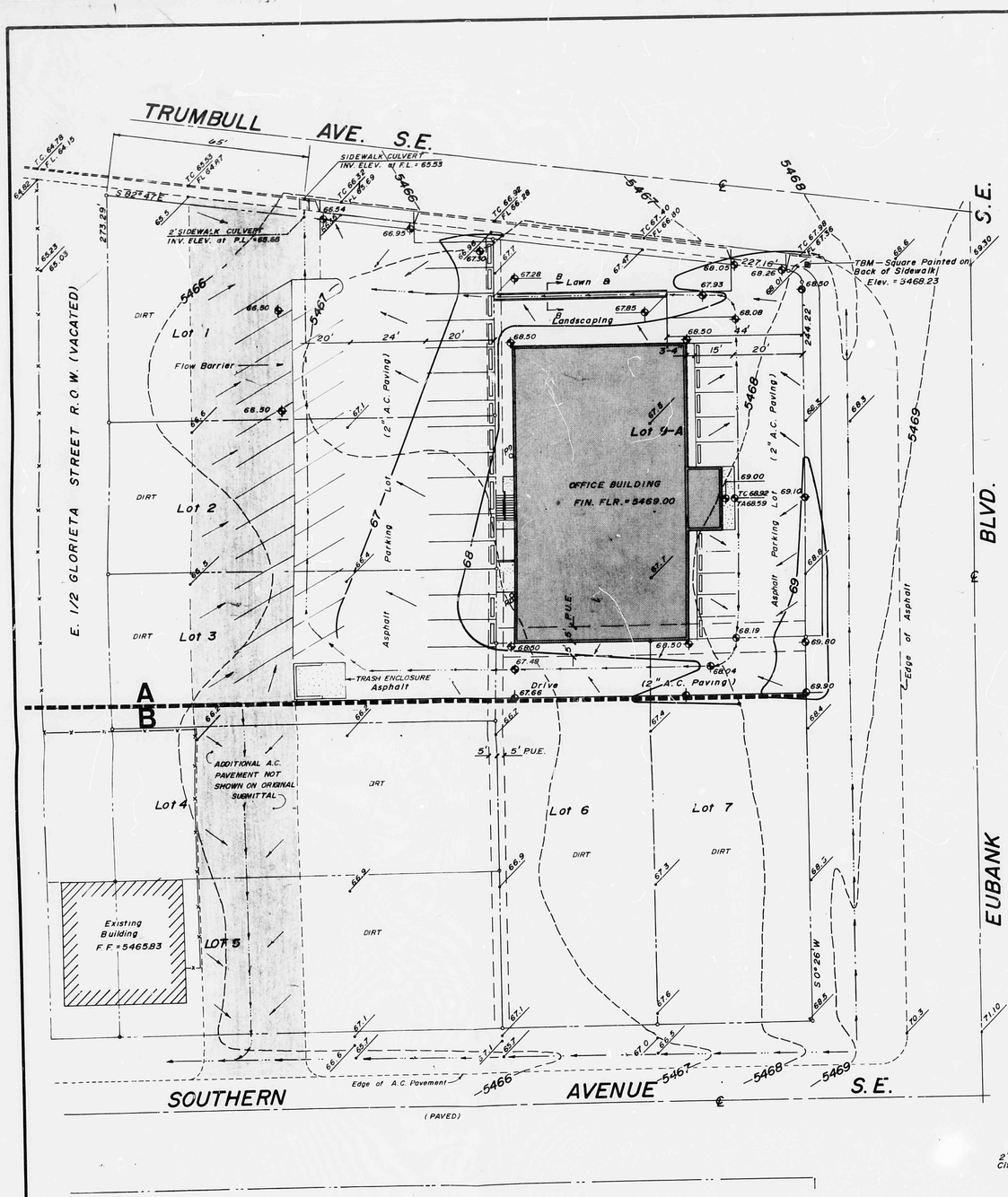
HYDROLOGY

L20/D29

L20/D29

JOHN L. WEBB
OFFICE BUILDING

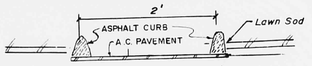
1 PLAN



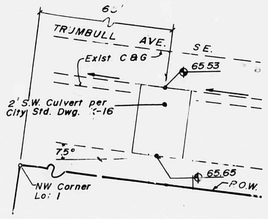
GRADING AND DRAINAGE PLAN

1" = 20'

NORTH



SECTION B-B
1" = 1'



Asphalt Parking Lot

NOTE: CONCRETE CHANNEL WAS NOT CONSTRUCTED DUE TO RELOCATION OF TRASH ENCLOSURE:

PLAN
1" = 4'

