HYDROLOGY

H16/D18

MENAUL DEVEL.

LOT 1 TRACT D

H16-D18

2 PLANS

DRAINAGE REPORT

LOT 1, TRACT D, MENAUL DEVELOPMENT

2500 PRINCETON DRIVE, N.E.

PREPARED FOR

THE BANES COMPANY

OCTOBER 1978

PREPARED BY

FRED DENNEY & ASSOCIATES, INC.

CONSULTING ENGINEERS

5643 PARADISE BLVD., N.W.

ALBUQUERQUE, NEW MEXICO 87114

I, Louis W. Gross, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

Louis W. Gross
New Mexico Registered Professional
Engineer and Land Surveyor No. 4100

LOUIS W. GROSS
NEW MEXICO
4100
LAND SURVEYOR
REGISTERED PROFESSIONAL ENGINEER

DRAINAGE REPORT

LOT 1, TRACT D, MENAUL DEVELOPMENT

2500 PRINCETON DRIVE, N.E.

I. GENERAL

This study involves a drainage plan for Lot 1 of Tract D in the Menaul Development. The City of Albuquerque address for the subject tract is 2500 Princeton Drive, N.E. (See Location Map). The tract contains an area of approximately 51,870 square feet. The property is in a designated special flood hazard area and is not adjacent to any natural or artificial water-courses. A request for letter of map amendment has been filed with the Federal Insurance Administration so that a determination can be made as to whether or not the subject tract should be included in a special flood hazard area. Drainage from adjacent properties is diverted away from the subject property via small drainage channels or by the topography of the area. Runoff created from the development of this tract will be routed to onsite ponding areas via drainage swales (See Grading Plan) and released offsite to streets adjacent to the property.

II. COMPUTATIONS

A. RUNOFF

100 year, 6 hour, precipitation = 2.3 inches.

Area #1 Before Development:

19,390 square feet

Volume Runoff:

$0.4 \times 2.3'' \times 1/12 \times 19{,}390\ ft^2 =$ 1490 cu. ft.

Area #1 After Development:

4,750 square feet (Roof)

14,640 Square Feet (Landscaped)

Volume Runoff:

$0.9 \times 2.3'' \times 1/12 \times 4750\ ft^2 =$ 820 cu. ft.

$0.4 \times 2.3'' \times 1/12 \times 14{,}640\ ft^2 =$ 1,123 cu. ft.

1,943 cu. ft.

Area #1 Required Storage = 1943 - 1490 = 453 cu. ft.

Area #2 Before Development:

3,450 square feet

Volume Runoff:

$0.4 \times 2.3'' \times 1/12 \times 3{,}450\ ft^2 =$ 265 cu. ft.

Area #2 After Development:

3,450 square feet (graveled parking & roof area)

Volume Runoff

$0.9 \times 2.3'' \times 1/12 \times 3{,}450\ ft^2 =$ 595 cu. ft. Total

Area #2 Required Storage = 595 - 265 = 330 cu. ft.

Area #3 Before Development

23,239 square feet

Volume Runoff

$0.4 \times 2.3'' \times 1/12 \times 23{,}239\ ft^2 =$ 1,782 cu. ft.

Area #3 After Development:

8,965 square feet (Roof)

14,274 square feet (Landscaped)

Volume Runoff

$0.9 \times 2.3'' \times 1/12 \times 8{,}965\ ft^2 =$ 1,547 cu. ft.

Area #3 After Development (CONTINUED)

$0.4 \times 2.3'' \times 1/12 \times 14{,}274\ ft^2 = 1{,}095$ cu. ft.

2,642 cu. ft. Total

Area #3 Required Storage - 2,642 - 1,782 = 860 cu. ft.

Area #4 Before Development:

5,790 square feet

Volume Runoff

$0.4 \times 2.3'' \times 1/12 \times 5{,}790\ ft^2 = 444$ cu. ft.

Area #4 After Development:

5,790 square feet (graveled parking)

Volume Runoff

$0.9 \times 2.3'' \times 1/12 \times 5{,}790\ ft^2 = 999$ cu. ft.

Area #4 Required Storage = 999 - 444 = 555 cu. ft.

B. STORAGE

Area #1

$V_1 = 4.75\ ft^2 \times 147\ ft = 698$ cu. ft. (Pond #1)

698 cu. ft. > 453 cu. ft. Required.

Area #2

$V_2 = 7\ ft^2 \times 50\ ft = 350$ cu. ft. (Pond #2)

350 cu. ft. > 330 cu. ft. Required.

Area #3

$V_5 = 5\ ft^2 \times 48\ ft = 240$ cu. ft. (Pond #5)

$V_6 = 4\ ft^2 \times 205\ ft = 820$ cu. ft (Pond #6)

1060 cu. ft. > 860 cu. ft. Required.

