HYDROLOGY G19/D2 1 PLAN

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Drainage Study and Grading Plan
for
Lots 1 thru 14 Block 39 Broad Acres

Call Ron Tyree
when approved
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Typical Lot

West

Location and Description

The property is located in the North East Heights of Albuquerque. It is one block ~~East~~ of Pennsylvania on the North side of Candelaria. It is undeveloped native soil with no evidence of cutting and/or filling. The property is surrounded by paved streets on three sides and a church and vacant lot on the fourth. Present drainage is primarly to Charleston St. then to Candelaria. Storm water enters the Louisiana Storm Sewer at Espanola 2 Blocks East of Charleston. A water Block on Veranda prevents any water from draining into the area from the East. Storm water carried by Veranda flows West and North from the intersection of Charleston and Veranda.

Storm Drainage on the Undeveloped Land.

The time of concentration for this parcel is less than 10 minutes, therefore from the various charts published for this area the intensity will be around 6 in./hr. for a 100 year storm. The runoff coefficient for this type of soil and vegatation is usually taken as 0.30 to 0.40. The total area is 3.639 ac. From the rational formula:

$$Q = CIA \text{ Runoff} = (0.35)\ (6)\ (3.639) = 7.64 \text{ cfs.}$$

The total runoff for 2.8 inches in a 6 hour period would be

$$Q = (0.35)\left(\frac{2.8}{12}\right)(3.639)(43560) = 12945 ft^3$$

Storm Drainage on Developed Land.

The following figures are approximate and are used for estimating the new value of C.

Roof Area	18.9%	C 0.95
Driveway Area	6.0%	C 0.95
Sidewalk Area	4.1%	C 0.95
Backyard Area	35.9%	C 0.40
Frontyard Area	24.8%	C 0.40
Unpaved Street R/W	3.6%	C 0.95
Paved Streets	6.5%	C 0.95

C value for developed area = 0.61

$$Q = (0.61)(6)(3.639) = 13.3 cfs.$$

The development will increase the runoff rate and total runoff by approximately 74%.

Drainage for a Typical Lot.

Total Area	11250 $ft.^2$
Roof	2640 "
Driveway	630 "
Sidewalk	540 "
Backyard	5130 "
Frontyard	3450 "
Unpaved Street R/W	450 "

Total Drainage to street for 2.8" storm.

Driveway $(630)\frac{2.8}{12}(0.95) = 140\ ft.^3$

Frontyard and Unpaved street R/W $3900(\frac{2.8}{12})(0.40) = 364\ ft.^3$

Total runoff to storm sewer system $504\ ft.^3$

Total Drainage to backyard

Roof $(2640)(0.95)(\frac{2.8}{12}) = 585\ ft.^3$

Backyard $(5130)(1.0)(\frac{2.8}{12}) = 1197\ ft.^3$

Total Retainage / lot $= 1782\ ft.^3$

Depth of water in backyard 0.35 ft.

Total water retained on property $25,000\ ft.^3$
Total runoff to storm sewer system $7050\ ft.^3$

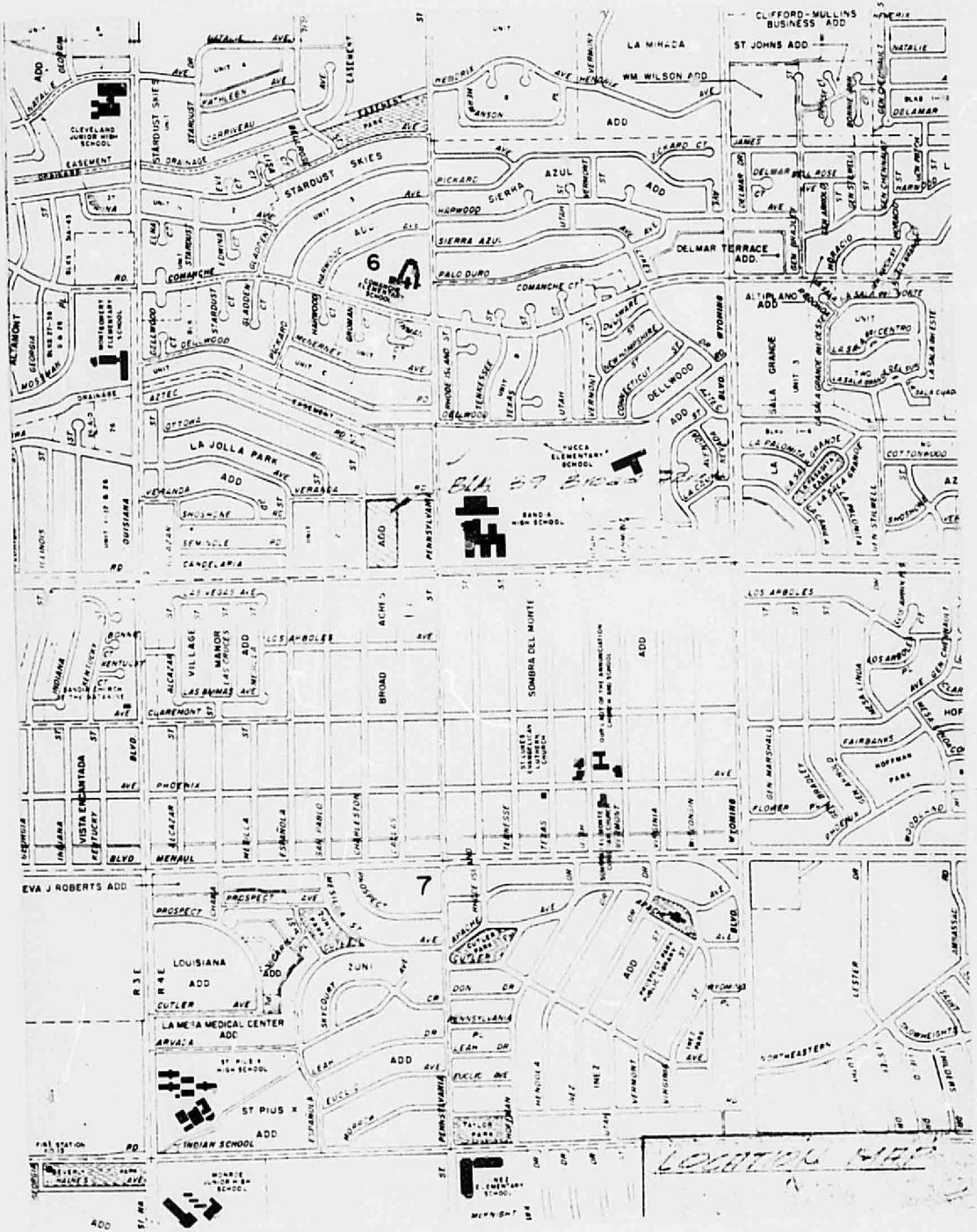
Developing the property to retain the water as shown can reduce the total runoff by 40% ±.

