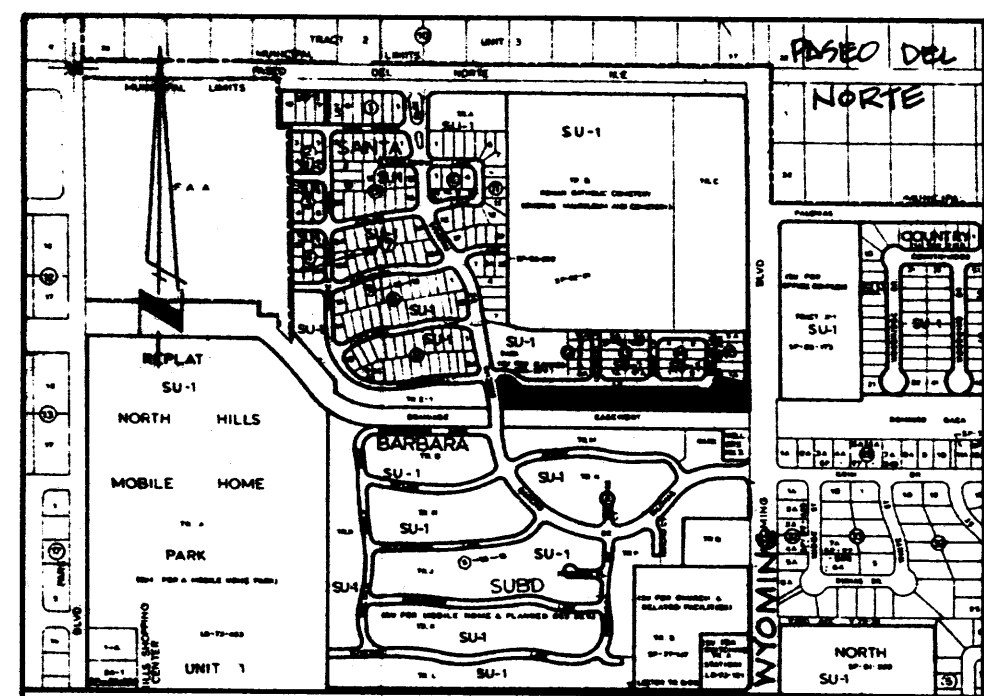




VICINITY MAP: D-19 SCALE: 1"=800'

LEGEND

- DRAINAGE BASIN BOUNDARY
- +55.0' EXISTING SPOT ELEVATION
- +59.0' PROPOSED SPOT ELEVATION
- +59.0' AS BUILT SPOT ELEVATION
- EXISTING MANHOLE
- WATER BLOCK
- △ ANALYSIS POINT
- EARTH RETAINING STRUCTURES
- ④ DRAINAGE AREA SUBBASIN

NOTES:

1. HYDROLOGY CRIT. BASED ON DPM VOL. 2 SECTION 22.2, AS AMENDED, DRAFT DATED JUNE, 1991
2. FIELD SURVEYS PROVIDED BY DOMINGO BACA CONC. CHANNEL:
3. MAX. PAD DIMENSION: 30' x 50'
4. DOMINGO BACA CONC. CHANNEL:
 - BOTTOM WIDTH = 10'
 - SIDE SLOPES = 2:1
 - DEPTH = 7.6'
5. UTILITY FEATURES NOT SHOWN FOR CLARITY
6. NEW CURB RETURNS AT WYOMING AND WHIPPOORWILL SHALL BE CITY STD. CURB AND GUTTER. BEGIN TRANSITION TO PRIVATE MOUNTABLE CURB AND GUTTER AT P.C. ON WHIPPOORWILL.
7. WYOMING MEDIAN OPENINGS SHALL BE SEPARATE C.O.A. WORK ORDER
8. PROPERTY COVERED BY DRAINAGE PLAN: RELAT. OF TRACT F-1; PRIVATE PARK; LOT 1A, BLOCK 1B, SANTA BARBARA SUBDIVISION; (LOTS 1-20, BLOCK 1B)
9. PROJECT BENCHMARK: STATION "HEAVEN" ON DOME DEL NORTE C.S. MILES, WEST OF WYOMING. ELEV. = 5378.787 MSL.

