

JUNE 24, 2014

SUPPLEMENTAL INFORMATION

for

PASADENA OFFICE / WAREHOUSE GRADING AND DRAINAGE PLAN

COA HYDROLOGY B18/D019

by



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INTRODUCTION

The portion of Pasadena between San Mateo Blvd. and I-25 was originally analyzed as part of the Drainage Report for Citicorp by BHI (1996). AP1, was identified as the analysis point at intersection of Pasadena Ave. and San Mateo Blvd. and was shown to accept all flows from basins 1 and 2 in the fully developed conditions.

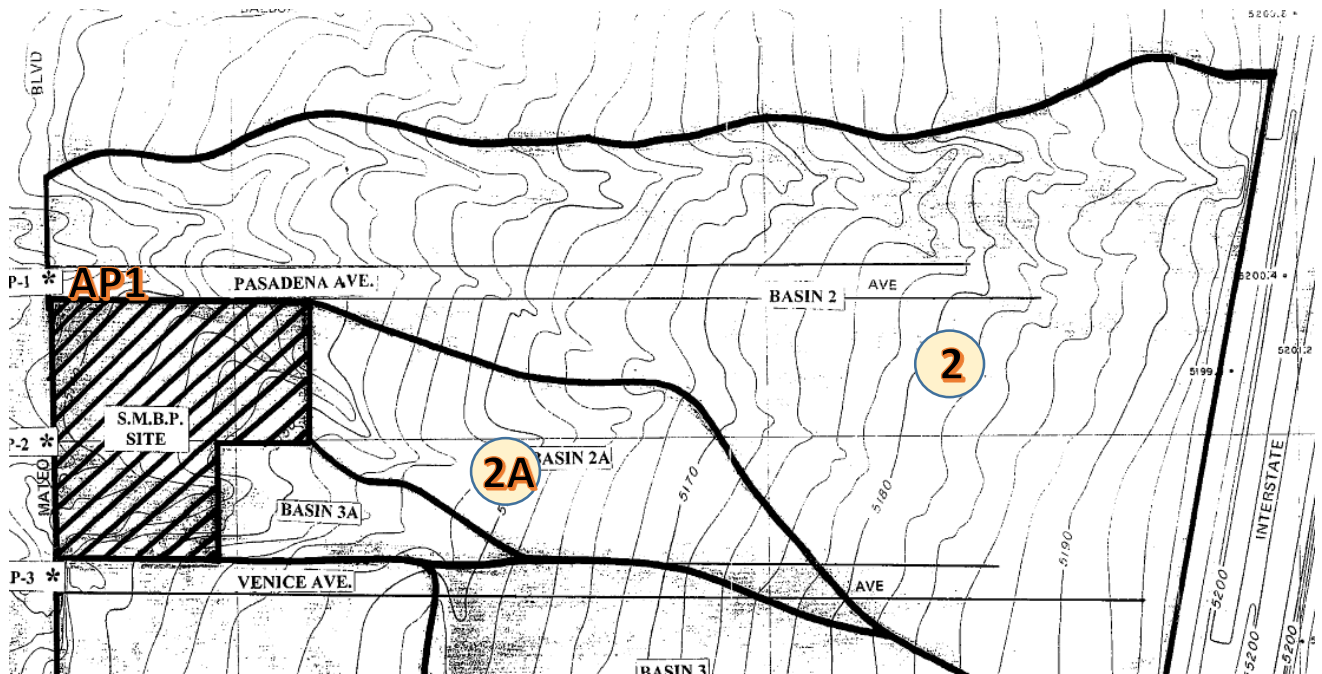


From Plate 3 of BHI Citicorp Report - Developed Conditions

The CLWeiss drainage report for San Mateo Business Park (1999 – see full report in Appendix A) redefined the basins draining to BHI analysis point AP1. The undeveloped condition (see image below), redefined Basin 2 / 2A using the COA topographic orthophoto map and field inspections of the area.

