

February 26th, 2024

Prospera Housing Community Services
 Attn.: Sam Baird
 3419 Nacogdoches Road
 San Antonio, Texas 78217

Email: samb@prosperahcs.org

Re: Palms at Morris
 Summary of Site Hydrology
 V&A Job No. 24-00038

Dear Mr. Baird,

Vickrey & Associates, LLC. has performed a preliminary hydrological analysis for the proposed Palms at Morris Senior Living Complex in Corpus Christi, Texas. The site is composed of 9 individual parcels which border Mary Street ROW between South 19th and 20th Street. These 9 individual parcels, along with the Mary Street ROW will be combined into one 3.43-acre parcel. The site will be the location of a proposed senior living apartment complex. Under existing conditions, the site has approximately 82,630 square feet of impervious cover. The proposed senior living apartments will decrease the impervious cover of the entire site by 6.29% to 77,430 square feet. In the following hydrological analysis, we will analyze the existing and proposed hydrology to assess the impacts of constructing the apartment complex.

Existing Conditions:

Historically, the parcels that compose the entire tract have been home to various residential lots and Mirabeau B. Lamar Elementary School. As of writing this report, the school and the houses have been demolished, leaving behind no impervious cover on the site. However, the existing onsite hydrology in this report will be analyzed at peak development, before the buildings were removed. A composite C value of 0.74 was calculated to account for the different land uses in the area. This includes 1.06 acres of single family lots less than ¼ acre, 2.15 acres of primary businesses (the elementary school), and 0.22 acres of asphalt composing Mary Street. These values were taken from Table 3.1 from the City of Corpus Christi Infrastructure Design Manual.

Composite Rational Method Runoff Coefficient (C) Reference Point 1 - Table 3.1			
Existing Conditions (at Peak Development)			
Land Use:	Area (ac)	C	A*C
Primary Business <1%	2.15	0.85	1.83
Streets/Paving - Asphalt <1%	0.22	0.80	0.18
Residential <1%. Lots <1/4 AC	1.06	0.5	0.53
Cw	3.43	0.74	

Mr. Sam Baird
February 26th, 2024

The land characteristics of this area are predominantly flat with maximum slopes reaching around 1%. Generally, the water on site flows west to east, with the water converging into the existing drainage structures on Mary Street or South 19th Street. The drainage area encompasses the entire property boundary (3.43 acres). The peak flows for 5, 25, and 100 year storms are 20.23 cfs, 28.13 cfs, and 35.56 cfs respectively.

Proposed Conditions:

In proposed conditions, the site will be developed into a 3-story senior living apartment complex with two different buildings and 72 units. For this analysis, we assume that the site will be graded to roughly follow the existing drainage patterns. The C value will change to 0.75 to reflect the updated apartment land use. The peak flows for 5, 25, and 100 year storms are 21.66cfs, 30.10 cfs, and 38.07 cfs respectively. The peak flows in proposed conditions are between 2-3 cfs more than existing conditions due to the differences in time of concentration.

Table 2 - Hydrology Summary			
Flow (cfs)	Q5	Q25	Q100
Existing Conditions	20.23	28.13	35.56
Proposed Conditions	21.66	30.10	38.07

According to section 14-1003 of the Corpus Christi Muni Code, a stormwater quality management plan is not required for redevelopment of a previously developed tract of land, unless the conversion of porous surface to impervious surface exceeds one-fourth acre. In this case, we are decreasing the impervious cover amount by 6.29%. In our professional opinion, the increase in flows from existing to proposed conditions is not significant enough to pose a hydrological threat to the current stormwater infrastructure capacity.

Attached Exhibits

- Existing Impervious Cover
- Proposed Impervious Cover
- Existing Onsite Hydrology
- Proposed Onsite Hydrology

Please contact me if you have any questions or require any additional information.
Sincerely,

VICKREY & ASSOCIATES, LLC
TBPE F-#159/TBPLS F-#10004100



David Babineaux, PE
Project Manager

DB/ksh

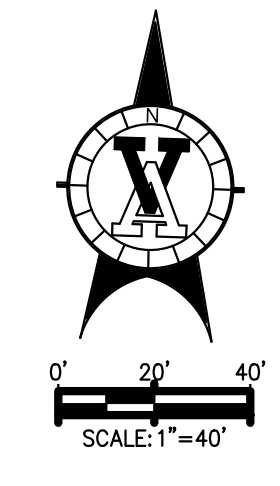




PROPERTY LINE

AERIAL IMAGERY TAKEN FROM GOOGLE EARTH FROM JANUARY 2016.