Area #4

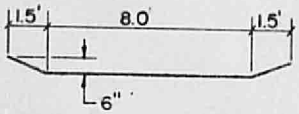
V_3 = 13.00 ft^2 x 51 ft = 663 cu. ft. (Pond #3)

V_4 = 4 ft^2 x 17 ft = 68 cu. ft. (Pond #4)

731 cu. ft. >555 cu. ft. Required.

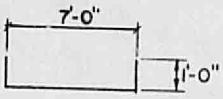
III. POND CROSS SECTIONS

Pond #1

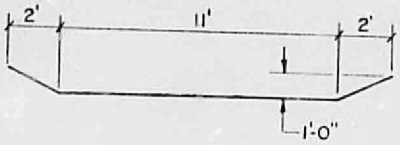


III. POND CROSS SECTIONS (CONTINUED)

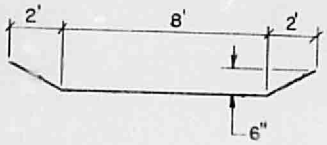
Pond #2



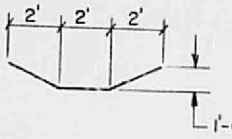
Pond #3



Pond #5



Pond #4&6



IV. CONCLUSIONS & RECOMMENDATIONS

1. That the subject Tract be developed in accordance with the attached grading plan.
2. Since this plan conforms with City Standards we recommend it be approved by the City of Albuquerque Drainage Engineer.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
WASHINGTON, D. C. 20410

IN REPLY REFER TO:

REQUEST FOR LETTER OF MAP AMENDMENT

The following information is attached in support of my request that a determination be made as to whether or not a certain land area or structure is in a Special Flood Hazard Area (A or V zones) on the official Federal Insurance Administration Flood Hazard Boundary Map (FHBM) or Flood Insurance Rate Map (FIRM) numbered 350002A, (community number) 15 (panel number).

(Please check if attached)

✓ (1) An actual copy of the recorded plat map for Menaul Development Area bearing the seal of the circuit clerk (County Clerk or Recorder of Deeds) indicating the official recordation and proper citation (Deed or Plat Book Volume and Page Numbers).

✓ (2) A topographical map which shows: ground elevation contours, the total area of the property in question, the location of the structures on the property in question, and an indication of the curvilinear line which represents the area subject to inundation by a flood having a one-percent chance of occurrence in any given year based on FHBM (source of flooding information).

✓ (3) Copy of FHBM or FIRM for Albuquerque, N.M. (name of community), on which the location of the property in question is indicated.

✓ (4) Certification by a registered engineer or licensed surveyor stating: 1) the type of structure; 2) whether or not it is elevated on posts or piers; and 3) the elevation of the lowest finished grade adjacent to the structure.

✓ (5) Other (Please list.)

A. Pertinent technical information supporting the opinion that the land in question is not located in a special flood hazard area.

The above statements and all documents submitted in support of this appeal are correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

11/27/78
(Date)

Louis M. Gross
(Signature of Applicant)

FRED DENNEY & ASSOCIATES, INC.
CONSULTING ENGINEERS
5643 PARADISE BLVD., N.W.
ALBUQUERQUE, NEW MEXICO 87114
(505) 898-7457

November 28, 1978

Mr. Bruno Conegliano
Drainage Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

Re: Drainage Report for 2500
Princeton Drive N.E.
F.D. Job No. 351.12

Dear Mr. Conegliano:

Transmitted herewith is one copy of subject drainage report and a package of information required to support our request for Letter of Map Amendment. It is our understanding that you will forward the request for Letter of Map Amendment to the Federal Insurance Administration once you have reviewed it.

In your previous review, you indicated that pond slopes should not exceed 3 horizontal to 1 vertical. It is our opinion that because the pond areas are small in nature, that slopes greater than 3:1 pose no construction problems. Also, 3:1 slopes would require that pond areas be larger than are actually necessary. We would like your concurrence on this point.

If you have any questions or comments, please call.

Very truly yours,

John A. Segotta

John A. Segotta

JAS:ks

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

December 6, 1978

Mr. Lou Gross
Fred Denney & Associates, Inc.
5643 Paradise Blvd. N.W.
Albuquerque, New Mexico 87114

RE: LOT 1, TRACT D, MENAUL DEVELOPMENT, 2500 PRINCETON DR. N.E.

Dear Mr. Gross:

I have reviewed the drainage report for the referenced development and I am in agreement with the on-site drainage scheme.

I have to point out that the request for removal from the flood hazard area must be submitted to the F.I.A. by the City of Albuquerque which is locally responsible for the management of the program. I need to advise you that until a positive response is received from the Administration of the F.I.A., flood insurance must be obtained for the proposed new construction.

