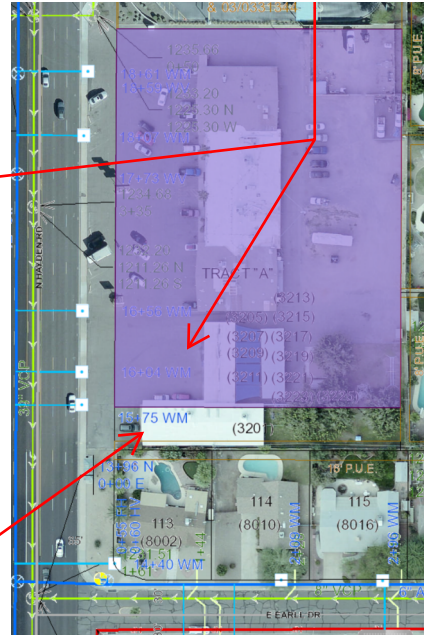




Correspondence Between Staff and Applicant

Approval Letter

APPLICANT PROPOSES TO DEVELOP ALONG PROPERTY LINE IN ESSENCE WALLING OFF NEIGHBOR FROM HISTORICALLY SHARED ACCESS, REFUSE, VISITOR... APPLICANT EXPRESSED DENIAL OF ANY SHARED RESPONSIBILITY FOR NEIGHBORING NON-CONFORMING, ABLE TO STAND ON OWN, LOT. APPLICANT ADVISED THAT ENGINEERING WILL BE CONDUCTING PROPERTY RESEARCH TO DETERMINE LOT SPLIT CONDITIONS. PLATTING MAY BE REQUIRED IF SPLIT OCCURED OUTSIDE DEFINED REQUIREMENTS AT TIME OF SPLIT. AT WHICH TIME APPROPRIATE CROSS ACCESS WOULD BE REQUIRED.



37ISH FOOT WIDE  
PARCEL

973-PA-2018

## Gue, David

---

**From:** Hayes, Eliana  
**Sent:** Tuesday, July 23, 2019 11:45 AM  
**To:** Moriarity, Ben; Gue, David; Curtis, Tim  
**Cc:** Clack, Michael; Grant, Randy  
**Subject:** RE: 11 DR 2019

Hello All –

In my professional capacity here with the city I cannot recommend this project move forward as currently proposed, with or without stipulations. Determination of development associated property rights is within my direct purview here in the city. Federal law, and the engineering + surveying professions recognize stated and unstated property rights. This includes encroachments, adverse possession and prescriptive rights.

It's clear, based on city's aerial photography that since at least 1969, apn 090-33-085D has shared a parking lot with apn 130-33-085C; apn 130-33-085C being the development project parcel under consideration. As well as apn 090-33-085D's full + exclusive use of the south east quadrant of development parcel property.



The development project is proposing to cut off the adjacent parcel from a shared and open parking lot which today provides adequate circulation into and out of adjacent parcel for visitors, employees etc + refuse service (prescriptive right) as well as denying the adjacent parcels ownership of southeast quadrant of development parcel (adverse possession) . Proposed development will create an unsafe circulation situation for adjacent parcel and the city of

Scottsdale's traveling public along Hayden as well as solid waste services (solid waste will now be required to provide refuse service to adjacent parcel from Hayden, a city major arterial at this location with a posted speed limit of 45 mph).

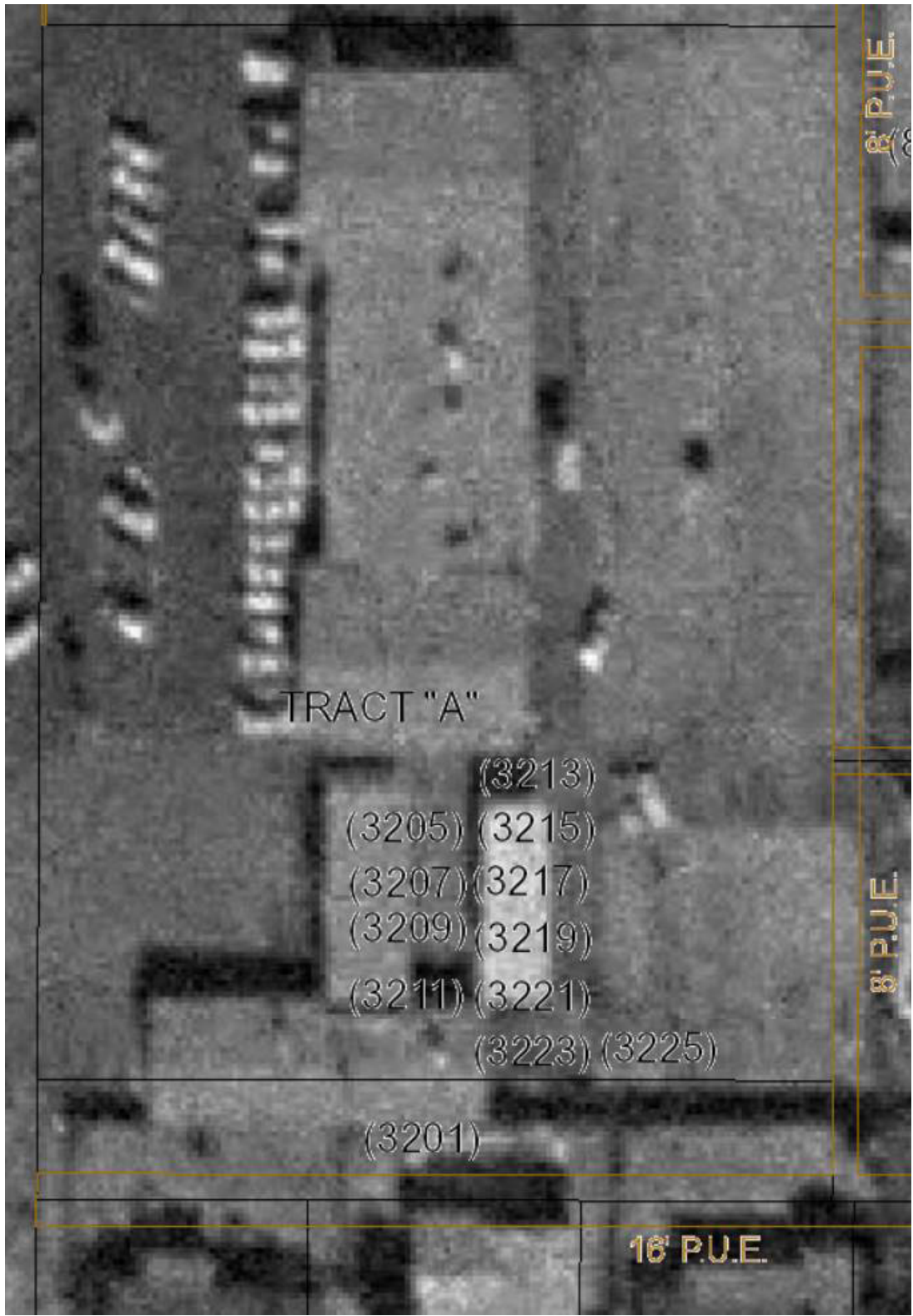
I've contacted the applicant to see if adequate rights addressing at least all safety concerns could be creatively incorporated into project and applicant expressed an unwillingness to contemplate any changes to proposed site plan.

Recommending to DRB the adequacy of this site plan is without engineering's professional recommendation to do so. As such, engineering cannot write any stipulations for this project, without an engineering acceptable + recommendable site plan, for reasons already stated. Should this continue to move forward regardless, engineering will not be able to approve any construction plans without having the concerns brought up in this email adequately addressed.

Thank you – Eliana

For reference:

1969 AERIAL



1979 AERIAL



1993 AERIAL



**From:** Moriarity, Ben <BMoriarity@Scottsdaleaz.gov>

**Sent:** Wednesday, July 17, 2019 2:00 PM

**To:** Gue, David <DGue@Scottsdaleaz.gov>; Curtis, Tim <tcurtis@scottsdaleaz.gov>; Hayes, Eliana <EHayes@Scottsdaleaz.gov>

**Subject:** FW: 11 DR 2019

All,

Below is an update from Tom Frenkel regarding any prescriptive easements as part of Civil Case CV2018-014604 with the neighbor to the south. I feel it would be best to move forward with the case to DRB subject to a stip like "any prescriptive easements assigned by a civil court that change the design of the site must obtain development review approval for the revisions."

Thank you,

**Ben Moriarity**

Planner  
Planning & Development Department

**CITY OF SCOTTSDALE**

7447 E Indian School Rd.  
Scottsdale, AZ. 85251  
[BMoriarity@ScottsdaleAZ.gov](mailto:BMoriarity@ScottsdaleAZ.gov)  
O: 480-312-2836

---

**From:** Tom Frenkel <[tom@claytoncompanies.com](mailto:tom@claytoncompanies.com)>  
**Sent:** Wednesday, July 17, 2019 1:37 PM  
**To:** Moriarity, Ben <[BMoriarity@Scottsdaleaz.gov](mailto:BMoriarity@Scottsdaleaz.gov)>  
**Cc:** Jeff Graham <[jg@madewithaline.com](mailto:jg@madewithaline.com)>  
**Subject:** 111 DR 2019

**⚠ EXTERNAL Email with links or attachments. Please use caution!**

Ben,

This email is to confirm that there are no pending easements or shared services for our property to the property to the South of our property. Please feel free to call me with any questions. I would appreciate the case being scheduled as soon as possible.

Sincerely,

Tom Frenkel

Tom Frenkel  
Direct 480.941.2260 x102  
Mobile 602.989.7295  
Fax 480.423.0689  
[tom@claytoncompanies.com](mailto:tom@claytoncompanies.com)

Clayton Companies  
7340 E. Main Street #200  
Scottsdale, AZ 85251  
[www.claytoncompanies.com](http://www.claytoncompanies.com)







## Planning & Development Services

7447 East Indian School Road  
Scottsdale, Arizona 85251

September 11, 2019

11-DR-2019  
Tom Frenkel  
Clayton Companies  
7340 E Main St Ste 200  
Scottsdale, AZ 852514477

**RE: DRB APPROVAL NOTIFICATION**

**Case Reference No:** 11-DR-2019 Trailwest

The Development Review Board approved the above referenced case on September 5, 2019. For your use and reference, we have enclosed the following documents:

- Approved Stipulations/Ordinance Requirements
- Accepted Basis of Design Reports
- Accepted Case Drainage Report
- Construction Document Submittal Requirements/Instructions
- This approval expires two (2) years from date of approval if a permit has not been issued, or if no permit is required, work for which approval has been granted has not been completed.
  - These instructions are provided to you so that you may begin to assemble information you will need when submitting your construction documents to obtain a building permit. For assistance with the submittal instructions, please contact your project coordinator, Ben Moriarity, 480-312-2836.
- Table: "About Fees"
  - A brief overview of fee types. A plan review fee is paid when construction documents are submitted, after which construction may begin. You may review the current year's fee schedule at: <https://www.scottsdaleaz.gov/planning-development/fees>

Please note that fees may change without notice. Since every project is unique and will have permit fees based upon its characteristics, some projects may require additional fees. Please contact the One Stop Shop at 480-312-2500.

**Finally, please note that as the applicant, it is your responsibility to distribute copies of all enclosed documents to any persons involved with this project,** including but not limited to the owner, engineers, architect, and developer.

Sincerely,

Ben Moriarity  
Planner  
bmoriarity@ScottsdaleAZ.gov

## About Fees

The following table is intended to assist you in estimating your potential application, plan review, and building permit fees. Other fees may also apply, for example Water Resources Non-Residential Development, Parking-in-Lieu Fees, or Assessment District Fees; and those fees are not listed in this package the plan review staff is responsible for determining additional applicable fees.

Type of Activity	Type of Fee	Subcategory	When paid?
Commercial	Application	<ul style="list-style-type: none"> <li>▪ Preapplication, Variance, Zoning Appeal, Continuance, Development Review Board, ESL, General Plan, Rezoning, Sign Review, Special Event, Staff Approval, Temporary Sales Trailer, Use Permit, or Zoning Text Amendment</li> </ul>	At time of application submittal
	Plan Review	<ul style="list-style-type: none"> <li>▪ Commercial, foundation, addition, tenant improvement/remodel</li> <li>▪ Apartments/Condos</li> <li>▪ Engineering site review</li> <li>▪ Signs</li> <li>▪ Plat fees</li> <li>▪ Misc. Plan Review</li> <li>▪ Lot Tie/Lot Split</li> <li>▪ Pools &amp; Spas</li> <li>▪ Recordation</li> </ul>	At time of construction document submittal
	Building Permit	<ul style="list-style-type: none"> <li>▪ Commercial addition, remodel, tenant improvement, foundation only, shell only</li> <li>▪ Fence walls or Retaining walls</li> <li>▪ Misc. Permit</li> <li>▪ Signs</li> </ul>	After construction document approval and before site construction begins
Residential	Application	<ul style="list-style-type: none"> <li>▪ Preapplication, Variance, Zoning Appeal, Continuance, Development Review Board, ESL, General Plan, Rezoning, Sign Review, Special Event, Staff Approval, Temporary Sales Trailer, Use Permit, or Zoning Text Amendment</li> </ul>	At time of application submittal
	Plan Review	<ul style="list-style-type: none"> <li>▪ Single family custom, addition, remodel, standard plans</li> <li>▪ Engineering site review</li> <li>▪ Misc. plan reviews</li> </ul>	At time of construction document submittal
	Building Permit	<ul style="list-style-type: none"> <li>▪ Single family custom, addition, remodel, detached structure, standard plans</li> <li>▪ Fence walls or Retaining walls</li> <li>▪ Misc. Permit</li> <li>▪ Signs</li> </ul>	After construction document approval and before site construction begins

**Stipulations for the  
Development Review Board Application:  
Trailwest  
Case Number: 11-DR-2019**

These stipulations are intended to protect the public health, safety, welfare, and the City of Scottsdale.

**Stipulations No. 14 and 15 (in bold) added by the Development Review Board with their motion for approval.**

**APPLICABLE DOCUMENTS AND PLANS:**

1. Except as required by the Scottsdale Revised Code (SRC), the Design Standards and Policies Manual (DSPM), and the other stipulations herein, the site design and construction shall substantially conform to the following documents:
  - a. Architectural elements, including dimensions, materials, form, color, and texture shall be constructed to be consistent with the building elevations submitted by Aline Architecture Concepts, with a city staff date of 6/19/2019.
  - b. The location and configuration of all site improvements shall be consistent with the site plan submitted by Aline Architecture Concepts, with a city staff date of 6/19/2019.
  - c. Landscape improvements, including quantity, size, and location shall be installed to be consistent with the preliminary landscape plan submitted by Aline Architecture Concepts, with a city staff date of 6/19/2019.
  - d. The case drainage report submitted by Cypress Civil Development and accepted in concept by the Stormwater Management Department of the Planning and Development Services with a city staff date of 8/6/2019.
  - e. The water and sewer basis of design report submitted by Cypress Civil Development and accepted in concept by the Water Resources Department with a city staff date of 5/2/2019.