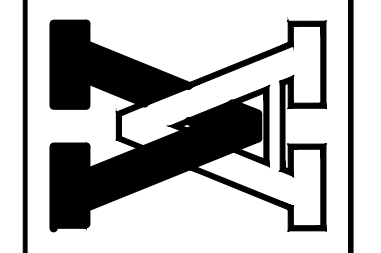
82,630 SF OF IMPERVIOUS COVER (APPROXIMATE)



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REVISIONS	
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VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
 CIVIL • ENVIRONMENTAL • SURVEY
 12940 Country Parkway San Antonio, TX 78216
 Telephone: (210) 349-3271
 Firm Registration No: F-159

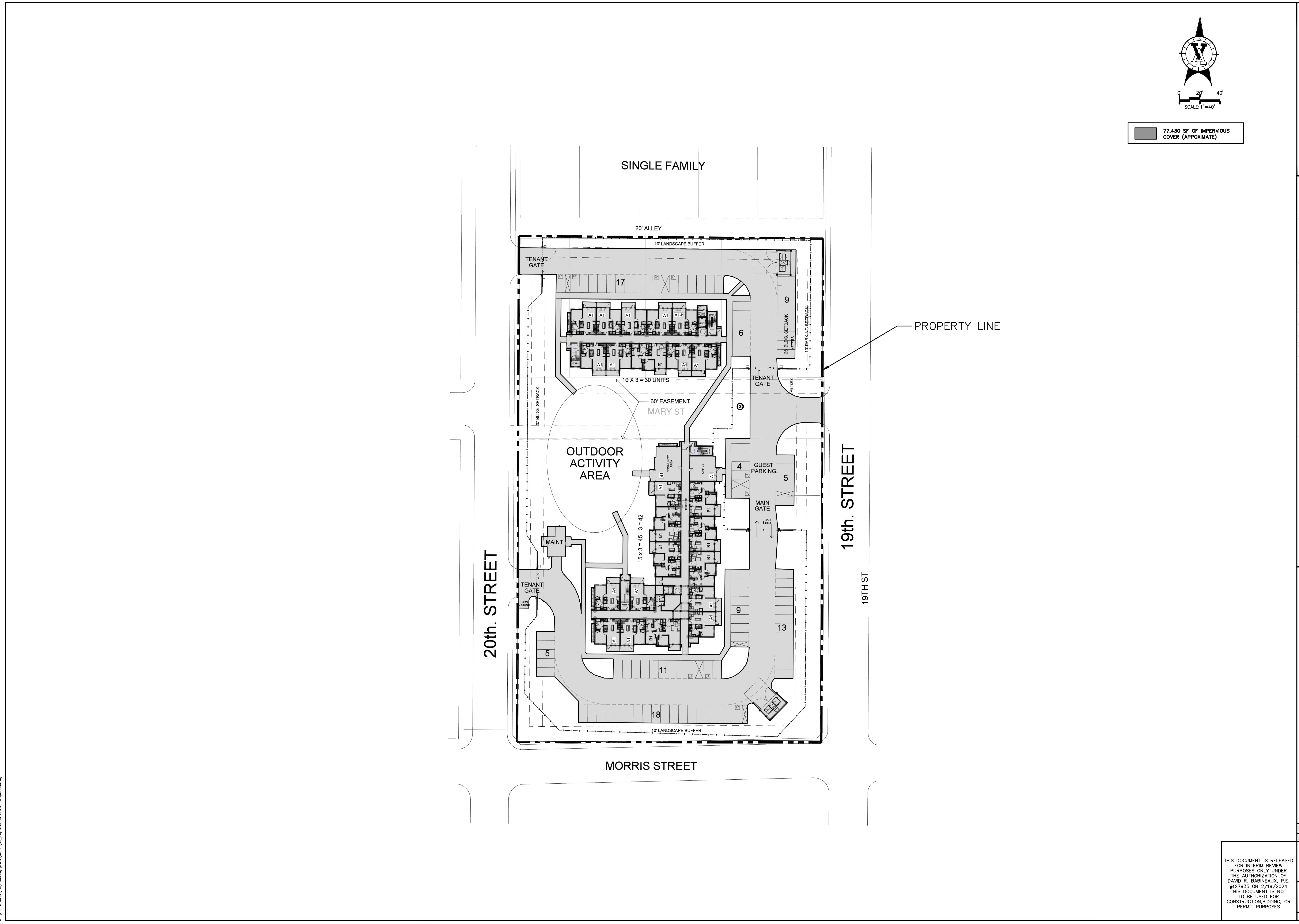


EXISTING IMPERVIOUS COVER EXHIBIT
 2212 MORRIS AVE
 CORPUS CHRISTI, TEXAS

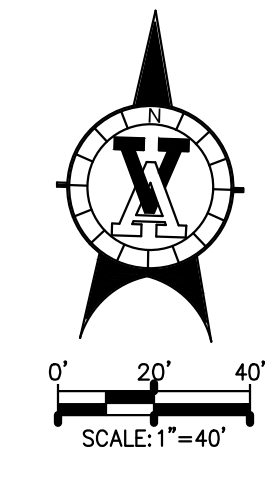
PROJ NO. 24-00038
 DATE: Feb-2024

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Feb 19, 2024 - 4:36pm
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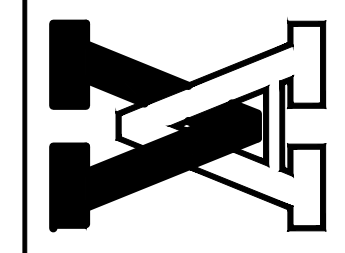


77,430 SF OF IMPERVIOUS COVER (APPROXIMATE)



