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CITY OF SANTA BARBARA
PLANNING DIVISION

Preliminary
Storm Drainage and Hydrology Report

for

Sharon Clenet
1213 Harbor Hills Dr.
Santa Barbara, CA.

October 2010

Job# 04070



Introduction

This storm drainage/hydrology report has been prepared in conjunction with the Conditional Certificate of Compliance for 1213 Harbor Hills Drive in Santa Barbara and is intended to address City of Santa Barbara Storm Water Management requirements.

Project Description

Sharon Clenet, owner of subject project, has requested permission from the City to combine 6 vacant Rogers Tract lots in order to eventually construct a new residence.

The location and configuration of the lots along with topographical information has been submitted on large format drawings to the City. Reduced versions are included herein as follows:

Plate 1: Vicinity Map

Plate 2: Assessors Map

Plate 3: Site Grading and Drainage Plan

The proposed house, garage and driveway are conceptual and have been developed only to the level required to evaluate impacts as requested through the City DART process.

Current Hydrology Condition

The property is located at the westerly terminus of Harbor Hills Drive and will consist of 6 vacant lots totaling 47,454 sq. ft./1.09 acres.

The property is bounded by vacant lots on the north, west and south sides, and a residence on the east side in a residential neighborhood.

The site is steeply sloping to the south. A large natural water course is present near the southwest corner of the property. Further south of the site this water course is converted to pipe flow for eventual outlet to the Pacific Ocean. The house and garage are proposed to be recessed into the upper portion of the site in order to minimize grading and driveway length. The driveway will be above the house and is essentially an extension of Harbor Hills Drive.

The driveway may also serve the undeveloped parcel to the immediate north, and will intercept a small amount of tributary storm runoff from the north. No other land contributes storm runoff to this property.

Currently storm runoff from Harbor Hills Drive is intercepted by a catch basin and swale at the end of Harbor Hills Drive that carries the street runoff away from subject project.

The property is not located in a flood zone.



Proposed Development

This project is considered tier 3 per the City of Santa Barbara Storm Drainage Guidance Manual. In accordance with current storm water management practices, the proposed conceptual storm drainage improvements were designed to include the following:

- 1) Storm water quality management measures.
- 2) Mitigation of increase in runoff by on site retention/detention.

Plate 4 shows a schematic diagram of the proposed system.

Plate 5 shows the storm runoff quantities for the 25 year and 100 year storms for both the existing and proposed development using rainfall intensities determined by Santa Barbara County Flood Control and aerial and field topographical studies.

The results of the storm runoff calculations indicate the proposed development will result in 3.57% increase for the 25 year storm and 2.98% increase for the 100 year storm.

The runoff for the 1 inch storm has been calculated in Plate 6 as 421 cubic feet/3148 gals of water.

The calculations were done using the Rational Formula which gives a slightly lower value than the suggested method in the City of Santa Barbara Storm Water Guidance Manual. The final storm drainage report to be prepared prior to building permits will adjust the calculation to whatever method is in use at building permit time.

Storm Water Management

As illustrated in Plate 4 our storm water management system that will allow direct infiltration consists of the following:

- 1) Installation of a permeable pavement driveway.
- 2) Interception of overflow runoff from the proposed new driveway with a surface drain inlet with pollutant absorption/filtration device to filtered will then be transmitted by pipe to an underground cistern for future irrigation use.
- 3) Installation of roof gutters and downspouts and patio drain inlets which collect hard surface runoff and transmit runoff by pipe through a filtration box then to an underground cistern.
- 4) Cistern water controls for non-potable water use.
- 5) Transmission of cistern overflow to a vegetative swale/french drain system that allows additional infiltration.
- 6) Vegetative swale with outlet into an energy dissipater to reduce flows to a non-erosive velocity.



