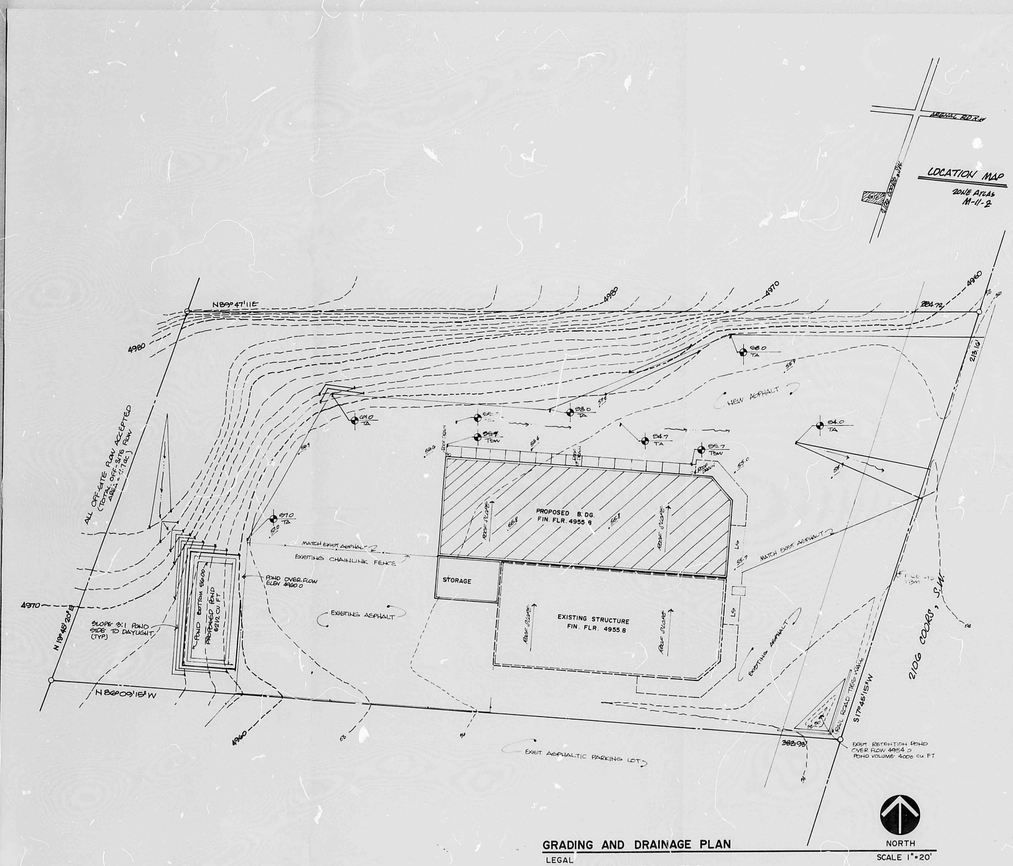
PUBLIC WORKS/HYDROLOGY

M11/D2



GRADING AND DRAINAGE PLAN

LEGAL
LOT A, LANDS OF RALPH VILLEGAS

6-2-88

DRAINAGE CALCULATIONS

I. REFERENCES:

A. City of Albuquerque Development Process Manual (DPM) Vol. 2, Design Criteria, Chapter 22: Drainage, Flood Control, and Erosion Control.

B. Soil Survey of Bernalillo County and parts of Sandoval and Valencia Counties, New Mexico, United States Department of Agriculture, Soil Conservation Service.

C. Flood-Rate, Flood Boundary and Floodway map, City of Albuquerque, New Mexico, Panel 33 of 50.

D. Zone Atlas page M-11-Z.

II. GENERAL INFORMATION:

A. Soil Type (Ref. B, Page 40) Soil type is Bluepoint-Rock land (RD) association. Hydrologic Soil Group "D".

B. Imperviousness:

Type of Surface		Existing Sq. Ft.	Area Acres	Proposed Sq. Ft.	Area Acres
Building Roof	(A4)	6,5525	.1505	3312	0.1056
Concrete Surface	(D14)	2,0804	.0478	1,926	0.0442
Asphalt Surface	(E14)	7,1843	.1649	32,250	0.7363
Landscaping	(B14)	2,241	.0514	1960	0.0587
Undeveloped	(C14)	1,2287	.2821	27,462	0.6350
Site Total		19,210	.4960	66,210	1.5796

