HYDROLOGY K17/D39 1 PLAN

K17/D39

1 Plan

CITY OF [redacted]

# DRAINAGE AND GRADING PLAN
## For
WESTERN HALF TRACT 30, HEIGHTS RESERVOIR ADDN.

NORTH
SCALE : 1" = 20'

LOMAS BLVD. N.E.
100' ROW
84' PAVED

TC 26.35 FL 25.68
TC 26.88 FL 26.21
N 89°48'00" E
320.195'
309.68'
S 89°48'00" W
S 00°12'30" E

EXISTING CURB CUT
PROPOSED CURB CUT
LANDSCAPED
EXISTING BUILDING
AREA OF STUDY
MONROE STREET N.E.
MANZANO STREET, NE
TC 2430 FL 2363
TC 2390 FL 2323
TC 2340 FL 2273
EXISTING B.F. CURB & GUTTER
ROW 60 PAVED 32
STORM DRAINS

I. References
A. City of Albuquerque, Development Process Manual (DPM), Volume 2, Design Criteria
B. Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico, U.S. Soil Conservation Service.
C. Flood Insurance Rate Map, City of Albuquerque, New Mexico panel 29

II. General Information
A. Site Location and Elevation Data
1. Legal Description: Western half of Tract 30, Heights Reservoir Addition
2. Total Site Area: 2.259 Acres
3. City Address: 5414 LOMAS BLVD NE
4. City Bench Mark: I-J17
5. County Zone Atlas: K-17
B. Soil Type (Reference B) Rio Rubado, Sheet #31
Hydrologic Soils Group B
C. 6-hour, 100-year rain, $P_6$ = 2.3 inches Reference A, Plate
D. Runoff Coefficient ("C" Factor) Reference , Plate
Undeveloped "C" Factor, Curve is
Developed "C" Factor, assume the following values:
Buildings and concrete surfaces
Asphalt concrete paving
Landscaping, same as natural soil
Weighted "C" Factor:

| Type of Surface | "C" | Area (SF) | C x A |
|---|---|---|---|
| Asphalt | .98 | 64,490 | 63,206 |
| Building | 1.0 | 30,943 | 30,943 |
| LANDSCAPING | .61 | 2,985 | 1,821 |
| | | 98,423 | 95,969 |

Weighted "C" Factor = $\frac{\sum (\text{"C"} \times A)}{\sum A}$ = 95,969/98,423 = .975

E. Time of Concentration - Developed Area
Watershed length L = 440'
Watershed change in elevation h = 5'
Watershed slope S = h/L = .0112
by Kirpich equation $T = .0078 \left(\frac{L^{0.77}}{S^{0.385}}\right)$ < 10 minutes
$T_c$ = 10 minutes MINIMUM or 4.6 min USE 10 min
$I = (P_6 \times 6.86/T_c^{0.51})$
= 4.66 inches
Peak Discharge - Rational Method: Q = CIA
Q = .975 x 4.66 x 2.259
= 10.70 cfs

III. Existing Conditions (Undeveloped)

| Type of Surface | "C" | Area | C x A |
|---|---|---|---|
| Asphalt | .98 | 72,495 | 71,045 |
| Building | 1.00 | 2,483 | 2,483 |
| LANDSCAPING | .61 | 2,985 | 1,821 |
| Time of Concentration | | 98,423 | 95,809 |
| Watershed length | | L = 440 ft | |
| Watershed change in elevation | | h = 5 ft | |
| Watershed slope | S = h/L | = .011 | |
| Weighted C = 95,809/98,423 | | = .973 | |

by Kirpich equation $T = .0078 \left(\frac{L^{0.77}}{S^{0.385}}\right)$ < 10 minutes
$T_c$ = 10 minutes minimum
$I = (P_6 \times 6.86/T_c^{0.51})$
= 4.66 inches
Peak Discharge - Rational Method: Q = CIA
Q = .973 x 4.66 x 2.259 = 10.68 cfs

IV. Pond Calculations
Volume created due to development
$V = Q_{DEV} - Q_{EX}$
$Q_{DEV}$ = 10.70 - 10.68 = .02 cfs increase
$Q_{DEV}$ = .02 x .667 = .01 cfs increase
Free discharge is recommended because:
(1) Site is not in a flood zone and does not contribute to a flood zone
(2) For all practical reasons .02 cfs is negligible.

Erosion Control **EROSION CONTROL PLAN**
The contractor shall provide clean spoil material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.

NON-CONTRIBUTORY AREA 0.09 AC
INTERCEPTED BY SLOPE 100%
$T_c$ = 10 MIN I = 4.66 IN/HR
$Q_{EXIST}$ = 1.0 x 2.4 x .09 = 0.21 CFS
$Q_{DEV}$ = .98 x 2.4 x .09 = 0.21 CFS

BYPASSES VIA CURB CUT TO YANZANO STREET

EXISTING BUILDING "CAFE & COURT"

NO NATURE AREAS PLACED ON THE PROPERTY AND THE HOUSE IS

CONTRIBUTORY AREA
AREA 1.29 AC
INTERCEPTED BY SLOPE 100%
RUNOFF TYPE "A" SOIL
$T_c$ = 10 MIN I = 4.66 IN/HR
$Q_{EXIST}$ = .61 x 2.4 x 1.29 = 1.89 CFS
$Q_{DEV}$ = .98 x 2.4 x 1.29 = 3.15 CFS

ENTERS THE N.W. CORNER OF THE SITE

EXISTING BUILDING
NO INFORMATION
AREA .04 A
INTERCEPTED BY SLOPE 100%
$T_c$ = 10 MIN I = 4.66 IN/HR
$Q_{EXIST}$ = .61 x 2.4 x .04 = 0.06 CFS
$Q_{DEV}$ = .98 x 2.4 x .04 = 0.09 CFS

BENCH MARK
I-J17 LOCATED AT THE INTERSECTION OF MONROE ST N.E. AND LOMAS BLVD NE, IN THE N.W QUADRANT OF THE INTERSECTION A SQUARE, Ø, CHISELED ON TOP OF CONCRETE CURB AT THE WNW CURB RETURN
ELEV=5225.223

TBM FINISH FLOOR OF EXIST BLD
ELEV=5226.68

Revised Aug 2 1985

REVISED & CORRECTED 10-7-85 BMK

Revision: Curb between building was changed to concrete channel (see Concrete channel detail)
Date: Nov 18 1985

FEB 06 1986
HYDROLOGY DIVISION

LEGEND
EXISTING SPOT ELEVATION
PROPOSED SPOT ELEVATION
EXISTING CONTOUR
PROPOSED CONTOUR
EXISTING BUILDING LOCATIONS
PROPOSED BUILDING LOCATIONS
INDICATES FLOW DIRECTION
AREA

HALL ENGINEERING COMPANY INC.
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ALBUQUERQUE, NEW MEXICO 87123
Phones: (505) 292-1115 & 292-1116

THIS PLAN SHOT TWICE ONCE ON LIGHT AND ONCE ON DARK.

CITY OF ALBUQUERQUE
THIS MICROIMAGE IS THE BEST POSSIBLE REPRODUCTION DUE TO THE POOR QUALITY OF THE ORIGINAL DOCUMENT

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CITY OF ALBUQUERQUE

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