Very Truly Yours,

Bruno Conegliano
Asst. City Engineer-Hydrology

BC/tl

cc: Drainage File
Richard Heller, City Engineer
Rick Leonard, AMAFCA

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
WASHINGTON, D. C. 20410

Marcel Schaal

FEB 28 1979

RECEIVED
MAR 06 1979
MAYOR'S OFFICE

IN REPLY REFER TO:
IFE(221):
FLO-1

Mayor
City Hall
P. O. Box 1293
Albuquerque, New Mexico 87103

Dear Sir:

Enclosed is a copy of a letter of map amendment which has the effect of amending the Federal Insurance Administration (FIA) Map No. H 350002A Panel 15 for the City of Albuquerque, New Mexico.

In accordance with our regulations, the enclosed letter shall be attached to the copy of the above map which is maintained in your files.

If we can be of further assistance, please let us know.

Sincerely,

Gloria M. Jimenez

Gloria M. Jimenez
Federal Insurance Administrator

Enclosure

RECEIVED
PLANNING DEPARTMENT
MAR 9 1979
ALBUQUERQUE, N.M.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION
WASHINGTON, D. C. 20410

Mr. Robert F. Sykes, P.E.
Wilson & Company
P. O. Box 3305
1321 San Pedro N.E.
Albuquerque, New Mexico 87110

FEB 28 1979

IN REPLY REFER TO:

IFE(218):
FLO-1

Dear Mr. Sykes:

This is in response to your letter of May 4, 1978, requesting that the Federal Insurance Administrator determine whether the Menaul School property located at the northwest intersection of Menaul Boulevard N.E. and Pan American Freeway (ISR 25), measuring approximately 2100 feet by 1650 feet, as shown on the Albuquerque, New Mexico Zoning Map, Panel H-15-Z, is located within the Special Flood Hazard Area.

We have reviewed the Flood Hazard Boundary Map in light of the additional flood data you furnished and have determined that the above mentioned property is not within the Special Flood Hazard Area; therefore, flood insurance is not required.

The above stated results of your request for exemption from the Federal requirement for the purchase of flood insurance are based on minimum criteria established by the Federal Insurance Administration (FIA) for flood plain management regulations and are intended only to reflect your status in relation to the Federal requirement for the purchase of insurance. Community officials, based on knowledge of local conditions and in the interest of human safety may set higher standards for construction in the flood plain than the minimum criteria established by FIA. If the State of New Mexico or the City of Albuquerque has adopted more restrictive and comprehensive flood plain management criteria, these criteria are encouraged and take precedence over the minimum federal criteria for the purpose of regulating development in the flood plain. This policy is set forth in Section 1910.1(d) of the National Flood Insurance Program regulations.

This determination has the effect of amending the FIA Map No. H 350002A Panel 15. The City of Albuquerque, New Mexico and the State Coordinating Agency are being provided with copies of this letter of determination. A copy will also be forwarded to:

The National Flood Insurance Program
P. O. Box 34294
Bethesda, Maryland 20034
Phone. (800) 638-6620

If flood insurance was purchased as a requirement of direct Federal or federally-related financial assistance for a structure located in a designated Special Flood Hazard Area as shown on an official FIA map and if, at a later date, it is determined by a revision or an amendment to the FIA map that the structure in question is, in fact, located outside the curvilinear boundary of the area which will be inundated by the 100-year flood, a full refund of the premium paid for the current policy year may be obtained from the servicing agent of the National Flood Insurance Program, through the particular insurance agent or broker who sold the policy, provided that no claim is pending or has been paid on the policy in question during the same policy year.

In order to facilitate the procedure by which eligible property owners may obtain a refund of premium, a written waiver or certificate must be obtained from the lender who imposed the requirement. Their certification will be required by your insurance agent if he is to process the premium refund request through the National Flood Insurance Program (NFIP).

If we can be of further assistance, please let us know.

Sincerely,

Gloria M. Jimenez
Federal Insurance Administrator

Craig S. Hinga

By Richard W. Krimm
Assistant Administrator
for Flood Insurance

cc:
NFIP
Local Map Repository
State Coordinating Agency for New Mexico

(4). 1. Type of Structure:
Prefabricated metal building by Butler Manufacturing Company.

2. The structure is not elevated on posts or piers.

3. The elevation of the lowest finished grade adjacent to the structure is 5,054.5 feet.

Datum is mean sea level.

(5). REQUEST FOR LETTER OF MAP AMENDMENT
LOT 1, TRACT D, MENAUL DEVELOPMENT

The subject tract is located in a designated Special Flood Hazard Area on the Flood Hazard Boundary Map, Plate 15 (See Attachment). The tract is situated within the watershed of the Arroyo del Embudo. However, the AMAFCA North Diversion Channel located approximately 2,100 feet east of the project site now intercepts all storm runoff from areas east of the Channel, including flows from the Arroyo del Embudo. We have calculated the 100 year storm within the area affecting the tract (See Exhibit "A"), and submit the following plan outlining where and how the 100 year storm flow for the area will be handled. (See following page for calculations).

