PUBLIC WORKS/HYDROLOGY

F18/D13

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F18/D13

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City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

May 15, 1984

Mr. Jay Olson
Tom Mann & Associates, Inc.
811 Dallas NE
Albuquerque, NM 87110

REF: REVISED GRADING AND DRAINAGE PLAN FOR F.C.F. PROPERTIES (F18-D13)
RECEIVED APRIL 25, 1984

Dear Mr. Olson:

Based on the information provided on your April 25, 1984 resubmittal, the above referenced drainage plan is approved.

If you have any questions or comments, please feel free to call me at 766-7644.

Sincerely,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:BJM:mrk

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Tom Mann Associates Inc.
Engineers
811 DALLAS, N.E. • ALBUQUERQUE • NEW MEXICO • 87110 • 505-265-5611

RECEIVED
APR 25 1984
HYDROLOGY SECTION

30303
April 18, 1984

Mr. Billy J. Goolsby
Design Hydrology Section
123 Central N.W.
Albuquerque, New Mexico 87102

Re: Grading and Drainage Plan for F.C.F. Properties (F18-D13)

Dear Billy:

Thank you for taking the time to review this plan even though it was missing the engineer's stamp and signature. It has since been corrected.

In response to the additional comments in your letter dated April 13, 1984, I offer the following information.

1. Free discharge into the Domingo Baca Arroyo has been permitted by Mr. Jim Fink in a previous meeting between Mr. Fink and Mr. Jeff Mortensen.

2. The capacity of the proposed storm sewer is discussed in the plans for the construction of San Bernardino Avenue, prepared by our office. Enclosed with this resubmittal is a copy of the construction drawings for San Bernardino Avenue (City Project No. 2082). The proposed storm drain system in San Bernardino Avenue N.E. has been jointly developed by Mr. Jim Fink and Mr. Jeff Mortensen.

3. Also shown by the referenced construction drawings is that a water block is proposed at the intersection of San Bernardino Avenue and Louisiana Boulevard; therefore, no other flows will be contributing to this storm sewer system. This has also been coordinated between Mr. Fink and Mr. Mortensen.

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If you have any questions or comments, please do not hesitate to call.

Sincerely,

TOM MANN & ASSOCIATES, INC.

Jay T. Olson

Jay T. Olson
Project Engineer

JTO:kl

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APR 1 7 1984

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

April 13, 1984

Mr. Jay Olson
Tom Mann & Associates Inc.
811 Dallas NE
Albuqerque, NM 87110

REF: GRADING AND DRAINAGE PLAN FOR F.C.F. PROPERTIES (D18-D13) RECEIVED MARCH 20, 1984

Dear Jay:

I have reviewed the above referenced plan and forward the following comments:

1. Downstream capacity to allow free discharge has not been addressed. What is the capacity of the proposed storm sewer? Are there any other flows contributing to this system that will impact this site?

2. The plan does not have the stamp or signatrue of the engineer nor date of the engineer's review.

Should you have any questions or comments, please contact me at 766-7644.

Yours truly,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Admin.

BJG:mrk

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Drainage Study

11-28-72

Plaza del Oso Townhouses

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NEW MEXICO JOHN W. BETTIS

ENCHANTMENT ENGINEERING

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DESCRIPTION OF AREA

PLAZA del OSO TOWNHOUSES LIE ON 13.14 ACRES ON THE CORNER OF SAN PEDRO AVENUE N.E. AND OSUNA ROAD N.E. THE GROUND CONSISTS OF SANDY SOIL WITH ROUGH GRASS AND A SLOPE FROM SOUTHEAST TO NORTHWEST OF 2.3%.

WATER ENTERS THE SUBDIVISION FROM THE SOUTHEAST CORNER ONLY, DUE TO ROADS AND EXISTING BUILDINGS ON THE OTHER SIDES. THE WATER ENTERS FROM 4.76 ACRES AT A POINT SHOWN ON THE DRAINAGE MAP. DRAINAGE OF THE MAIN PORTION OF THE PROPERTY WILL BE CHANNELED IN THE STREETS TO THE NORTHWEST CORNER OF THE PROPERTY AT WHICH POINT IT WILL FLOW INTO OSUNA ROAD AND CONTINUE WEST.