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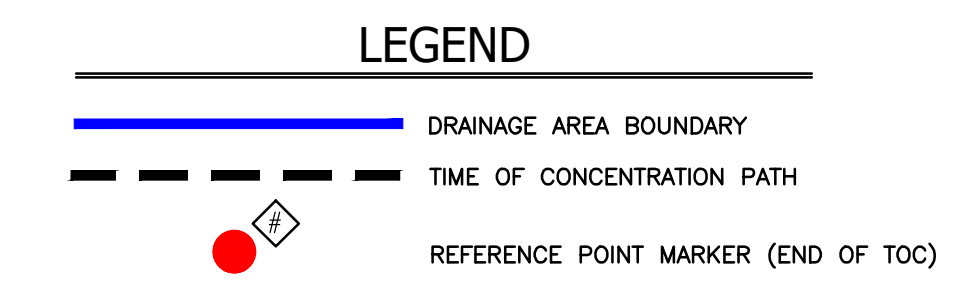
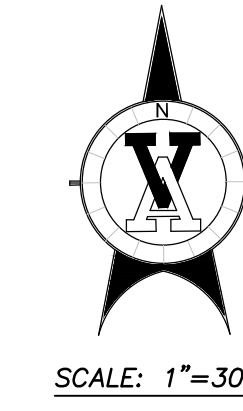
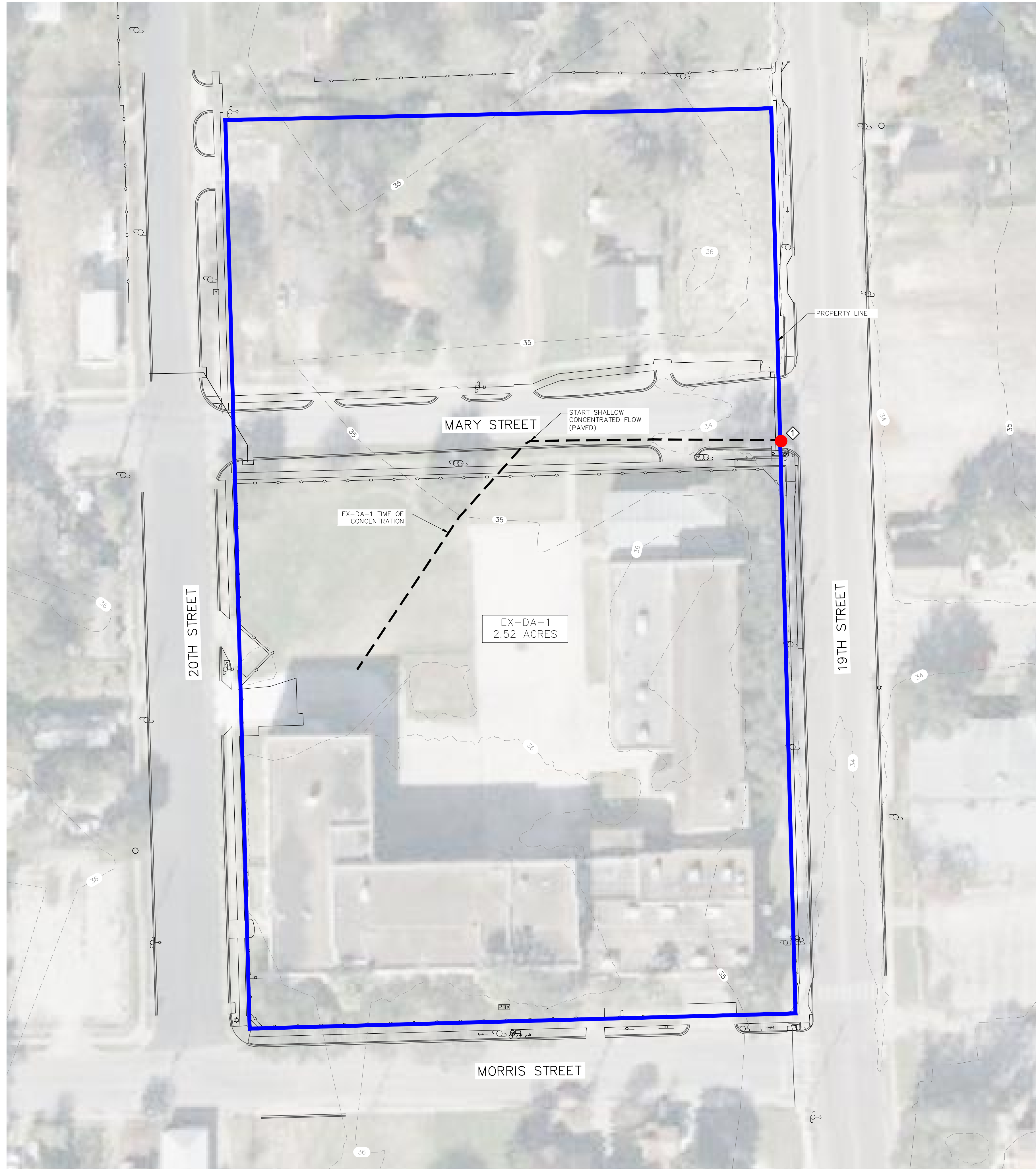


