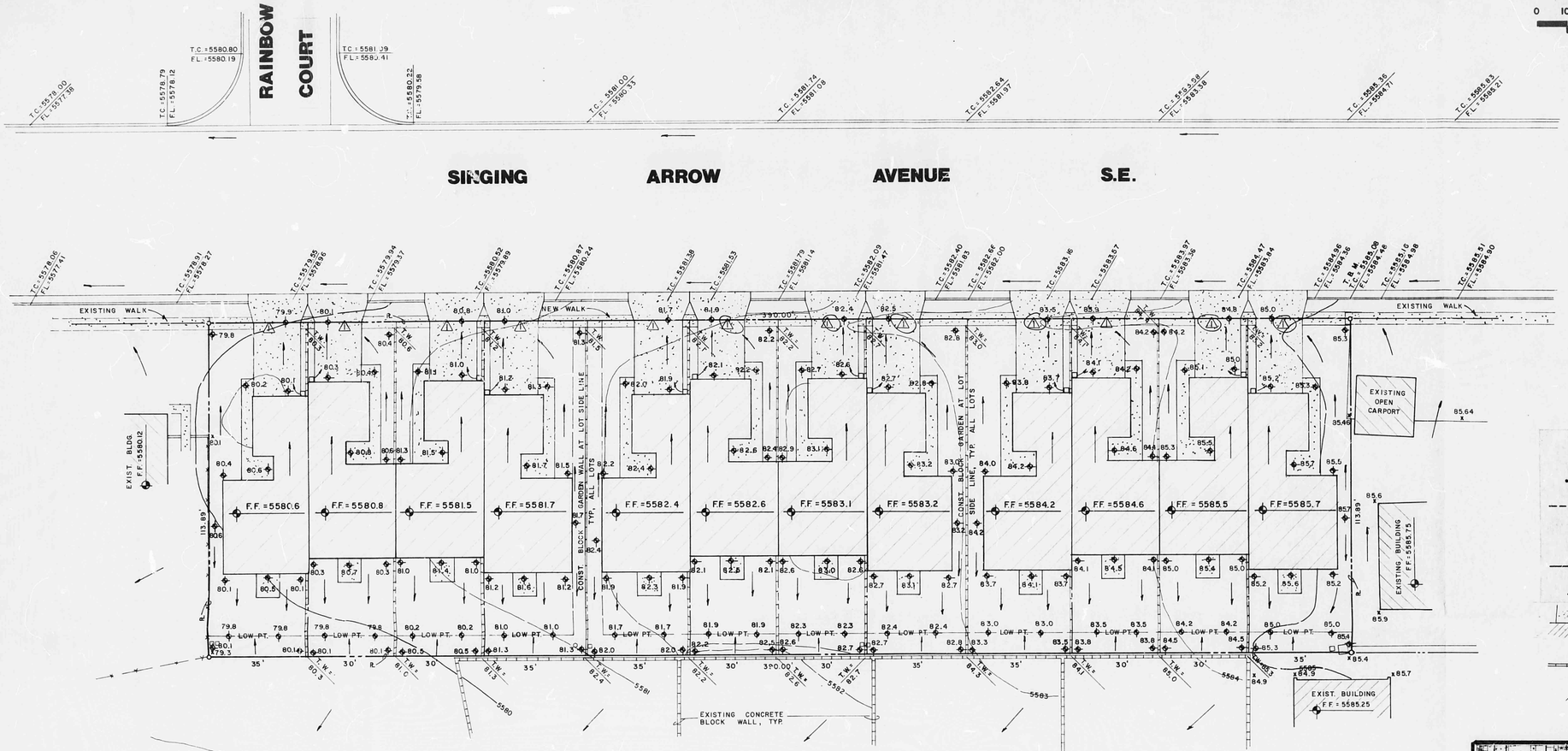
HYDROLOGY

L22/D7A
ONE PLAN

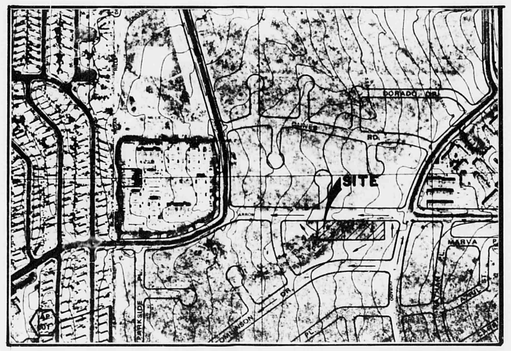
L 22/07A

1 PLAN

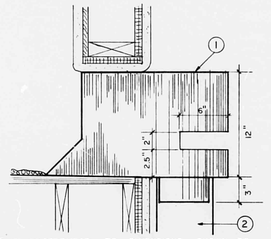


LEGEND

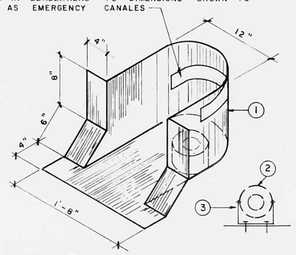
12.7	EXISTING SPOT ELEVATION
12	EXISTING CONTOUR
12.7	PROPOSED SPOT ELEVATION
12	PROPOSED FINISHED CONTOUR
	SURFACE FLOW DIRECTION
	DOWNSPOUT LOCATION/ DIRECTION OF OUTLET
T.W. 85.0	GARDEN WALL / TOP OF WALL ELEVATION