IT IS THE PLAN OF THIS REPORT TO SHOW THAT WATER FROM THE ROOF OF EACH UNIT CAN BE PONDED AROUND EACH UNIT. ALSO THAT THE WATER IN THE GREEN AREAS WILL BE PONDED IN THOSE AREAS. THUS THE MAIN PORTION OF THE RUNNOFF WILL BE FROM THE STREETS AND DRIVEWAYS. THIS AMOUNT IS LESS THAN THE AMOUNT OF WATER BEING PRODUCED BY NATURAL RUNOFF AT THE PRESENT TIME.

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NATURAL RUNOFF AT THE PRESENT TIME

LAND CONSISTS OF POOR GRASS AND SAND.

$L = 1520$ FT.

$I = 3.6$ IN/HR

$C = .283$ agree?

$A = 13.14$ ACRES

$Q_{100} = CIA = 13.39$ CFS

RUNOFF FROM OUTSIDE THE PROPERTY

RUNOFF FROM OUTSIDE THE PROPERTY CONSISTS OF A 2.5 ACRE VACANT LOT AND A 2.26 ACRE APARTMENT SITE.

VACANT LOT

$A = 2.5$ ACRES

$I = 3.6$ IN/HR

$C = .283$

$Q = CIA = 2.55$ CFS

APARTMENT SITE

GRASSED AREA

$A = 0.94$ ACRES

$C = .15$

$I = 4.5$ IN/HR

$Q_G = CIA = 0.63$ CFS

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PAVED AREA

$A = 0.69$ ACRES

$C = 0.875$

$I = 4.5$ in/hr

$Q_P = CIA = 2.72$ CFS

ROOFED AREA

$A = 0.63$ ACRES

$C = 0.825$

$I = 4.5$ in/hr

$Q_R = CIA = 2.34$ CFS

TOTAL RUNOFF FROM APARTMENT SITE $Q_{100} = 5.69$ CFS

TOTAL RUNOFF FROM OUTSIDE PROPERTY $Q_{100} = 8.24$ CFS

This RUNOFF WILL ENTER THE PROPERTY AT THE POINT SHOWN ON THE DRAINAGE MAP AND FLOW THROUGH LA FIESTA DRIVE to OSUNA ROAD.

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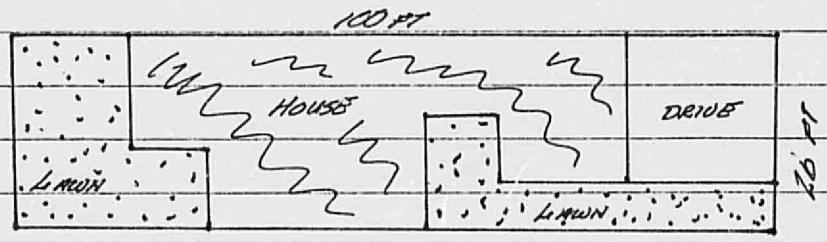
PONDING ON THE PROPERTY.

IN THIS AREA OF THE CITY 3.0 INCHES OF RAINFALL COLLECT IN A 6 HOUR PERIOD ACCORDING TO THE RAINFALL ISOPLUVIALS PROVIDED BY AMMFCA. THE GRASSED AREAS WILL BE SHAPED TO HOLD WATER ON THEMSELVES IT WILL ABSORB INTO THE GROUND. AFTER THIS PONDING THE ONLY RUNOFF WILL BE FROM THE STREETS AND DRIVEWAYS.

TYPICAL LOT



ROOF AREA = 1350 FT^2 = 0.031 ACRES

AMOUNT OF WATER = 0.031 ACRES × 3.0* IN × $\frac{1 FT}{12 IN}$ = 0.0078 AC. FT.

LAWN AREA = 870 FT^2

$$W_{MAX} = \frac{870\ FT^2 \times .4\ FT\ POND}{43560\ FT^2/ACRE} = 0.0079\ AC.\ FT.$$

WITH AN AVERAGE DROP OF 0.4 FT AROUND UNITS WATER FROM EACH UNIT WILL POND AROUND ITSELF.