**RELEVANT CASES:**

**Ordinance**

- A. At the time of review, the applicable Zoning, case for the subject site was: 32-ZN-1960

**ARCHAEOLOGICAL RESOURCES:**

**Ordinance**

- B. Any development on the property is subject to the requirements of Scottsdale Revised Code, Chapter 46, Article VI, Section 46-134 - Discoveries of archaeological resources during construction.

**ARCHITECTURAL DESIGN:**

**DRB Stipulations**

2. All exterior window glazing shall be recessed a minimum of fifty (50) percent of the wall depth, including glass windows within any tower/clerestory elements. The amount of recess shall be measured from the face of the exterior wall to the face of the glazing, exclusive of external detailing. With the final plan submittal, the developer shall provide head, jamb and sill details clearly showing the amount of recess for all window types.
3. All exterior doors shall be recessed a minimum of thirty (30) percent of the wall depth, the amount of recess shall be measured from the face of the exterior wall to the face of the glazing, exclusive of external detailing. With the final plan submittal the developer shall provide head, jamb and sill details clearly showing the amount of recess for all door types.

**SITE DESIGN:**

**DRB Stipulations**

4. Any prescriptive easements assigned by a civil court or settlement or agreement between property owners that changes the design of the site must obtain development review approval for the revisions.
5. All drive aisles that are fire lanes shall have a width of twenty-four (24) feet.
6. Prior to issuance of any building permit for the development project, the property owner shall submit plans and receive approval to construct all refuse enclosures in conformance with the City of Scottsdale Supplements to MAG Standard Details
7. Prior to issuance of any building permit or civil improvements for the development project, the property owner shall submit plans which demonstrates the location of the existing and new risers for each structure.

**LANDSCAPE DESIGN:**

**DRB Stipulations**

8. Prior to the issuance of any building permit for the development project, the property owner shall submit landscape improvement plans that demonstrate the utilization of the City of Scottsdale Supplement to MAG Standard Specifications for the landscape and irrigation improvements within the public right-of-way.

**EXTRIOR LIGHTING:**

**Ordinance**

- C. All exterior luminaires mounted eight (8) feet or higher above finished grade, shall be directed downward.
- D. Any exterior luminaire with a total initial lumen output of greater than 1600 lumens shall have an integral lighting shield.
- E. Any exterior luminaire with a total initial lumen output of greater than 3050 lumens shall be directed downward and comply with the Illuminating Engineering Society of North America (IES) requirements for full cutoff.
- F. The initial vertical luminance at 6-foot above grade, along the property lines shall not exceed 0.8 foot-candles. All exterior luminaires shall be included in this calculation.

**DRB Stipulations**

9. Incorporate the following parking lot and site lighting into the project's design:
  - a. The maintained average horizontal luminance level, at grade on the site, shall not exceed 2 foot-candles. All exterior luminaires shall be included in this calculation.
  - b. The maintained maximum horizontal luminance level, at grade on the site, shall not exceed 8 foot-candles. All exterior luminaires shall be included in this calculation.
10. The total lumen per luminaire shall not exceed 24,000 lumens.

**WATER AND WASTEWATER:**

**DRB Stipulations**

11. Prior to the civil construction document submittal, the property owner shall obtain approval of the master water and wastewater reports from to Water Resources Department. The civil construction document submittal shall be consistent with the approved master water and wastewater reports. Any design that modifies the approved master report requires from the owner a site-specific addendum to the master report, subject to review and approval by City staff.
12. Existing water and sewer service lines to this site shall be utilized, or shall be disconnected at the main pursuant to the Water Resources Department requirements.

**DRAINAGE AND FLOOD CONTROL:**


**DRB Stipulations**

13. With the civil construction document submittal, the property owner shall submit a final drainage report that demonstrates consistency with the DSPM and the case drainage report accepted in concept by the Stormwater Manager or designee.

**ADDITIONAL ITEMS:**

1. **Landscape improvement plans shall include a 40% increased plant density in the landscape area between the driveways along the frontage of the property.**
2. **All parking islands shall have a mature tree.**

# WATER & SEWER BASIS OF DESIGN REPORT FOR TRAIL WEST PLAZA

<b>FINAL Basis of Design Report</b>	
<input type="checkbox"/> APPROVED	
<input checked="" type="checkbox"/> APPROVED AS NOTED	
<input type="checkbox"/> REVISE AND RESUBMIT	
<small>Disclaimer: If approved; the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission.; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.</small>	
BY Idillon	DATE 5/2/2019

Scottsdale, Arizona

14 March 2019

PREPARED FOR

Aline Architecture Concepts  
7340 East Main Street, #210  
Scottsdale, Arizona 85251

DEVELOPER

Clayton Companies  
7340 East Main Street, #200  
Scottsdale, Arizona 85251

SITE ADDRESS

3215 North Hayden Road  
Scottsdale, Arizona 85251

Address the following on plan submittal:

- 1) Sewer and water demands are not a concern since the development involves mostly renovation of existing building and large water/sewer infrastructure is available.
- 2) This BOD did not calculate water or sewer demand per DS&PM..but this requirement is waived/irrelevant given the nature of the redevelopment and water and sewer capacity available.
- 3) The minimum sewer service line size is 6" for each commercial property.
- 4) A City side clean-out on each sewer service must be installed per MAG 440-3.
- 5) The onsite sewer connecting multiple buildings and routing to public main on Hayden must be private sewer and called out as such on plans. If service line are proposed to connect to Hayden Road sewer they must have 5ft diameter manholes installed.
- 6) Water meter size must be determined per DS&PM method.
- 7) Any abandoned water service lines and meter must be removed by City forces at a cost to the owner/developer.
- 8) Any abandoned meters are eligible for development fee meter credit which would be applied to a any new meter(s).

PREPARED BY

**CYPRESS**  
CIVIL DEVELOPMENT  
strength + sustainability

4450 north 12<sup>th</sup> street, #228  
phoenix, arizona 85014  
CYPRESS # 19.023



## **PROJECT DESCRIPTION AND LOCATION**

The Project is known as 'Trail West Plaza' and is located at 3215 North Hayden Road in Scottsdale, Arizona. Refer to Appendix A for location map.

The proposed Project consists of redevelopment of the parcel by replacing the existing car wash building to the south with a new restaurant building and providing a tenant improvement of the existing shopping center building to the north with associated paved access, parking, utility, and drainage improvements.

The utility provider for both water and sewer facilities is the City of Scottsdale.

The Project is located on the east side of North Hayden Road, north of East Earll Drive. Per available utility maps and as-built records, an existing 12" CIP water main is located in Hayden Road to the west of the Project. The existing building to the north is connected to the water main within Hayden Road via a 2" stub with a 1-1/2" meter. Based on observations, this stub supplies the domestic water service for the existing shopping center building to remain. Another 1" meter and stub provide service for the existing car wash building to be replaced by a proposed restaurant. Finally, another stub to the north supplies the fire service to the entire site. As a result, the design team intends to utilize the existing water service and fire service connections. This is anticipated to provide adequate sizing and pressure to supply the intended domestic and fire services to the buildings. Refer to Appendix B for City of Scottsdale Water and Sewer Quarter Section Map for stub locations and sizes.

Per available utility maps and as-built records, an existing 39" VCP sewer main is located in Hayden Road to the west of the Project. Though the City of Scottsdale Water and Sewer Quarter Section maps show the 39" VCP sewer main west of the Project, they do not show a sewer stub to the Project site. However, a recent survey shows the location of an existing 8" VCP lateral service line to the property. Refer to Appendix C for the survey showing the location of the sewer stub. This existing 8" VCP stub is anticipated to supply sewer service to both the interior of the shopping center and the building to the south which will be replaced. Both buildings are anticipated to connect to the 8" VCP lateral service stub via 6" or 4" service laterals. This is anticipated to provide adequate sizing to supply the intended sewer service to the building.

verify, must be 6" or larger

6" required for all commercial

## **WATER SYSTEM DESIGN**

There will be two buildings onsite. One to the north is a single existing shopping center building intended to be redeveloped to contain four businesses and the other will be a new restaurant building replaced the existing car wash to the south. The existing building to remain is approximately 10,165 square feet and the proposed building will be approximately 4,211 square feet. Both buildings are type VB construction. Per the International Fire Code, Table B105.1, the

existing building to remain requires a minimum fire flow of 2,750 GPM for a 2-hour duration and the proposed building requires a minimum fire flow of 1750 GPM for a 2-hour duration. The existing and new buildings will have automatic sprinklers installed resulting in an allowable 50% reduction in fire flow requirements. Required fire flow will be 2,250 GPM for a 2-hour duration. A recent fire flow test was conducted on March 6<sup>th</sup>, 2019 and the minimum GPM available at 20 PSI is 4,777 GPM, exceeding the minimum fire flow requirements for both the existing and new building sizes and construction types. Refer to Appendix D for Fire Flow Results.

Per the International Fire Code, Table C102.1, the Project requires 2 fire hydrants to meet the minimum spacing requirements and building coverage for the Project. There are two existing offsite hydrants that meet these requirements – one to the northwest and one to the southwest of the property, which are supplied by individual stubs to the existing 12” CIP public water main. The aforementioned fire line stub at the northwest of the property will continue to service the private fire suppression systems for the existing and new building.

**WASTEWATER SYSTEM DESIGN**

There are 2 individual buildings intended to be constructed or improved onsite. For the existing building to the north, the commercial units are anticipated to share a building sewer connection to the existing 8” VCP sewer stub to the west. The new building to the south is anticipated to have its own existing building sewer connection to the existing 8” VCP stub.

**WATER AND SEWER CALCULATIONS**

demands should be determined per DS&PM

The table below contains the expected water calculations for the entire site, including the new proposed building and the existing building to be tenant improved:

TYPE	QUANTITY	WFSU/FIXTURE	TOTAL WFSU
WATER CLOSET ( PUBLIC TANK)	15	5.0	75.0
URINAL (FV)	6	5.0	30.0
HAND SINK	27	1.5	40.5
CONVEYOR DISHWASHER	2	3.0	6.0
TRIPLE SINK	4	4.0	16.0
GLASS RINSER	3	3.0	9.0
		<b>TOTAL</b>	<b>176.5</b>

The Project is designed to have a water supply fixture unit count of 176.5. Per the fire flow test, a pressure range over 60 PSI will be used for calculations. The Project is anticipated to have approximately 90 linear feet of distribution pipe beyond the fire line stub at the northwest of the site to the fire riser room of the existing shopping center to remain. For the most conservative



estimate, the fire line size is assumed to be 6 inches. From the point of connection to the fire distribution line to the existing 2" water connection to the existing building, the distance is less than 50'. Per the International Plumbing Code, Table E201.1, the maximum WFSU based on the above parameters and a 1-1/2 inch meter and a 2 inch distribution line is 275; thus 176.5 WSFU is acceptable.

demands should be determined per DS&PM

The table below contains the expected waste water calculations for the entire site, including the new proposed building and the existing building to be tenant improved:

TYPE	QUANTITY	DFU/FIXTURE	TOTAL DFU
WATER CLOSET (PUBLIC)	15	6	90
URINAL	6	4	24
HAND SINK	27	2	54
CONVEYOR DISHWASHER	2	2	4
TRIPLE SINK	4	2	8
GLASS RINSER	3	2	6
		<b>TOTAL</b>	<b>186</b>

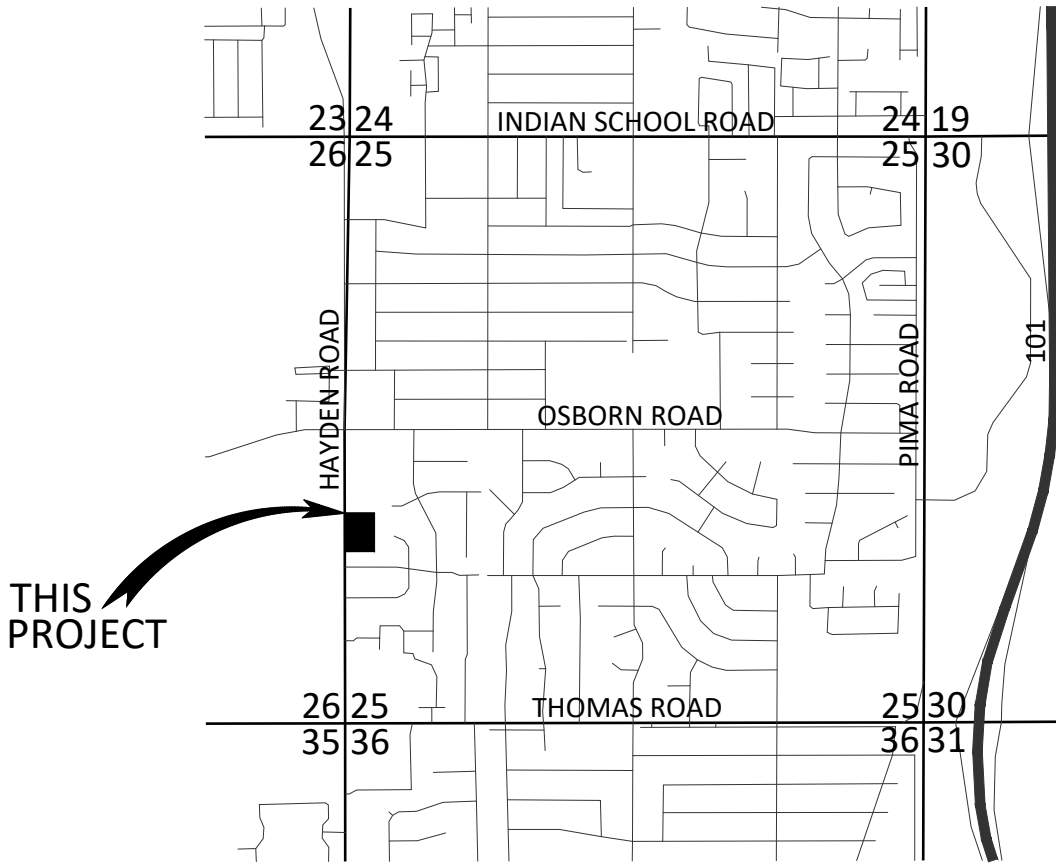
The Project's anticipated drainage fixture unit count is 186 and is designed with an anticipated 6-inch existing sewer laterals with an assumed minimum slope of 2.0%. Per the International Plumbing Code, Table 710.1(1), the maximum DFU based on the above parameters is 840. If it is found to be a 4-inch existing sewer line with an assumed minimum slope of 2.0%, the maximum DFU is 216; thus the expected maximum 186 DFU is acceptable if the sewer laterals are found to be either 4" or 6" diameter.

