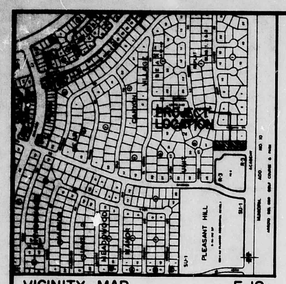
HYDROLOGY

E19/D26
1 PLAN

E19/D26

1 Plan



VICINITY MAP E-19
SCALE 1" = 800'

·LEGEND·

- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- 5355 EXISTING CONTOUR
- 55 PROPOSED CONTOUR
- PROPOSED CONCRETE
- PROPOSED WALL
- FFE = 5846.0 FINISHED FLOOR ELEVATION

PROJECT BENCHMARK:

THE STATION MARK IS A STANDARD ACS BRASS TABLET STAMPED "1-F-8A 1970" SET IN TOP OF A CONCRETE POST FLUSH WITH GROUND, LOCATED 0.6 MILES NORTH-EAST OF DOWNTOWN ALBUQUERQUE AT THE INTERSECTION OF ACADEMY RD NE & TRUDHAB DR NE. TO REACH THE STATION FROM THE INTERCHANGE AT I-25 & SAN MATEO BLVD NE, GO SOUTH ON SAN MATEO 0.2 MILES TO ACADEMY RD, TURN LEFT, GO EAST ON ACADEMY 1.1 MILES TO THE STATION ON THE MALL.
ELEVATION: 5328.52 FEET (MSL.D.)

LEGAL DESCRIPTION:

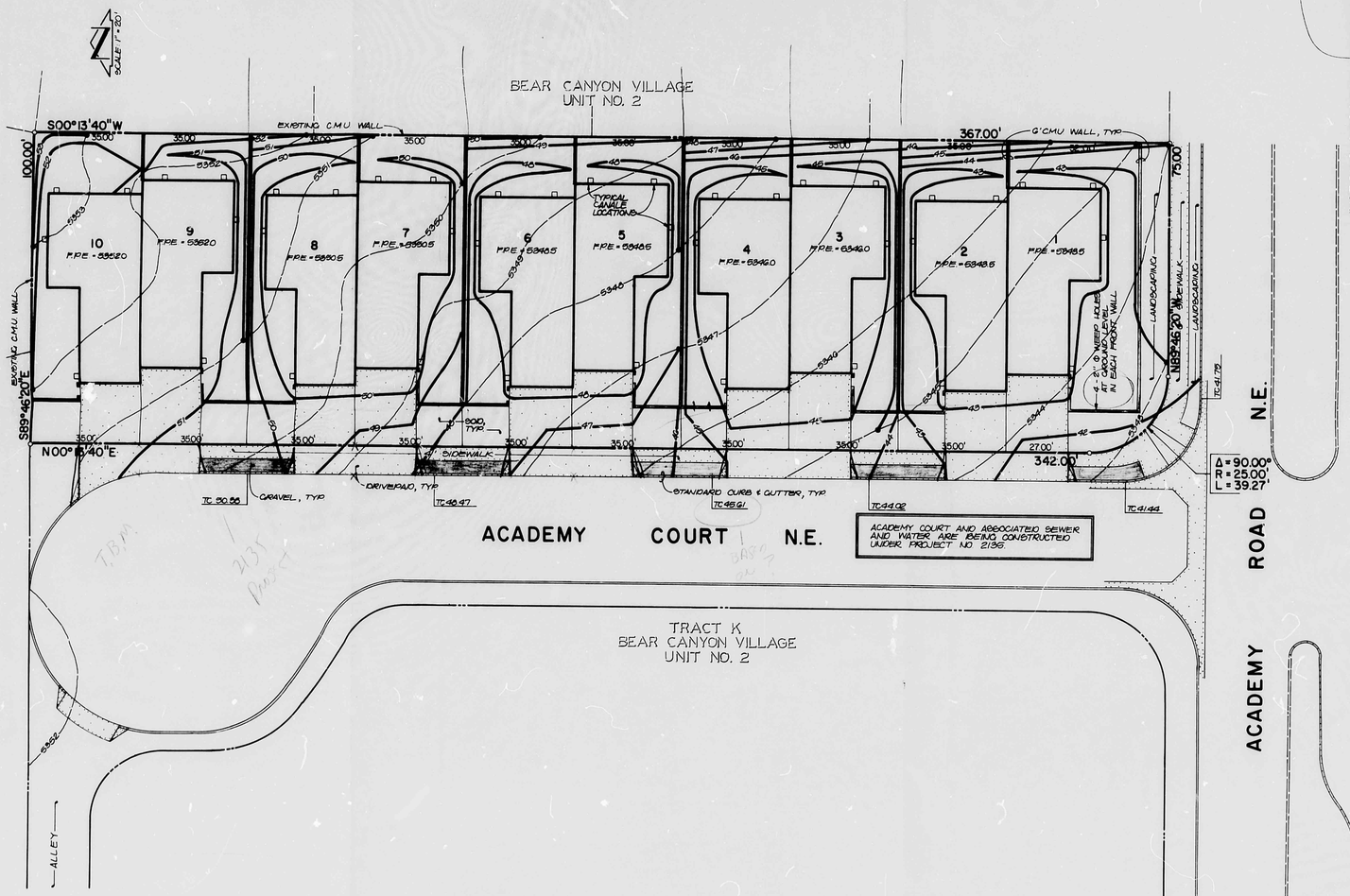
TRACT L, BEAR CANYON VILLAGE UNIT NO 2.

