City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

June 15, 1987

George E. Paul, P.E.
D.T. Morrison
1020 Texas, NE
Albuquerque, New Mexico 87110

RE: REVISED DRAINAGE PLAN FOR BOB MYER'S USED CAR LOT
(J-19/D42) REVISION DATE JUNE 8, 1987

Dear George:

Based on the information provided on your resubmittal of June 12, 1987, the above referenced plan is approved for Building Permit. Please be advised that a separate permit is required for construction within City right-of-way.

Please attach a copy of this plan to the construction sets prior to sign-off by Hydrology.

If I can be of further assistance, please feel free to call me at 768-2650.

Cordially,

Bernie J. Montoya

Bernie J. Montoya, C.E.
Engineering Assistant

cc: Becky Sandoval

BJM/bsj

D R A I N A G E I N V E S T I G A T I O N

For Improvements On

LOTS 13 - 19 and TRACT "Y"
BLOCK 21, EAST END ADDITION

DRAINAGE INFORMATION SHEET

PROJECT TITLE: GRADING AND DRAINAGE PLAN ZONE ATLAS/DRNG. FILE #: J-19-Z / D42

LEGAL DESCRIPTION: Lots 13-19 And Tract "Y", Block 21, East End Addition

CITY ADDRESS: ,

ENGINEERING FIRM: G.E. PAUL - P.E & L.S. CONTACT: Same

ADDRESS: 12717 Viewcrest Pl. NE (87112) PHONE: 299-0295

OWNER: Bob Myers (AUTO SALES) CONTACT: Bob Myers or Joe Blythe

ADDRESS: 5712 Menaul NE (87110) PHONE: 884-9785

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

SURVEYOR: D.T. Morrison Surveyor, INC. CONTACT: D.T. Morrison or David Dawson

ADDRESS: 1020 Texas NE (87110) PHONE: 256-7364

CONTRACTOR: Willie Espinosa CONTACT: Same

ADDRESS: _____ PHONE: 897-2668

PRE-DESIGN MEETING:

____ YES

✓ NO

____ COPY OF CONFERENCE RECAP SHEET PROVIDED

RECEIVED
JUN 12 1987
HYDROLOGY SECTION

DRB NO. N.A.

EPC NO. N.A.

PROJ. NO. N.A.

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT

✓ DRAINAGE PLAN

____ CONCEPTUAL GRADING & DRAINAGE PLAN

____ GRADING PLAN

CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL

____ PRELIMINARY PLAT APPROVAL

____ SITE DEVELOPMENT PLAN APPROVAL

____ FINAL PLAT APPROVAL

DRAINAGE INVESTIGATION

Introduction:

The following calculation are intended to show the amount of runoff and the method of handling the stormwater from a 10-year frequency storm in the vicinity of Lots 13 - 19 and Tract "Y", Block 21 of the East End Addition, located north of Lomas Blvd., between Tennessee and Rhode Island Streets, Northeast.

As this property will be for an automobile sales lot, the area is assumed to be fully paved, with a hot plant-mixed bituminous surface course and accompanied by an office and a shop building, positioned as shown on the Grading and Drainage Plan.

The method of computation is by the "Rational" Formula (Q = A c i), where:

Q = runoff from a 10-year frequency storm in cfs.
A = total drainage area, in acres.
c = coefficient of runoff, or ratio of runoff/total rainfall.
i = Intensity of rainfall (inches/hr.) based on time of concentration, or time for rain falling at most remote point, to reach discharge point (sidewalk opening with plate cover, NW corner of property).

Calculations

Q = A c i
A = 1.67 Ac.
c = 0.95 for bituminous pavement with small (4904 s.f.) roofed area.
i = combined flow times of overland (remotest point to drainage channel or "ditch") flow and channel flow, using Seelye Engineering Design Handbook, pages 5-00 and 5-01.

Greatest overland flow distance = 340 ft., southeast to northwest.

Ditch flow distance = 30 ft. along westerly limits of Lot 19.

From Seelye Design Handbook, Nomograph on page 5-00, overland flow time for 340' paved strip, average slope of 1.529% = 6.5 min.

Ditch flow time with a paved swale, 10' bottom, 20' top width and a depth of 0.2', with a slope of 0.0095 and a length of 30 ft., computed by Manning Formula:

$$Q = a \frac{1.486}{n} R\ 2/3\ S\ 1/2, \text{ where } V = \frac{1.486}{n} R\ 2/3\ S\ 1/2$$

Then, V = velocity in ft./sec.

Ditch flow time for 30' ditch length = $\frac{30}{1.95}$ = 15.4 sec. or 0.26 min.

Total Flow Time, or Inlet Concentration Time = 6.5 + 0.26 = 6.76 min.

Then, using Seelye Handbook, pg. 5-00, reference 10-year rainfall from Yarnell curve, figure B; = 1.50 in. for central NM area.

From Intensity - Duration curves (Seelye, pg. 5-00, Figure J.), a duration (concentration time) of 6.76 min. and a rainfall of 1.50 in/hr., gives an "i" value of approximately 5.0 in./hr.