6" minimum

### **CONCLUSION**

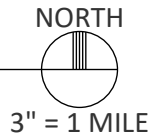
CYPRESS respectfully submits this preliminary report as the Water & Wastewater Design Report for the proposed Trail West Plaza – Scottsdale Development. The proposed water and wastewater systems shall be designed in accordance with ADEQ, International Building Code, and the City of Scottsdale standards.

Appendix A  
Location Map



IN THE NW 1/4 OF THE SW 1/4 OF SECTION 25,  
 T. 2 N., R. 4 E., G.&S.R.M.,  
 CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA

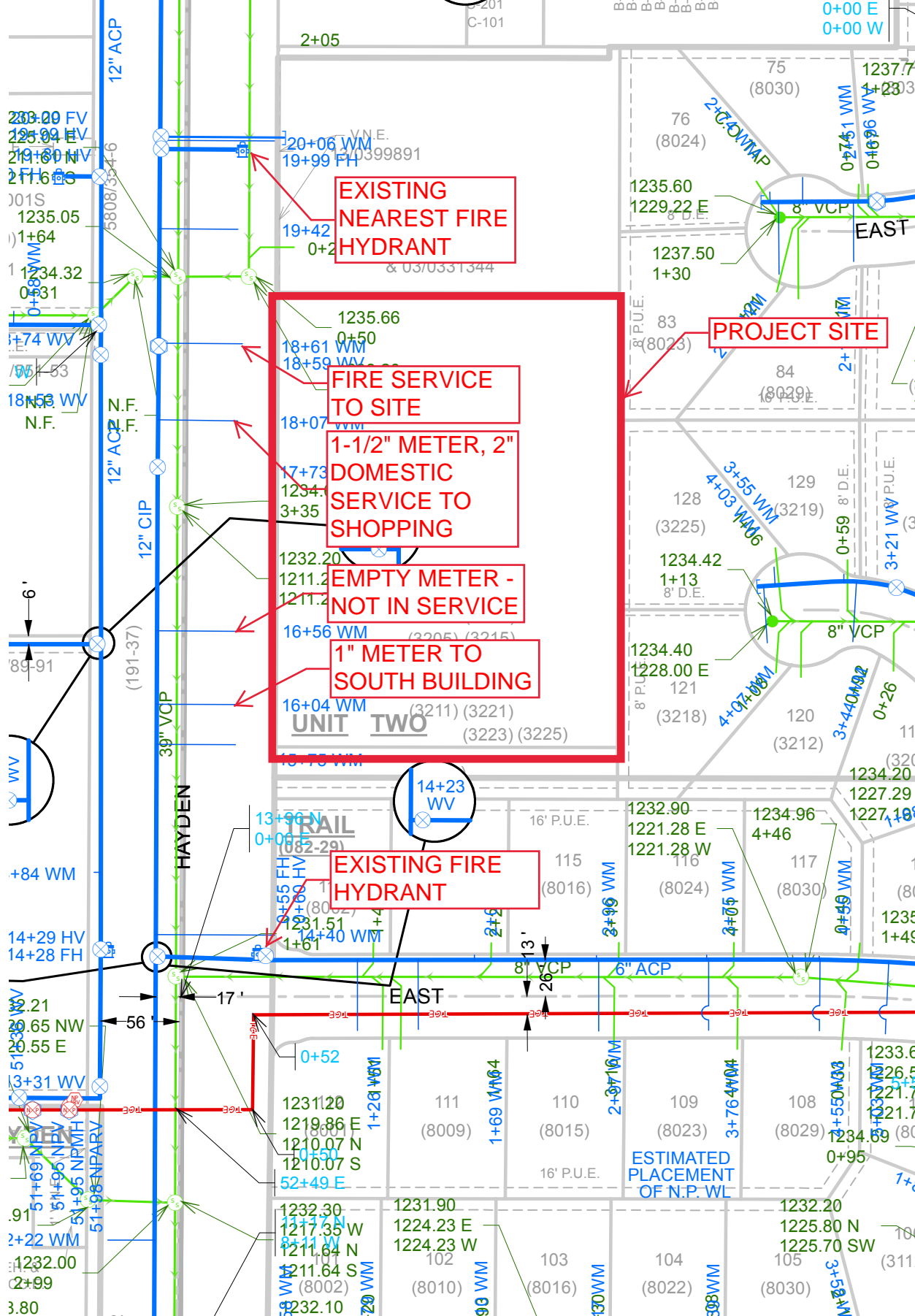
**LOCATION MAP**



## Appendix B

# City of Scottsdale Water and Sewer Quarter Section Map

15-46



EXISTING NEAREST FIRE HYDRANT

PROJECT SITE

FIRE SERVICE TO SITE  
1-1/2" METER, 2" DOMESTIC SERVICE TO SHOPPING

EMPTY METER - NOT IN SERVICE

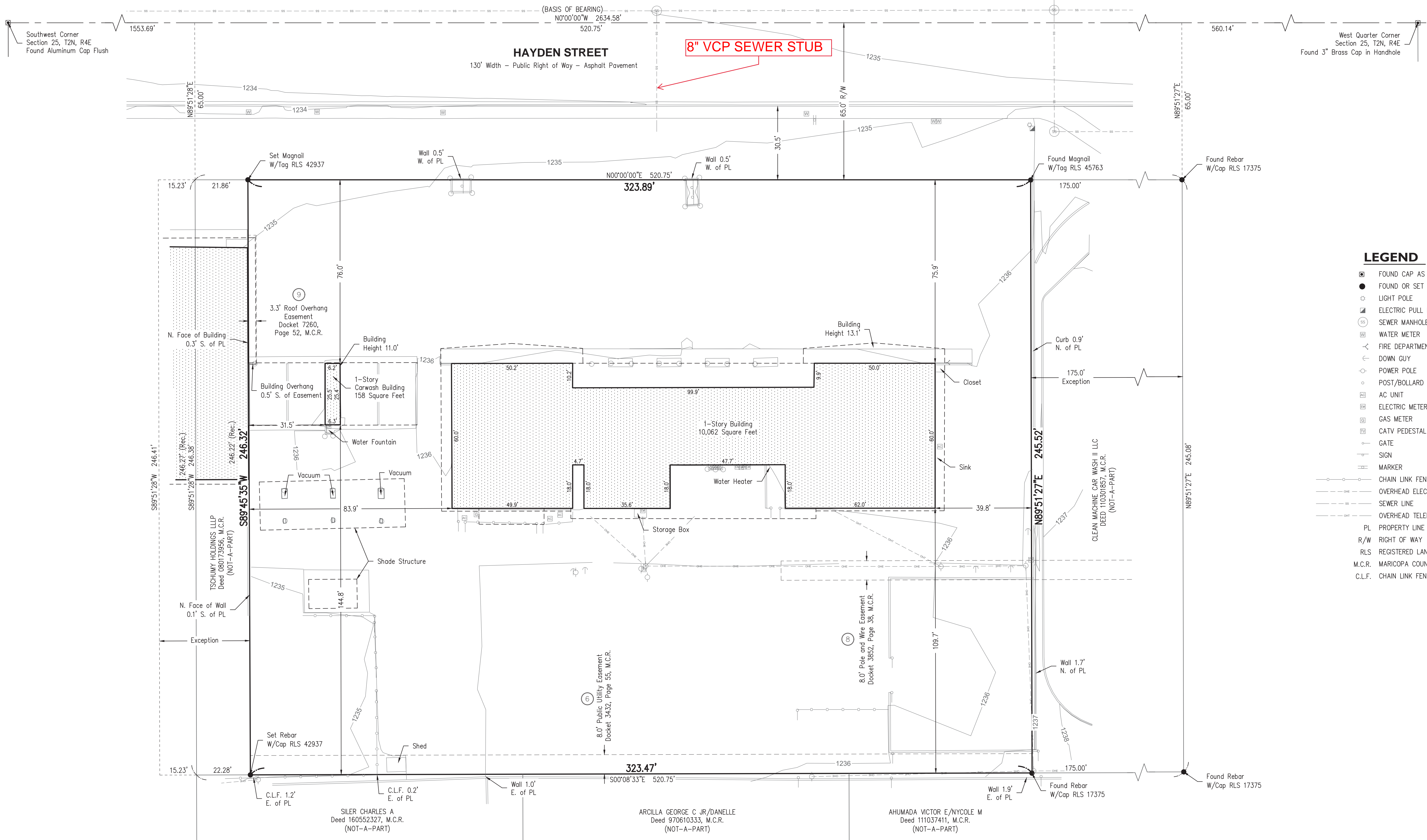
1" METER TO SOUTH BUILDING

EXISTING FIRE HYDRANT

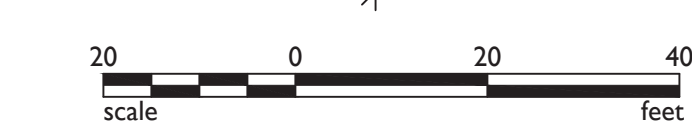
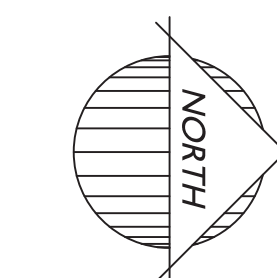
UNIT TWO

ESTIMATED PLACEMENT OF N.P. WL

Appendix C  
ALTA/NSPS Land Title Survey (09/06/2017)



- LEGEND**
- FOUND CAP AS NOTED
  - FOUND OR SET SURVEY MONUMENT AS NOTED
  - LIGHT POLE
  - ⊕ ELECTRIC PULL BOX
  - ⊙ SEWER MANHOLE
  - ⊕ WATER METER
  - ⊕ FIRE DEPARTMENT CONNECTION
  - ⊕ DOWN GUY
  - POWER POLE
  - POST/BOLLARD
  - ⊕ AC UNIT
  - ⊕ ELECTRIC METER
  - ⊕ GAS METER
  - ⊕ CATV PEDESTAL
  - ⊕ GATE
  - ⊕ SIGN
  - ⊕ MARKER
  - CHAIN LINK FENCE
  - OVERHEAD ELECTRIC LINE
  - SEWER LINE
  - OVERHEAD TELEPHONE LINE
  - PL PROPERTY LINE
  - R/W RIGHT OF WAY
  - RLS REGISTERED LAND SURVEYOR
  - M.C.R. MARICOPA COUNTY RECORD
  - C.L.F. CHAIN LINK FENCE



Revisions:




Designer: JB  
 Drawn by: AG

REG. LAND SURVEYOR  
 42937  
 JESSE BOYD  
 State Signed 09/06/07  
 ARIZONA, U.S.A.  
 Expires 08/31/2023

Job No.  
**17-393**

Sheet No.  
**2**  
 of 2

Appendix D  
Fire Flow Results



# Arizona Flow Testing LLC

## HYDRANT FLOW TEST REPORT

Project Name: Trail West Plaza  
Project Address: 3213 North Hayden Road, Scottsdale, Arizona, 85251  
Client Project No.: Not Provided  
Arizona Flow Testing Project No.: 19083  
Flow Test Permit No.: C57566  
Date and time flow test conducted: March 6, 2019 at 9:00 AM  
Data is current and reliable until: September 6, 2019  
Conducted by: Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)  
Witnessed by: Ray Padilla – City of Scottsdale-Inspector (602-541-0586)

### Raw Test Data

Static Pressure: **94.0 PSI**  
(Measured in pounds per square inch)

Residual Pressure: **88.0 PSI**  
(Measured in pounds per square inch)

Pitot Pressure: **12.0 PSI**  
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch  
(Measured in inches)

Coefficient of Diffuser: .9

Flowing GPM: **1,489 GPM**  
(Measured in gallons per minute)

GPM @ 20 PSI: **5,780 GPM**

### Data with 22 PSI Safety Factor

Static Pressure: **72.0 PSI**  
(Measured in pounds per square inch)

Residual Pressure: **66.0 PSI**  
(Measured in pounds per square inch)

Distance between hydrants: Approx. 580 Feet

Main size: Not Provided

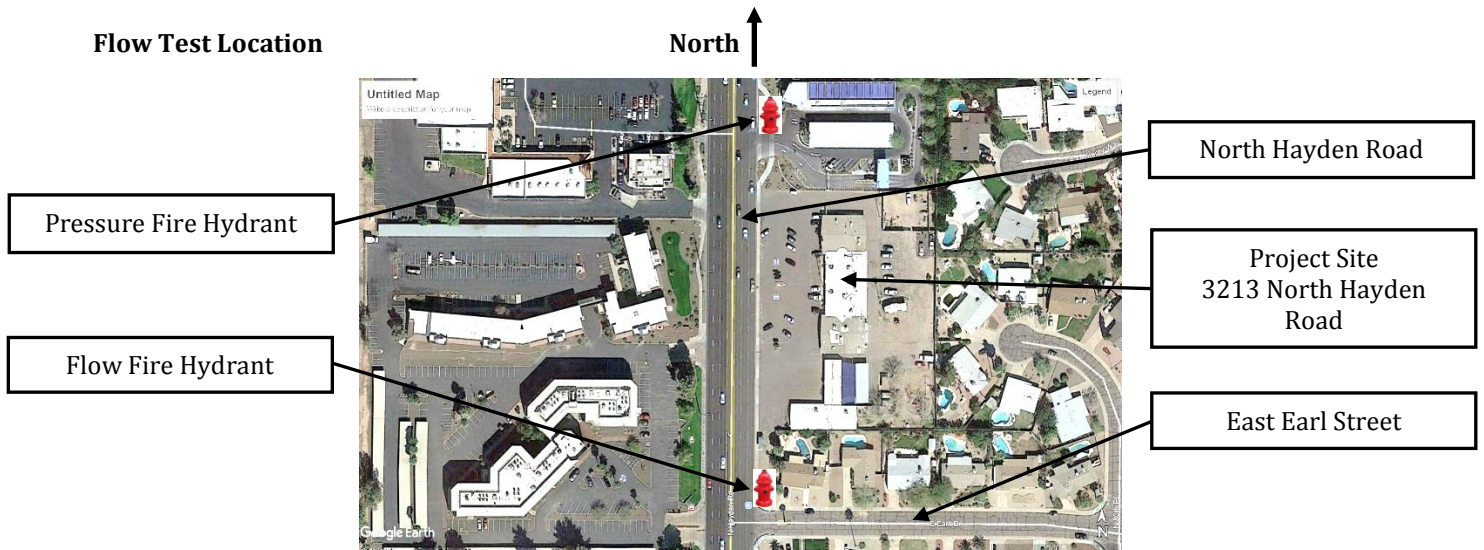
Flowing GPM: **1,489 GPM**

GPM @ 20 PSI: **4,777 GPM**

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

### Flow Test Location

North ↑



Plan #	_____
Case #	11-DR-2019
Q-S #	_____
<input checked="" type="checkbox"/> Accepted	
<input type="checkbox"/> Corrections	
A. Menez	08/06/2019
Reviewed By	Date

# DRAINAGE REPORT FOR TRAIL WEST PLAZA

Scottsdale, Arizona

16 July 2019

This drainage report is approved for the case; however, the final report and plans must address the following:

- Explain how drainage area on west side will be treated for first flush by landscape area.
- Provide proposed grades or contour information on the proposed hydrology map.