* RAINFALL FOR AREA 100 YEAR STORM 6 hr. PRECIPITATION

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DRAINAGE OF STREETS

WATER FROM DEL CAMPO PLACE WILL DRAIN NORTH ON DEL CAMPO WITH A QUANITY OF 0.75 CFS. THIS DRAINAGE WILL ENTER SAN PEDRO THEN FLOW WEST ON OSUNA. DE LEON WILL DISCHARGE 0.35 CFS INTO OSUNA. BOTH DEL CAMPO AND DE LEON WILL THEN DRAIN WEST ON OSUNA AND INTO AN EXISTING STORM SEWER ON OSUNA.

LA FIESTA WILL DRAIN WEST AND NORTH WITH A TOTAL DISCHARGE INTO OSUNA OF 7.68 CFS. THIS WILL BE IN ADDITION TO THE DRAINAGE THAT IS ENTERING THE PROPERTY FROM THE SURROUNDING LAND WHICH IS 8.24 CFS. EL TORRO WILL DRAIN WEST AND ENTER OSUNA WITH A DISCHARGE OF 1.73 CFS. THEREFORE THE TOTAL DISCHARGE INTO OSUNA FROM LA FIESTA, EL TORRO AND THE SURROUNDING LAND IS 17.65 CFS.

CAMPO REAL COURT WILL DRAIN SOUTH WITH A DISCHARGE OF 1.77 CFS. THIS DRAINAGE WILL ENTER THE PONDING AREAS SHOWN ON THE DRAINAGE MAP AND BE RETAINED THERE.

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APPENDIX

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BIBLIOGRAPHY

1. DATA BOOK FOR CIVIL ENGINEERS, DESIGN
Vol. 1; SEELYE, ELWYN E. 1948
p 5-00, 5-25

2. 1963 MASTER PLAN OF DRAINAGE FOR CITY OF
ALBUQUERQUE AND ITS ENVIRONS; HERKENHOFF
AND ASSOCIATES, GORDEN. 1963

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PLAZA del OSO

TOWNHOUSES

Desert Terrace

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
NO. 3441
NEW MEXICO
JOHN W. BEITS

ENCHANTMENT
ENGINEERING

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DESCRIPTION OF AREA

PLAZA del OSO TOWNHOUSES lies on 13.14 ACRES on the corner of SAN PEDRO AVE N.E. and OSUNA ROAD N.E. THE GROUND consists of sandy soil with rough grass and a slope from southeast to northwest of 2.3%.

WATER ENTERS THE SUBDIVISION FROM THE SOUTHEAST CORNER ONLY DUE TO ROADS AND EXISTING BUILDING ON THE OTHER SIDES. THE WATER ENTERS FROM 2.55 ACRES AT A POINT SHOWN ON THE DRAINAGE PLAT. WATER COMING ONTO THE PROPERTY WILL BE CHANNELED IN THE STREETS INTO OSUNA ROAD WHICH IS CARRYING THE WATER FROM THE PROPERTY AT THE PRESENT TIME.

IT IS THE PLAN OF THIS REPORT TO SHOW THAT WATER FROM THE ROOF OF EACH

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UNIT CAN BE PONDED AROUND EACH UNIT. ALSO THAT THE WATER IN THE GREEN AREAS WILL BE PONDED IN THOSE AREAS. THUS THE ONLY RUNOFF FROM THE PROPERTY WILL BE FROM THE STREETS & DRIVEWAYS. THIS AMOUNT IS LESS THAN THE AMOUNT OF WATER BEING PRODUCED BY NATURAL RUNOFF AT THE PRESENT TIME.

