HYDROLOGY

H16/D38

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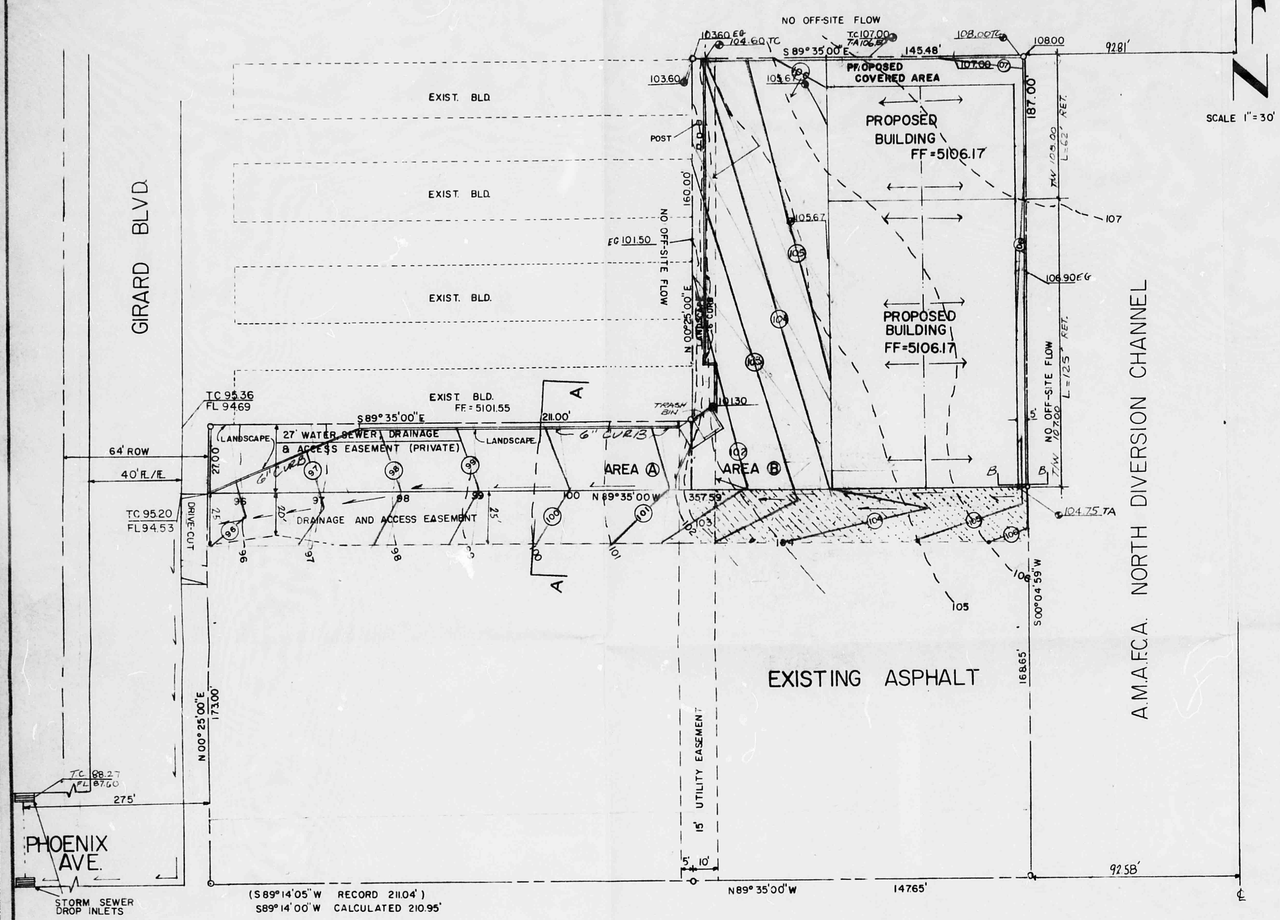
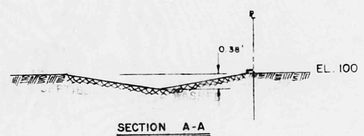
Commercial

Bldg.

1 Plan





SECTION A-A

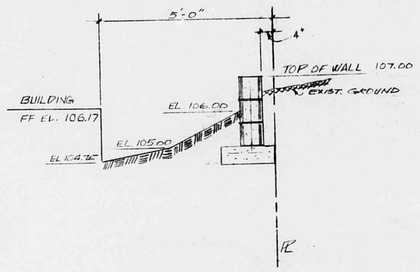
CAPACITY:

S=0.0266
n=0.013 FOR ASPHALT
A=9.86 SF
R=A/P =9.88/(27+25) = 0.19

$Q = 1.486/n\ AR^{2/3} S^{1/2}$

$Q = (1.486/0.013)(9.88)(0.19)^{2/3}(0.0266)^{1/2}$

Q = 60.88 cfs



SECTION B-B NTS

DRAINAGE AND GRADING PLAN

FOR

LOT 4B DUKE CITY INDUSTRIAL AREA

(DESERT PAPER ENVELOPE)