**PREPARED FOR**  
Aline Architecture Concepts  
7340 Eats Main Street  
Scottsdale, Arizona 85251  
Attn: Jeff Graham

**DEVELOPER**  
Clayton Companies  
7340 East Main Street, #200  
Scottsdale, Arizona 85251  
Attn: Tom Frenkel

**SITE ADDRESS**  
3215 North Hayden Road  
Scottsdale, Arizona 85251

PREPARED BY



4450 north 12<sup>th</sup> street, #228  
phoenix, arizona 85014  
CYPRESS # 19.023



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**I. INTRODUCTION**

**1. PROJECT NAME AND LOCATION**

The Project site is located at 3215 North Hayden Road in Scottsdale, Arizona. The project is located in the southwest ¼ of Section 25, Township 2 North, Range 4 East, G&SRM. The Project site occupies approximately 1.77 acres. The Project is currently developed with two existing buildings. One building is an existing shopping center to the north, which shall be redeveloped. The other building is an existing carwash to the south, which shall be demolished and rebuilt as a new restaurant. The Project has street frontage and access to Hayden Road along its western boundary. To the east are existing single-family homes, to the north is an existing car wash, and to the south is an existing daycare/pre-school facility.

Refer to Appendix A for Location Map and Aerial Photo.

**2. PURPOSE**

The intent of this Drainage Report is to provide the drainage scheme for the Project in support of the Improvement Plan Submittal.

**3. EXISTING STUDIES**

No existing regional drainage studies were obtained for the Project.

**4. FEMA FLOOD ZONE**

According to the Federal Emergency Management Agency Flood Insurance Rate Map, panel number 04013C2235L dated October 16, 2013, the majority of the parcel is located in the shaded Zone X Area, which is an area defined as within the 0.2% annual chance flood. A small portion of the site is located in the unshaded Zone X area, which is an area defined as an area with minimal flood hazard (outside the 0.2% annual chance flood). Portions of the parcel are also located within Zone X (shaded) area, which is defined as areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Refer to Appendix B for FEMA FIRM Map.

**II. EXISTING DRAINAGE INFRASTRUCTURE**

**1. OFFSITE**

The Project is not impacted by any offsite flows.

## **2. STREET CAPACITY CALCULATIONS**

The half-street capacity within the Hayden Road right-of-way is 8.2 CFS. This shall be more than sufficient to carry the proposed flow from the Project, as it shall be less than the existing flow it carries from the Project site.

Refer to Appendix C for Hayden Road Capacity Calculations.

## **3. ONSITE**

The Project has no existing retention infrastructure. Runoff from the western portion of the site discharges west into Hayden Road and runoff from the eastern portion ponds onsite in the parking and landscape area east of the buildings.

Refer to Appendix D for the Existing and Proposed Conditions Watershed Maps and Calculations.

# **III. PROPOSED DRAINAGE INFRASTRUCTURE**

## **1. CONVEYANCE OF RUNOFF**

Runoff from the western portion of the site, including portions of the northern building and the entire parking area west of the buildings, shall continue to discharge west into Hayden Road as it does in the existing condition. This area was unable to be retained due to the existing building and existing grade constraints. However, the proposed Project shall improve upon the existing condition, as less of the new restaurant building at the south and its surrounding area shall drain to Hayden Road. The entire new restaurant building and more of its surrounding area shall be retained in the proposed condition than was retained in the existing condition. New catch basins shall be installed at low points in the parking area on the east side of the buildings to convey stormwater to the future underground chamber retention system.

Refer to Appendix D for the Existing and Proposed Conditions Watershed Maps and Calculations to verify that the proposed conditions shall decrease the flow discharging into Hayden Road.

## **2. STORM WATER RETENTION REQUIREMENTS**

The Project will meet the 100-yr, 2-hr stormwater runoff volume requirements for the newly-paved eastern portion of the site, retaining more than it did in the existing condition and reducing the discharge into Hayden Road. Retention shall be accomplished via a new underground chamber system and proper discharge of the

chambers will be assured via natural percolation as a part of the engineering drainage system.

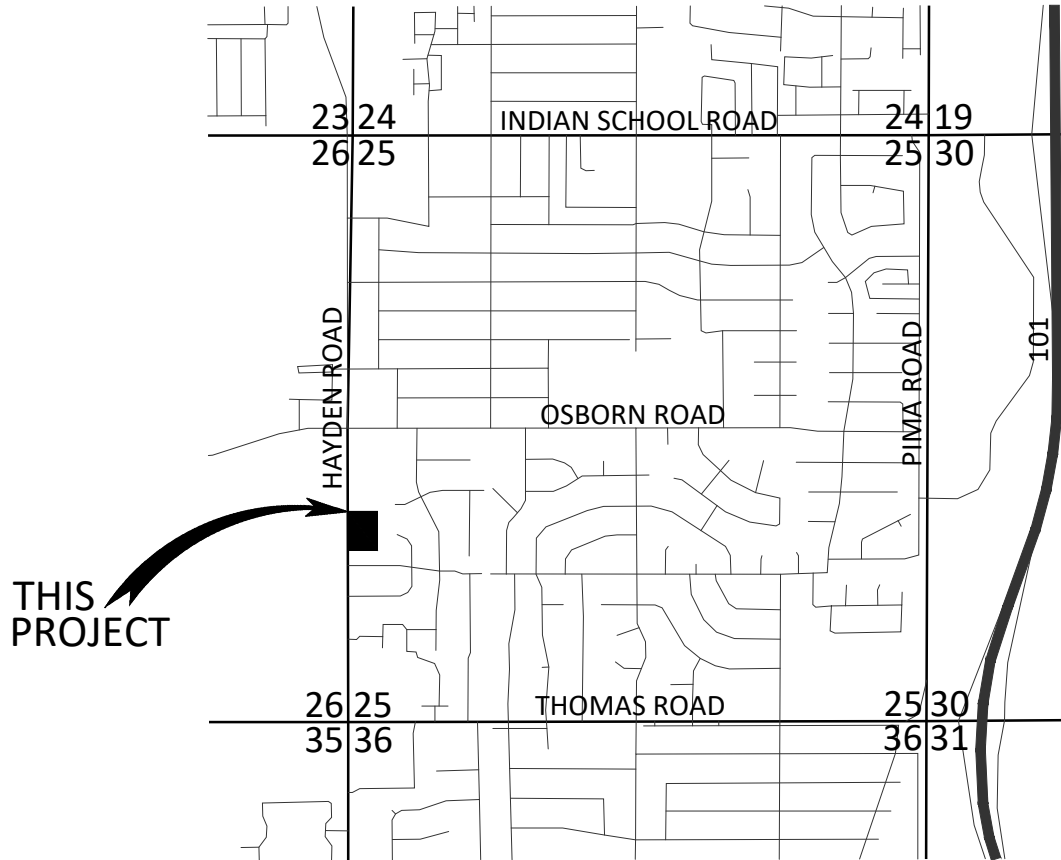
Refer to Appendix D for Retention Calculations.

#### **IV. SUMMARY AND CONCLUSION**

This Drainage Report is to accompany the Improvement Plan for the Trail West Plaza development project. This narrative was written utilizing generally accepted engineering practices and all information herein has been researched through archived documents and all calculations were accomplished through applying the City of Scottsdale Engineering Standards.

The analysis presented in this narrative evaluates storm water runoff resulting from a statistical evaluation of storm events of particular duration and frequency up to and including a 100-year frequency event. A storm event exceeding the 100-year frequency may cause or create the risk of greater flood impact than is addressed and presented herein. The scope of this assessment does not include evaluation of storm water runoff resulting from storm events exceeding the 100-year frequency. CYPRESS assumes no responsibility for actual flood damage, increased risks of flood damage, or increased construction or development cost resulting from or related to any such events, nor shall CYPRESS be responsible for any changes in, or additions to, regulatory requirements which may result from, or be related to, any such events or changes in hydrologic or hydraulic conditions within the watershed.

APPENDIX A  
(Location Map + Aerial Photo)



IN THE NW 1/4 OF THE SW 1/4 OF SECTION 25,  
T. 2 N., R. 4 E., G.&S.R.M.,  
CITY OF SCOTTSDALE, MARICOPA COUNTY, ARIZONA

**LOCATION MAP**

NORTH



3" = 1 MILE



# AERIAL PHOTO

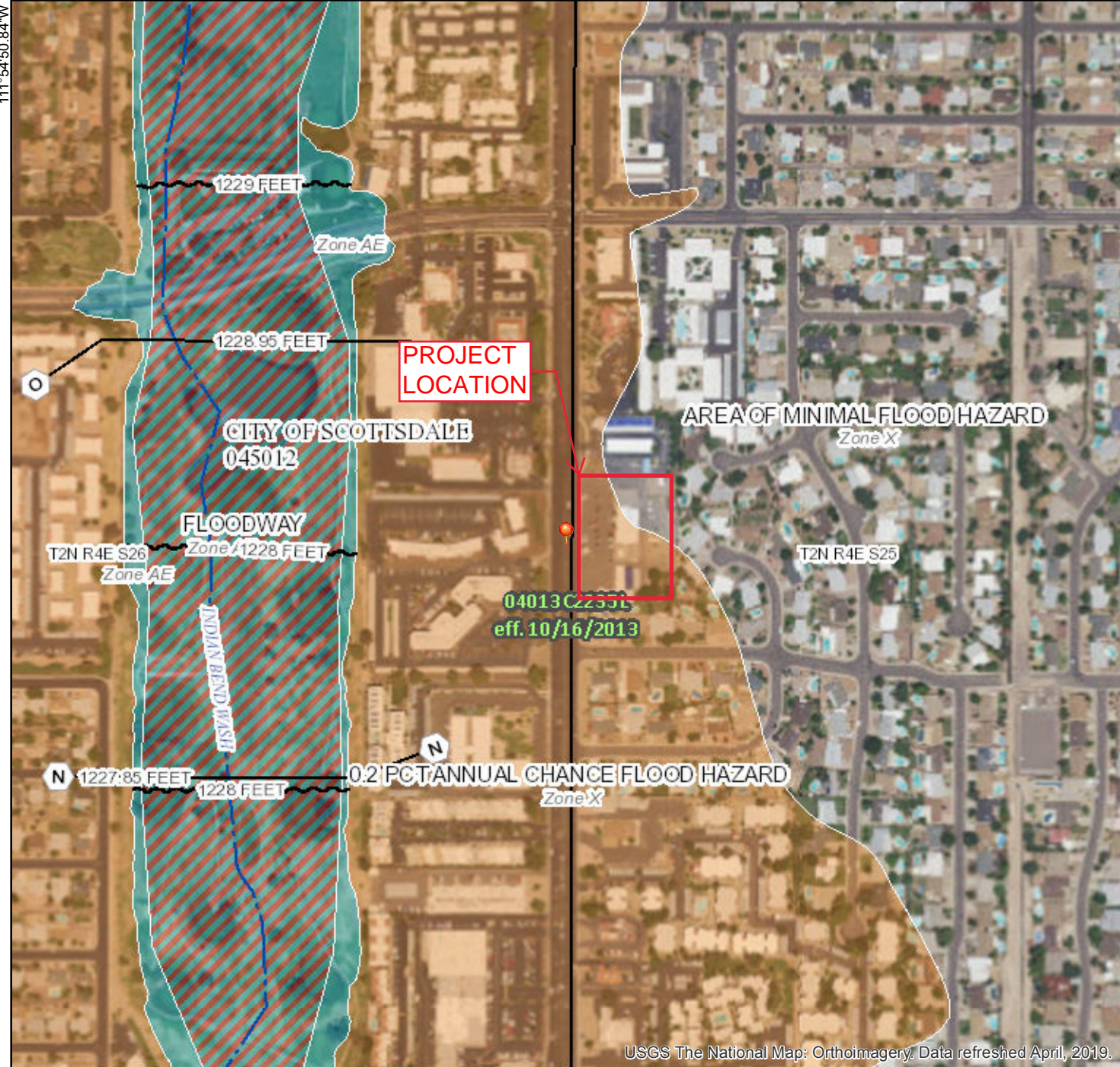


APPENDIX B  
(FEMA FIRM Map)

# National Flood Hazard Layer FIRMette



33°29'21.53"N



USGS The National Map: Orthoimagery. Data refreshed April, 2019. 1:6,000 33°28'51.53"N

## Legend

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

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99	With BFE or Depth Zone AE, AO, AH, VE, AR	Regulatory Floodway

	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 Minimal Flood Hazard Zone X

OTHER AREAS	Effective LOMRs	Area of Undetermined Flood Hazard Zone D
	Effective LOMRs	

GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer	Levee, Dike, or Floodwall
	Channel, Culvert, or Storm Sewer	

OTHER FEATURES	Cross Sections with 1% Annual Chance Water Surface Elevation	Coastal Transect	Base Flood Elevation Line (BFE)	Limit of Study	Jurisdiction Boundary	Coastal Transect Baseline	Profile Baseline	Hydrographic Feature
	20.2 17.5							

MAP PANELS	Digital Data Available	No Digital Data Available	Unmapped
	Digital Data Available		

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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/8/2019 at 7:59:17 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

111°54'50.84"W

111°54'13.38"W



0 250 500 1,000 1,500 2,000 Feet

APPENDIX C  
(Hayden Road Capacity Calculations)