In addition, the CLWeiss report noted:

One small basin, referred to as Basin 1 in the BH Citicorp Report, comprised as a part of the Coronado Airport, passes under I-25 to join Basin 2 flows. Its runoff will soon be diverted north into the North Camino Arroyo by the SHD as early as the year 2000, or as late as 2002, resulting in a reduction of flows collected at AP-1 (information supplied by Gary Shubert: NMSHD).



In the fully developed condition, the extent of Basin 2 draining to AP1 was redefined by the CLWeiss report as the properties on both sides of Pasadena between San Mateo Blvd. and I-25 frontage road.

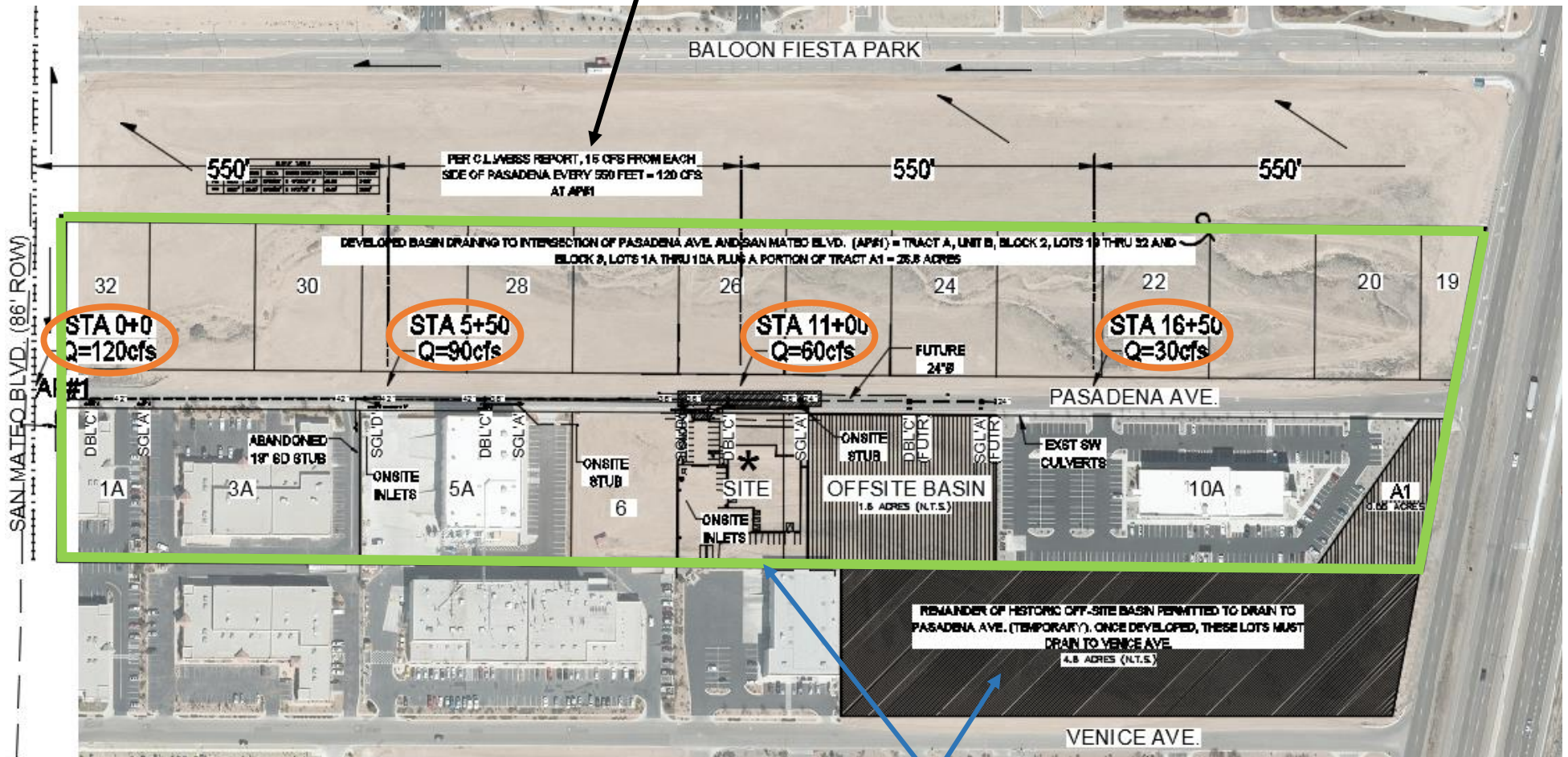
This basin reanalysis was approved as part of the submittal for building permit for San Mateo Business Park.

