conditions.
- Other:

Explain: _____

Waiver approved per above conditions.

Floodplain Administrator or Designee

Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 ♦ Phone: 480-312-2500

Request for Stormwater Storage Waiver



10-ZN-2020 _____ - DR - _____ - PP - _____ PC# _____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is \$3.00 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

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

Project Name The Triangle

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

V = ΔCRA; where

V = stormwater storage volume required, in cubic feet,

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

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

A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where

V_w = volume waived,

V = volume required, and

V_p = volume provided

$$R = \frac{2.16}{\quad}$$

$$\Delta C = \frac{0.02}{\quad}$$

$$A = \frac{3.18}{\quad}$$

$$V = \frac{499}{\quad}$$

$$V_p = \frac{0}{\quad}$$

$$V_w = \frac{499}{\quad}$$

An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee (\$) = V_w (cu. ft.) x \$3.00 per cubic foot = \$1,497

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

No in-lieu fee is required. Reason:

Approved by:

Floodplain Administrator or Designee

Date

Stormwater Management Department

7447 E Indian School Road, Suite 125, Scottsdale, AZ 85251 • Phone: 480-312-2500