"C" Factor (See Amendment to the DPM Jan.19,1986)

1. Proposed Impervious Surfaces

	"C"	Area	C x A
Building Roof Area	0.90	.1056	0.0950
Concrete Surface	0.95	.0442	0.0337
Asphalt Surface	0.95	.7363	0.7000
Landscape Surface	0.25	.0587	0.0022
Undeveloped Surface	0.41	.6350	0.2541
TOTAL		1.5796	1.4192

Developed weighted "C" Factor: 1.4192 / 1.5796 = 0.89

2. Existing Impervious Surfaces

	"C"	Area	C x A
Buildings Surfaces	0.90	.1505	0.1355
Concrete Surfaces	0.95	.0478	0.0454
Asphalt Surfaces	0.95	.1649	0.1567
Landscape	0.25	.0514	0.0129
Undeveloped Area	0.41	.2287	0.0937
TOTAL		.4960	0.4442

Existing weighted "C" Factor: 0.4442 / .4960 = 0.89

C. Rainfall, 100 year, 6 hour Pi(6) (see Ref. A, Plate 22.2 Pi(6)) = 2.3 in.

D. Time of Concentration, Tc: Tc = 10 minutes (see 10 acres or less, Ref. A, Page 22.2 Tc Equation)

E. Rainfall Intensity, I (see Ref. A, Plate 22.2 Pi(6)) I = Pi(6) / Tc = 2.3 in / 10 min = 2.3 in/hr

III. PEAK DISCHARGE:

A. Existing Conditions: Q = C x I x A = 0.89 x 2.3 in/hr x 1.75 Ac. = 3.6 cfs (Ref. A, Plate 22.2 Eq. 1)

B. Proposed Conditions: Q = C x I x A = 0.89 x 2.3 in/hr x 1.75 Ac. = 3.6 cfs (Ref. A, Plate 22.2 Eq. 1)

IV. Volumes: (VOLCA):

A. Existing Conditions: V = 1430 x C x I x A = 1430 x 0.89 x 2.3 in/hr x 1.75 Ac. = 3,8 cfs x 6 hr x 3600 sec/hr = 82,944 cu.ft.

B. Proposed Conditions: V = 1430 x C x I x A = 1430 x 0.89 x 2.3 in/hr x 1.75 Ac. = 3,8 cfs x 6 hr x 3600 sec/hr = 82,944 cu.ft.

V. FLOOD INFORMATION:

A. The proposed site DOES NOT lie within a Designated Flood Hazard Area. (Ref. C, Panel 33 of 50).

VI. CONCLUSIONS:

A. This is an expansion of an existing industrial shop. We are proposing the partial paving of the yard except the back portion of the lot. The newly paved area consists of a new portion of the lot, the newly paved area, the existing shop and workroom site. The site drainage drains to the east and west of the building. The east side and discharges into the Blvd. Swe. right-of-ways via sidewalk ports. The west side is drained for the developed portion of the lot only. The undeveloped portion of the lot drains freely into the right-of-ways. All offsite flows are accepted.

B. The new expanded drainage scheme is consistent with the existing condition except all runoff generated is retained. The right-of-ways. No runoff generated flows into adjacent property. A retention pond at the rear of the lot will retain equivalent of-site flow to the runoff generated and therefore this new development will have discharge flow having minimal impact on down stream conditions.

VII CONSTRUCTION NOTES:

A. Two full working days prior to any excavation, contractor must contact line locating service at 765-1234 for location of existing utilities.

B. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all potential obstructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.

C. All work on this project shall be performed in accordance with applicable Federal, State and local laws, rules, and regulations concerning construction safety and health.

D. All construction within City Right-of-way shall be performed in accordance with applicable City of Albuquerque standards and procedures.

Benchmark Information:

Temporary benchmark as shown hereon at the East side the property. Is a Fireh ydrant (North Bonnet bolt) bears elevation 4956.1 (NGS). Reference to benchmark NM 45-elevation 4956.1 (NGS). Reference to benchmark NM 45-"A, Bears elevation 4953.487 (NGS) located at the intersection of Coors and Blake Rd.