The following items concerning the drainage of existing Santa Barbara Subdivision Tract A, Blocks 12, 13, 14, 15, Tract F, and the eastern most portion of Tract F-1 are contained herein:

1. Vicinity Map.
2. Existing spot elevations.
3. Current platting and proposed platting of the portion of Tract F-1.
4. Calculations.
5. Proposed drainage outfall plan.

As shown on the Vicinity Map, the site is located west of Wyoming Blvd., south of Paseo del Norte, north of the recently constructed Domingo Baca Arroyo. The site is a platting subdivision zoned S-1 for Planned Residential Development. The streets have been completely constructed of asphalt with mountable curb and gutter and sidewalks, and are generally 30' in width between flowlines. All streets and utilities are privately owned with the exception of the waterline in Rancho de Palomas. Most lots have been built on with single family residences. The remaining lots have been rough-graded. The site is presently being replatted to create lots in Tracts A and B-1, and to provide for the extension of Whippoorwill east from Blue Jay Lane connecting it to Wyoming. This drawing reflects these platting efforts. The Wyoming connection curb cut has been granted by the City and is presently under construction.

The last approved drainage plan for this site did not provide for the extension of Whippoorwill east to Wyoming, nor did it provide for a conveyance structure for discharge to the Domingo Baca Arroyo. The purpose of this drainage plan is to quantify the runoff generated by this portion of the Santa Barbara Subdivision using current hydrologic criteria and taking into account the two proposed platting efforts. This site paving and grading has already been constructed and built or under a previous grading and drainage plan. This plan uses spot elevations obtained by field survey. The offsite drainage area was determined by field observation and measurement.

DRAINAGE PLAN

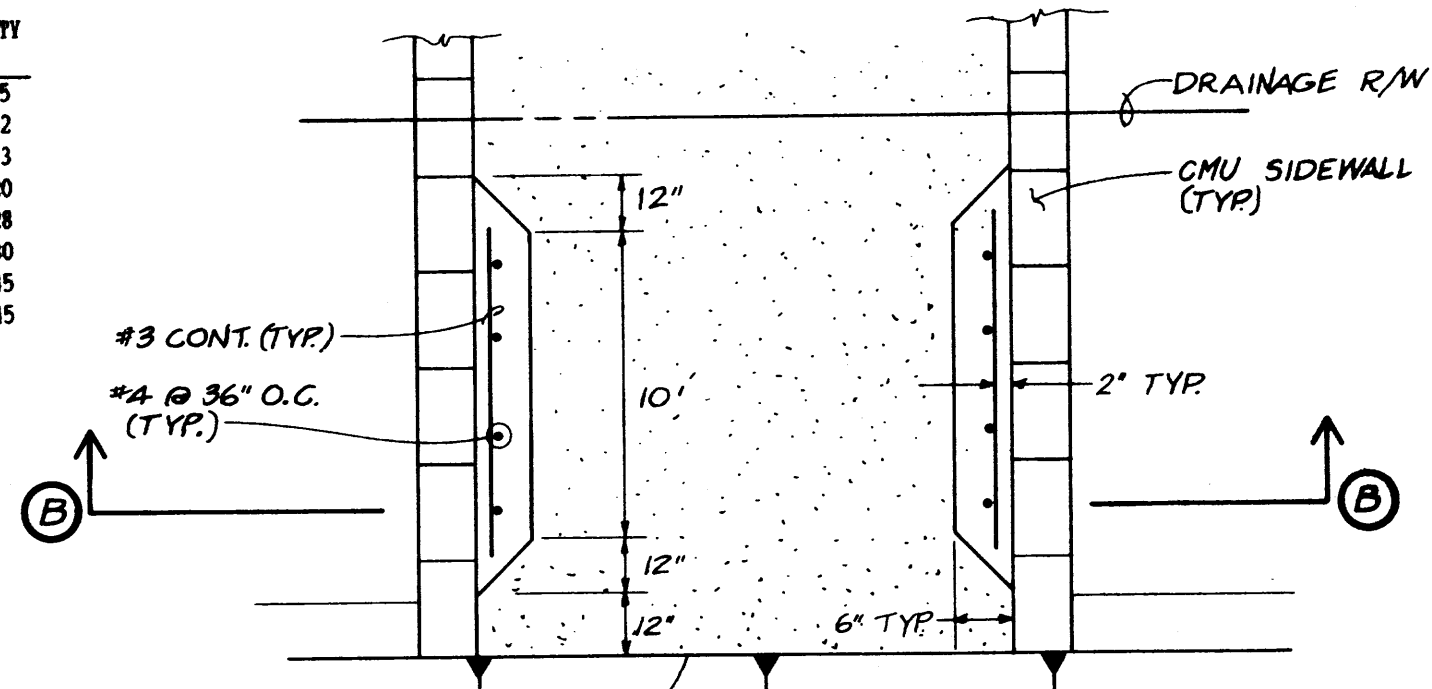
The site drains from east to west at approximately 1% slope to the intersection of existing Rancho de Palomas and Whippoorwill. Flows then drain south to the Domingo Baca Arroyo within Rancho de Palomas right of way as presently platting, but unimproved. The site was developed under a drainage plan prepared by Denver Tishjian-McCormick & Assoc., in 1947. Platting currently in progress will eliminate the Rancho de Palomas right-of-way, but provide in its place a 20' wide channel.