At the time San Mateo Business Park developed, off-site Basin 1 was still (temporarily) draining into Basin 2 and thus to AP1. The CLWeiss report provided Q100 flows (120 cfs) within the storm drain based only on the fully developed Basin 2, but it showed that the full capacity of the proposed Pasadena / San Mateo storm drain system could also accommodate the off-site Basin 1.

In 2010 as additional lots on the south side of Pasadena were being designed for development, Fred Arfman met with Brad Bingham, PE of COA Hydrology who confirmed that Basin 1 had been redirected north.

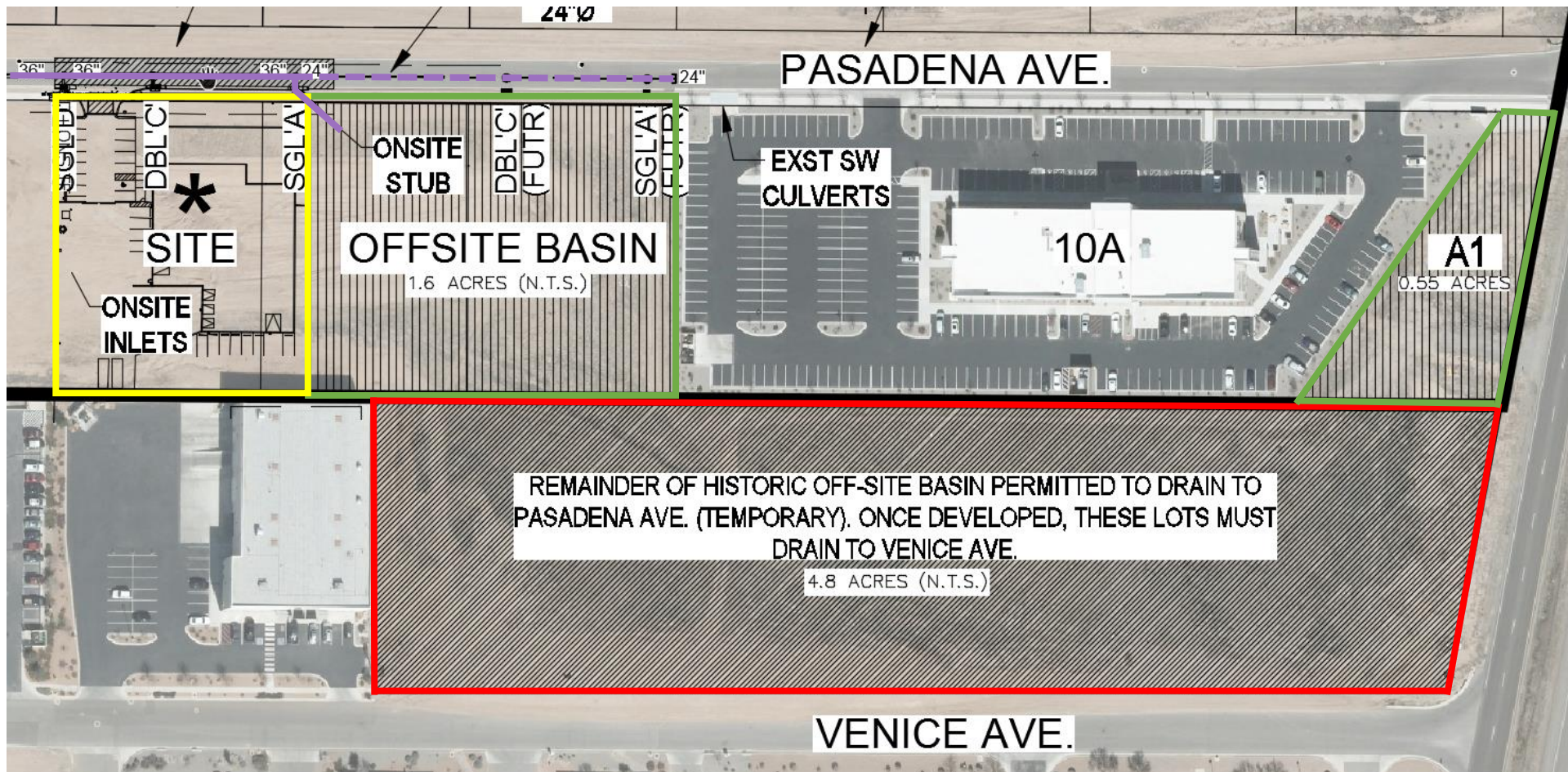
This report includes a reanalysis of the not yet constructed Pasadena storm drain system adjacent to Lots 7-10A in order to prove that the previous CLWeiss pipe sizes could be downsized due to the elimination of Basin 1.

