HYDROLOGY

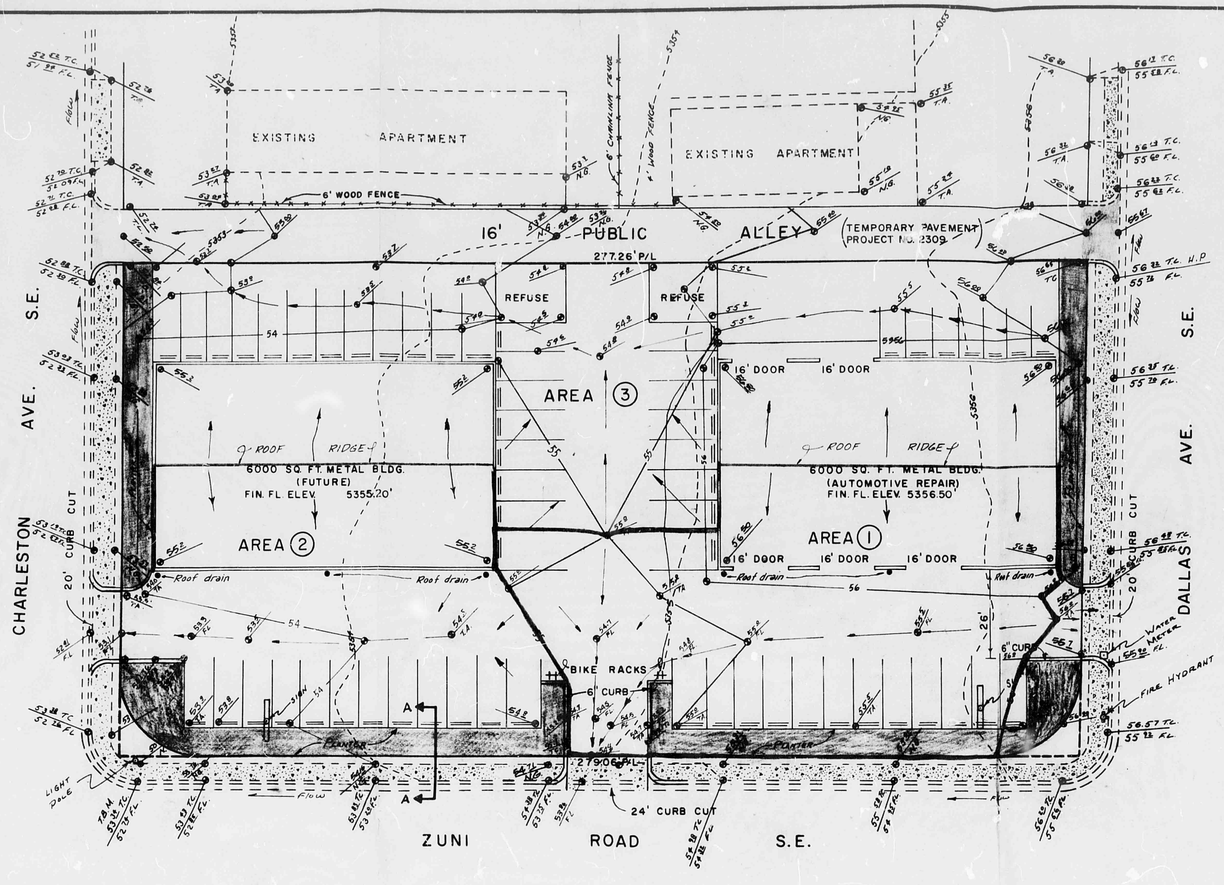
K19/D51

ONE PLAN

AAA ALARM CO. INC.

K19/D51

1 PLAN



SCALE 1" = 20'

BENCH MARK DATA:

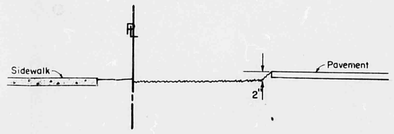
B.M.: 6-K19. IT IS A STANDARD A.C.S. BRASS CAP STAMPED "6-K19, 1974 ACS" LOCATED 62.5 FEET WEST OF CENTERLINE ON PENNSYLVANIA BLVD. AND 17.8 FEET SOUTH OF CENTERLINE OF THE WEST BOUND LANE ON CENTRAL AVE.
ELEV.: 5358.443 FEET

LEGAL DESCRIPTION:

LOT 28-A OF BLOCK 2 OF THE B.M. MOORE ADDITION.