DRAINAGE INFORMATION

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, Sheet

C. Flood Insurance Rate Map, City of Albuquerque, New Mexico Panel

II. General Information

A. Site Location and Elevation Data

1. Legal Description: Lot 4B, Brunicini Industrial Park sec 10,T.10N, R.3E,NMPM
2. Total Site Area: .7577 ac.
3. City Address: 2706 Girard NE
4. City Bench Mark: I-40-12
5. County Zone Atlas: H-16

B: Soil Type (Reference 8) WeB
Hydrologic Soils Group B. Sheet 21

C. 6-hour, 100-year rain, P_6 = 2.2 inches Reference 4, Plate 22.2 D-1

D. Runoff Coefficient ("C" Factor) Reference , Plate
Undeveloped "C" Factor, Curve
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
Area B <	Roof or Concrete	1.0	15,895	15,895
	Asphalt	.98	11,309	11,083
Area A <	Asphalt	.98	5,801	5,685
				32,663

Weighted "C" Factor = $\frac{\sum ("C" \times A)}{\sum A}$ = 32663 / 33005 = .99

Watershed length = L = 440
Watershed change in elevation h = 12.31
Watershed slope S = h/L = .028

by Kirpich equation $T = .0078\ (L^{0.77}/S^{0.385}) < 10$ minutes

T_c = 10 minutes minimum T_c = 3.35 use 10 min.

F. Intensity Reference , Plate

$I = E_6 \times 6.84 \times T_c^{-0.51}$
= 4.65 in/hr

G. Peak Discharge - Rational Method: Q = CIA

Area A < Q = .99 x 4.65 x 1.33 = .61cfs

Area B < Q = .99 x 4.65 x .623 = 2.87 cfs

Flow
Total 2.87 + .61 = 3.48 cfs

Total flow from site

2.87 + 0.61 = 3.48 cfs = Q_{100}

Q_{10} = .657 (3.48) = 2.29 cfs

Existing Conditions
Rational Method

Q = CIA
C = .58 (Plate 22.2 C-2 DPM)
I = 4.65
A = .7577 Acres

Q_{100} = .58 (4.65) (.7577) = 2.04 cfs

Q_{10} = .657 (2.04) = 1.34 cfs

ΔQ_{100} = 3.48 - 2.04 = 1.44 cfs increase

ΔQ_{10} = 2.29 - 1.34 = .95 cfs increase

Free discharge is recommended because:

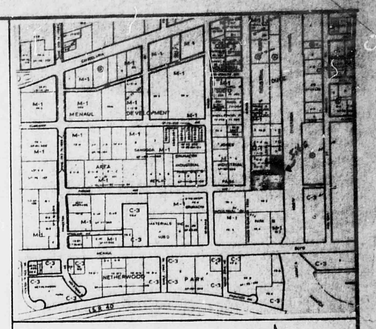
1. Site is not in a flood region and does not contribute to a floodzone.
2. The streets and storm sewer have a capacity of *140 cfs and have *90 cfs at undeveloped conditions, which would increase only 1.44 cfs to approximately 91.44 cfs.

* Reference is approved drainage plan H-16-D7, July 30, 1984

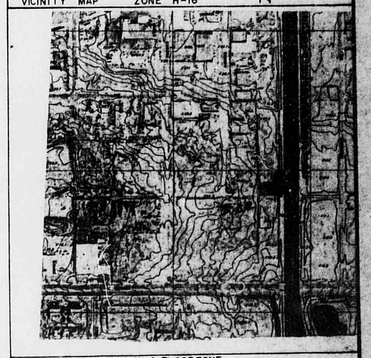
LEGEND

EXISTING GRADE	106.55EG
PROPOSED GRADE	●104.79
FLOW DIRECTION	←
HIGH SPOT	
EASEMENT BOUNDRY	
EXISTING CONTOURS	101
PROPOSED CONTOURS	(101)
EXISTING ASPHALT TO BE REMOVED AND REPLACED	

EROSION CONTROL
NOTE TO CONTRACTOR:
The contractor shall promptly clean up any material excavated within the public right-of-way so that the excavated material is not susceptible to being washed down the street.



VICINITY MAP ZONE H-16



SITE IS NOT IN A FLOODZONE

FLOODWAY MAP #23

RECEIVED SEP 19 1985 HYDROLOGY SECTION

BENCH MARK

BM I-40-12 NMSHC BRASS CAP LOCATED ON NORTH SIDE OF MENAUL, WEST OF A.M.A.F.C.A. NORTH DIVERSION CHANNEL. ELEV=5114.55

TBM. TOP OF CURB ON GIRARD AND SOUTH PROPERTY LINE. ELEV=5095.20.

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

RICHARD V. HALE NEW MEXICO REGISTERED PROFESSIONAL ENGINEER

Aug 2, 1985

Revised Sept. 18, 1985

H16/D38