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

February 23, 1983

Mr. James Domenick
Bohannan-Huston Inc.
4125 Carlisle Blvd. NE
Albuquerque, New Mexico 87107

Ref: Loma de Caliza Drainage Report
(J23-D12)

Dear Mr. Domenick:

The drainage analysis and drainage management plan proposed is found to be acceptable as to City requirements.

The following requirements are specified in order to obtain plat approval by Hydrology and the City Engineer:

1. As per the DRB meeting show a 15' drainage easement along the entire westerly property line, specifically the drainage dedication shall be granted to the abutting property owners with rights of egress and ingress for maintenance of a drainage swale to handle nuisance flows.

2. The City Engineer's approved private road estimate of construction cost along with a financial commitment acceptable to the Mayor is required.

3. A City approved drainage improvement estimate of construction cost along with a financial commitment acceptable to the City Engineer is required.

4. The cul-de-sac at the end of Daskalos Drive is not in the Capital Improvement Program and is therefore the responsibility of the developer, since this is an integral portion of the drainage network the curb gutter and asphalt shall also be financially guaranteed for installation.

Please contact me if you have any questions regarding these requests.

Sincerely,

Andre Houle
Civil Engineer/Hydrology

AH/el

cc: Drainage File
Reading File

BOHANNAN-HUSTON INC.
ENGINEERS PLANNERS PHOTOGRAMMETRISTS
4125 CARLISLE BLVD, N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

February 2, 1983

Mr. Charles M. Easterling
Principal Asistant City
Engineer/Hydrology
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Loma de Caliza Subdivision

Dear Chuck:

Enclosed is a copy of the drainage report for the proposed Loma de Caliza Subdivision (formerly known as Limestone Hill), for your review and approval. The plat is currently out for signatures, so we will appreciate your efforts to expedite the review.

If you have any questions or need any additional information, please do not hesitate to call Jim Domenick or me.

Sincerely,

Michial M. Emery, P.E.
Vice President

cc: Mr. Elmer Sproul

Enclosure

JVD/dlh
Job No. 2 073 3

J23-D12

RECEIVED
FEB 03 1983
ENGINEERING

LOMA DE CALIZA

DRAINAGE REPORT

PREPARED FOR:

SPROUL INVESTMENT CORPORATION
3800 CARLISLE BOULEVARD N.E.
ALBUQUERQUE, NEW MEXICO 87107

PREPARED BY:

BOHANNAN–HUSTON, INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87107

FEBRUARY, 1983

INFORMATION SHEET

PROJECT TITLE Loma de Caliza TYPE OF SUBMITTAL Drainage Report

ZONE ATLAS PAGE NO. J-23-Z and K-23-Z CITY ADDRESS North end of Daskalos Drive, N.E.

LEGAL DESCRIPTION PLEASE SEE BELOW

ENGINEERING FIRM Bohannan–Huston, Inc. CONTACT Jim Domenick

ADDRESS 4125 Carlisle Blvd., N.E. PHONE 881-2000

OWNER Sproul Investment Corp. CONTACT

ADDRESS 3800 Carlisle Blvd., N.E. PHONE 883-4900

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR Bohannan–Huston, Inc. CONTACT Dwain Weaver

ADDRESS 4125 Carlisle Blvd., N.E. PHONE 881-2000

CONTRACTOR CONTACT

ADDRESS PHONE

DATE SUBMITTED 2 FEB 1983

BY James Domenick

LEGAL DESCRIPTION: Replat of Tracts B-1-A and B-2-A, Lomas Subdivision (filed August 25, 1982)
Tract A, Pete Daskalos Heights Addition (filed March 16, 1979)
Tract 8C, Piedra Vista Subdivision (filed May 20, 1982)
A portion of Tract 9, Sproul-Security Subdivision No. 4 (filed March 14, 1975)

LOCATION AND DESCRIPTION

This drainage report addresses the proposed Loma de Caliza Subdivision, a proposed low-density, single-family residential subdivision located in the vicinity of Lomas Boulevard, N.E. about ½ mile east of Tramway Boulevard, N.E. The tract consists of approximately 11.5 acres and is bounded by the Upper Lomas Channel on the north and east, the Pete Daskalos Heights Addition on the south, and Ciudad Vista Subdivision on the west. Figure I is a vicinity map showing the location of the proposed subdivision, and a preliminary copy of the plat is enclosed as Plate I.