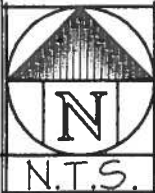
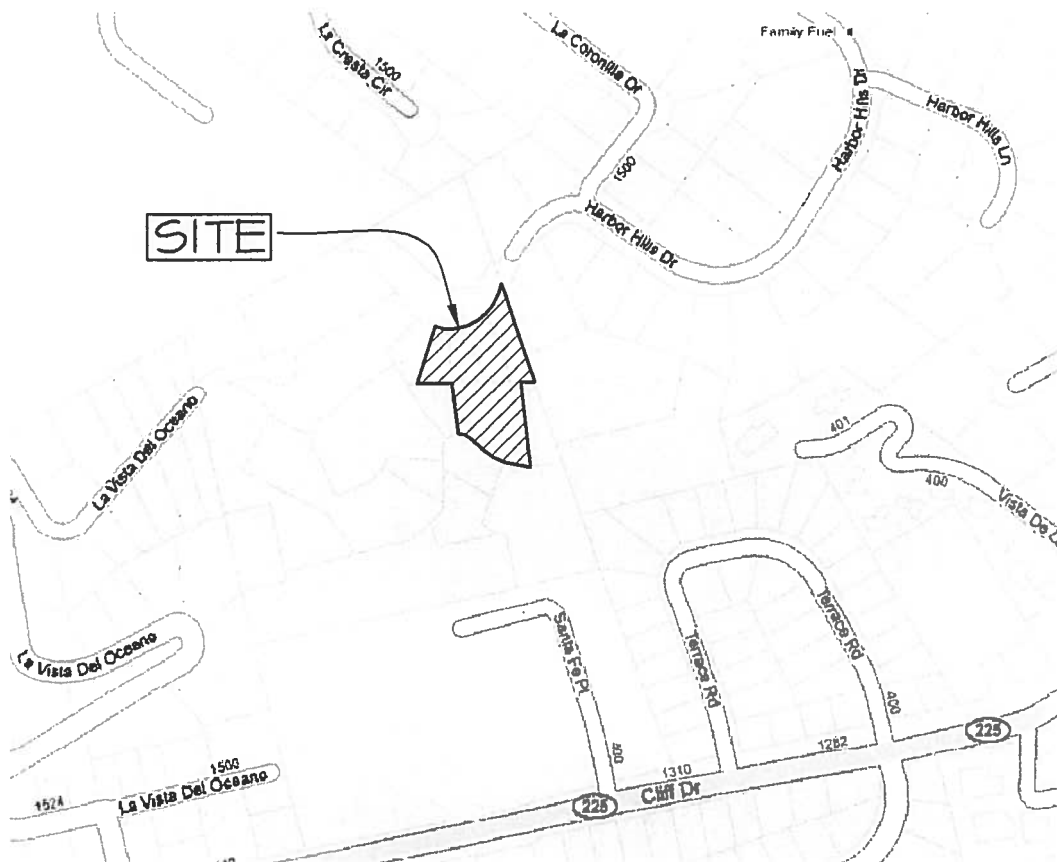
Summary

The proposed conceptual storm drainage plans show one way in which this project can meet the City of Santa Barbara Tier 3 requirements. As the project progresses toward building permit slight adjustments in runoff quantities, and collection and treatment methods may be implemented.

The proposed plan reduces proposed runoff the pre-development amount, does not impact adjacent properties and honors historical drainage patterns.