Runoff conveyed to the Domingo Baca consists of what is generated onsite, plus a small offsite contribution from undeveloped lands to the north, as shown. The site is protected from off-site runoff by the grading of existing Wyoming, a 12" water block to be constructed on Whippoorwill at Wyoming, the arroyo channel on the south, and the reverse gradients of Whippoorwill west of Rancho de Palomas, and Rancho de Palomas north of Whippoorwill. The plan is divided into Subbasins to determine flow rates at specific analysis points. This plan provides for the installation of a 3" curb at the back of the sidewalk where indicated to ensure that flows remain confined to the roadway section.

Drainage south on Cockatoo, Wren, and Blue Jay Lanes will be interrupted by flows in Whippoorwill. The flows in these streets are shallow at low velocity and are not expected to cross Whippoorwill. The lots on the south side of Whippoorwill are protected by the existing curb and future installation of the sidewalk curb.

CRITERIA	TREATMENT				SUBBASIN	AREA ac.	SUBBASIN DATA				HYDROLOGY	AREA ac.	CUMULATIVE UPSTREAM				HYDROLOGY	AREA ac.	Qp cfs
	A	B	C	D			A	B	C	D			A	B	C	D			
INITIAL ABST. (in.) (TABLE 6)	0.65	0.50	0.35	0.10	1	1.639	-	0.270	0.334	1.035	1.905	7.050	1.639	-	0.270	0.334	1.905	7.050	7.05
INFILTRATION (in./hr.) (TABLE 7)	1.67	1.25	0.83	0.04	2	1.624	-	0.253	0.313	1.058	1.929	7.049	3.263	-	0.523	0.647	2.093	3.834	14.10
EXCESS PRECIP. - GHI, 1 (TABLE 8)	0.66	0.92	1.29	2.36	3	1.532	0.285	0.216	0.268	0.763	0.323	0.041	5.848	4.786	0.285	0.739	0.915	2.856	19.95
RATIONAL C, 1 (TABLE 11)	0.35	0.48	0.64	0.93	4	0.415	-	0.038	0.223	0.154	1.653	0.057	1.641	5.210	0.285	0.777	1.138	3.010	21.59
RATIONAL C, 2 (TABLE 11)	5.38	5.38	5.38	5.38	5	0.581	-	0.040	0.381	0.140	1.559	0.075	2.222	5.791	0.285	0.817	1.519	3.170	23.69
PEAK DISCH. Qp (cfs/ac.) (TABLE 9)	1.87	2.60	3.45	5.02	6	0.546	-	0.250	0.236	0.060	1.238	0.056	1.765	6.337	0.285	1.067	1.755	3.230	25.58
					7	0.259	-	0.107	0.107	0.045	1.323	0.029	0.873	6.596	0.285	1.174	1.862	3.275	26.45
					8	0.923	-	0.244	0.259	0.420	1.679	0.129	3.635	7.519	0.285	1.418	2.121	3.695	30.09
					9	0.282	-	0.046	0.057	0.179	1.909	0.045	1.215	7.801	0.285	1.464	2.178	3.874	31.30