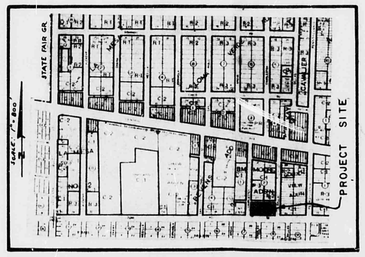
LEGEND:

- ASPHALT PAVING
- LANDSCAPING AREA
- PROPERTY LINE
- EXISTING CURB & GUTTER w/SIDEWALK
- 1155 EXISTING SPOT ELEVATION
- 09 EXISTING CONTOUR
- 1150 PROPOSED SPOT ELEVATION
- 09 PROPOSED FINISHED CONTOUR
- SURFACE FLOW ELEVATION
- T.A. TOP OF ASPHALT
- BUILDING STRUCTURE
- T.C. TOP OF CURB
- F.L. FLOW LINE
- N.G. NATURAL GROUND
- ROOF DRAIN



SECTION A-A

NO SCALE



VICINITY MAP
ZONE ATLAS
K-19-Z

SPILLWAY CALCULATIONS

AREA I Q = 0.82 cfs.
driveway width of 24'
$Q = CLH^{3/2}$ H = 0.5' T_c to T_a C = 2.6
$Q = 2.6\,(24)(0.5)^{3/2} = 22.02$ cfs therefore,
Free discharge of 0.82 cfs will not be restricted.

AREA II Q = 0.91 cfs.
driveway width of 20.0'
$Q = CLH^{3/2}$ H = 0.5' T_c to T_a C = 2.6
$Q = 2.6\,(20.0)(0.5)^{3/2} = 18.4$ cfs therefore,
Free discharge of 0.91 cfs will not be restricted.

AREA III Q = 2.00 cfs.
alley width of 16.0'
$Q = CLH^{3/2}$ H = 0.2' T_c to T_a C = 2.6
$Q = 2.6\,(16.0)(0.2)^{3/2} = 3.72$ cfs therefore,
Free discharge of 2.00 cfs will not be restricted.

GRADING AND DRAINAGE PLAN FOR AAA ALARM CO., INC.

SITE DRAINAGE CRITERIA:

THIS IS A GRADING AND DRAINAGE PLAN FOR AAA ALARM CO., INC.. THIS DRAINAGE REPORT AND PLAN CONSIST OF A HYDROLOGIC STUDY OF THE PROBABLE 100 - YEAR STORM AFFECTING THIS EXISTING SITE. THE PURPOSE FOR THIS PLAN IS TO ROUTE THE GENERATED RUNOFF DEVELOPED BY THIS PROJECT AND DESIGN A **FREE DISCHARGE FROM THIS SITE.**

THE FOLLOWING ITEMS ARE REQUIRED BY THE CITY OF ALBUQUERQUE DRAINAGE SECTION CONCERNING THIS UPDATED DRAINAGE PLAN:

A. VICINITY MAP
B. GRADING AND DRAINAGE PLAN
C. SITE DRAINAGE CRITERIA

THE PLAN SHOWS:

A. EXISTING CONTOURS AT ONE FOOT INTERVALS.
B. PROPOSED GRADES INDICATED BY CONTOURS AND SPOT ELEVATIONS.
C. SWALES AS INDICATED BY THE LEGEND SHOWN.
D. GRADING AND DRAINAGE PLAN.

THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE AS IS SHOWN ON THE FLOOD HAZARD MAP 350002 - 0030

DRAINAGE NOTES AND CALCULATIONS

1. LEGAL DESCRIPTION: A CERTAIN TRACT OF LAND BEING LOT 28-A OF BLOCK 2 OF THE B.M. MOORE ADDITION, A SUBDIVISION OF THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO. CONTAINS 0.91 ACRES MORE OR LESS.

2. ZONING: C-1, ZONE ATLAS K-19-Z.

3. SOIL TYPE: AS PER THE U.S.D.A. SOIL CONSERVATION REPORT ON SOILS OF BERNALILLO COUNTY THIS OPTIMED AS A SANDY LOAM OF THE HYDROLOGIC GROUP B. HENCE, THE C VALUE AS PER THE D.P.M. FOR THE USE IN THE RATIONAL EQUATION = 0.34.