The proposed subdivision is located on a knoll consisting primarily of decomposed granite and rock outcrops. Soils on the western slope of the hill are classified as Rock Outcrop – Orthids Complex (ROF) by the SCS soil survey maps, a copy of which is reproduced herein as Figure II. This soil has high runoff characteristics and is classified under Hydrologic Condition D. Slopes are on the order of 30 percent.

METHOD OF ANALYSIS

Discharges and runoff volumes were computed for this parcel with the Rational Formula, in accordance with guidelines set out in Chapter 22 of the Development Process Manual. Computation for rainfall and runoff for the site are contained in Appendix A.

No off-site runoff will affect this property. The elevation is much higher than the surrounding land, and the Upper Lomas Channel diverts storm runoff from the mountains away from the site.

UNDEVELOPED CONDITIONS

At present, the area constituting the proposed subdivision is undeveloped. There are four natural drainage basins, as shown on Plate II. Basins 1 and 2 drain to Ciudad Vista Subdivision, and have natural 100-year peak discharges of 11.3 cfs and 11.2 cfs, respectively. Basin 3 drains to the Pete Daskalos Addition to the south, and Basin 4 discharges 20.9 cfs directly to the Upper Lomas Channel.

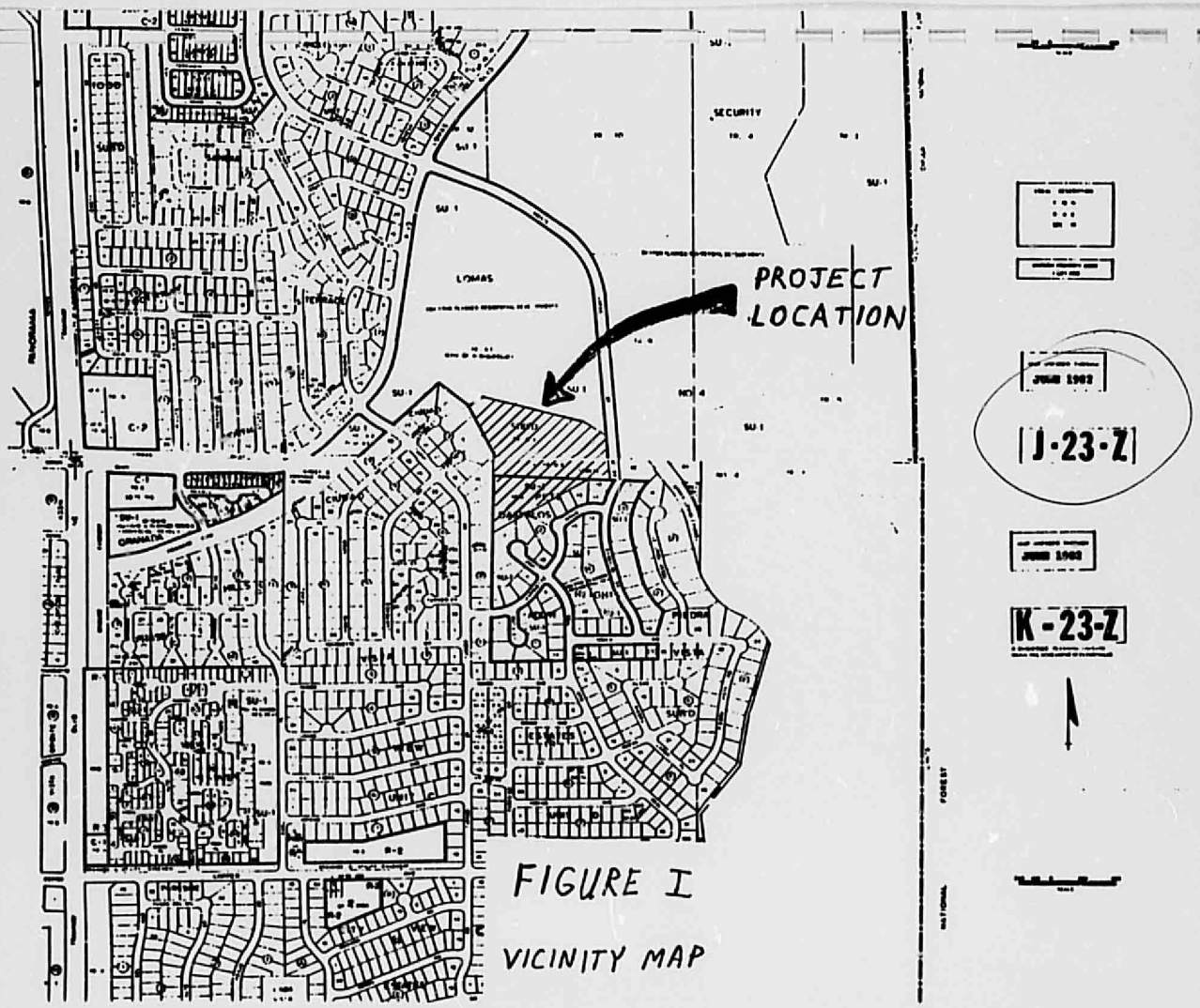

FIGURE I

VICINITY MAP

FIGURE II
SOIL MAP

Computations of runoff volumes and peak discharges are contained in Appendix A.

DEVELOPED CONDITIONS

The proposed subdivision will ultimately consist of nine lots for custom-built, single-family residences. There will be a paved road with curb and gutter to the top of the hill. Some of the grading of this road has already been accomplished.

