PRELIMINARY ASSESSMENT
OF FLOODING PROBLEMS ALONG
VALLEY VIEW WASH IN THE VICINITY
OF THE FLECHA CAIDA SUBDIVISION

Property of:
Pima County
Flood Control District Library
740-6350

Prepared for:
Pima County Department of Transportation
& Flood Control District
1313 South Mission Road
Tucson, Arizona 85713

Prepared by:
Simons, Li & Associates, Inc.
120 W. Broadway, Suite 260
P.O. Box 2712
Tucson, Arizona 85702

July 26, 1984
VALLEY VIEW WASH

ESTIMATED HYDROGRAPHS FOR JUNE 27, 1984 FLOOD WITH ASSUMED CR-1 DENSITY
IN SWAN/SUNRISE AREA

\[ Q_p = 530 \text{ cfs} \quad \text{COMBINED HYDROGRAPH} \]

\[ Q_p = 435 \text{ cfs} \quad \text{WATERSHED UPSTREAM OF SWAN RD.} \]

\[ Q_p = 183 \text{ cfs} \quad \text{ASSUMED CR-1 DENSITY IN SWAN/SUNRISE AREA} \]
FLECHA CAIDA FLOOD IMPROVEMENT STUDY -

PHASE I

100-YEAR PEAK DISCHARGE

MAGNITUDES AND FLOODPLAIN MAPPING

Prepared for:

Pima County Department of Transportation
and Flood Control District
1313 South Mission Road
Tucson, Arizona 85713

Prepared by:

Simons, Li & Associates, Inc.
120 W. Broadway, Suite 170
P.O. Box 2712
Tucson, Arizona 85702

January 28, 1986
NOTE:
VEGETATION BOUNDARY BETWEEN MOUNTAIN BRUSH AND DESERT BRUSH LOCATION ALONG CONTOUR 2000 FT.

LEGEND

APPENDIX A
DRAINAGE BASIN MAP SHOWING HYDROLOGIC CHARACTERISTICS OF STUDY AREA
RAINFALL DATA SHEET

LONG 110° 53' 30"  LAT 22° 18' 37"

<table>
<thead>
<tr>
<th>Return Period (Years)</th>
<th>Precipitation Values (inches)</th>
<th>6 Hour Duration</th>
<th>24 Hour Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Map Value</td>
<td>Corrected Value</td>
<td>Map Value</td>
</tr>
<tr>
<td>2</td>
<td>1.55</td>
<td>1.57</td>
<td>1.88</td>
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<td>2.04</td>
<td>2.07</td>
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<td>2.42</td>
<td>2.40</td>
<td>2.90</td>
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<tr>
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<td>2.88</td>
<td>2.82</td>
<td>3.60</td>
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<tr>
<td>50</td>
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</tr>
<tr>
<td>100</td>
<td>3.50</td>
<td>3.58</td>
<td>4.50</td>
</tr>
</tbody>
</table>

\[ Y_2 = -0.011 + 0.942 \left( \frac{x_1}{x_2} \right) = 1.24" \]

\[ Y_{100} = 0.494 + 0.755 \left( \frac{x_3}{x_4} \right) = 2.44" \]
## RAINFALL DATA SHEET

**Location:**
- **Long:** 110° 53' 30"
- **Lat:** 32° 19' 54"

### Precipitation Values (inches) *

<table>
<thead>
<tr>
<th>Return Period (Years)</th>
<th>Precipitation Values</th>
<th>6 Hour Duration</th>
<th>24 Hour Duration</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Map Value</td>
<td>Corrected Value</td>
<td>Map Value</td>
</tr>
<tr>
<td>2</td>
<td>1.60</td>
<td>1.63</td>
<td>1.95</td>
</tr>
<tr>
<td>5</td>
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</tr>
<tr>
<td>10</td>
<td>2.50</td>
<td>2.46</td>
<td>3.00</td>
</tr>
<tr>
<td>25</td>
<td>2.95</td>
<td>2.90</td>
<td>3.65</td>
</tr>
<tr>
<td>50</td>
<td>3.32</td>
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</tr>
<tr>
<td>100</td>
<td>3.60</td>
<td>3.67</td>
<td>4.10</td>
</tr>
</tbody>
</table>

\[
\gamma_2 = -0.011 + 0.942 \left(\frac{x_1}{x_2}\right) = 1.27''
\]

\[
\gamma_{100} = 0.494 + 0.755 \left(\frac{x_3}{x_4}\right) = 2.70''
\]
HYDROLOGIC DATA SHEET

Project Name and Location: FLEXHA CAIDA FLOOD IMPROVEMENT STUDY (E/M R14E)

Drainage Concentration Point: #11 (@ SWAN ROAD SEC LINE 10 & 11)

Watershed Area (A): 908 (927) acres/square miles.

Length of Watercourse (Lc): 21700 ft. Length to Center of Gravity (Lcg): 10900 ft.

Incremental Change in Length (L1) - ft.
- 1100
- 4000
- 2200
- 1900
- 12500

Mean Slope (S0): 0.0670 ft./ft. Watershed Type(s): MOUNTAIN (undeveloped)
Flood Frequency: 100 yrs.