1. Calculations based on the 100 year flood for the 75 acre area affecting this tract show that the 100 year flood Q = 107.5 cfs. (Following guidelines of the Albuquerque Metropolitan Arroyo Flood Control Authority Res. 72-2).

2. From the topography of the area and the location and carrying capacity of Phoenix Avenue, we have determined that Phoenix Avenue will intercept and route the storm flows to Princeton Drive and into a storm sewer system.

3. As a result of the development in the area, the Arroyo del Embudo has been subjected to a significant amount of fill construction.

4. We therefore submit, that the tract not be included in the designated Special Flood Hazard Area.

Calculations:

Rational Method (Q = AIR) will be used to calculate runoff for a 100 year frequency storm.

Study Area = 75 Acres (See Exhibit "A")

Runoff Coefficient = 0.40 (Natural Soil)

Time of Concentration

Concentration time is determined using average velocities in undeveloped areas of 1.5 feet per second.

Longest Reach = 2,500 feet

Tc = 2,500 ÷ 1.5 (60) = 28 minutes

Intensity

I = 189 ÷ (28 + 25) = 3.57 inch/hour

Runoff

Q = AIR

= 75 x 3.57 x 0.40 = 107.1 cfs

Street Capacity (See Exhibit "B") (Including 1" freeboard over top of curb)

A = 16.17 s.f.

P = 35.18 ft.

R = 16.17 ÷ 35.18 = 0.459

n = 0.013

The quantity of flow will be critical when the street slope is at a minimum. A minimum slope of 1% will be used in the following calculation:

Use the Manning Equation:

$$Q = \frac{1.486\ R^{2/3}\ S^{1/2}\ A}{n}$$

$$Q = \frac{1.486}{0.013}\ (0.459)^{2/3}\ (0.010)^{1/2}\ (16.17) = 110 \text{ cfs} > 107.1 \text{ cfs}$$

Phoenix Avenue will adequately handle the 100 year frequency storm.

At the present time Phoenix Avenue is a graded street and is not planned for construction in the immediate future. Therefore, the road section should be graded as a temporary measure to protect the development according to the following criteria:

1. Roadway cut a minimum of 1 foot below existing ground.
2. Minimum slope is 1%.
3. Road has flat cross-section, 30 feet wide.

$$Q = \frac{1.486}{n} R^{2/3} S^{1/2} A$$

n = 0.035 (Unpaved)

A = 30 sq. ft.

P = 32 Ft.

R = 30 ÷ 32 = 0.9375

$$Q = \frac{1.486}{0.035} (0.9375)^{2/3} (0.010)^{1/2} (30)$$

Q = 122.0 cfs

Therefore: The graded section prepared is adequate.

JOHN VANDER POL AIA
2539 B Wyoming NE
ALBUQUERQUE, NM 87112

(505) 298-7323

LETTER OF TRANSMITTAL

DATE 8-24-40 JOB NO. BARNHILL.

ATTENTION MR. Billy J. Goolsby. PE

RE:

TO Design Hydrology Section
123 Central NW.
ALBUQ NM. 87102

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			SITE PLAN. BARNHILL BOTT ADDITION.

RECEIVED AUG 24 1984 HYDROLOGY SECTION

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS We discussed this over the phone. The addition is going on existing asphalt. The original building was completed approx 1 yr. ago. We would like to be able to pull a permit on this without the full drainage study if possible. Please let us know.

Thanks

COPY TO _____

SIGNED: John Vander Pol

If enclosures are not as noted, kindly notify us at once.

PRODUCT 240-2 NEBS Inc., Groton, Mass. 01471

Pre-Design Investigation
(Additions)

DATE 8-29-89

ADDRESS 2510 PRINCETON DR. NE. ZONE ATLAS # H16-D18

LEGAL DESCRIPTION Lot 1 SP-77-106.

OWNER

ARCHITECT/ENGINEER

LOT SIZE

ZONING

PROPOSED DEVELOPMENT Addition.

	YES	NO	NA	COMMENTS
FLOOD HAZARD AREA		✓		
PART OF AN APPROVED REPORT	✓			
CONSTRUCTION PLANS ON MICRO-FILM				
FIELD INSPECTION	✓			

COMMENTS:

Plan Shows close pictures as to what is currently in Existence, Only Question was pond on North Side may be smaller than Plan Shows. Also Ponds ARE RETENTION Ponds. Steve [signature] 8-29-89.

DRAINAGE REQUIREMENTS:

?.

1883