Conclusions and Recommendations

Minimum finished floor elevations are shown on the grading plan for each lot. The finished floor elevation is a minimum of one foot above the proposed top of curb.

In order to comply with AMAFCA ordinance number 2 the following consideration is given to drainage. A ponding area will be developed in the backyard of each lot. Ponding area will be provided for approximately 1700 ft^3 of water on each lot. This provision will actually reduce the amount of water carried by storm drainage facilities.

The ponding area can by developed in a variety of ways to conform with backyard landscaping.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ST JOHNS ADD
LA MIRADA
WM WILSON ADD
ADD
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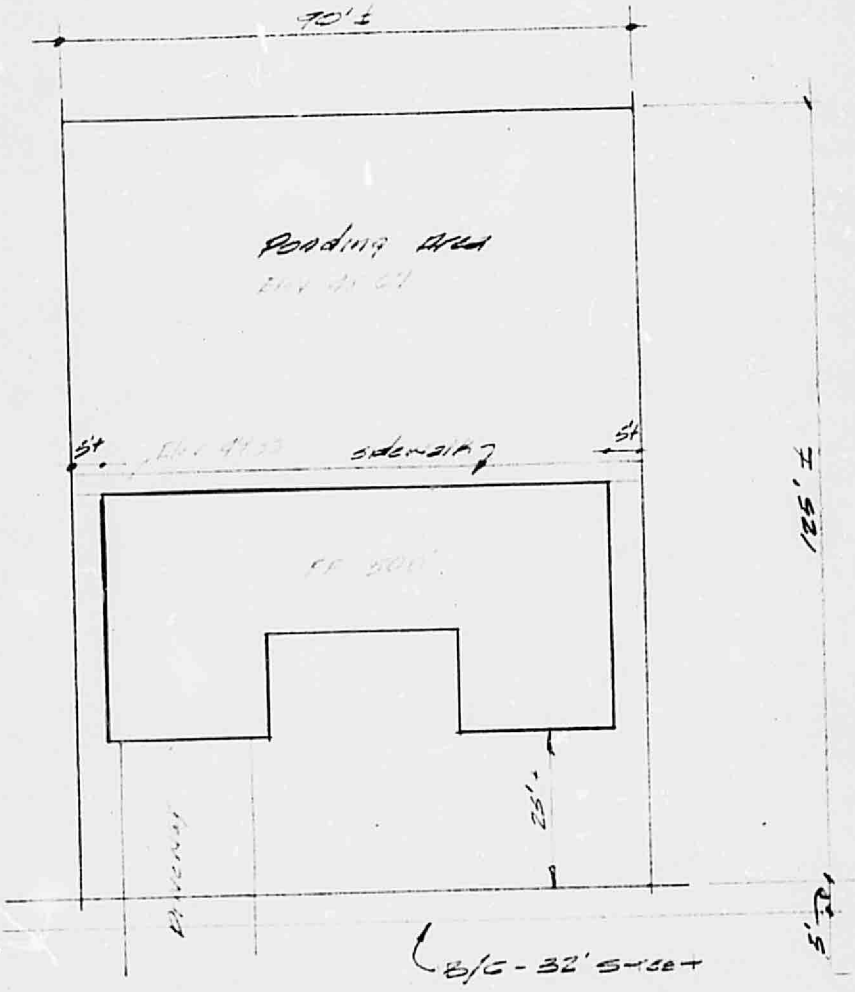
SIERRA AZUL
DELMAR TERRACE ADD.
ALTIPLANO ADD
LA JOLLA PARK ADD
SALA GRANDE
DELLWOOD
YUCCA ELEMENTARY SCHOOL
BAND A HIGH SCHOOL
SOMBRA DEL MONTE
BROAD
VILLAGE MANOR ADD
VISTA ENCANTADA
EVA J ROBERTS ADD
LOUISIANA ADD
LA MESA MEDICAL CENTER ADD
ST PIUS X HIGH SCHOOL
ST PIUS X ADD
INDIAN SCHOOL
ZUNI
LESTER
HOFFMAN PARK
CLEVELAND JUNIOR HIGH SCHOOL
MONTGOMERY ELEMENTARY SCHOOL
MONROE JUNIOR HIGH SCHOOL
FIRE STATION NO 15
LOCATION MAP



TYPICAL LOT PLAN

Scale 1" = 20'