Q = A c i = 1.67 x 0.95 x 5 = 7.93 cfs.

Recommendation:

(Use double, 24" max. span/section sidewalk culvert with steel plate top, as per City Std. Detail Drawing K-16, located as shown on Grading and Drainage Plan.)

George E. Paul
NMPE & LS
#2544

SUPPLEMENTAL REPORT

D R A I N A G E I N V E S T I G A T I O N

For Improvements On

LOTS 13-19 and TRACT "Y"

BLOCK 21, EAST END ADDITION

JUNE 1, 1987

Purpose:

The purpose of this report is to supplement the original drainage investigation furnished to the City Public Works Department Engineering Group in mid-May of this year, by addressing certain other items required by the Hydrology Section in its letter of May 18, 1987, addressed to George E. Paul.

Actions:

1. Vicinity Map: Refer to two attached copies of the Grading/Drainage (Site) Plan, amended to provide this requirement.

2. Benchmarks: Refer to two attached copies of site plan, also amended to show T.B.M. on site and Control Survey Vertical Datum.

3. Approved filed copy of plat showing referenced lots: Submitted herewith are copies of the recorded plats involving these lots.

4. Cross-Lot Drainage: Attached are conveyance statements from the owners of Lots 13-19, Block 21, East End Addition, granting lot use for common access and drainage.

5. "Notes" Part from Sign off, No. 19 Format: The notes are now incorporated into the Site Plan as requested. (Refer to two amended copies attached).

6. On-Site developed and undeveloped flow volumes: Site is fully paved (bituminous surface course), hence following calculations are for developed flow only:

"C" value = 0.95 (paved area)

Reference curves, plate 22.2 C-4; use "95" value curve

Rainfall (P) inches = 2.4

From the curves, with P = 2.4 & curve no. 95,

Direct Runoff (Q) in inches = 1.9 ; Area in Acres = 1.67

$$\text{Volume} = \frac{1.9 \times 1.67 \times 43{,}560}{12} = 11{,}518 \text{ cu.ft. or } 0.264 \text{ ac. ft.}$$

7. Minimum Tc is 10 minutes: This parameter has been used in the 100-year storm calculations shown below.

Actions (cont'd.)

9. Calculations for capacity of proposed 24" sidewalk culvert:

$Q_T = 2/3 \times L \times \sqrt{2g} \times h_2^{1.5}$; where: L = 2.00 ft.

$h_1 = 0$; $h_2 = 7.25" = 0.604'$. Then,

$Q = 2/3 \times 2.00 \sqrt{64.4} \times .604^{1.5} = 2/3 \times 2.00 \times 8.025 \times .4694$

Q = 5.023 cfs capy. (< 8.048,*) hence

Use Two - 24" sidewalk culverts

10. Identify/quantify off site flows, if any: None exist. Refer to Vicinity Map. Abutting streets (Lomas Blvd., Tennesse St., Rhode Island St.,) are fully paved and curbed. Flows are restricted to paved street sections.

11. Direction and location of roof drains: None exist. Sheet flow only, off roofs onto pavement. (used 0.95 coeff. for roofs, instead of min. allowable of 0.90)

12. 100-year frequency calculations: Using the "Rational" Method, (Q=Aci) where:

A = area in acres = 1.67

c = coeff. of runoff for paved surface = 0.95

i = 5.073 in. hr. based on equation, I = 6 hr. rain x 6.84 x $T_c^{-.51}$

where 6 hr rain (Pennsylvania Lomas) = 2.4

T_c = minimum per DPM = 10 min

Then, $I = 2.4 \times 6.84 \times 10^{-.51} = 2.4 \times 6.84 \times .30903 =$ 5.073

* Q = 1.67 x 0.95 x 5.073 = 8.048 cfs (100-year runoff)

13. Encroachment Agreement: Asphalt is not proposed within city right-of-way, hence agreement is not applicable (see Grading/Drainage Plan).

14. Cross-section of proposed sidewalk culvert: Refer again to City Standard Drawing No. 2236, with Sec. "A-A" looking east. Spot elevations at flow line of gutter (west end of culvert) and east edge of sidewalk (east end of cul