Mike Gones
Civil Engineer 38168





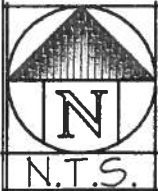
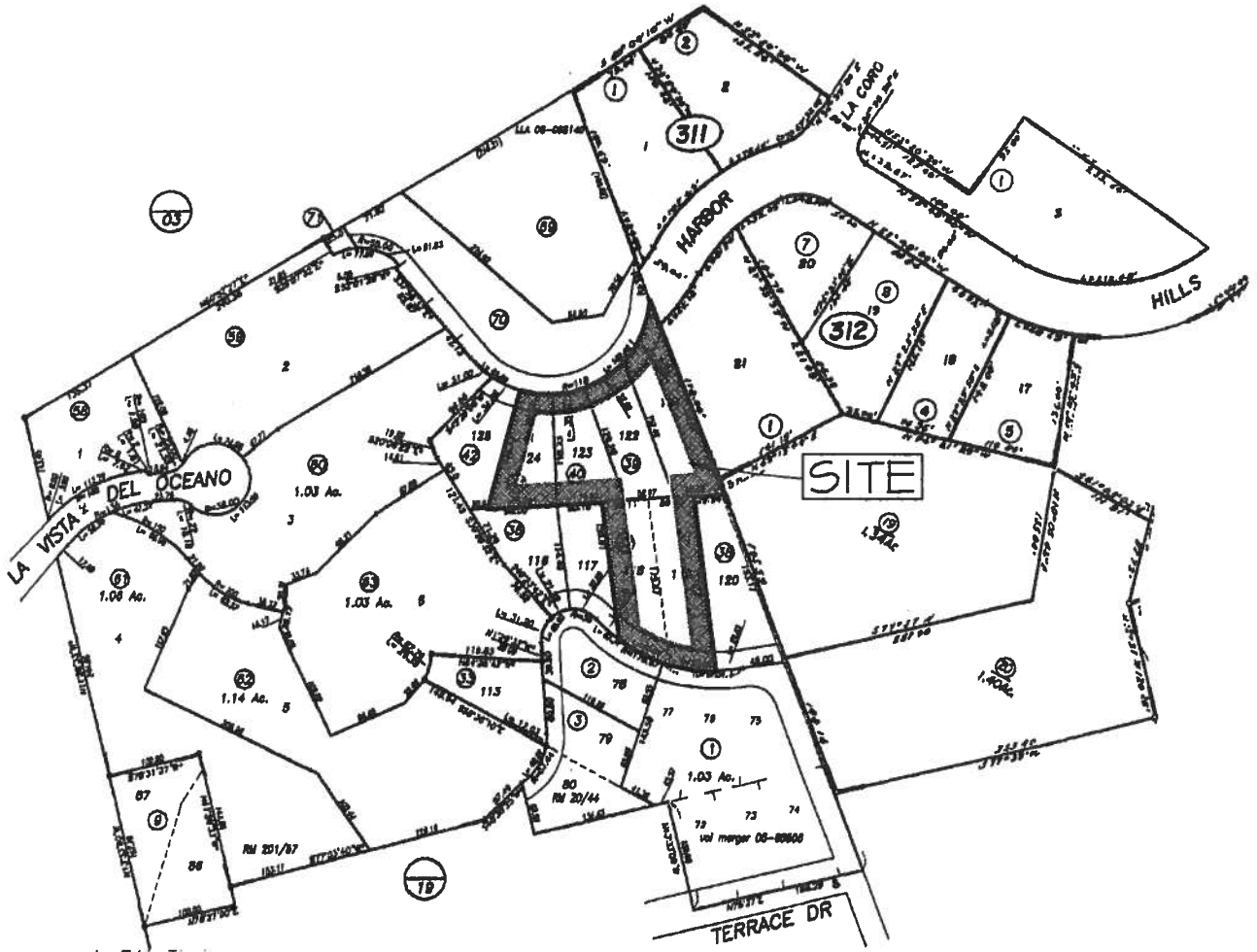
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VICINITY MAP