# Channel Report

## Hayden Road Capacity

### User-defined

Invert Elev (ft) = 34.18  
Slope (%) = 0.22  
N-Value = 0.013

### Highlighted

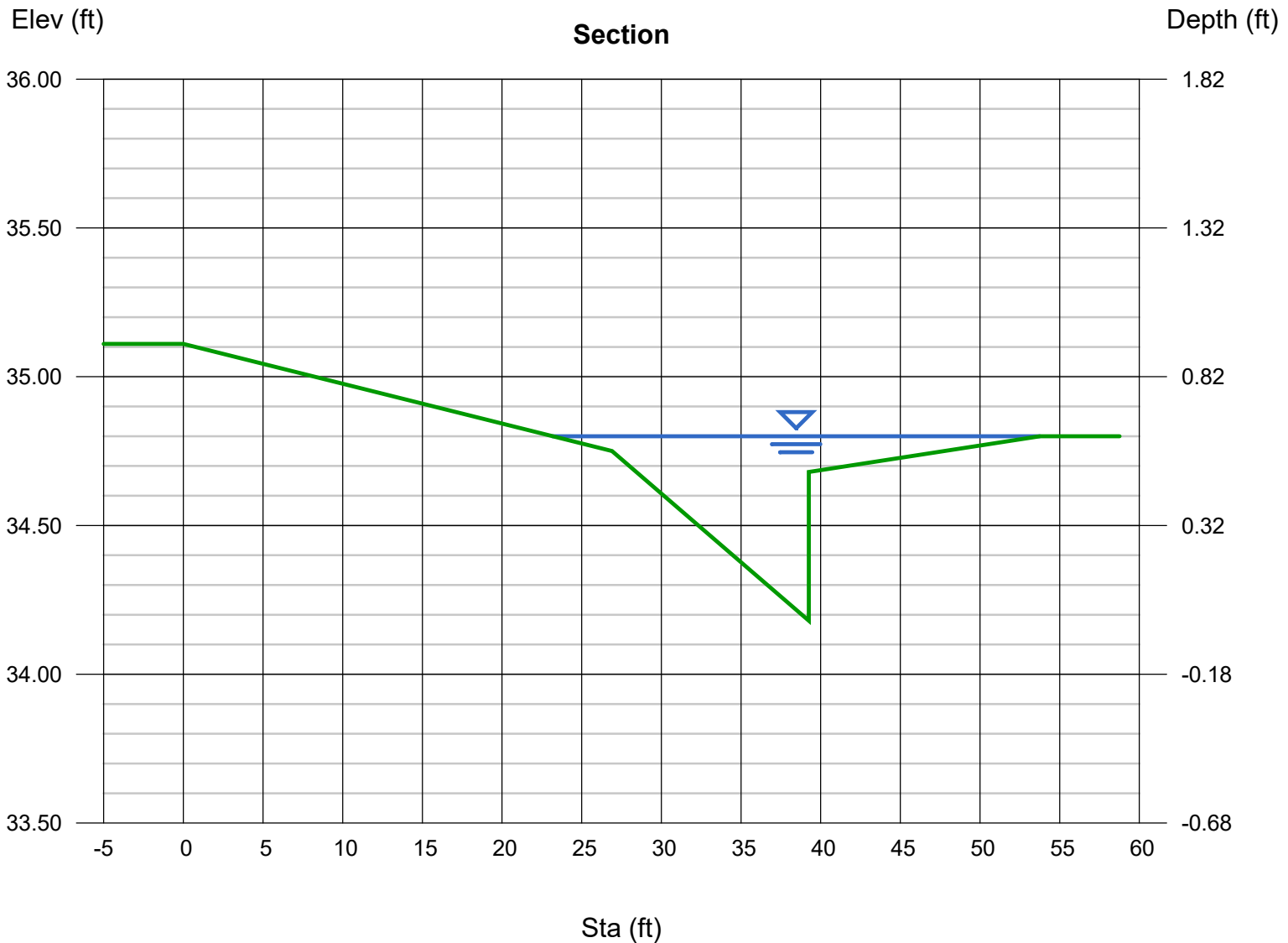
Depth (ft) = 0.62  
Q (cfs) = 8.214  
Area (sqft) = 5.10  
Velocity (ft/s) = 1.61  
Wetted Perim (ft) = 31.11  
Crit Depth, Yc (ft) = 0.55  
Top Width (ft) = 30.60  
EGL (ft) = 0.66

### Calculations

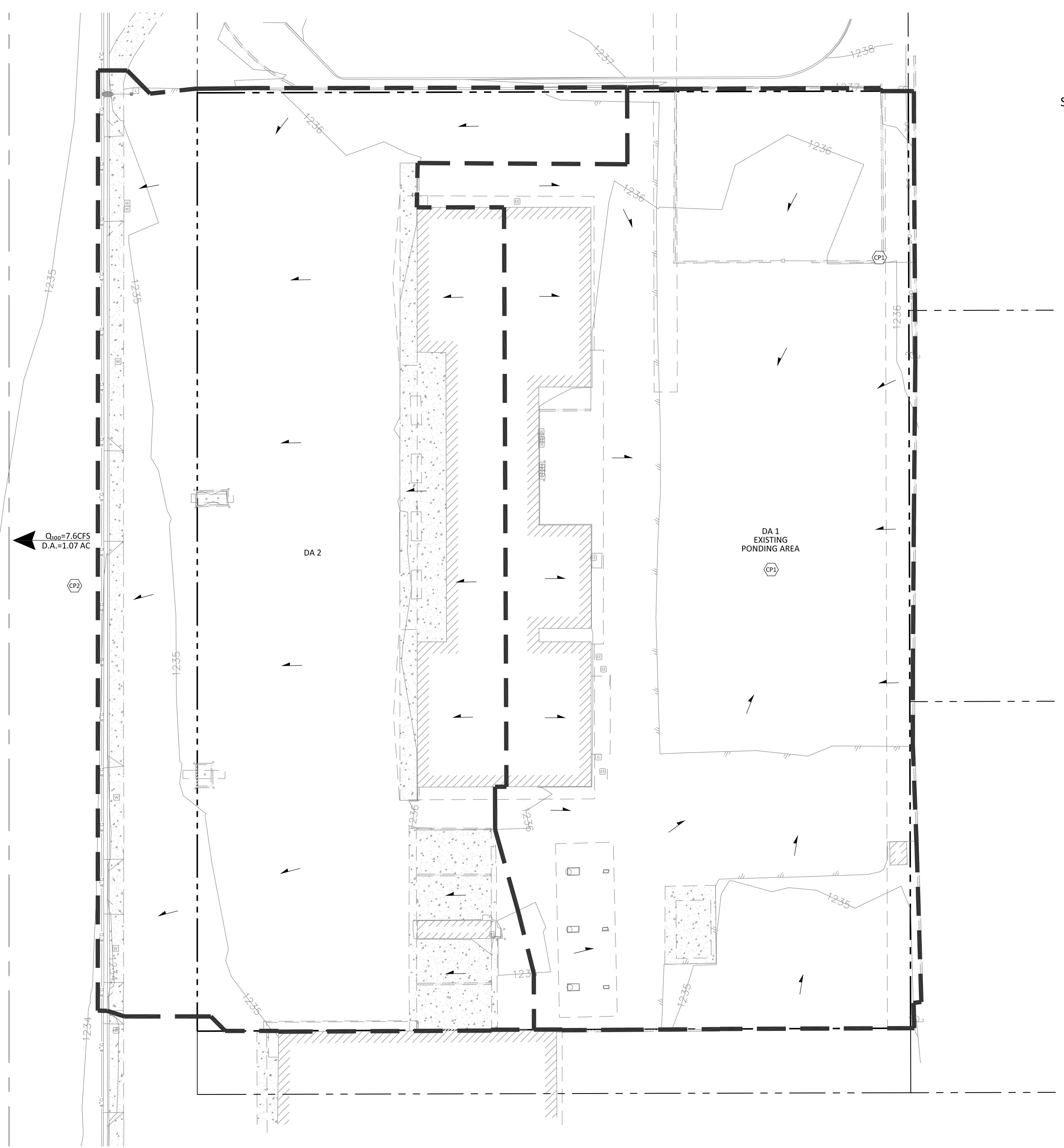
Compute by: Known Depth  
Known Depth (ft) = 0.62

### (Sta, El, n)-(Sta, El, n)...

(0.00, 35.11)-(26.90, 34.75, 0.013)-(39.26, 34.18, 0.013)-(39.26, 34.68, 0.013)-(53.76, 34.80, 0.013)



APPENDIX D  
(Existing and Proposed Conditions Watershed Maps +  
Calculations)



SCALE 1"=20'

**LEGEND**

	RIGHT-OF-WAY
	PROJECT BOUNDARY LINE
	ROADWAY CENTERLINE
	FLOW ARROW
	WATERSHED BOUNDARY
	CONCENTRATION POINT

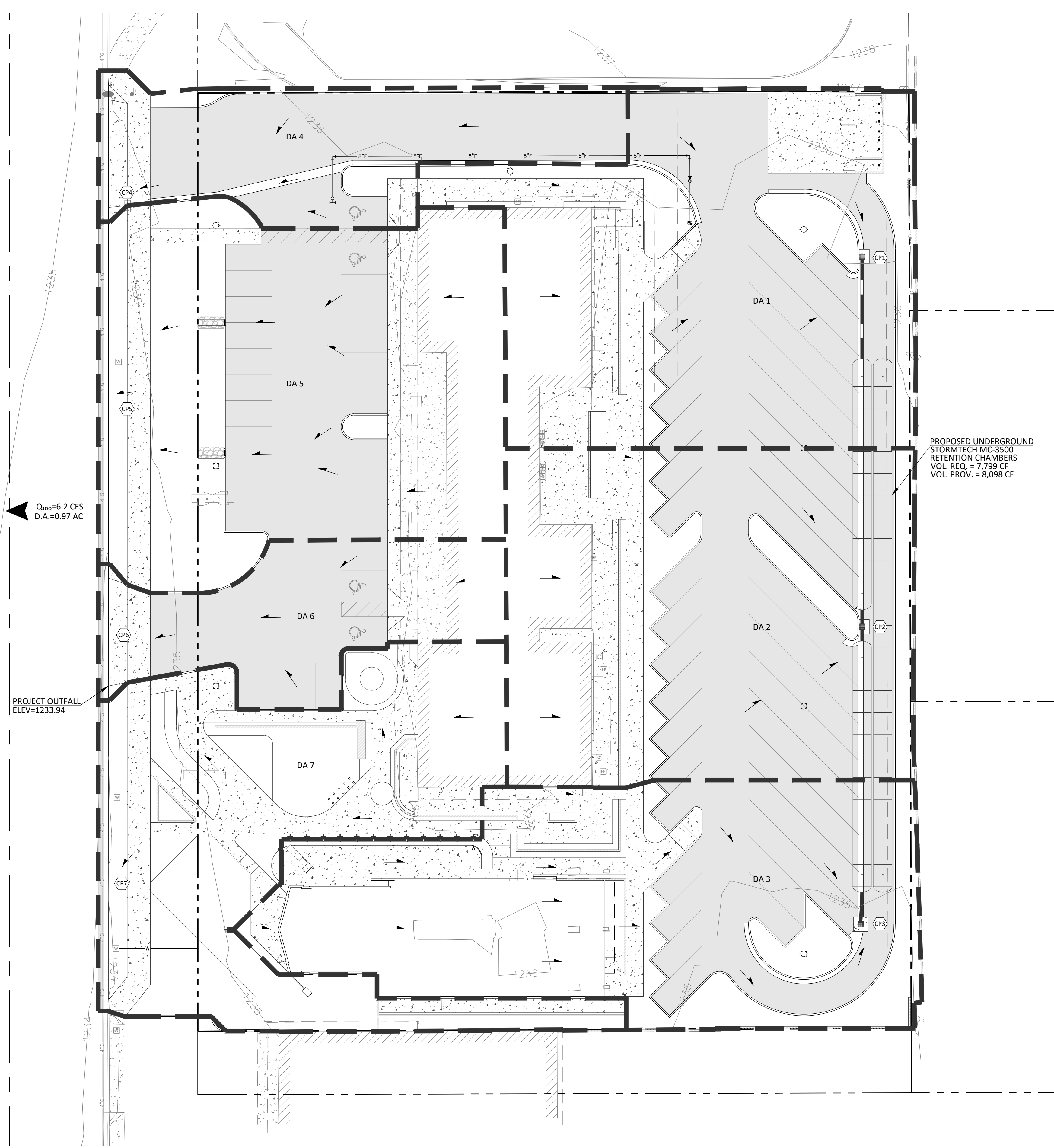
**WATERSHED CONCENTRATION POINTS**

	AREA	Q 100
CP1	1.03 AC	6.7 CFS
CP2	1.07 AC	7.6 CFS

**CYPRESS**  
 CIVIL DEVELOPMENT  
 strength + sustainability

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 phoenix, arizona 85014  
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 e: jphunt@cypresscivil.com  
 CYPRESS PROJECT NO: 19.023

**TRAIL WEST PLAZA**  
 existing conditions  
 hydrology map



SCALE 1"=20'

**LEGEND**

- RIGHT-OF-WAY
- PROJECT BOUNDARY LINE
- - - ROADWAY CENTERLINE
- FLOW ARROW
- - - WATERSHED BOUNDARY
- (CP1) CONCENTRATION POINT

**WATERSHED CONCENTRATION POINTS**

	AREA	Q.100
CP1	0.39 AC	2.6 CFS
CP2	0.37 AC	2.5 CFS
CP3	0.37 AC	2.4 CFS
CP4	0.16 AC	1.1 CFS
CP5	0.38 AC	2.4 CFS
CP6	0.13 AC	1.0 CFS
CP7	0.30 AC	1.7 CFS

PROPOSED UNDERGROUND STORMTECH MC-3500 RETENTION CHAMBERS VOL. REQ. = 7,799 CF VOL. PROV. = 8,098 CF

Q<sub>100</sub>=6.2 CFS  
D.A.=0.97 AC

PROJECT OUTFALL  
ELEV=1233.94



## EXISTING WATERSHED SUMMARY

PROJECT TRAIL WEST PLAZA

### EASTERN PORTION OF THE SITE - PONDS ONSITE

WATERSHED ID	CONCENTRATION POINT	AREA ROOF + PAVEMENT C=0.95 (SF)	AREA GRAVEL PARKING C=0.85 (SF)	AREA DESERT LANDSCAPING C=0.50 (SF)	TOTAL AREA (AC)	WEIGHTED 'C'
DA A1	A1	20,705	20,115	4,165	1.03	0.86

### WESTERN PORTION OF THE SITE - DISCHARGES TO HAYDEN ROAD

DA A2	A2	46,376	0	201	1.07	0.95
-------	----	--------	---	-----	------	------

## EXISTING FLOWS - RATIONAL METHOD

PROJECT TRAIL WEST PLAZA

$$T_c = 11.4L^{0.5}K_b^{52}S^{-0.31}i^{-0.38} \times 60$$

$$Q = CiA$$

Tc= Time of Concentration (min)

L= Length of longest flow path (miles)

Kb= Watershed resistance coefficient

S= Watercourse slope (ft/mi)

i= rainfall intensity (in/hr)

Q = Peak discharge (cfs)

C = Runoff coefficient

i = Rainfall intensity (inch/hr)

A = Drainage area (Acres)

100-YR, 5-MIN 7.45 in/hr

100-YR, 10-MIN 5.66 in/hr

WATERSHED ID	CONCENTRATION POINT	L	Kb	S		i	Tc	C	i	A	Q
DA-1	1	0.03	0.04	35	0.7%	7.45	3.7	0.86	7.45	1.03	6.7
DA-2	2	0.03	0.04	60	1.1%	7.45	2.7	0.95	7.45	1.07	7.6