The CLWeiss Report redefined the total developed basin draining to the Pasadena storm drain as 26.8 acres with a total $Q_{100} = 120$ cfs at AP#1. It divided this into 550' lengths each picking up 30 cfs (15 cfs each side).



See full 24x36 exhibit in back pocket.

The total area draining to AP#1 would not exceed Basin B (outlined in green) + undeveloped portion of property on the north side of Venice Ave. (shown hatched).



PROPOSED SITE

The proposed development consists of Tract A, Unit B, Block 3, Lot 7 and a portion of Lot 8, North Albuquerque Acres.

CALCULATIONS: 2052: 5656 PASADENA N.E. : May 8, 2014			
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993			
ON-SITE			

AREA OF SITE:	46879	SF	=	1.1
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100-year, 6-hour

ALLOWABLE DISCHARGE:

DEVELOPED FLOWS:

EXCESS PRECIP:

	Treatment	SF	%		Treatment	SF	%	Precip. Zone	3
Area A	=	0	0%	Area A	=	0	0%	E _A	= 0.66
Area B	=	46879	100%	Area B	=	0	0%	E _B	= 0.92
Area C	=	0	0%	Area C	=	4688	10%	E _C	= 1.29
Area D	=	0	0%	Area D	=	42191	90%	E _D	= 2.36
Total Area	=	46879	100%	Total Area	=	46879	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Allowable E	=	0.92 in.	Developed E	=	2.25 in.
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On-Site Volume of Runoff: $V_{360} = E * A / 12$

Allowable V_{360}	=	3594 CF	Developed V_{360}	=	8802 CF
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On-Site Peak Discharge Rate: $Q_p = Q_{pA} A_A + Q_{pB} A_B + Q_{pC} A_C + Q_{pD} A_D / 43,560$

For Precipitation Zone 3

Q_{pA}	=	1.87	Q_{pC}	=	3.45
Q_{pB}	=	2.60	Q_{pD}	=	5.02
Allowable Q_p	=	2.8 CFS	Developed Q_p	=	5.2 CFS

OFFSITE FLOWS IMPACTING PROPOSED SITE

The undeveloped area draining to the east side of the proposed site consists of two distinct basins (see image on previous page).

- The undeveloped property fronting Pasadena (the remainder of Lot 8 + all of Lot 9 + the Pasadena portion of Tract A1) = a 2.15 acre **OFFSITE BASIN**.

In the undeveloped condition, the Pasadena fronting **OFFSITE BASIN** will generate 5.6 cfs.