1213 HARBOR HILLS DRIVE
 SANTA BARBARA, CA

PLATE I

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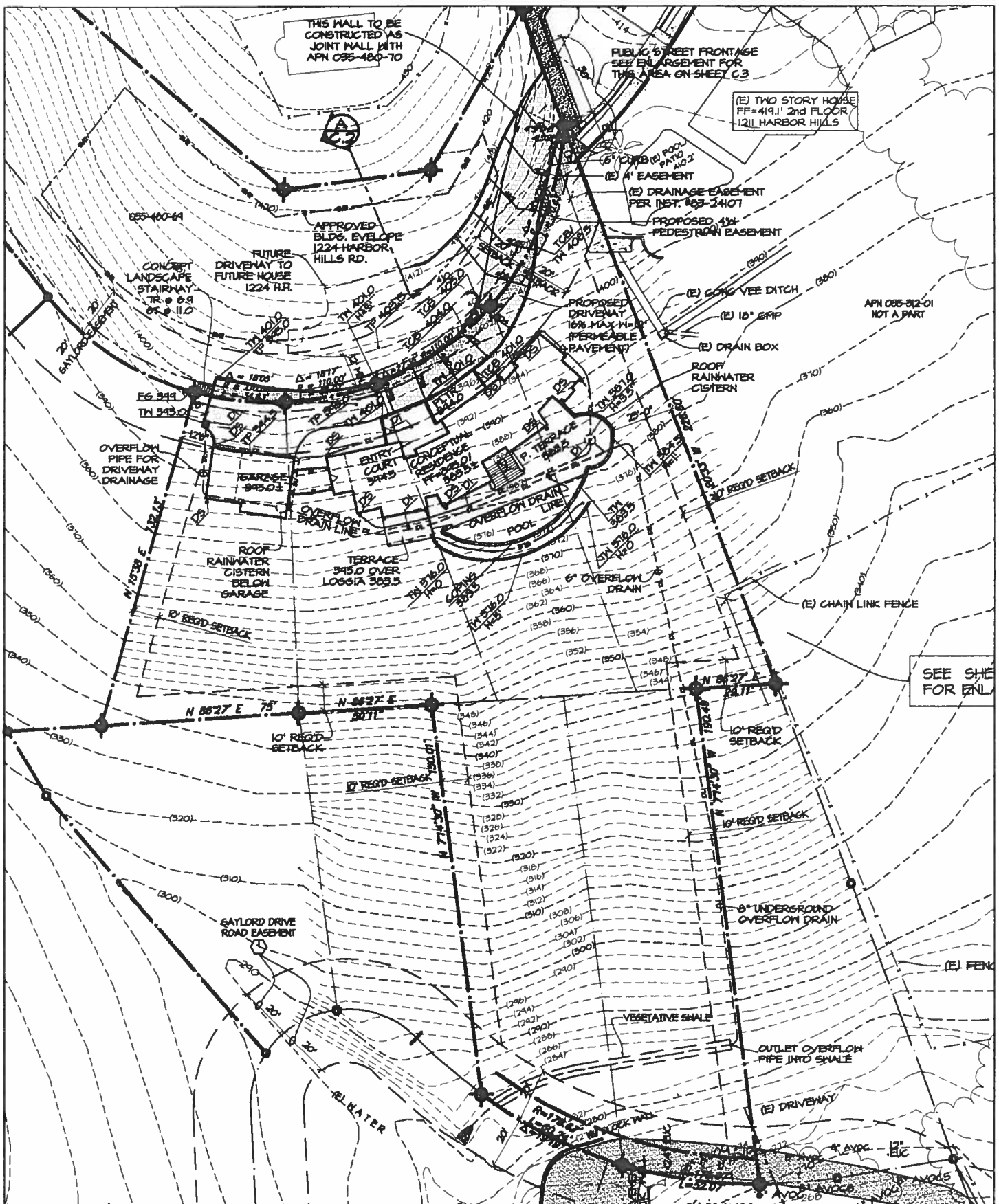
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ASSESSORS MAP