## PROPOSED WATERSHED SUMMARY

PROJECT TRAIL WEST PLAZA

### EASTERN PORTION OF THE SITE - SHALL BE RETAINED UNDERGROUND

WATERSHED ID	CONCENTRATION POINT	AREA ROOF +	AREA DESERT	TOTAL AREA (AC)	WEIGHTED 'C'
		PAVEMENT C=0.95 (SF)	LANDSCAPING C=0.50 (SF)		
DA 1	A1	14,125	2,812	0.39	0.88
DA 2	A2	14,127	2,101	0.37	0.89
DA 3	A3	13,297	2,773	0.37	0.87
		<b>41,549</b>	<b>7,686</b>	<b>1.13</b>	<b>0.88</b>

### WESTERN PORTION OF THE SITE - ULTIMATELY DISCHARGES TO HAYDEN ROAD

DA 4	A4	6,306	534	0.16	0.91
DA 5	A5	12,215	4,434	0.38	0.83
DA 6	A6	5,545	0	0.13	0.95
DA 7	A7	6,974	6,304	0.30	0.74
		<b>31,041</b>	<b>11,273</b>	<b>0.97</b>	<b>0.83</b>

## PROPOSED FLOWS - RATIONAL METHOD

PROJECT TRAIL WEST PLAZA

$$T_c = 11.4L^{0.5}K_b^{0.52}S^{-0.31}i^{-0.38} \times 60$$

$$Q = CiA$$

Tc= Time of Concentration (min)

L= Length of longest flow path (miles)

Kb= Watershed resistance coefficient

S= Watercourse slope (ft/mi)

i= rainfall intensity (in/hr)

Q = Peak discharge (cfs)

C = Runoff coefficient

i = Rainfall intensity (inch/hr)

A = Drainage area (Acres)

100-YR, 5-MIN 7.45 in/hr

100-YR, 10-MIN 5.66 in/hr

WATERSHED ID	CONCENTRATION POINT	L	Kb	S		i	Tc	C	i	A	Q
DA-1	1	0.04	0.04	30	0.6%	7.45	3.9	0.88	7.45	0.39	2.6
DA-2	2	0.03	0.04	35	0.7%	7.45	3.7	0.89	7.45	0.37	2.5
DA-3	3	0.04	0.04	30	0.6%	7.45	4.4	0.87	7.45	0.37	2.4
DA-4	4	0.03	0.04	30	0.6%	7.45	3.9	0.91	7.45	0.16	1.1
DA-5	5	0.03	0.04	30	0.6%	7.45	3.4	0.83	7.45	0.38	2.4
DA-6	6	0.03	0.04	30	0.6%	7.45	3.4	0.95	7.45	0.13	1.0
DA-7	7	0.03	0.04	30	0.6%	7.45	3.4	0.74	7.45	0.30	1.7



**POINT PRECIPITATION FREQUENCY ESTIMATES**

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps & aeriels](#)

**PF tabular**

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) <sup>1</sup>										
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 (3.26-4.74)	4.70 (3.90-5.68)	5.77 (4.72-6.94)	6.60 (5.33-7.90)	7.45 (5.89-8.88)	8.32 (6.48-9.90)	9.47 (7.18-11.3)	10.4 (7.70-12.4)
10-min	1.67 (1.40-2.03)	2.18 (1.84-2.66)	2.97 (2.48-3.61)	3.58 (2.97-4.32)	4.39 (3.59-5.27)	5.02 (4.06-6.01)	5.66 (4.49-6.76)	6.33 (4.93-7.54)	7.21 (5.47-8.60)	7.88 (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 (3.71-5.58)	5.23 (4.07-6.23)	5.96 (4.52-7.10)	6.51 (4.84-7.78)
30-min	0.930 (0.780-1.13)	1.22 (1.02-1.48)	1.65 (1.38-2.01)	1.99 (1.65-2.40)	2.44 (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)	4.39 (3.26-5.24)
60-min	0.576 (0.483-0.701)	0.753 (0.634-0.917)	1.02 (0.856-1.24)	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 (0.368-0.516)	0.578 (0.490-0.688)	0.690 (0.579-0.819)	0.842 (0.699-0.994)	0.960 (0.786-1.13)	1.08 (0.871-1.27)	1.20 (0.952-1.41)	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)	0.770 (0.616-0.911)	0.863 (0.680-1.02)	0.993 (0.758-1.18)	1.10 (0.818-1.30)
6-hr	0.146 (0.126-0.172)	0.185 (0.161-0.217)	0.237 (0.205-0.278)	0.279 (0.239-0.325)	0.335 (0.284-0.389)	0.380 (0.316-0.439)	0.426 (0.350-0.493)	0.474 (0.381-0.549)	0.539 (0.422-0.625)	0.590 (0.452-0.687)
12-hr	0.081 (0.071-0.094)	0.102 (0.089-0.119)	0.130 (0.113-0.150)	0.151 (0.131-0.174)	0.180 (0.154-0.207)	0.202 (0.171-0.232)	0.225 (0.188-0.258)	0.248 (0.204-0.285)	0.279 (0.224-0.323)	0.304 (0.239-0.353)
24-hr	0.048 (0.043-0.054)	0.061 (0.055-0.069)	0.079 (0.071-0.089)	0.094 (0.084-0.105)	0.114 (0.101-0.127)	0.129 (0.114-0.144)	0.146 (0.127-0.162)	0.163 (0.141-0.181)	0.186 (0.159-0.208)	0.204 (0.174-0.229)
2-day	0.026 (0.023-0.029)	0.033 (0.030-0.037)	0.044 (0.039-0.049)	0.052 (0.046-0.058)	0.064 (0.056-0.071)	0.073 (0.064-0.082)	0.083 (0.072-0.093)	0.093 (0.081-0.104)	0.107 (0.092-0.120)	0.118 (0.101-0.133)
3-day	0.018 (0.016-0.021)	0.024 (0.021-0.026)	0.031 (0.028-0.035)	0.037 (0.033-0.041)	0.045 (0.040-0.051)	0.052 (0.046-0.058)	0.059 (0.052-0.066)	0.067 (0.058-0.075)	0.077 (0.066-0.087)	0.086 (0.073-0.096)
4-day	0.015 (0.013-0.016)	0.019 (0.017-0.021)	0.025 (0.022-0.027)	0.029 (0.026-0.033)	0.036 (0.032-0.040)	0.042 (0.037-0.046)	0.047 (0.041-0.053)	0.054 (0.046-0.060)	0.062 (0.053-0.070)	0.069 (0.059-0.078)
7-day	0.009 (0.008-0.010)	0.012 (0.011-0.013)	0.016 (0.014-0.017)	0.019 (0.016-0.021)	0.023 (0.020-0.026)	0.026 (0.023-0.029)	0.030 (0.026-0.034)	0.034 (0.029-0.038)	0.039 (0.034-0.044)	0.044 (0.037-0.049)
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)	0.017 (0.015-0.019)	0.020 (0.018-0.022)	0.023 (0.020-0.025)	0.026 (0.022-0.028)	0.030 (0.025-0.033)	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)	0.010 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.016)	0.017 (0.014-0.019)	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 (0.006-0.007)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.013)	0.013 (0.011-0.014)	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 (0.008-0.009)	0.010 (0.008-0.011)	0.010 (0.009-0.012)
60-day	0.002 (0.002-0.002)	0.003 (0.002-0.003)	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)

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

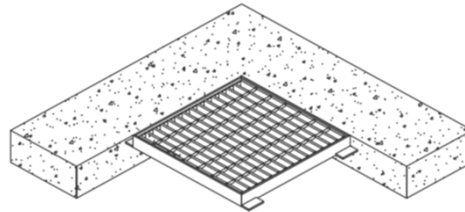
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**PF graphical**

## INLET CALCULATION

**PROJECT** TRAIL WEST PLAZA  
**LOCATION** CP1

INLET TYPE	MAG - 2'x2'	
LENGTH	2	FT
WIDTH	2	FT
OPEN AREA	3.02	SF
Cw	3.00	
Co	0.67	
CLOGGING FACTOR	50%	



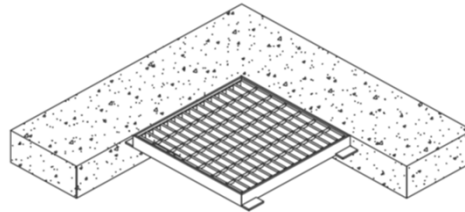
DEPTH (FT)	WEIR (CFS)	ORIFICE (CFS)	CONTROLLING (CFS)
0.00	0.0	0.0	0.0
0.05	0.1	1.8	0.1
0.10	0.4	2.6	0.4
0.15	0.7	3.1	0.7
0.20	1.1	3.6	1.1
0.25	1.5	4.1	1.5
0.30	2.0	4.4	2.0
0.35	2.5	4.8	2.5
0.40	3.0	5.1	3.0
0.45	3.6	5.4	3.6
0.50	4.2	5.7	4.2
0.55	4.9	6.0	4.9
0.60	5.6	6.3	5.6
0.65	6.3	6.5	6.3
0.70	7.0	6.8	6.8
0.75	7.8	7.0	7.0
0.80	8.6	7.3	7.3
0.85	9.4	7.5	7.5

100-YR FLOW	2.6	CFS
CALCULATED DEPTH	0.40	FT

## INLET CALCULATION

**PROJECT** TRAIL WEST PLAZA  
**LOCATION** CP2

INLET TYPE	MAG - 2'x2'	
LENGTH	2	FT
WIDTH	2	FT
OPEN AREA	3.02	SF
Cw	3.00	
Co	0.67	
CLOGGING FACTOR	50%	



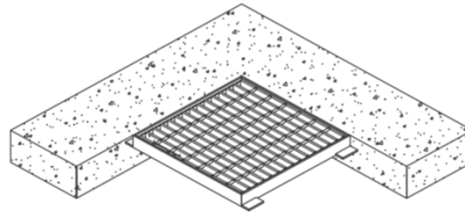
DEPTH (FT)	WEIR (CFS)	ORIFICE (CFS)	CONTROLLING (CFS)
0.00	0.0	0.0	0.0
0.05	0.1	1.8	0.1
0.10	0.4	2.6	0.4
0.15	0.7	3.1	0.7
0.20	1.1	3.6	1.1
0.25	1.5	4.1	1.5
0.30	2.0	4.4	2.0
0.35	2.5	4.8	2.5
0.40	3.0	5.1	3.0
0.45	3.6	5.4	3.6
0.50	4.2	5.7	4.2
0.55	4.9	6.0	4.9
0.60	5.6	6.3	5.6
0.65	6.3	6.5	6.3
0.70	7.0	6.8	6.8
0.75	7.8	7.0	7.0
0.80	8.6	7.3	7.3
0.85	9.4	7.5	7.5

100-YR FLOW	2.5	CFS
CALCULATED DEPTH	0.40	FT

## INLET CALCULATION

**PROJECT** TRAIL WEST PLAZA  
**LOCATION** CP3

INLET TYPE	MAG - 2'x3'	
LENGTH	2	FT
WIDTH	3	FT
OPEN AREA	4.53	SF
Cw	3.00	
Co	0.67	
CLOGGING FACTOR	50%	



DEPTH (FT)	WEIR (CFS)	ORIFICE (CFS)	CONTROLLING (CFS)
0.00	0.0	0.0	0.0
0.05	0.2	2.7	0.2
0.10	0.5	3.8	0.5
0.15	0.9	4.7	0.9
0.20	1.3	5.4	1.3
0.25	1.9	6.1	1.9
0.30	2.5	6.7	2.5
0.35	3.1	7.2	3.1
0.40	3.8	7.7	3.8
0.45	4.5	8.2	4.5
0.50	5.3	8.6	5.3
0.55	6.1	9.0	6.1
0.60	7.0	9.4	7.0
0.65	7.9	9.8	7.9
0.70	8.8	10.2	8.8
0.75	9.7	10.5	9.7
0.80	10.7	10.9	10.7
0.85	11.8	11.2	11.2

100-YR FLOW	2.4	CFS
CALCULATED DEPTH	0.30	FT



APPENDIX E  
(Retention Calculations)

## EQUATION SHEET

### PROJECT RETENTION REQUIREMENTS

FOR TRAIL WEST PLAZA

REQUIRED ONSITE RETENTION (FOR EASTERN AREA ABLE TO BE RETAINED):

$$V = D \times C \times A$$

V = VOLUME (CUBIC FEET)

D = DEPTH OF 100-YR, 2-HR RAINFALL (FEET) = 2.16 IN

A = WATERSHED AREA (SQUARE FEET) = 49,235 SF

C = WEIGHTED SITE RUNOFF COEFFICIENT = 0.88\*

\*Refer to contributing watershed summary sheet

$$V = 0.88 \times \left(\frac{2.16}{12}\right) \times 49,235$$

$$V = 7,799 \text{ CF}$$

*The provided underground retention tank provides 8,098 CF via 46 StormTech MC-3500 underground retention chambers.*



## User Inputs

**Chamber Model:** MC-3500  
**Outlet Control Structure:** Yes  
**Project Name:**  
**Engineer:** Brianna Tallas  
**Project Location:**  
**Measurement Type:** Imperial  
**Required Storage Volume:** 500 cubic ft.  
**Stone Porosity:** 30%  
**Stone Foundation Depth:** 9 in.  
**Stone Above Chambers:** 12 in.  
**Average Cover Over Chambers:** 18 in.  
**Design Constraint Dimensions:** (20 ft. x 20 ft.)