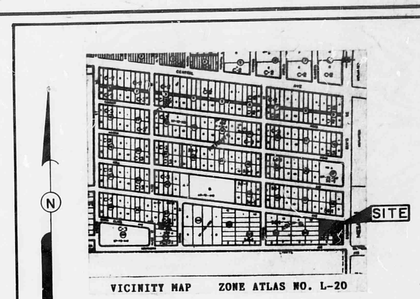
CONCRETE CHANNEL & SW CULVERT DETAIL

LEGEND:

DESCRIPTION	EXISTING	NEW
FLOW DIRECTION		
CONTOUR		
SPOT ELEVATION		
PROPERTY LINE		
ROOF DRAIN		ORD

TC = TOP CURB
TA = TOP ASPHALT
FL = FLOW LINE

DRAINAGE AREA BOUNDARY — A / B



VICINITY MAP ZONE ATLAS NO. L-20

DRAINAGE COMMENTS:

1. ALL OF LOTS 6 AND 7, EXCEPT FOR THE NORTHERN 18 FEET, WILL REMAIN UNDEVELOPED. PRECIPITATION FALLING ON THIS AREA WILL REMAIN THERE. NO CHANGE IN EXISTING FLOW PATTERNS WILL OCCUR. FOR THIS REASON, GRADES FOR SOUTHERN AVENUE ARE NOT REQUIRED AT THIS TIME.

2. THE WESTERN PORTIONS OF LOTS 1, 2 AND 3 WILL REMAIN UNDEVELOPED AT THIS TIME. NO CHANGE IN EXISTING FLOW PATTERNS WILL OCCUR. PERCIPITATION FALLING ON THIS AREA WILL REMAIN WHERE IT FALLS.

3. FREE DISCHARGE IS ACCEPTABLE PER THE PRE-DESIGN CONFERENCE RECAP FOR THE FOLLOWING REASONS.
   1 THE SITE IS AN INFILL AREA.

   2. NEWLY CONSTRUCTED STORM SEWER SYSTEM 203-01A HAS IMPROVED DOWNSTREAM FLOOD CONDITIONS SHOWN ON THE FLOODWAY MAP.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE AT 765-1234 FOR LOCATION OF EXISTING UTILITIES.

2. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION 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.

3. 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.

4. ALL CONSTRUCTION WITHIN CITY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

LEGAL DESCRIPTION:

A CERTAIN TRACT OR PARCEL OF LAND SITUATED WITHIN THE CITY LIMITS OF THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO: BEING AND COMPRISING Lots 1, 2, 3, 6, 7, and 9-A, Block 49, Skyline Heights Addition, A SUBDIVISION OF THE CITY OF ALBUQUERQUE, NEW MEXICO.

BENCH MARK:

5-L20 LOCATED ALONG AN ELECTRIC POWERLINE, ABOUT 55 ft. WEST OF THE CENTERLINE OF EUBANK BOULEVARD, 0.45 MILES SOUTH OF THE INTERSECTION OF CENTRAL AVENUE. A SQUARE CHISELED ON TOP OF THE CONCRETE BASE OF A METALLIC POWERLINE PYLON. ELEV. = 5465.91 TEMPORARY BENCH MARK IS AS SHOWN ON THE PLAN HEREON.

COMMENTS RELATIVE TO REVISIONS:

1. THE INITIAL SUBMITTAL OF APRIL 1, 1985 SHOWED THE CONTIGUOUS PROPERTY RELATIVE TO THIS DEVELOPMENT TO CONSIST OF ONLY LOTS 1, 2, 3, 6, 7, AND 9-A. HOWEVER, IN PREPARING THIS REVISED PLAN, IT WAS DISCOVERED THAT LOTS 4 AND 5 ARE ALSO A PART OF THE PROPERTY. THEREFORE, THE REVISED CALCULATIONS INCLUDE THE AREA OF THESE LOTS, ALSO.

2. PREVIOUSLY, ALL DRAINAGE FROM DEVELOPED PORTIONS OF THE PROPERTY DRAINED TO THE SIDEWALK CULVERT. HOWEVER, NOW THAT AN ACCESS HAS BEEN PAVED TO SOUTHERN AVENUE, SOME DEVELOPED RUNOFF IS DRAINED IN THAT DIRECTION. THEREFORE, TWO DRAINAGE AREAS HAVE NOW BEEN DESIGNATED.

3. AT THE TIME THE INITIAL PLAN WAS PREPARED, SOUTHERN AVE. WAS UNPAVED. IT IS NOW PAVED WITH NO CURB AND GUTTER. DRAINAGE IS ESSENTIALLY THE SAME. DRAINAGE ON THE NORTH SIDE OF SOUTHERN AVE. SWALES ACROSS THE NEW ASPHALT DRIVE TO THE PROPERTY.

4. PORTIONS OF LOTS 1, 2, AND 3 WILL STILL REMAIN UNDEVELOPED. HOWEVER, THE UNDEVELOPED PORTIONS ARE SMALLER NOW SINCE MORE PAVEMENT WAS PLACED.