BASIN NO.	OFFSITE	UNDEVELOPED CONDITION					
Area of basin flows =	93654	SF	=	2.15	Ac.		
The following calculations are based on Treatment areas as shown in table to the right						LAND TREATMENT	
	Sub-basin Weighted Excess Precipitation (see formula above)					A =	0%
	Weighted E	=	0.92	in.		B =	100%
	Sub-basin Volume of Runoff (see formula above)					C =	0%
	V ₃₆₀	=	7180	CF		D =	0%
	Sub-basin Peak Discharge Rate: (see formula above)						
	Q _P	=	5.6	cfs			

- The **TEMPORARY OFFSITE BASIN** consisting of the undeveloped property fronting the north side of Venice will continue to discharge historic flow of 9.5 cfs through the **OFFSITE BASIN** to Pasadena per the CLWeiss master plan. As these Venice fronting lots develop, the basin will be redirected to Venice Ave.

BASIN NO.	TEMPORARY OFFSITE	UNDEVELOPED CONDITION					
Area of basin flows =	209088	SF	=	4.8	Ac.		
The following calculations are based on Treatment areas as shown in table to the right						LAND TREATMENT	
	Sub-basin Weighted Excess Precipitation (see formula above)					A =	85%
	Weighted E	=	0.70	in.		B =	15%
	Sub-basin Volume of Runoff (see formula above)					C =	0%
	V ₃₆₀	=	12179	CF		D =	0%
	Sub-basin Peak Discharge Rate: (see formula above)						
	Q _P	=	9.5	cfs			

CONCLUSION:

- The **OFFSITE BASIN** along Pasadena (5.6 cfs) and the **TEMPORARY OFFSITE BASIN** from the south (9.5 cfs) will drain to the temporary desiltation / deflection pond. A temporary standpipe will be installed at the end of the 12" stub provided for the future development of Lots 8 and 9 with excess passing to Pasadena via the proposed rock rundown. If development of these final Pasadena fronting lots occur prior to the development of the **TEMPORARY OFFSITE BASIN**, the historic discharge must be permitted to continue to pass to Pasadena.

The 30' long 12" diameter **ONSITE STUB** to be extended into Lot 8 for the future development will be utilized as a temporary standpipe inlet for the desiltation pond. The proposed rim of 70.5 is raised 6" above the proposed basin bottom to permit sediment to settle.

Based on the Hydraflow calculations, the 12" dia. pipe has a maximum capacity (inlet control) of approximately 7 cfs.