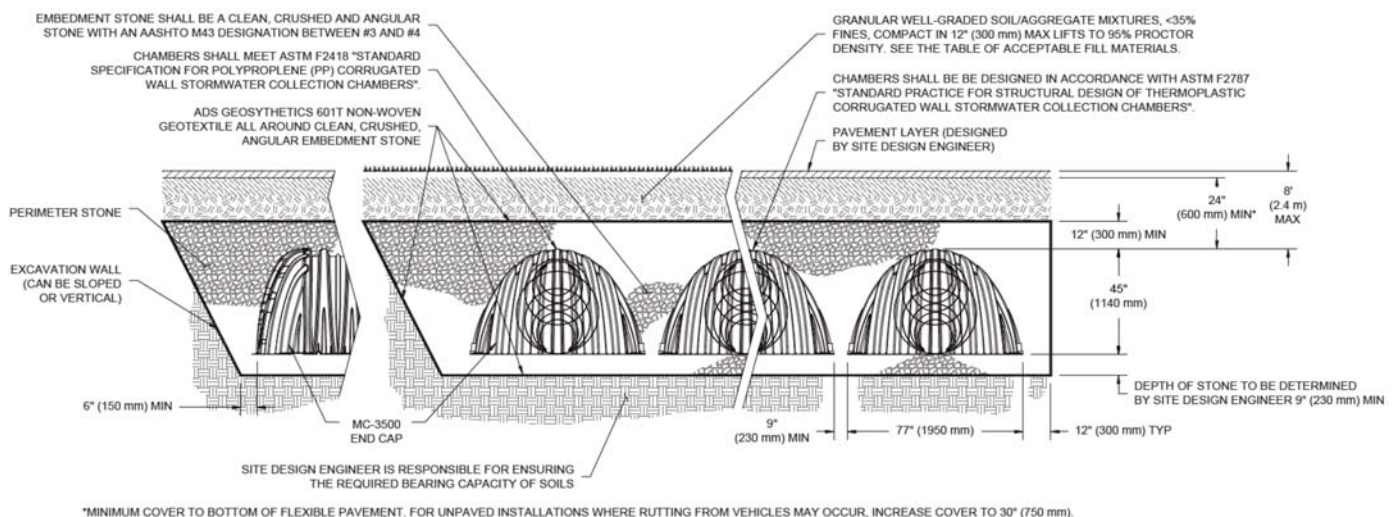
## Results

### System Volume and Bed Size

**Installed Storage Volume:** 8098.44 cubic ft.  
**Storage Volume Per Chamber:** 109.90 cubic ft.  
**Number Of Chambers Required:** 46  
**Number Of End Caps Required:** 6  
**Chamber Rows:** 2  
**Maximum Length:** 177.75 ft.  
**Maximum Width:** 15.33 ft.  
**Approx. Bed Size Required:** 2725.50 square ft.

### System Components

**Amount Of Stone Required:** 364.65 cubic yards  
**Volume Of Excavation (Not Including Fill):** 555.19 cubic yards



## EQUATION SHEET

### RETENTION CHAMBERS DRAIN TIME

FOR TRAIL WEST PLAZA

ANTICIPATED NATURAL PERCOLATION RATE FOR CHAMBER SYSTEM = 0.1 CFS

$$t = \frac{V}{r}$$

V = VOLUME (CUBIC FEET) = 7,799 CU. FT.

r = PERCOLATION RATE = 0.1 CFS

t = TIME TO DRAIN BASIN

### SURFACE RETENTION BASIN

TOTAL RETAIN VOLUME (100-YR, 2-HR) = 7,799 CUBIC FEET

$$t = \frac{7,799}{0.1}$$

t = 77,990 SECONDS

t = 21.7 HOURS



**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) <sup>1</sup>										
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 (0.272-0.395)	0.392 (0.325-0.473)	0.481 (0.393-0.578)	0.550 (0.444-0.658)	0.621 (0.491-0.740)	0.693 (0.540-0.825)	0.789 (0.598-0.941)	0.863 (0.642-1.03)
10-min	0.279 (0.234-0.339)	0.364 (0.307-0.444)	0.495 (0.414-0.601)	0.596 (0.495-0.720)	0.732 (0.599-0.879)	0.837 (0.676-1.00)	0.944 (0.748-1.13)	1.06 (0.821-1.26)	1.20 (0.911-1.43)	1.31 (0.976-1.57)
15-min	0.345 (0.290-0.421)	0.452 (0.381-0.550)	0.614 (0.514-0.745)	0.739 (0.614-0.892)	0.907 (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)	0.608 (0.512-0.741)	0.827 (0.692-1.00)	0.994 (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)	2.01 (1.52-2.39)	2.19 (1.63-2.62)
60-min	0.576 (0.483-0.701)	0.753 (0.634-0.917)	1.02 (0.856-1.24)	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	0.668 (0.568-0.795)	0.864 (0.736-1.03)	1.16 (0.981-1.38)	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 (2.11-3.22)	2.99 (2.26-3.54)
3-hr	0.726 (0.616-0.873)	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 (2.46-3.92)
6-hr	0.873 (0.756-1.03)	1.11 (0.962-1.30)	1.42 (1.23-1.66)	1.67 (1.43-1.95)	2.01 (1.70-2.33)	2.28 (1.90-2.63)	2.55 (2.09-2.95)	2.84 (2.28-3.29)	3.23 (2.53-3.74)	3.53 (2.70-4.11)
12-hr	0.975 (0.853-1.13)	1.23 (1.08-1.43)	1.56 (1.36-1.81)	1.82 (1.58-2.10)	2.17 (1.86-2.49)	2.44 (2.06-2.80)	2.71 (2.26-3.11)	2.99 (2.46-3.44)	3.37 (2.70-3.89)	3.66 (2.89-4.26)
24-hr	1.16 (1.04-1.30)	1.47 (1.32-1.65)	1.90 (1.71-2.14)	2.25 (2.01-2.52)	2.73 (2.41-3.05)	3.10 (2.73-3.46)	3.49 (3.06-3.90)	3.90 (3.39-4.35)	4.46 (3.83-4.98)	4.91 (4.17-5.49)
2-day	1.25 (1.12-1.41)	1.60 (1.44-1.80)	2.10 (1.88-2.36)	2.50 (2.23-2.80)	3.06 (2.71-3.42)	3.50 (3.08-3.92)	3.97 (3.47-4.45)	4.46 (3.87-5.00)	5.14 (4.41-5.77)	5.69 (4.83-6.41)
3-day	1.32 (1.19-1.49)	1.69 (1.52-1.90)	2.23 (1.99-2.49)	2.66 (2.37-2.97)	3.26 (2.89-3.64)	3.74 (3.29-4.18)	4.26 (3.72-4.76)	4.80 (4.16-5.37)	5.56 (4.76-6.23)	6.18 (5.23-6.94)
4-day	1.39 (1.25-1.57)	1.78 (1.60-2.00)	2.35 (2.10-2.63)	2.81 (2.50-3.14)	3.46 (3.06-3.87)	3.99 (3.51-4.45)	4.55 (3.97-5.08)	5.14 (4.45-5.75)	5.98 (5.11-6.69)	6.67 (5.63-7.47)
7-day	1.55 (1.38-1.74)	1.97 (1.77-2.22)	2.61 (2.33-2.92)	3.11 (2.77-3.49)	3.84 (3.40-4.29)	4.42 (3.89-4.94)	5.04 (4.40-5.63)	5.69 (4.93-6.37)	6.61 (5.65-7.41)	7.36 (6.22-8.27)
10-day	1.68 (1.51-1.88)	2.15 (1.93-2.41)	2.84 (2.53-3.17)	3.39 (3.02-3.78)	4.16 (3.68-4.64)	4.78 (4.21-5.32)	5.44 (4.75-6.05)	6.13 (5.32-6.83)	7.09 (6.08-7.92)	7.87 (6.68-8.80)
20-day	2.07 (1.85-2.30)	2.66 (2.38-2.96)	3.50 (3.14-3.90)	4.15 (3.70-4.61)	5.01 (4.46-5.57)	5.67 (5.03-6.31)	6.35 (5.60-7.07)	7.03 (6.17-7.84)	7.96 (6.92-8.89)	8.67 (7.48-9.70)
30-day	2.41 (2.16-2.69)	3.10 (2.78-3.46)	4.09 (3.66-4.54)	4.83 (4.32-5.36)	5.83 (5.19-6.48)	6.61 (5.85-7.32)	7.40 (6.52-8.20)	8.20 (7.19-9.09)	9.27 (8.07-10.3)	10.1 (8.72-11.2)
45-day	2.79 (2.51-3.11)	3.60 (3.24-4.01)	4.74 (4.26-5.27)	5.59 (5.00-6.21)	6.70 (5.98-7.44)	7.53 (6.71-8.37)	8.38 (7.42-9.31)	9.22 (8.13-10.3)	10.3 (9.04-11.5)	11.2 (9.71-12.5)
60-day	3.10 (2.79-3.43)	3.99 (3.60-4.43)	5.25 (4.73-5.82)	6.16 (5.53-6.83)	7.35 (6.59-8.14)	8.23 (7.35-9.12)	9.11 (8.10-10.1)	9.97 (8.83-11.1)	11.1 (9.77-12.3)	11.9 (10.4-13.3)

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

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**PF graphical**

**APPENDIX F**  
**(Warning and Disclaimer of Liability Form)**

# 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.

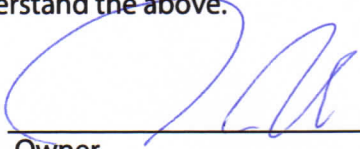
### WARNING AND DISCLAIMER OF LIABILITY

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.

11-DR-2019  
Plan Check #

  
Owner

7-16-2019  
Date

A copy of these Construction Document Application submittal requirements must accompany your first Construction Document Application submittals. Provide each item listed on the submittal checklists with your first construction document plan review application.

The Improvement Plan Application, Plat/Map of Dedication/Release Application, and Architectural Plan Application (if required) must be submitted at the same time, in separate packages as described below. The Native/Salvage Plant Plan Application, (This is also used for Downtown area properties) may be submitted prior to any other application. The Fire Department Deferred submittals may be submitted with the Architectural and Improvement Plan Application or after the plan approval or at a later date.

**INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED.** To modify these requirements, the applicant must contact the City of Scottsdale's Project Coordinator in Planning and Development Services. **Any modification to the Construction Document Application Requirements must be completed PRIOR to submittal of the first Construction Document Application plan review application.** The City of Scottsdale's Planning and Development Services staff reserves the right to refuse to modify these requirements.



- The following Construction Document Applications must be in separate packages by Section. See the individual sections herein for each of the application submittal content requirements:

- Completed Permit Applications.** The permit applications are to be completed online at the following weblink:  
<https://eservices.scottsdaleaz.gov/bldgresources/Plans>
- (Section 2)** Improvement Plan Application – Digital submittal through the Improvement/Civil Plans Project Type
- (Section 3)** Architectural Plan Application – Digital submittal through the Commercial or Multi-Family or Single-Family Project Type, as appropriate.
- (Section 5)** Fire Department Requirements for Deferred Sprinkler, Extinguishing and/or Alarm Systems
- (Section 6)** Public Safety Radio Amplification System Information
- (Section 7)** Water & Wastewater Information
- (Section 8)** Environmental Information

**The cover sheet of the Civil plans, Landscape plans, Architectural plans, and Native Plant plans must each contain the following information:**

- 1) County Assessor parcel number(s) of parcels on which improvements are being proposed.
- 2) Full street address assigned by the City of Scottsdale Records Department.
- 3) The applicable Development Review Board case number (11-DR-2019) or other associated case number in the right-hand margins. The pre-application number is not needed on the plans. All numbers must be in 1/4-inch letters. Leave additional space on your right-hand margin for the plan check number that will be assigned after Construction Document Application has been submitted.
- 4) Provide the name, address, phone number, and email address of the owner and the party preparing the plans (architect, engineer, landscape architect, salvage company, etc.).





## Construction Document Application Requirements

**Trailwest (11-DR-2019)**

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Detailed information regarding construction plan preparation to the City of Scottsdale can be found in the City of Scottsdale's DESIGN STANDARDS AND POLICIES MANUAL. You may access the manual online at:

<http://www.scottsdaleaz.gov/design/DSPM> and

<https://www.scottsdaleaz.gov/planning-development/plan-review>







or call the One Stop Shop at 480-312-2500.

All construction plans, reports, etc., must be in conformance with those approved by the Development Review Board and all associated Stipulations.

**SECTION 1.**  
**Improvement Plan Document Application Requirements**

Items listed must be submitted online through the Improvement/Civil Plans Project Type e-application with a copy of this list. **Incomplete e-application will not be accepted.** If necessary, the plan reviewer may require additional information and plans after the first submittal. **The applicant is strongly encouraged to consult the City of Scottsdale’s Design Standards and Policies Manual (DSPM) for the minimal submittal and construction document preparation requirements.**









- Improvement/Civil Plan e- Application shall include **one (1) DIGITAL PDF plan set, 24"x36"** plan sheets (no other plan size will be accepted) with a minimum horizontal Scale: 1" = 20', a minimum vertical scale: 1" = 2'. In addition to the complete set, additional digital plans and/or report PDF files as indicated in the table below shall be include with the Improvement Plan e-application.

Engineering, Stormwater, Fire, and Planning  <b>One (1) Digital File Set</b>		<b>Plans and Related Documents</b>	
Required	Provided	Submittal Item <b>Digitally through the City’s website at the following link:</b> <a href="https://eservices.scottsdaleaz.gov/bldgresources/plans">https://eservices.scottsdaleaz.gov/bldgresources/plans</a>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Improvement Plan Set file (including the following):</b>	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Grading and Drainage Plans (including drainage structures, retaining walls, walls/ fences, etc.)
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Water & Sewer Plans
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Paving Plans
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Landscape and Irrigation plans. (Please See Notes 1 and 2 below)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Following engineering files, 1 pdf file each: (for reference) (See Note 3 Below)</b>	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Accepted Master Water Report
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Accepted Master Drainage Report



# Construction Document Application Requirements

Trailwest (11-DR-2019)

	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Accepted Final Water Basis of Design Report
	<input type="checkbox"/>	<input type="checkbox"/>	Accepted Master Sewer Report
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Accepted Final Sewer Basis of Design Report
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ALTA Survey Plan
	<input type="checkbox"/>	<input type="checkbox"/>	Final Plat or Map of Dedication/Release
	<input type="checkbox"/>	<input type="checkbox"/>	Geotechnical Report
	<input type="checkbox"/>	<input type="checkbox"/>	Structural Calculations for retaining walls, fence walls, fences
	<input type="checkbox"/>	<input type="checkbox"/>	Engineer's Estimate for the required improvements
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Final Drainage Report and hydrology and hydraulic analysis files</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Completed 404 Certification Form</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Notice of Intent (NOI)</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>No-Conflict Forms (Originals must be signed by each utility prior to plan approval)</b>

**NOTES:**

1. Retaining walls, fence /walls, monuments, and entry gate features shall be included in the **Civil plan set for review and approval**. Walls and wall details may be shown on the Landscape plan set for color and material approval only.
2. Building structures such as Ramadas, Mailboxes and Water features/fountains shall be included in the **Architectural Plan set for review and approval**. Structures may be shown on the Landscape plan set for reference only.
3. Any outstanding reports shall be accepted by the City prior to the first submittal of Improvement Plans.
4. **Signed Easement Dedication forms** (signed by owners) and **Confirmation of Dedication forms** (signed by beneficiary(s)) will be requested only after the legal description and graphic exhibits are reviewed by City staff and accepted for processing.
5. When **multiple dedications** are occurring, a singular Plat or Map of Dedication shall be used in place of individual legal and graphic exhibits.



**SECTION 2.**  
**Architectural Constuction Document Application Requirements**

Items listed must be submitted online through the Single Family or Multi-Family or Commercial Project Type e- application as appropriate, with a copy of this list. All plans must be signed and sealed.