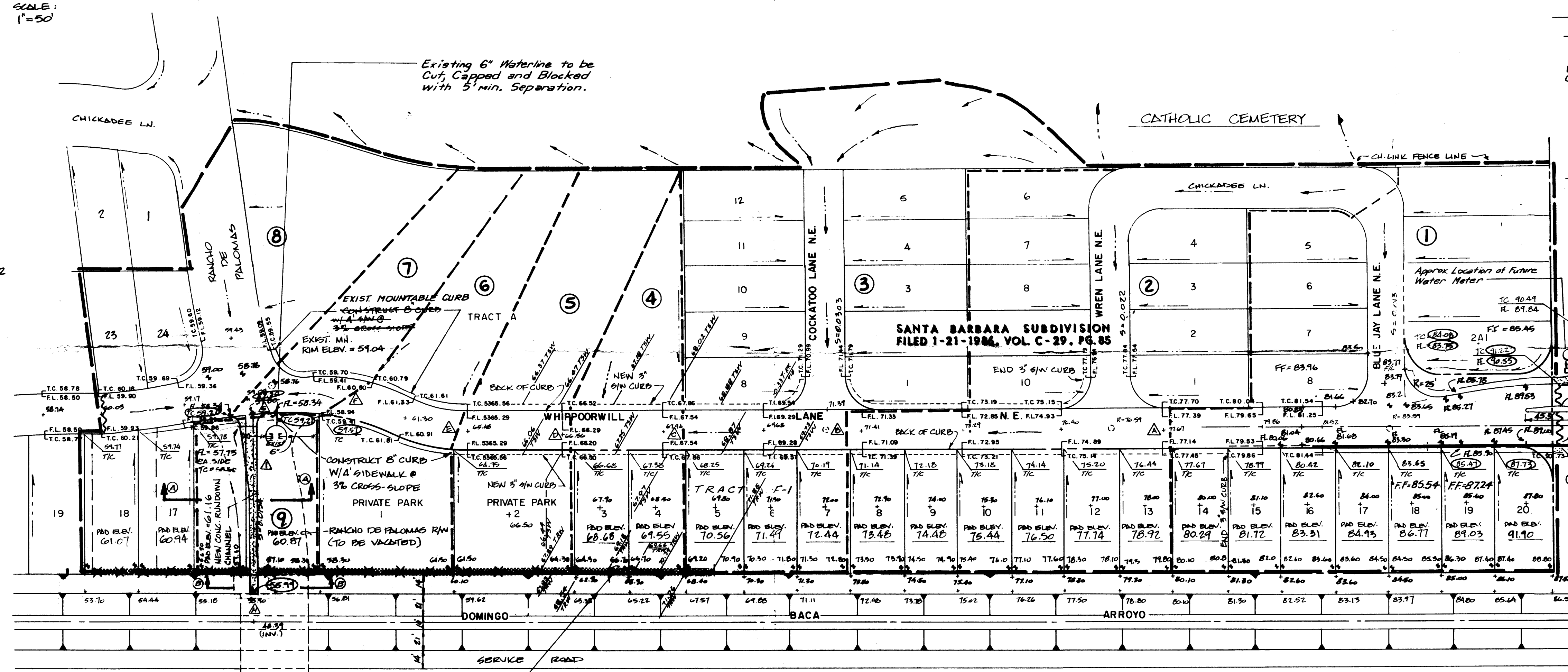
ANALYSIS POINT	Qp cfs	SLOPE %	CAPACITY cfs
A	7.05	2.96	26.15
B	14.0	2.03	78.32
C	19.5	2.29	80.13
D	21.9	1.26	63.20
E	23.8	1.26	98.28
F	25.5	8.11	121.80
G	30.0	1.34	93.45
H	31.0	1.34	93.45