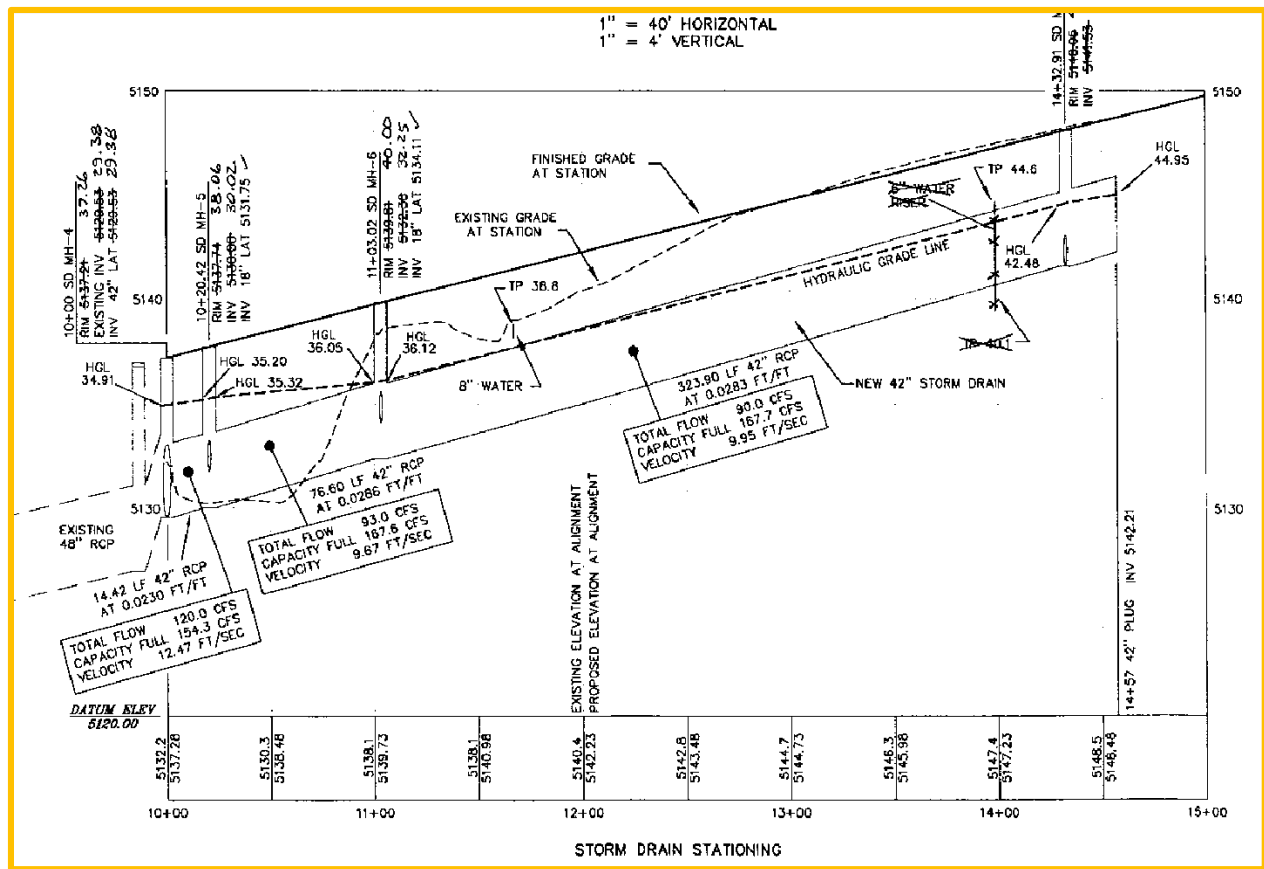


Once the desiltation basin fills and the pipe is flowing at full capacity (7.0 cfs), excess flow will be passed to Pasadena at the provided rock lined overflow.

With the storm drain at full capacity (7.0 cfs), the desiltation pond will overflow at the proposed rock rundown.

As mentioned in the introduction, the CLWeiss design of the storm drain within Pasadena defined the total Q within the system in the fully developed condition as 120 cfs but showed that the pipe had capacity available to continue to accept the temporary Basin 1 flow which has since been redirected.





Based on calculations, even if the entire 26.8 acres of Basin 2 were developed at 90% Treatment 'D' and 10 Treatment 'C', the discharge would be 130.3 cfs to AP1.

BASIN NO.	2	DESCRIPTION	Worst Case Situation
Area of basin flows =	1167408	SF	26.8 Ac.
The following calculations are based on Treatment areas as shown in table to the right			LAND TREATMENT
Sub-basin Weighted Excess Precipitation (see formula above)			A = 0%
Weighted E = 2.25 in.			B = 0%
Sub-basin Volume of Runoff (see formula above)			C = 10%
V ₃₆₀ = 219181 CF			D = 90%
Sub-basin Peak Discharge Rate: (see formula above)			
Q _P = 130.3 cfs			

If the entirety of Basin 2 (both sides of Pasadena Ave) develop prior to the **TEMPORARY OFFSITE BASIN** from the north side of Venice Ave., the discharge to AP#1 would be no more than 140 cfs < 154.3 cfs. (the design Q which accommodated Basin 1 as well as Basin 2). OK

The following pages reanalyze the Pasadena storm drain system based on the CLWeiss approved Q's with 30 cfs introduced into the system @ 550' intervals with a total of 120 cfs in the system at AP1.

APPENDIX A

APPROVED
DRAINAGE REPORT FOR
SAN MATEO BUSINESS PARK

INCLUDING

RE-EVALUATION OF CITICORP EXISTING AND
PROPOSED BASINS DRAINING TO AP#1 AT THE
INTERSECTION OF SAN MATEO BLVD. AND
PASADENA AVE. N.E.