Basin Factor (qb): 0.047 (future)

P4 (24 hour): ___________ in.
P6 (6 hour): ___________ in.
P1 (1 hour): ___________ 2.69 in.
P2 (2 hour): ___________ in.
P3 (3 hour): ___________ in.

Soil Group(s): 38% B 13% C 49% D Cover Type(s): DESERT BRUSH MIX

Cover Density (pervious areas): 36% (MB) 70% (DB) Impervious Cover: 8% (future)

CN(s): 83, 82, 90 (pervious & impervious areas) CN*(s): 87.11, 86.45, 92 (adj. curve number)

Runoff to Rainfall Ratio(s), (C): 0.550, 0.5323, 0.708 (pervious areas) 0.9563 (impervious areas)

Runoff Supply Rate (Q): 0.6519 in./hr. (function of i)

Time of Concentration (Tc): 16.4 i^-0.4 mins. (function of i)

Iterative Solution of Tc: 38 i^-0.4 mins.

Rainfall Intensity (i) at Tc: 3.7103 in./hr.

Runoff Supply Rate (q) at Tc: 2.4127 in./hr.

Peak Discharge:
- 1.008 qa (acres): 2214 (2260*) cfs.
- 645.334a (square miles): ___________ cfs.
- @ SUNRISE DRIVE (SEC LINE 10 & 15)

Equation for Tc:

\[ T_c = \frac{ah (Lc/qa)^{1/4}}{S_0^{1/4}} \text{ hours.} \]

Note: For impervious areas, CN* = 99 (constant).
**HYDROLOGIC DATA SHEET**

**Project Name and Location:** FLECHA CAIDA FLOOD IMPROVEMENT STUDY (N7°31'13")

**Drainage Concentration Point:** #13 (VALLEY VIEW WASH @ SE LINE 15 1/2)

**Watershed Area (A):** 1,239 acres

**Length of Watercourse (Lc):** 2,730 ft. Length to Center of Gravity (Lc0): 1,3700 ft.

**Incremental Change in Length (L1) - ft.:**

<table>
<thead>
<tr>
<th></th>
<th>1,100</th>
<th>4,000</th>
<th>2,000</th>
<th>1,000</th>
<th>2,000</th>
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</thead>
<tbody>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Incremental Change in Elevation (H1) - ft.:**

<table>
<thead>
<tr>
<th></th>
<th>1,080 - 5,600 = 4,800</th>
<th>5,600 - 3,800 = 1,800</th>
<th>3,800 - 3,000 = 800</th>
<th>3,000 - 3,200 = 200</th>
<th>3,200 - 2,740 = 460</th>
<th>2,740 - 7,580 = 4,800</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Mean Slope (Sc):** 0.0545 ft./ft. Watershed Type(s): (future)

**Basin Factor (nb):** 0.045 (future)

**Flood Frequency:** ____________________ yrs.

**Areal Value:** ____________________ in.

**Cover Density (pervious areas):** 30% (MB) 20% (BS) Impervious Cover: 12% (future)

**N(s):** 23.97.98 (pervious & impervious areas) CN*(s): 87.69, 86.43, 92.1

**Unoff to Rainfall Ratio(s), (C):** 0.5483, 0.5304, 0.7072 (pervious areas) 0.9567 (impervious areas)

**Runoff Supply Rate (q):** 0.6474 in./hr. (function of t)

**Time of Concentration (Tc):** 77 1^-1 hrs./mins. (function of t)

**Iterative Solution of Tc:** 49 hrs./mins.

**Rainfall Intensity (I) at Tc:** 3.1072 in./hr.

**Unoff Supply Rate (q) at Tc:** 2.0117 in./hr.

**Peak Discharge:**

1,008 qa (acres): 2512 cfs.

645.33 qa (square miles): ____________________ cfs.

**Equation for Tc:**

\[ T_c = \left( \frac{nb \cdot (Lc \cdot Lc0)^{1.3}}{50 \cdot (Sc)^{0.4}} \right) \text{ hours} \]

**Note:** For Impervious areas, CN* = 99 (constant).
VALLEY VIEW WASH
FLOOD AND EROSION CONTROL STUDY FOR
THE CALLE DEL PANTERA AREA
(PHASE II: FLECHA CAIDA FLOOD
IMPROVEMENT STUDY)

Prepared For:

Pima County Department of Transportation
and Flood Control District
1313 S. Mission Road
Tucson, Arizona 85713

Prepared By:

Simons, Li & Associates, Inc.
110 South Church, Suite 2170
P.O. Box 2712
Tucson, Arizona 85702

February 15, 1989
FIGURE 1
LOCATION MAP SHOWING THE VALLEY VIEW WASH WATERSHED AND ASSOCIATED DRAINAGE BASINS THAT IMPACT THE STUDY AREA

LEGEND
- WATERSHED BOUNDARY
- FLECHA CAIDA RANCH ESTATES #9 (CALLE DEL PANTERA SUBDIVISION)
- VALLEY VIEW WASH WATERSHED
- TRIBUTARY X WATERSHED
- VALLEY VIEW RESERVOIR WATERSHED
- DRAINAGE CONCENTRATION POINTS

SLA SIMONS, LI & ASSOCIATES, INC.