NATURAL RUNOFF AT THE PRESENT TIME

THE LAND CONSISTS OF POOR GRASS & SAND

L = 1520 ft
I = 3.6 in/hr
C = .283

Q = 13.14 × 3.6 × .283 = 13.39 cfs

RUNOFF FROM OUTSIDE PROPERTY

AREA DRAINING ON TO PROPERTY = 2.55 ACRES

I = 3.6 in/hr
C = .283

Q = 2.55 × 3.6 × .283 = 2.597 cfs

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
NO. 3441
NEW MEXICO
JOHN W. BEITIS

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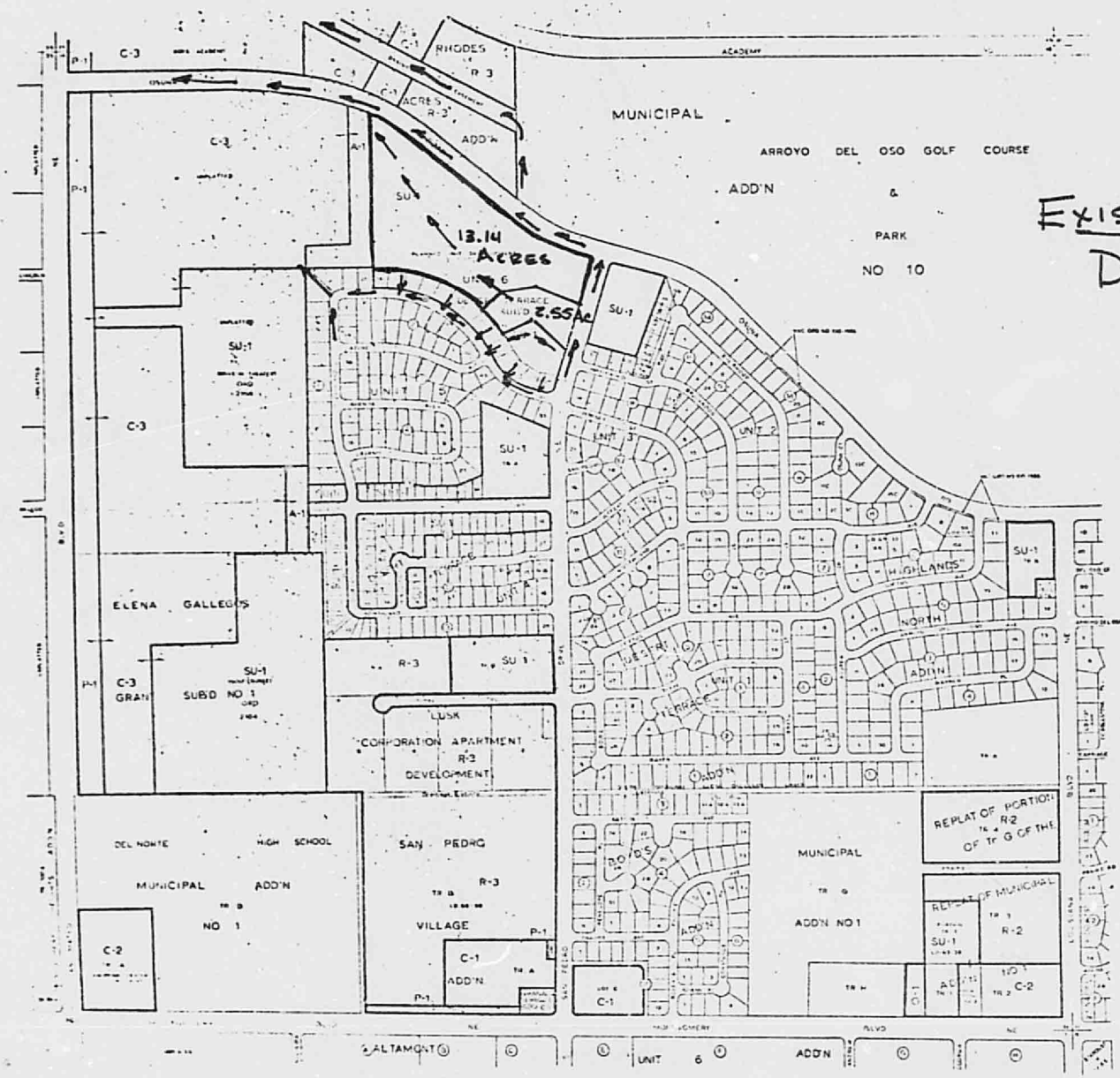
EXISTING
DRAINAGE
PATTERN
13.14 ACRES
2.55 AC
MUNICIPAL
ARROYO DEL OSO GOLF COURSE
ADD'N
&
PARK
NO 10
RHODES
ACRES
ADD'N
ACADEMY
ELENA GALLEGOS
SUBD NO 1
DEL NORTE HIGH SCHOOL
MUNICIPAL ADD'N
NO 1
SAN PEDRO
VILLAGE
LUSK
CORPORATION APARTMENT
DEVELOPMENT
HIGHLANDS
NORTH
ADD'N
MUNICIPAL
ADD'N NO 1
REPLAT OF PORTION OF TR G OF THE
ALTAMONT
UNIT 6
ADD'N
F-18-Z