FLOOD HAZARD MAP



CUT SLOT IN LEADERHEAD TO DIMENSIONS SHOWN TO SERVE AS EMERGENCY CANALES



1. 16 GA. G.I. LEADERHEAD. ALL JOINTS TO BE SOLDERED AND WATER TIGHT
2. 5" DIA. 16 GA. G.I. DOWNSPOUT W/RESTRICTED 2" DIA. OPENING AT TOP OF DOWNSPOUT AS PART OF LEADERHEAD
3. PROVIDE (2 PER DOWNSPOUT) A 16 GA. G.I. BRACKET ATTACHED TO WALL AND

LEADERHEAD DETAIL

DRAINAGE REQUIREMENTS:

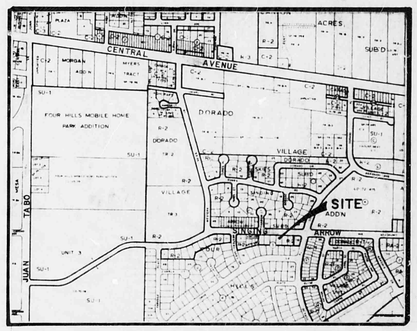
In a Pre-Design meeting with City Hydrology, Jim Hink, on April 28, 1983, the following criteria was established for roof top ponds:

1. Min. 2" controlled outlet orifice.
2. Total discharge within 24 hrs.
3. Entire 100 year storm event capacity.
4. Emergency canales with inverts set at the 100 year water surface elevation.
5. Controlled outlet and emergency canales to discharge onto driveways and thus through driveway curb cuts to the street.
6. Runoff from rainfall not falling on the roofs will be allowed free discharge to the streets provided the total 100 year runoff does not exceed the undeveloped 100 year runoff at the entire site

DRAINAGE CALCULATIONS:

Typical 35' wide lot - Area=1986 ft^2 (0.05 Ac.)
Undeveloped 100 yr. runoff - Q_{100}=(0.34)(5.12)(0.05)=0.4 cfs
Roof area subject to pond/controlled discharge=1465 ft^2
V_{100}=(2.5)/12)(1.00)(1465)=305 ft^3 (2.5" depth over entire roof)
Discharge rate thru 2" orifice $Q=CAV\sqrt{2gh}$=(0.6)(0.02)$\sqrt{13.42}$ = 0.04 cfs
Check total time to drain roof - $\frac{305\ ft^3}{2.04\ ft^3/sec}$=2 hrs<24-O.K.
Remaining area to drain to street=521 ft^2
Q_{100} developed of remaining area to street - Q_{100} = (0.52)(5.12)(2.5)(0.04)=0.3 cfs
Total discharge to street, roof + lot=0.34<0.4 undeveloped rate - O.K.
Back yard area to be self ponding for only rainfall entering directly into yard.
V_{100}=2.5/12)(0.32)(980)=65 ft^3 - Low pt. typ. 10' wide by 25' long by 0.3' deep
Typical 30' wide lot - Area=3817 ft^2 (0.08 Ac.)
Undeveloped 100 yr. runoff - Q_{100}=(0.34)(5.12)(2.5)(0.08) = 0.4 cfs
Roof area =1465 ft^2/V_{100}=305 ft^3 at 2.5" depth/discharge rate 0.04 cfs/Time to discharge=2 hrs.
Remaining area draining to street=802 ft^2
Q_{100}developed of remaining area to street - Q_{100} = (0.52)(5.12)(2.5)(0.02)=0.1 cfs
Back Yard V_{100}=(2.5/12)(0.32)(1050)=70 ft^3
Low Point typ. 15' wide by 20' long by 0.3' deep

2 Total Discharge to Street, Roof & Lot = 0.14 < 0.4 Undeveloped Rate - O.K



VICINITY MAP - L-22

LEGAL: Lots 4 thru 9 of Block 3 of Four Hills Addition, Albuquerque, New Mexico.
SURVEYOR: Ron Forsthauer Survey Co., January, 1983
BENCH MARK: City of Albuquerque Brass Cap 2-I22
Elevation 5650.06
T.B.M.: Top of Curb at East Property Line Extension
Elevation 5585.08.
SOIL TYPE: TeB (Map 32 S.C.S.) - Hydrologic Soil Group 'B'
OFFSITE DRAINAGE intercepted by surrounding development/ streets.

L22/D7A

CONSULTANTS, TERRA SOL INC.
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ALBUQUERQUE, N. MEX. 87110
266-3444
SANDIA PARK OFFICE - P.O. BOX 142
SANDIA PARK, N. MEX. 87047
281-1991

Revisions	Date
1 Drive Widths Widened to 18'	6-83
2 Note Added to Drg. Calcs	6-83

Designed	C.L.W.	5-83
Drawn	M.W.	5-83
Checked	C.L.W.	5-83

GRADING/DRAINAGE PLAN FOR SINGING ARROW TOWNHOUSES

CHRISTOPHER L. WILSON
NEW MEXICO PROFESSIONAL ENGINEER

SHEET 1 OF 1