4. OFFSITE: THIS SITE HAS NO OFFSITE FLOWS TO BE CONSIDERED.

5. UNDEVELOPED CONDITIONS: THE SITE IS A VACANT UNDEVELOPED LOT. THE TERRAIN SLOPES EAST TO WEST AND ITS UNRATED FLOW ARE IN SHEET FLOW MODE. THE PURPOSE OF THIS DRAINAGE PLAN IS TO ALLOW RUNOFF TO HAVE POSITIVE FREE DISCHARGE FROM THE SITE OVER DRIVEWAY INTO ZUNI BOULEVARD AND CHARLESTON AVENUE S.E.. THE TOTAL AREA OF THIS TRACT IS 0.907 ACRES OR 39,552 SQUARE FEET WHICH IS CONTRIBUTING RUNOFF. THE AREA HAS 36,031 SQUARE FEET OF ROOF, SIDEWALK, AND PAVEMENT AREA, WHILE THE REMAINING PORTION IS NATURAL LANDSCAPE. THE UNDEVELOPED RUNOFF; UNDER AN UNDEVELOPED CONDITION IS SHOWN BELOW:

USING P = 2.1 (NOW VALUE)
$I = 26.8A)\ t_c^{-0.4} = 4.88$ in./hr., $t_c = 10$ mins.
$Q_{undevelopo} = CIA = 0.34\ 4.88(0.91) = 1.51$ cfs.

ACCORDING TO THE PRE-DESIGN MEETING WITH THE HYDROLOGIST AT THE CITY ENGINEERS OFFICE (HYDROLOGY SECTION) THE SITE WILL HONOUR FREE DISCHARGE THRU DRIVEWAY INTO ZUNI AND CHARLESTON AVENUE S.E.

6. DEVELOPED DRAINAGE PLANS:

ROOF AND PAVEMENT AREA = 36,031 SF

DIRT AND LANDSCAPE AREA = 3,521 SF

TOTAL DRAINAGE AREA CONTRIBUTING TO RUNOFF = 39,552 SF

COMPOSITE "C" FACTOR = $\frac{0.95\,(36,031) + 0.6\,(3,521)}{39,552}$

C = 0.87

I = 4.88 t = 0.25

$Q_{PEAK100} = CIA = Q = 0.87\ 4.88(0.91) = 3.86$ cfs.

Free discharge of the generated runoff from this site is permitted due to the construction of the Fairground Relief Storm Drain System. The Street will therefore be able to carry free discharge from the site. The total runoff from the site will be a maximum developed Q of 3.86 cfs. distributed according to the following;

The onsite runoff generated by this site is divided into three areas.

Area 1, free discharge into Zuni Avenue thru driveway.
Area 2, free discharge into Charleston Avenue thru driveway.
Area 3, The north area, free discharge into alley, which will be paved in conjunction with this site.

Area I Runoff Computations Paved and Roof Area
Area(A)= 0.18 C = 0.95 I = 4.88
Q= (C)(I)(A) = (0.95)(4.88)(0.18) Q = 0.82 cfs.

Area II Runoff Computations Paved and Roof Area
Area(A)= 0.20 C = 0.95 I = 4.88
Q= (C)(I)(A) = (0.95)(4.88)(0.20) Q = 0.91 cfs.

Area III Runoff Computations Paved and Roof Area
Area(A)= 0.43 C = 0.95 I = 4.88
Q= (C)(I)(A) = (0.95)(4.88)(0.43) Q = 2.00 cfs.

Landscape Area
Area(A)= 0.00 = 0.34 I = 4.88
Q_{100} = (C)(I)(A) = (0.34)(4.88)(0.00) Q = 0.13 cfs.

Total = 3.86 cfs.

K19-D51

RECEIVED NOV 29 1984 DESIGN HYDROLOGY SECTION

APPROVED FOR DRAINAGE 11/29/84
Billy J. Hoolsley
SIGNATURE OF ADVISE ENGINEER OF RECORD WHEN GRADING EXECUTED

ROY F. JOHNSON NEW MEXICO 5949 REGISTERED PROFESSIONAL ENGINEER
11/29/84

I, JOHN F. ESQUIBEL, UNDER THE LAWS OF NEW MEXICO, CERTIFY THAT I AM A REGISTERED LAND SURVEYOR AND THAT THIS PLAT WAS PREPARED BY ME OR UNDER MY SUPERVISION, SHOWS ALL EASEMENTS OF RECORD, MEETS MINIMUM REQUIREMENTS FOR MONUMENTATION AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

JOHN F. ESQUIBEL, N.M.L.S. NO. 5949
11/5/84

A & E ENGINEERING, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1330 SAN PEDRO N.E. SUITE 101 · (505) 266-8791
ALBUQUERQUE, NEW MEXICO 87110

Revised 11/4/84

K19/D51