1213 HARBOR HILLS DRIVE
SANTA BARBARA, CA

PLATE 2

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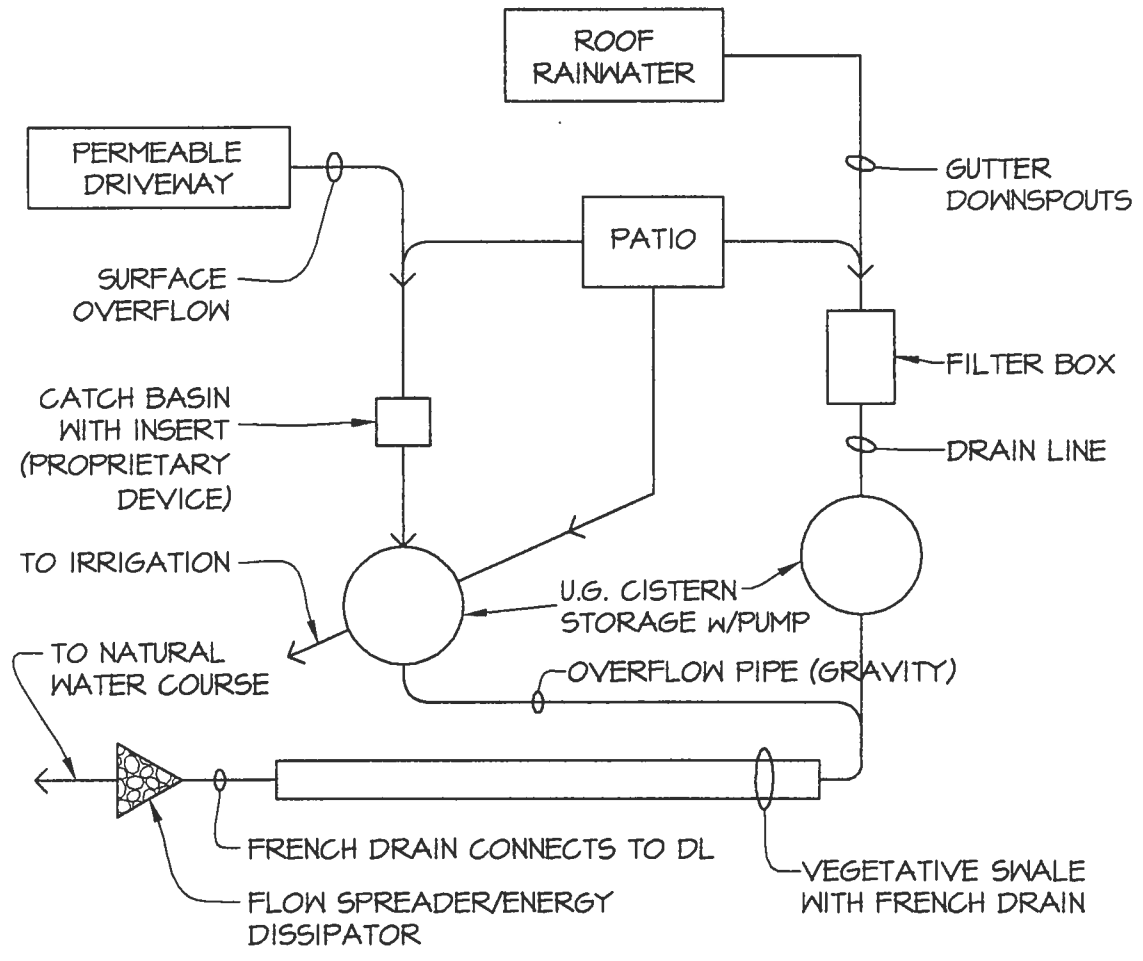
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SITE GRADING AND DRAINAGE PLAN

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SANTA BARBARA, CA

PLATE 3

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STORM DRAINAGE SCHEMATIC

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PLATE 4

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RUNOFF CALCULATIONS

(Rational formula $Q=CIA$)

PRE-DEVELOPMENT

	Q_{25}	Q_{100}
Impervious (bldgs/hardscape)	0	0
Landscape	0.71x2.9x1.09 2.24 cfs	0.75x3.7x1.09 3.02 cfs
Total	2.24 cfs	3.02 cfs

POST-DEVELOPMENT

Impervious (does not include permeable driveway)	0.95x2.9x0.116 0.319 cfs	0.95x3.7x0.116 0.408 cfs
Landscape	0.71x2.9x0.974 2.005 cfs	0.75x3.7x0.974 2.703 cfs
Total	2.32 cfs	3.11 cfs
INCREASE in cfs	0.08 cfs	0.09 cfs
% INCREASE	3.57%	2.98%

Q=CIA in cubic feet per second

I-25 YR=2.9 C-25 =0.71 C-impermeable = 0.95

I-100 YR=3.7 C-100=0.75 A = area in acres

Per SB Co. flood control district

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RUNOFF CALCULATION
WORKSHEET

1213 HARBOR HILLS DRIVE
SANTA BARBARA, CA

PLATE 5

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CISTERN STORAGE SIZING: BASED ON NEW IMPERVIOUS AREA OF
RIFTS/PATIOS (DRIVEWAY PERMEABLE PAVEMENT DESIGNED TO ABSORB 1"
STORM)

VOLUME = $\frac{1}{2}$ in/hr x [(3500)+(1550)] = 421 cu ft x 7.48 gal/ft = 3148 gal.
USE MIN. 3200 gal. U.G. STORAGE TANK.

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1" STORM RUNOFF
CALCULATION WORKSHEET

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PLATE 6

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