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REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 3441 NEW MEXICO JOHN W. BETTIS

PAVEMENT TO BE DRAINED INTO OSUNA RD.

IN THIS AREA OF THE CITY 2.8 in COLLECT IN 6 hr. IF GREEN AREAS ARE SHAPED TO HOLD WATER ON THEMSELVES IT WILL ABSORBED INTO THE GROUND. AFTER THIS PONDING THE ONLY RUNOFF INTO OSUNA Rd COMES FROM THE STREETS & DRIVEWAYS.

AREA OF STREETS & PARKING AREAS = 2.217 Ac
AREA OF DRIVES 1.070 Ac
3.287

I = 4.5 in/hr
C = .875

Q = 4.5 × .875 × 3.287 = 12.942 cfs

12.942 cfs is less than 13.39 cfs NATURAL RUNOFF

A 27' ROAD with a 6" crown WILL CARRY 63.28 cfs* far in excess of THE 12.942 + 2.597 = 15.539 cfs EXPECTED

* INTERPOLATED FROM TABLE IV, STREET CARRYING CAPACITYES (2)

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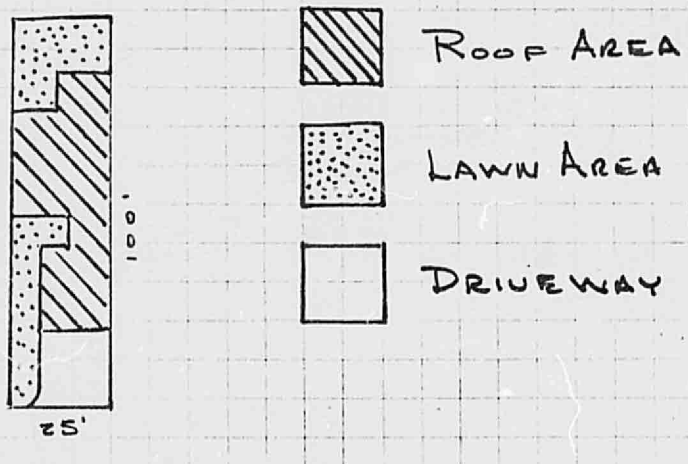
Ponding Around Buildings

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 3441 NEW MEXICO JOHN W. BEITS

Typical Lot

Note: The depth of the pond on any specific lot can be increased or decreased to accomodate water on that particular lot.



Roof Area = 1285 sf = .029 Acres

Amount of water = $.029 \times 2.8^{*} \times \frac{1\,ft}{12\,in}$ = .0068 Ac-ft

Back yard = 425 sf
Front yard = 430 sf
855 sf

$W_{max} = \frac{855 \times .4\,ft\ pond}{43560} = .00785$ Ac-ft

With an average drop of .4 ft, around units, water from each unit will pond around itself. The only runoff would be the driveways.

* Rainfall for area 100yr storm 6hr precipitation

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BIBLIOGRAPHY

1. DATA BOOK FOR CIVIL ENGINEERS, DESIGN, VOL I, Seelye, Elwyn E. 1948. P 5-00 - 5-25

2. 1963 MASTER PLAN OF DRAINAGE FOR CITY OF ALBUQUERQUE AND ITS ENVIORNS, HERKENHOFF & ASSOCIATES, GORDEN. 1963.

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PLANS/PLATS ON FILE

FILE DESC: F18/D13

PLANS/PLATS 4

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