This subdivision will consist of custom-built residences designed to fit the existing topography. Since the area is already largely impervious, this development will not change the volume of runoff from the site. However, construction of the road will change the drainage pattern somewhat, as shown on Plate III. The road will intercept some of the runoff from Basins 1, 2 and 3 and convey it to the Lomas Channel by means of a storm sewer. This will reduce the runoff reaching the developed subdivisions to the west and south of Loma de Caliza.

Appendix A contains peak discharge and runoff volume computations.

PROPOSED DRAINAGE IMPROVEMENTS

The only structural drainage improvements proposed for this subdivision are those required to convey runoff from the bottom of the private road to the Upper Lomas Channel; which will consist of a Type "C" catch basin, a 24" outlet pipe, and a concrete rundown to the channel.

In addition, there is an existing drainage easement along the south and west property lines, which will allow the adjacent property owners to convey runoff to the existing easement in the Daskalos Addition. This easement is shown on Plate I.

REFERENCES

1. City of Albuquerque, Development Process Manual, Chapter 22.

2. U.S. Department of Agriculture, Soil Conservation Service and Forest Service, "Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico," June, 1977.

LOMA DE CALIZA

I) UNDEVELOPED CONDITIONS — PLATE II

1) 4 BASINS — ① + ② DRAIN TO CIUDAD VISTA
③ DRAINS TO DASKALOS ADD'N
④ DRAINS TO LOMAS CHANNEL

2) FIND "C"
- SOIL TYPE IS "ROF" — HYDROLOGIC TYPE D
- ROCKY OUTCROPS OVER ABOUT 80% OF AREA
- FROM PLATE 22.2 C-1 C = 0.86

3) FIND I FOR EACH BASIN
- USING KIRPICH EQUATION, T_c IS LESS THAN 3 MIN FOR EACH BASIN, (SEE TABULATION SHEET)
- TRIAL + ERROR w/ MANNING'S EQ'N ALSO GIVES SHORT T_c VALUES, SO USE MINIMUM VALUE OF 10 MIN FOR ALL BASINS
- FROM PLATE 22.2 D-2; I = (2.3)(6HR RAINFALL)

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SUBJECT CH'D DATE

- FROM PLATE 22.2 D-1, THE 100 YEAR, 6HR RAINFALL IS 2.55 INCHES

$\Rightarrow I = (2.3)(2.55) = 5.87$ IN/HR (FOR ALL BASINS)