PROPOSED IMPERVIOUS COVER EXHIBIT
 2212 MORRIS AVE
 CORPUS CHRISTI, TEXAS

PROJ NO. 24-00038
 DATE: Feb-2024

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TIME OF CONCENTRATION

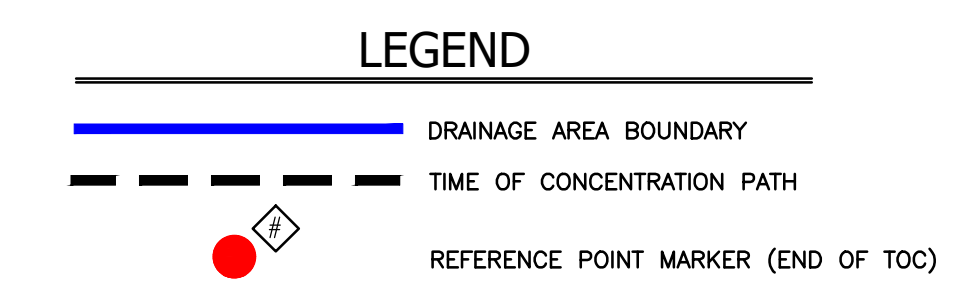
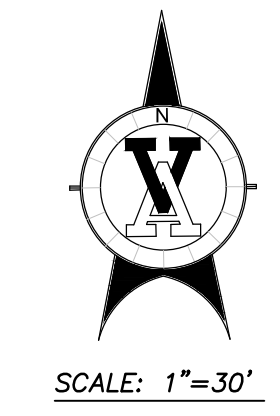
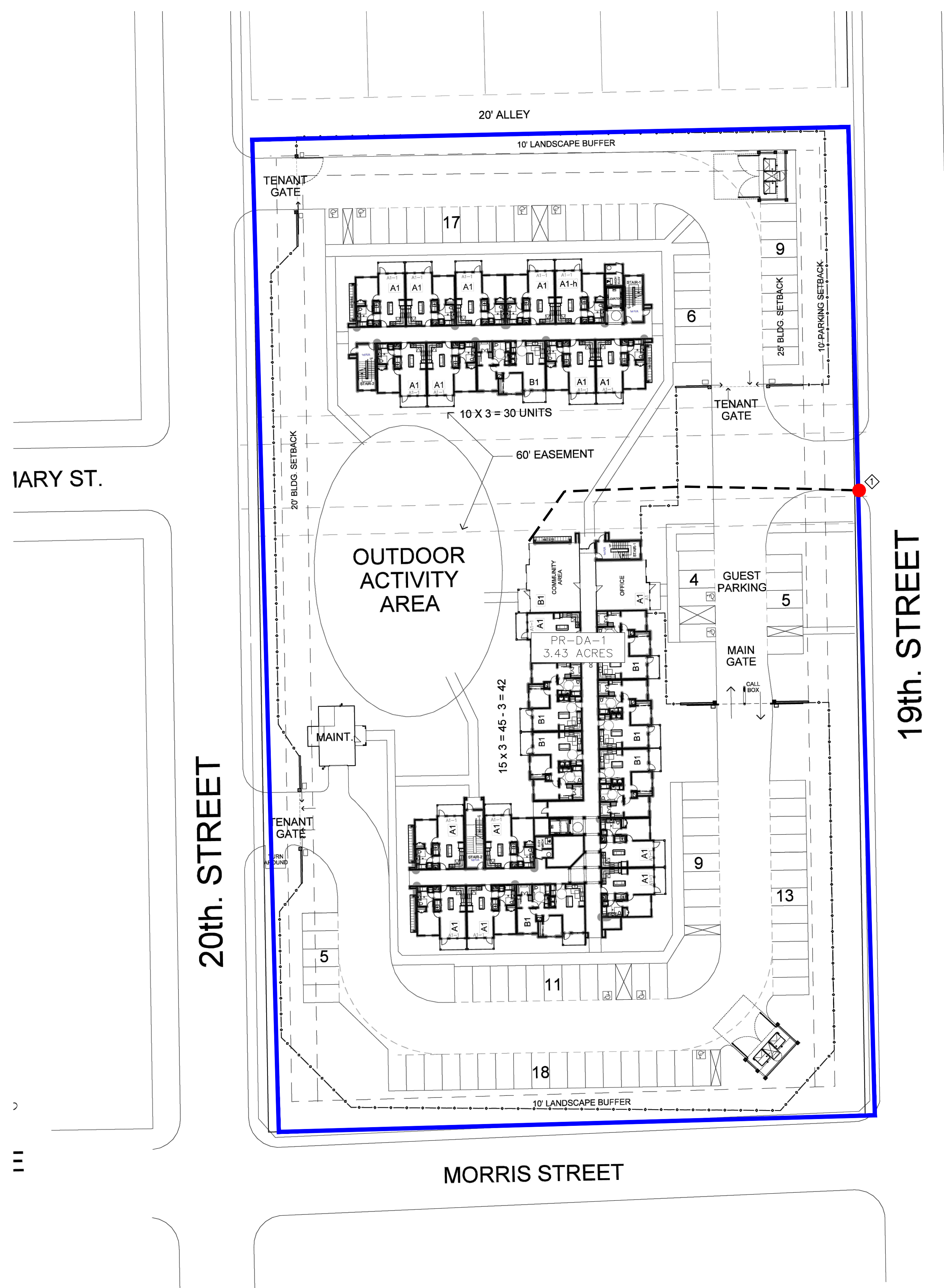
			Existing DA-1
Overland	Length	ft	100.00
	n		0.030
$t_o = \frac{0.007(L)^{0.8}}{(P)^{0.5}(S)^{0.4}}$	slope	ft/ft	0.010
	To	min	3.21
		hr	0.05
Shallow Concentrated (Paved)	Length	ft	168
	Slope	ft/ft	0.005
$t_{sc} = \frac{L}{3600 * K * s^{0.5}}$	K		20.32
	Tsc	min	1.95
		hr	0.03
Shallow Concentrated (Unpaved)	Length	ft	108
	Slope	ft/ft	0.010
$t_{sc} = \frac{L}{3600 * K * s^{0.5}}$	K		16.13
	Tsc	min	1.11
		hr	0.02
Channel	Length	ft	0
	n		0.050
$t_c = \frac{L}{3600 * \frac{1.49}{n} * a/P_w * s^{0.5}}$	x-sec(a)	ft ²	103
	w-perm(P _w)	ft	60
	slope		0.010
	Velocity	ft/sec	0.00
	Tc	min	0.00
		hr	0.00
Total Time of Concentration		min	6.3
$t_c = t_o + t_{sc} + t_c$		hr	0.10