SYMBOL LEGEND

TA - Top of asphalt
TSW - Top of sidewalk
FG - Finished grade
TBM - Temporary benchmark

Existing contour
Designed contour
Existing spot elevation
Designed spot elevation

SEP 2 1988
HYDROLOGY SECTION

TOWN AND COUNTRY
2104 COORS BLVD., S.W.
ALBUQUERQUE, NEW MEXICO

REV 2B DATE 3-29-02 BY EGP

CITY OF ALBUQUERQUE

This microimage is certified to be a complete and accurate copy of the original as it appears in the files of the Public Works Department and was created in the normal course of business.

The photographic process used meets the Basic Microfilm Standards of the National Micrographics Association (NSMA 1977)

DIRECTOR

NOTARY PUBLIC

OFFICIAL SEAL
Roberta Duran
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires 07/02/02

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

PLANS/PLATS ON FILE

FILE DESC: M11/D2

PLANS/PLATS 1

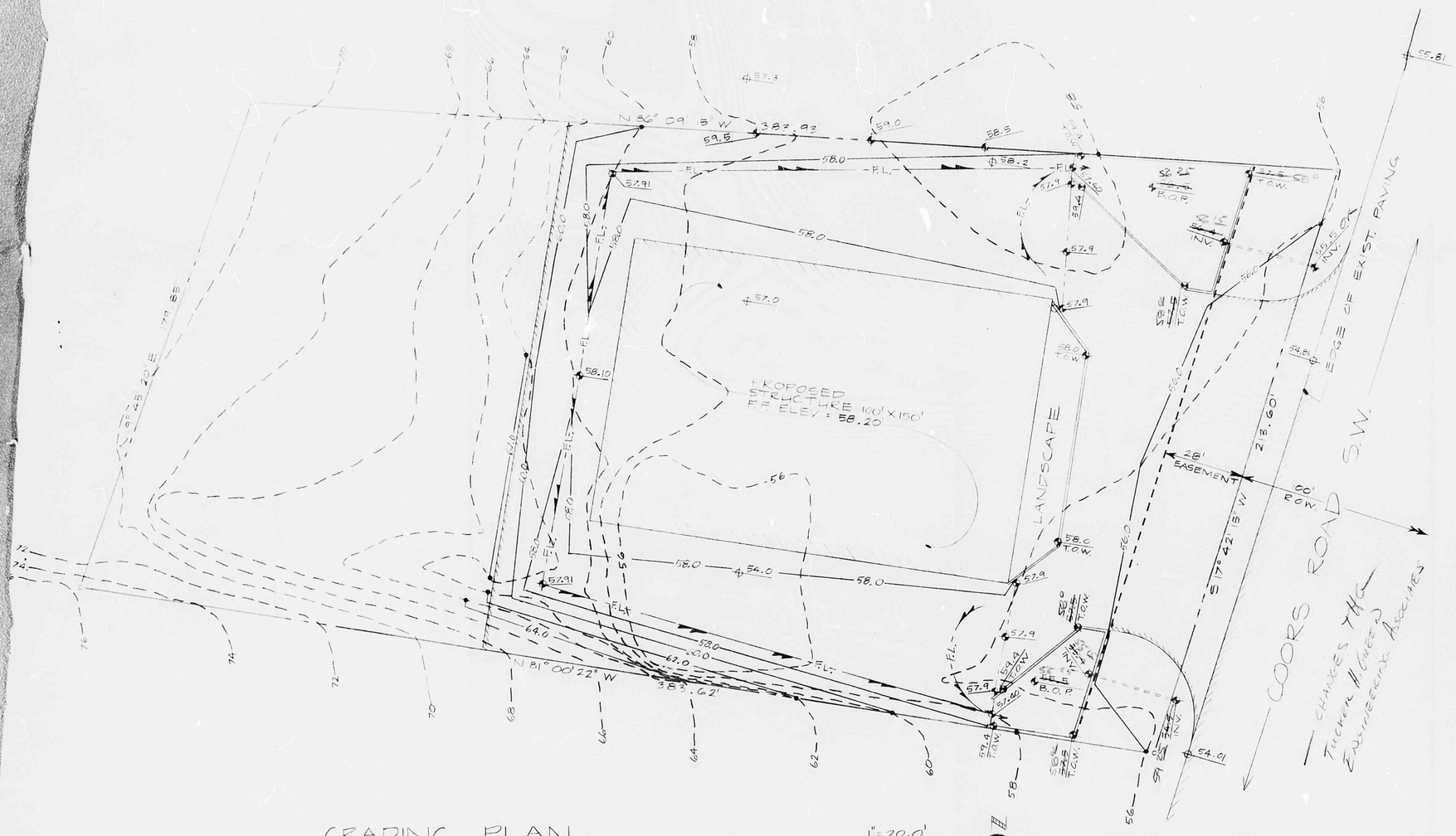
E 30 D 24 C 20 B 16 A 12 CITY OF ALBUQUERQUE C D F