4) RUNOFF VOLUMES

$V = (C)(A)(\text{RAINFALL}) = (0.86)(A)(2.55\ \text{IN})$

$= 0.86\,(A)(0.21\ \text{FT})$

(SEE TABULATION SHEET FOR DISCHARGES AND VOLUMES)

II) DEVELOPED CONDITIONS - PLATE III

1) 5 BASINS (⑤ → ⑨)

⑤ + ⑥ DRAIN TO CIUDAD VISTA

⑦ DRAINS TO DASKALOS

⑧ DRAINS TO A STORM SEWER WHICH EMPTIES INTO UPPER LOMAS CHANNEL

⑨ DRAINS TO UPPER LOMAS CHANNEL

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PROJECT NO. 20733 BY JD DATE 1/26/23

SUBJECT _____ CH'D _____ DATE _____

2) THE RUNOFF WILL NOT CHANGE MATERIALLY AFTER DEVELOPMENT BECAUSE THE AREA IS MOSTLY IMPERVIOUS ALREADY.

$C = 0.86$

3) T_c WILL BE < 10 MIN FOR ALL BASINS

$\Rightarrow$ USE $T_c = 10$ MIN

$\therefore I = 5.87$ IN/HR AS IN UNDEVELOPED CASE

4) Q_{100} AND RUNOFF VOLUMES:

SEE TABULATION SHEET

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SUBJECT _____ CH'D _____ DATE _____

TABULATION

PROJECT LOMA DE CALIZA JOB NO. 20733

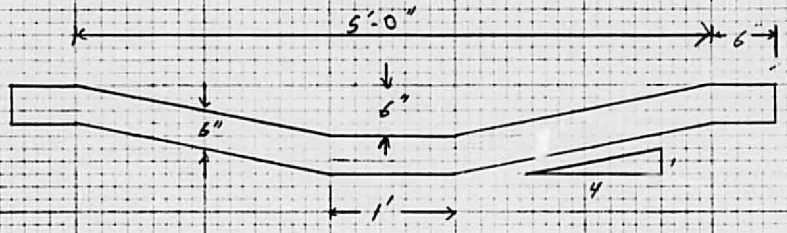
SUBJECT Q,100 BY JD DATE 11/25/82 CHK'D BY _____ DATE _____

BASIN ID	AREA (AC)	REACH LENGTH (FT)	UPPER ELEV. (FT)	LOWER ELEV. (FT)	SLOPE FT/FT	Tc (min)	I (IN/HR)	C	Q (CFS)	VOL (A-FT)
UNDEVELOPED – PLATE II										
1	2.24	650	6017	5890	0.20	2.14*	5.87	.86	11.31	0.41
2	2.22	400	6015	5910	0.26	1.32*	5.87	.86	11.21	0.41
3	2.93	750	6015	5920	0.13	2.80*	5.87	.86	14.79	0.54
4	4.13	200	6017	5940	0.39	0.67*	5.87	.86	20.85	0.75
DEVELOPED – PLATE III										
5	2.09	450	6002	5890	0.25	1.47*	5.87	.86	10.55	0.38
6	1.81	275	5994	5910	0.31	0.93*			9.14	0.33
7	1.82	450	5998	5920	0.17	1.70*			9.19	0.33
8	1.84	750	6017	5954	0.08	3.37*			9.29	0.33
9	3.96	200	6017	5940	0.39	0.67*	↓	↓	19.99	0.72
	* USE Tc = 10 MIN									

III) STORM SEWER + RUNDOWN FROM BASIN (8)
TO LOMAS CHANNEL

Q = 9.3 cfs

- INCOMING SLOPE = 0.031S
- FROM PLATE 22.3 D-5, A SINGLE "C" INLET @ 8" FLOW DEPTH WILL CARRY ≈ 13 cfs
  ⇒ USE A SINGLE "C"
- OUTLET PIPE — MIN SIZE = 24" ϕ
  24" RCP @ 2% SLOPE WILL CARRY 27 cfs (OK)
- RUNDOWN FROM PROPERTY LINE TO LOMAS CHANNEL 2% MIN SLOPE



Q MAX @ 2% = 9.3 cfs (OK) (6" DEEP)

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SUBJECT CH'D DATE