RUN-DOWN CHANNEL PLAN

TE	FL
1	40.48
2	40.08
3	41.02

DESIGN APPROVED: *Alfonso J. Brasher* 7-1-92
 CONSTRUCTION APPROVED: *Alfonso J. Brasher* 7-27-92
 DATE



CHANNEL CAPACITY

PER MANNING'S EQUATION:
 $Q = 1.49 A R^{2/3} S^{1/2}$
 WHERE $A = 0.013$
 $R = 0.013$
 $S = 0.0013$
 BY SOLUTION FOR DEPTH:
 $16-0.83' F.T. 16-9.3' F.T.$
 $Q_{max} = 45.5 CFS @ 3.0' C.B.B.$

CHANNEL ENTRANCE

ANALYSIS POINT A AT WHIPPOORWILL LN. AND RANCHO DE PALOMAS - ENTRANCE TO NEW CONCRETE RUN-DOWN CHANNEL ASSUME POOLING OF WATER IN THE INTERSECTION - VELOCITY OF APPROACH RD; WATER SURFACE @ T/C ELEV.

ANALYSIS POINT B CURVE

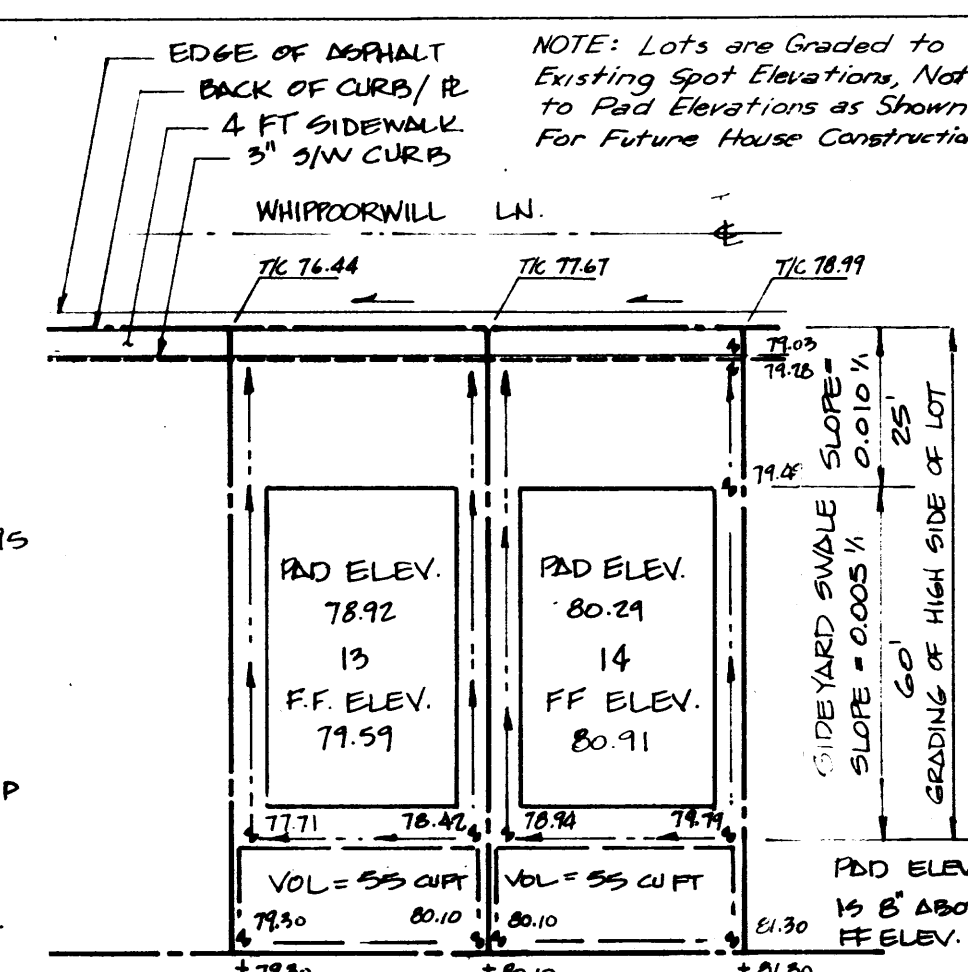
USE AP A Q = 25.50 CFS FOR CURVE IN WHIPPOORWILL DOWNSTREAM AP B (REFER TO TYP. ST. SECTION)
 $S = 0.0011$
 $A = 3.069 F.T.$
 $V = 6.610 F.T/SEC$
 FLOW DEPTH ALONG SOUTH CURB = 0.45'
 FLOW DEPTH ALONG NORTH CURB = 0.030'
 SUPERELEVATION CALCULATION:
 RADIUS OF SOUTH CURVE = 122'
 FLOW WIDTH = 27.80'
 SUPERELEV. = $(6.610^2 / 27.80) = 0.31'$
 TOTAL DEPTH = $0.45' + 0.31' = 0.76'$
 S. CURB FL. ELEV. = 60.91
 W.S. ELEV. = $60.91 + 0.76 = 61.67'$
 $Q = (3.0)(16.2)(0.75)^{3/2} = 31.6 CFS$
 $Q_p @ A = 30.09 CFS$