HYDROLOGY

M11/D2
ONE PLAN

M11/D2

1 Plan



GRADING PLAN 1" = 20.0'

GENERAL NOTES

Design Criteria

1. All work shall conform to the 1982 Uniform building code.
   Live loads
   Roof 20 psf
   Floors and slabs 120 psf
   Wind @ 75 mph => 24 psf
   Seismic zone 2 requirements

2. Cast-in-place concrete

a. Compressive strength - 3000 psi at 28 days
b. Reinforcing steel - ASTM A-615 Grade 40

3. Design soil bearing pressure - 2000 psf with footings placed on engineered compacted fill.

4. Pavement - 2" asphalt over compacted base

CONSTRUCTION CRITERIA

1. Lap all reinforcing bars 32 diameters unless otherwise specified.

2. Construction joint location shall be as shown on the plans or as approved by the engineer.

3. Because the in-situ soils are in a loose condition, the footings shall be placed on clean, compacted fill meeting the following criteria

Sieve size	3 inch	No. 200
Percent passing, by weight	100	5-50

The plasticity index shall not exceed 8.
The minimum depth of fill shall be 2 feet, and the fill shall also extend laterally from the edges of the footings a minimum of two feet. Soils removed from excavations or imported soils may be used as engineered compacted fill for footings. The fill should be thoroughly mixed offsite within 2% of optimum moisture content. Prior to placement of fill soils, the exposed bottoms of foundations shall be scarified to a minimum depth of 8 inches, moistened with optimum moisture content to as deep as practical, and compacted to a minimum of 95 percent of Modified Proctor Density (ASTM D-1557). Fill shall then be placed in 8 inch maximum loose lifts and compacted to 95 percent of Modified Proctor Density, and brought to desired grade.

On-grade reinforced concrete floor slabs shall also be placed over compacted fill. The fill shall be topped with two inches of clean compacted sand as a moisture barrier. Prior to placing the fill the existing soil shall be scarified to a depth of 8

inches, moistened at optimum moisture content to as deep as practical, and compacted to a minimum of 90% of Modified Proctor Density. Fill shall then be placed in 8 inch (maximum loose) lifts, compacted to 90% of Modified Proctor Density, and brought to the required grade.

It is important to keep the soils at and below foundation depths protected from moisture intrusions. All foundation excavations should be kept dry, with concreting operations to follow as soon as practical. Remove any surface water which may collect in the excavation for any reason. Final site grading shall provide positive surface drainage away from all exterior walls. The landscaped area at the east end of the building shall be underlain by VISQUEEN or equal to protect the foundation from moisture. The VISQUEEN shall extend at least 10 feet from the foundation. Weep holes backed with 3/4 inch gravel shall be provided in the east wall of the landscaped area.

4. The contractor is responsible for any temporary bracing required to hold the structural elements in place until work is complete.

5. All conditions indicated on the plans shall be field verified by the contractor. If discrepancies exist they shall be brought to the attention of the engineer before work proceeds.

6. Contractor shall coordinate Structural drawings with Architectural and Mechanical drawings for openings, inserts, and other related items required.

LEGEND

00	= EXIST. CONTOUR
00	= PROPOSED CONTOUR
	= EXIST. SPOT ELEVATION
	= PROPOSED SPOT ELEVATION.
	= PROPOSED PAVING.
	= PROPERTY LINE
T.O.W.	= TOP OF WALL.
F.L.	= FLOW LINE
INV.	= PIPE INVERT.
B.O.P.	= BOTTOM OF POND.

AUGUST F. MORIGAN STATE OF NEW MEXICO NO. 6148 REGISTERED PROFESSIONAL ENGINEER

PROPERTY SERVICES INC.

SHT. 1 OF 6

ENGINEERING ASSOCIATES INC.
532 Adams Street N.E.
Albuq. N.M. 87108 265-6545