**Incomplete e-application will not be accepted.** If necessary, the plan reviewer may require additional information and plans after the first submittal. **The applicant is strongly encouraged to consult <https://www.scottsdaleaz.gov/planning-development/plan-review> for minimal submittal and construction document preparation requirements.**

- Architectural Plan e-application shall include **one (1) DIGITAL PDF plan set, 24"x36"** plan sheets (no other plan size will be accepted).









In addition to the complete set, additional digital plans and/or report PDF files as indicated in the table below shall be include with the Architectural Plan e-application.

Building, Planning, and Fire <b>One (1) Digital File Set</b>		<b>Plans and Related Documents</b>	
Required	Provided	Submittal Item <b>Digitally through the City's website at the following link:</b> <a href="https://eservices.scottsdaleaz.gov/bldgresources/plans">https://eservices.scottsdaleaz.gov/bldgresources/plans</a>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Architectural Plan Set (including the following):</b>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Architectural Plans	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Electrical Plans	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Foundation Plans	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Mechanical Plans	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Structural Plans	
<input type="checkbox"/>	<input type="checkbox"/>	Open Space plan	



## Construction Document Application Requirements

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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Photometric Plans
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Exterior Lighting Manufacture Cut Sheets (on 24" x 36" paper minimum)
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	One (1) copy of structural, electrical, and water calculations (Either as a separate 8 ½" x 11" document or on the drawings)
	<input type="checkbox"/>	<input type="checkbox"/>	One (1) copy of soils report
	<input type="checkbox"/>	<input type="checkbox"/>	One (1) copies of the International Energy Compliance Code compliance documentation. (Energy modeling calculations and report, or Com-Check is acceptable)
	<input type="checkbox"/>	<input type="checkbox"/>	One (1) copy of the Construction Specifications - 8 ½" x 11" bound copies or on plan sheets
	<input type="checkbox"/>	<input type="checkbox"/>	Final Plat/Condominium Plat/Map of Dedication (for reference only)
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Civil &amp; Landscape Plans (for reference only)</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Certificate of No Effect for archaeological resources signed by the City Archaeologist.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Certificate of Approval for archaeological resources signed by the City Archaeologist.


**SECTION 3.**  
**Plat / Map of Dedication/Release Application Requirements**

Items listed must be submitted online through the Single Family or Multi-Family or Commercial Project Type e- application, with a copy of this list. **Incomplete e-application will not be accepted.** If necessary, the plan reviewer may require additional information and plans after the first submittal of the applicant. **The applicant is strongly encouraged to consult the City of Scottsdale’s Design Standards and Policies Manual (DS&PM) for the Plat preparation requirements.**

- Plat or Map of Dedication e-application shall include **one (1) DIGITAL PDF plan set, 24”x36”** plan sheets (no other plan size will be accepted). In addition to the complete set, additional digital plans and/or report PDF files as indicated in the table below shall be include with the Improvement Plan e-application.

<b>Engineering, Stormwater, Fire, Planning, Maps, Survey, and GIS</b>  <span style="color: blue;">One (1) Digital File Set</span>		<b>Plans and Related Documents</b>
Required	Provided	<span style="color: blue;">Submittal Item</span> <b>Digitally through the City’s website at the following link:</b> <a href="https://eservices.scottsdaleaz.gov/bldgresources/plans" style="color: blue;">https://eservices.scottsdaleaz.gov/bldgresources/plans</a>
<input type="checkbox"/>	<input type="checkbox"/>	<b>Plat/Map Set (including the following):</b>
<input type="checkbox"/>	<input type="checkbox"/>	Plat/Map
<input type="checkbox"/>	<input type="checkbox"/>	Map of Release (for reference only)
<input type="checkbox"/>	<input type="checkbox"/>	ALTA Survey (for reference only)
<input type="checkbox"/>	<input type="checkbox"/>	Covenants Conditions and Restrictions (CC&Rs)
<input type="checkbox"/>	<input type="checkbox"/>	<b>Commitment for Title Insurance (not more than 30 days old from the date of the 1st submittal)</b>

**SECTION 4.**  
**Fire Department Requirements For Deferred Sprinkler, Extinguishing,  
and/or Alarm System Submittals**

	<b>FIRE ORDINANCE REQUIREMENTS</b>	
(INCORPORATE INTO BUILDING PLANS AS GENERAL NOTE BLOCK - USE ONLY THE DESIGNATED STIPULATIONS)		
<input type="checkbox"/>	1. Premises identification to be legible from street or drive.	<input type="checkbox"/>
<input type="checkbox"/>	2. Fire Lanes & Emergency Access shall be provided & marked in compliance with City Ordinance and International Fire Code requirements.	<input type="checkbox"/>
<input type="checkbox"/>	3. Provide all weather access roads (minimum 16' (ft.) in width) to all buildings and hydrants from public way during construction.	<input type="checkbox"/>
<input type="checkbox"/>	4. A fire sprinkler system shall be installed and comply with currently adopted NFPA standards.	<input type="checkbox"/>
<input type="checkbox"/>	5. Buildings are subject to installation and testing requirements for Public Safety radio amplification system.	<input type="checkbox"/>
<input type="checkbox"/>	6. Submit Hazardous Material Management Plan (HMMP) for all Hazardous Materials. Submit HMMP with Building submittal.	<input type="checkbox"/>
<input type="checkbox"/>	7. Fire lines, sprinklers and standpipe systems shall be flushed and pressure tested per NFPA Standards and Scottsdale Revised Codes.	<input type="checkbox"/>
<input type="checkbox"/>	8. Backflow prevention is required for all NFPA 13/13R systems.	<input type="checkbox"/>
<input type="checkbox"/>	9. Provide a KNOX access system: <ul style="list-style-type: none"> <li><input type="checkbox"/> a. KNOX box</li> <li><input type="checkbox"/> b. Padlock</li> <li><input type="checkbox"/> c. Key switch and preemption device override for automatic gates</li> </ul>	<input type="checkbox"/>
<input type="checkbox"/>	10. Fire Department Connections shall be Installed in a location approved by Scottsdale Fire Code Official.	<input type="checkbox"/>
<input type="checkbox"/>	11. Provide "Owner's Information Certificate" with fire sprinkler plan submittal.	<input type="checkbox"/>
<input type="checkbox"/>	12. Fire sprinkler system design criteria for unspecified shell buildings shall be .45 gpm over 3000 square feet.	<input type="checkbox"/>
<input type="checkbox"/>	13. Fire sprinkler system design for warehouse/storage occupancies shall be based on the full height capacity of Building per Scottsdale Revised Code.	<input type="checkbox"/>
<input type="checkbox"/>	14.	<input type="checkbox"/>



# Construction Document Application Requirements

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**INSTRUCTIONS** – After Building and Civil plan approval, installing contractor(s) shall submit the following information:

Plans and Related Documents	Fire Review	
	Req.	If applicable
<b>Submittal Item:</b>		
NFPA compliant Sprinkler system	<input checked="" type="checkbox"/>	
NFPA compliant Fire Alarm system	<input type="checkbox"/>	<input type="checkbox"/>
UL 300 compliant commercial hood suppression system	<input type="checkbox"/>	<input type="checkbox"/>
<p><b>“Required”</b> check boxes (completed by Fire Code Official) indicate whether or not a submittal item is required.</p> <p><b>“If Applicable”</b> check boxes (completed by Fire Code Official) indicate a submittal may be required, this will be stated on Building plan by “Architect of Record” and approved by the Fire Code Official on Building submittal.</p> <p>All deferred Fire submittals shall not be included in Building plan submittal(s)</p>		
One (1) copy of Plan Submittal	<input type="checkbox"/>	
One (1) copy of supporting calculations	<input type="checkbox"/>	
One (1) copy of Manufacture Data Sheets	<input type="checkbox"/>	



**NOTE:**

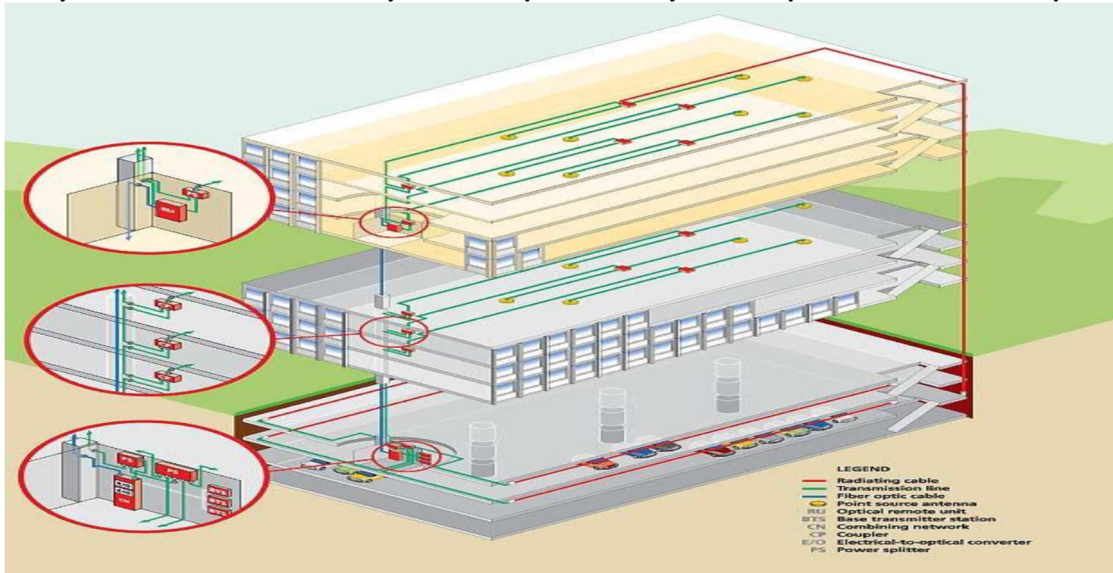
At a minimum, all submitted information shall be reviewed by the applicant’s NICET level III Certified Engineering Technician (CET) or a Professional Engineer, as required, prior to the submittal – refer to the more comprehensive base checklists on-line.

The plans must demonstrate compliance with the adopted Codes, Ordinances, Standards and Interpretations for each appropriate application.



**SECTION 5.**  
**Public Safety Radio Amplification System Information**

City of Scottsdale Public Safety Radio Amplification System Requirements for Developers



Since December 1995, the City of Scottsdale has required all non-single family buildings to have public safety radio communications coverage (See S.R.C. Sec. 31-47(b), Public Safety Radio Amplification Systems) so that a police officer or firefighter can use their portable radio to communicate with the dispatch center or with other personnel. The requirement for public safety radio coverage applies to new construction and tenant improvements that trigger the building to be brought into compliance with current National Electric Code, as adopted by the city.

**What is a Public Safety Radio Amplification System?**

The Federal Communications Commission regulates the “signal boosters” which are used to improve radio communications in areas that radio signals are blocked or shielded due to environmental or man-made obstacles. These signal boosters are more commonly referred to a Bi-Directional Amplifier (BDA) system and are installed in buildings, underground parking and other open or closed spaces that do not have adequate radio signal coverage (see diagram). The BDA system consists of a donor antenna that sends and receives radio signals to/from the host radio site and carries that radio signal to an amplifier that routes the radio signals to antennas located throughout the structure. The police officer or firefighter who is inside a building or structure with a BDA will have their portable radio unit send and receive communication over the BDA system.

**Will My Building Need a BDA System?**

Unfortunately, the requirement for a BDA system for your building or structure is difficult to determine as location, size, surrounding buildings and construction materials all factor into the need for a BDA. If your building has either a basement level or an underground parking garage, it is almost certain that your



## Construction Document Application Requirements

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project will require a BDA system. For all buildings – whether or not there is a basement or underground parking – after drywall has been installed, a member of the City’s Public Safety Radio Department will perform a radio signal strength assessment to determine if a BDA system is required at your location.

### **How Much Do BDA Systems Cost?**

The cost of a BDA system generally ranges from \$15,000 to \$75,000, depending on the number of floors, stairwells, and total area that needs to have the radio signal amplified.

If you have any questions or would like additional information, you may contact the City Radio Engineer at [radioengineer@scottsdaleaz.gov](mailto:radioengineer@scottsdaleaz.gov)

## **SECTION 6.**

### **Water & Wastewater Information**

#### **Arizona Department of Environmental Quality (ADEQ):**

- The developer shall be responsible for conformance with ADEQ regulations and requirements for submittals, approvals, and notifications. The developer shall demonstrate compliance with Engineering Bulletin #10 Guidelines for the Construction of Water Systems, and applicable chapters of the Arizona Administrative Code, Title 18, and Environmental Quality. In addition:

#### **Maricopa County Environmental Services Department (MCESD):**

- Before approval of final improvement plans by the Plan Review and Permit Services Division, the developer shall submit a cover sheet for the final improvement plans with a completed signature and date of approval from the Maricopa County Environmental Services Department (MCESD).
- Before issuance of Permits to Work in the Right-of-Way by city staff, the developer shall provide evidence to city staff that a Certificate of Approval to Construct (ATC) Water and or Wastewater Systems has been submitted to the MCESD in the form of a document developed by the County with date stamp.
- Before commencing construction, the developer shall submit evidence that approval to construct has been issued by the MCESD.
- Before issuance of Letters of Acceptance by the City's Inspection Services Division, the developer shall provide to the City a final set of as-built mylars of the improvements and Approval of Construction (AOC) by the MCESD.

#### **Water and Wastewater Requirements:**

- The developer shall pay a Sewer Development Fee for City sewer service in accordance with City Ordinance. This fee shall be paid at the time, and as a condition of the issuance of a building permit, or if the development does not require a building permit, prior to connection to the City sewer system. All questions may be referred to Water Resources at 480-312-5650.
- The developer shall pay a Water Development Fee and Water Resources Development Fee for City water supply in accordance with City Ordinance. This fee shall be paid at the time, and as a condition of the issuance of a building permit, or if the development does not require a building permit, prior to connection to the City water system. All questions may be referred to Water Resources at 480-312-5650.
- Prior to the issuance of any building permit, the developer shall pay a Water Meter Fee for connection to the City water system in accordance with City Ordinance. If there is an existing water meter for this project, applicable water meter fees must be paid only if a larger meter is required.

## **SECTION 7. Environmental Information**

### **Arizona Department of Environmental Quality (ADEQ) Requirements:**

All construction activities that disturb one or more acres shall obtain coverage under the Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit. To gain coverage, operators of construction sites must:

- Prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit for City review and approval as part of the improvement plan submittal;
- Submit a Notice of Intent (NOI) to ADEQ;
- Provide the NOI Certificate of Approval to the City before the final plan approval.
- Send a Notice of Termination (NOT) to ADEQ when construction is completed.
- Contact ADEQ at 602-771-4449 for further information. Forms are available from the City of Scottsdale One Stop Shop, or from ADEQ.
- The approved SWPPP shall be kept onsite at all times during construction.