CHANNEL ENTRANCE POOL

DOWNSTREAM ANALYSIS PT. A
 $S = 0.011$
 $A = 6.3209$
 $Q = 24.45 CFS$
 FLOWLINE DEPTH = 0.51'
 $V = 4.18 F.T/SEC$
 FLOW WIDTH = 27.80'
 FLOWRATE PER FT WIDTH = $24.45 / 27.80 = 0.88$
 $E = 0.31 + \frac{(4.18)^2}{2(32.17)} = 0.64'$
 CRITICAL DEPTH = 0.36' < 0.64'
 FLOW IS SUBCRITICAL - NO HYP. JUMP

REAR YARD PAD VOLUME

DRAINAGE AREA: 0.0165 AC./LOT
 $E = 0.92$ TREATMENT B
 $VOL = (0.92)(0.0165) = 0.0015 AF = 55 CU FT$



TYPICAL LOT GRADING

T/C	FL
1	90.30
2	89.30
3	89.65

NOTE: Lots are Graded to Existing Spot Elevations, Not to Pad Elevations as Shown For Future House Construction

R = 30.00' (FL)
 $\Delta = 89.41' 00''$
 $T = 29.70'$

STREET	SLOPE P/F	S ₀ CFS	V FT/SEC	Δ FT	d FT	E = d + $\frac{V^2}{2g}$ FT
BLUE JAY	0.013	2.82	1.92	1.41	0.17	0.23
WREN	0.022	3.52	2.41	1.42	0.17	0.27
COCKATOO	0.030	4.39	2.95	1.49	0.17	0.31

- △ PLAN UPDATE TO SHOW AS BUILT RUN-DOWN CHANNEL - SECTIONS A-A, B-B & PLAN VIEW 6-1-92
- △ MODIFICATION TO EXISTING CHANNEL (PROPOSED)

SANTA BARBARA SUBDIVISION

DRAINAGE PLAN

BRASHER ENGINEERING INC.
 11530 MENAUL N.E. SUITE 111
 ALBUQUERQUE, NEW MEXICO 87112
 (505) 296-0422

SHT. 2A of 4 AUGUST, 1991

RECORD DRAWING
 This drawing as modified shows improvements as indicated. Measurements obtained by Doug Smith, Surveying, the Contractor and City Inspector. The modifications conform to the minimum requirements for a record drawing criteria as required by the City of Albuquerque per Development Process Manual Section 27.4 to the best of my knowledge and belief.

Paul Brasher, P.E. 7282