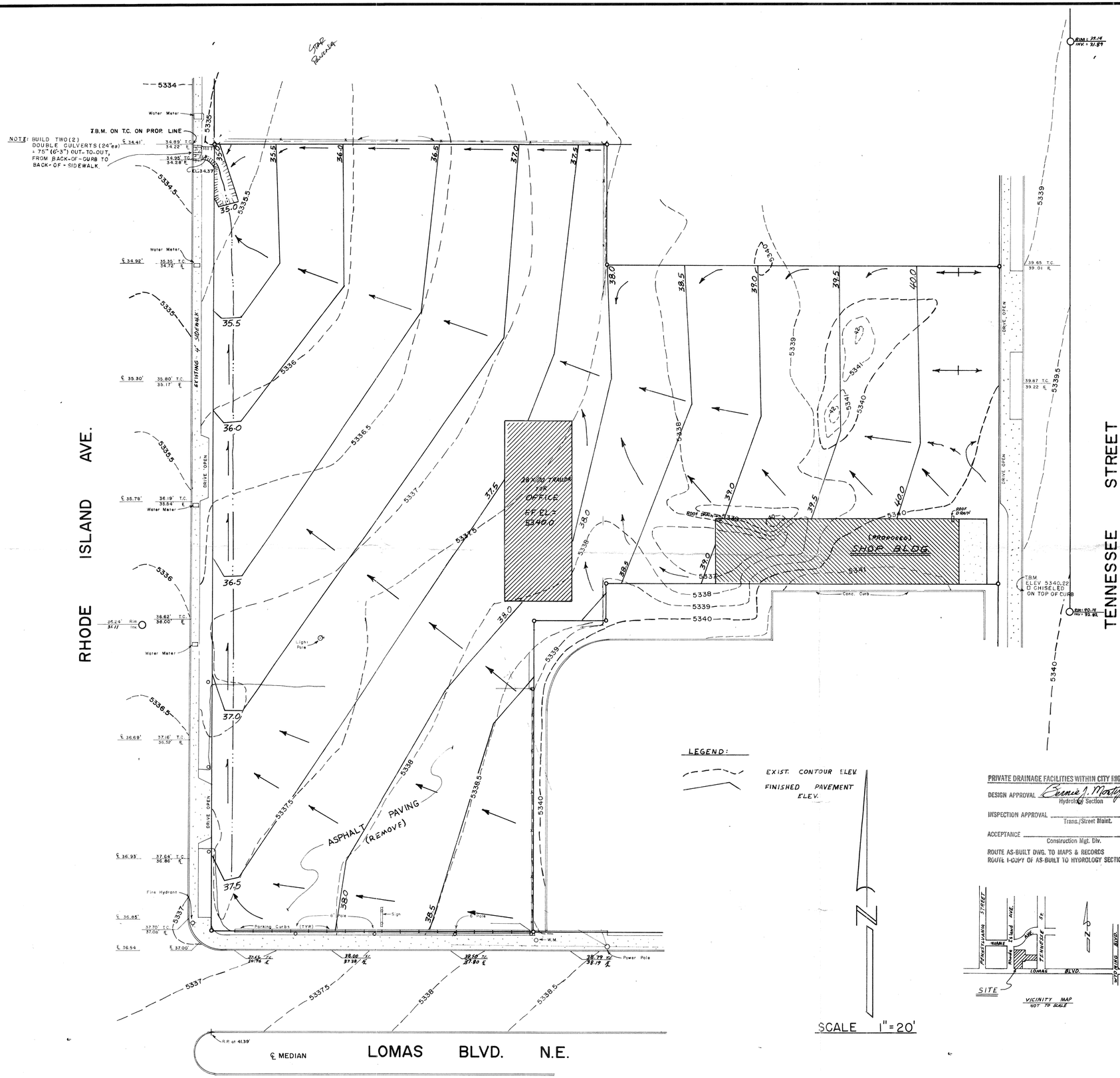
Conclusion:

The items requested by Mr. Montoya of the Hydrology Section have now been provided; either by this report or on the amended two copies of the site plan and approval to proceed with erection of buildings as shown, is respectfully requested.

George E. Paul

George E. Paul
NMPE & LS #2544

J-19-Z



LEGEND:

EXIST. CONTOUR ELEV

FINISHED PAVEMENT ELEV.

SCALE 1" = 20'

PRIVATE DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY

DESIGN APPROVAL Bernie J. Montoya 6/15/87
Hydrology Section Date

INSPECTION APPROVAL
Trans./Street Maint. Date

ACCEPTANCE
Construction Mgt. Div. Date

ROUTE AS-BUILT DWG. TO MAPS & RECORDS
ROUTE 1-COPY OF AS-BUILT TO HYDROLOGY SECTION

LEGAL DESCRIPTION OF PROPERTY SERVED: LOTS 13 THROUGH 19 AND TRACT "Y", EAST END ADDITION

BENCH MARK: CITY B.M. NO. 3-J19, ELEVATION: 5333.056. A CHISLELED SQUARE ON TOP OF CONCRETE CURB AT THE NOSE OF THE MEDIAN WEST OF THE INTERSECTION OF LOMAS BLVD. & PENNSYLVANIA STREET.

NOTICE TO CONTRACTOR

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECTION AND IS ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

George E. Paul
NMPE & LS # 2544

REV. - 6/8/87

GRADING AND DRAINAGE PLAN AND TOPOGRAPHY SURVEY MAP

OF

LOTS 13 THRU 19 AND TRACT "Y"
BLOCK 21, EAST END ADDITION

ALBUQUERQUE, NEW MEXICO
JANUARY 1987

RECEIVED
JUN 12 1987
HYDROLOGY SECTION

TP-356-B-1