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE 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 PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.

EROSION CONTROL MEASURES

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AT THE PROPERTY LINES AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
2. 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.



DRAINAGE PLAN

The following items concerning the Bear Canyon Estates II Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown on the Vicinity Map, are located on the east side of Academy Court N.E. just north of Academy Road N.E. At present, the site is undeveloped. The areas surrounding the parcel are developed.

As shown by Plate E-19 of the Albuquerque Master Drainage Study, the site does not lie within a designated Flood Hazard Zone. Further study of this Plate reveals that the Bear Canyon Arroyo is downstream from the site and has the capacity for the magnitude of flow being discharged to it. This was determined after analyzing the flows in Academy Road N.E. Capacity during the 100-year storm exists in Academy Road N.E. The velocity-times-depth criteria is satisfied during the 10-year storm, but it is not possible to keep one traffic lane open during the 10-year storm as per the Drainage Ordinance, therefore, ponding is in order.

During the design of Bear Canyon Estates I, a hydrograph was prepared for the drainage area of which this project is a part of. The project number was E19-D22. The hydrograph analysis indicated that the amount of runoff from the site would not significantly increase the total flow of the watershed. In fact, the increased flow is negligible when compared to the entire watershed, therefore, the decision was made to pond runoff as much as possible to help the situation; however total ponding would not be required. In Bear Canyon Estates II all roof canals drain into landscaped areas, therefore only the driveways contribute from the lots into public right-of-way. All landscaped areas are bordered by block walls. Weep holes will be required in the block wall in order to allow drainage. After the roof water has been routed through the landscaped areas, very little water will escape through the weep holes into the public right-of-way. In essence this site has ponding of significant capacity to mitigate any increased runoff.

The Grading Plan shows 1) existing and proposed grades indicated by spot elevations and contours at 1' 0" intervals, 2) continuity between existing and proposed elevations, 3) the limit and character of existing improvements, and 4) the limit and character of the proposed improvements. As shown by this plan, the proposed improvements consist of the construction of residential structures and driveways with all roof runoff routed through landscaped areas and detained by garden walls. Flows cannot enter the site from the north or the south due to existing block walls. The land is higher than the lands to the west and to the south, therefore, offsite flows will not enter the site. The amount of runoff leaving the site is negligible.

The Calculations which appear below analyze both the existing and the developed conditions for the 100-year, 6-hour rainfall event. The Rational Method has been used for this analysis in accordance with the City of Albuquerque Development Process Manual, Volume II. As shown by these calculations, the proposed improvements will result in a slight increase in the runoff discharged from the site. This pattern of runoff is consistent with the predesign conference recap which accompanies this submittal.

CALCULATIONS

Ground Cover Information

From SCS Bernalillo County Soil Survey, Plate 21:
Embudo Tijeras Complex (Etc)
Hydrologic Soil Group C

Rational Method

Discharge: $Q = CiA$
where C varies
$i = P_6 (6.84) T_c^{-0.51} = 5.28$ in/hr
$P_6 = 2.5$ in (DPM Plate 22.2D-1)
$T_c = 10$ min (min, min)
A = area, acres

Volume: $V = CP_6A(1/12)$
where C varies
$P_6 = 2.5$ in (DPM Plate 22.2D-1)
A = area, sf

Existing Condition

$A_{total} = 36{,}200$ sf $= 0.84$ Ac
$A_{imp} = 0$ sf; % impervious = 0%
$C = 0.34$ (DPM Plate 22.2C-1)
$Q_{100} = CiA = 0.34\ (5.28)\ 0.84 = 1.5$ cfs
$V_{100} = CP_6A = 0.34\ (2.5)\ 36{,}200\ (1/12) = 2564$ cf

Developed Condition

$A_{total} = 36{,}200$ sf $= 0.84$ Ac
$A_{imp} = 19{,}000$ sf; % impervious = 52%
$C = 0.58$ (DPM Plate 22.2C-1)
$Q_{100} = CiA = 0.58\ (5.28)\ 0.84 = 2.6$ cfs
$V_{100} = CP_6A = 0.58\ (2.5)\ 36{,}200\ (1/12) = 4374$ cf

Comparison

$Q_{100} = 2.6 - 1.5 = 1.1$ cfs
$V_{100} = 4374 - 2564 = 1810$ cf

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR — NEW MEXICO — 13784

RECEIVED JUL 13 1984 HYDROLOGY SECTION

JOHN MARTY ASSOCIATES, INC. 811 DALLAS, N.E. · ALBUQUERQUE · NEW MEXICO · 87110 ENGINEERS	NO. / DATE / BY / REVISIONS	DESIGNED BY: T.T.M. DRAWN BY: L.B.D. APPROVED: T.T.M.	JOB NO. 31421 DATE 6-84	GRADING & DRAINAGE PLAN BEAR CANYON ESTATES II	FILE NO.	SHEET 1 OF 1