5. FREE DISCHARGE IS STILL ACCEPTABLE SINCE ONLY MINOR INCREASES IN PEAK DISCHARGE RESULTED FROM THE INCREASE IN PAVEMENT AREA.

DRAINAGE CALCULATIONS- REVISED

I. REFERENCES:

A. CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM) VOLUME 2, DESIGN CRITERIA, CHAPTER 22, DRAINAGE, FLOOD CONTROL AND EROSION CONTROL.

B. FLOODWAY MAP, PANEL 36 OF 50, FEDERAL EMERGENCY MANAGEMENT AGENCY, OCTOBER 14, 1983.

II. ON-SITE RUNOFF CHARACTERISTICS:

A. UNDEVELOPED RUNOFF COEFFICIENT:

TYPE OF SURFACE	AREA	"C"VALUE	AREA("C")
STREETS, DRIVES, WALKS			
ROOFS	1,600	0.90	1,440
LAWNS & LANDSCAPING			
UNDEVELOPED	63,000	0.40	25,200
TOTAL AREA	64,600 = 1.48 AC		26,640

WEIGHTED "C" VALUE =26,640 / 64,600 = 0.41

B. DEVELOPED RUNOFF COEFFIENT:

TYPE OF SURFACE	AREA	"C"VALUE	AREA("C")
STREETS, DRIVES, WALKS	26,134	0.95	24,827
ROOFS	7,360	0.90	6,624
LAWNS & LANDSCAPING	2,303	0.25	576
UNDEVELOPED	28,803	0.40	11,521
TOTAL AREA	64,600		42,575

WEIGHTED "C" VALUE = 42,575/64,600 = 0.70

C. RAINFALL, 100-YR.,6-HR.:(REF. A., PLATE 22.2 D-1)
R_6 = 2.45 INCHES

D. TIME OF CONCENTRATION: USE 10 MINUTES.

E. RAINFALL INTENSITY,I: (REF. A., PLATE 22.2 D-1)
CURVE VALUE = 2.15
I = R_6 x CURVE VALUE = 2.45 X 2.15 = 5.27 IN/HR

III. ON-SITE PEAK DISCHARGE:

A. EXISTING CONDITIONS:
Q_{100} = 0.41 X 5.27 X 1.48 = 3.20 cfs
Q_{10} = 0.657 X 3.20 = 2.10 cfs

B. DEVELOPED CONDITIONS:
Q_{100} = 0.70 X 5.27 X 1.48 = 5.46 cfs
Q_{10} = 0.657 X 5.12 = 3.36 cfs

IV. CAPACITY OF CONCRETE CHANNEL (SECTION A-A)

Assume the entire are of lots 1, 2, and 3 are also fully developed. Area = 35,708 sq.ft. Assume percent impervious to be 90%. C = 0.86

Q = 0.86 x 5.18 x 35,708/ 43560 = 3.65 cfs
Capacity of 2' wide channel by Manning's Equation.
$Q = A(1.486/n)R^{2/3}S^{1/2}$
Try Depth = 0.6' A = 2 x 0.6 = 1.2 sq.ft. P = 3.2
R = 0.375 n = 0.0.013
$Q = 1.2\ (1.486/0.013)(0.375)^{2/3}\ (0.004)^{1/2}$ = 4.5 cfs

V. CAPACITY OF GRAVEL CHANNEL (SECTION B-B)

Runoff. A = 2546 sf = 0.06 acres Q = 0.95 x 5.18 x 0.06
Q = 0.29 cfs. Use treated 2x4 set on 1/2" minus gravel base

Capacity by Manning's Equation.
A = 0.17 x 2.0 = 0.34 P = 2.34 R = 0.15
S = 0.01 n = 0.035
$Q = 0.34(1.486/0.035)(0.15)^{2/3}(0.01)^{1/2}$ = 0.41 cfs
0.41 cfs > 0.29 cfs (capacity is adequate)

VI. PEAK DISCHARGE FOR AREAS "A" AND "B":

AREA "A" Q_{100} = 0.80 X 5.27 X 0.87 = 3.67 CFS

AREA "B" Q_{100} = 0.50 X 5.27 X 0.61 = 1.61 CFS

REVISED APRIL 9, 1986

FRANK D. LOVELADY NEW MEXICO 6-12 4-1-85 REGISTERED PROFESSIONAL ENGINEER

APPROVED FOR DRAINAGE 4/25/86
SIGNATURE TITLE
ADVISE DRAINAGE INSPECTOR WHEN GRADING EXECUTED

GRADING AND DRAINAGE PLAN FOR JOHN L. WEBB OFFICE BUILDING
501 EUBANK BLVD., S.E.
ALBUQUERQUE, NEW MEXICO

RECEIVED APR 09 1986 HYDROLOGY SECTION

L20/D29

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