Existing Onsite Peak Flows										
REFERENCE POINT	Drainage Areas	C	Drainage Area (ac)	Tc (min)	I(5) (in/hr)	I(25) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(25) (cfs)	Q(100) (cfs)
1	EX-DA-1	0.74	3.43	6.3	7.99	11.10	14.04	20.23	28.13	35.56

Reference Point 1

Existing Conditions (at Peak Development)

Land Use	Area (ac)	C	A*C
Primary Business <1%	2.15	0.85	1.83
Streets/Paving - Asphalt <1%	0.22	0.80	0.18
Residential <1%. Lots <1/4 AC	1.06	0.5	0.53
Cw	3.43	0.74	



TIME OF CONCENTRATION

			PR-DA-1
Overland	Length	ft	44.50
	n		0.030
$t_o = \frac{0.007(nL)^{0.8}}{(p)^{0.5}(s)^{0.4}}$	slope	ft/ft	0.010
	To	min	1.68
		hr	0.03
Shallow Concentrated (Paved)	Length	ft	79
	Slope	ft/ft	0.010
$t_{sc} = \frac{L}{3600 + K + s^{0.5}}$	K		20.32
	Tsc	min	0.65
		hr	0.01
Shallow Concentrated (Unpaved)	Length	ft	55
	Slope	ft/ft	0.010
$t_{sc} = \frac{L}{3600 + K + s^{0.5}}$	K		16.13
	Tsc	min	0.57
		hr	0.01
Channel	Length	ft	0
	n		0.050
$t_c = \frac{L}{3600 + \frac{1.49}{n} + a/\rho_w + s^{0.5}}$	x-sec(a)	ft ²	103
	w-perim(P _w)	ft	60
	slope		0.010
	Velocity	ft/sec	0.00
	Tc	min	0.00
		hr	0.00
Total Time of Concentration			min
$t_c = t_o + t_{sc} + t_c$			hr
			5.0
			0.05

REFERENCE POINT	Drainage Areas	C	Proposed Onsite Peak Flows							
			Drainage Area (ac)	Tc (min)	I(5) (in/hr)	I(25) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(25) (cfs)	Q(100) (cfs)
2	DA 1	0.75	3.43	5.0	8.42	11.70	14.80	21.66	30.10	38.07