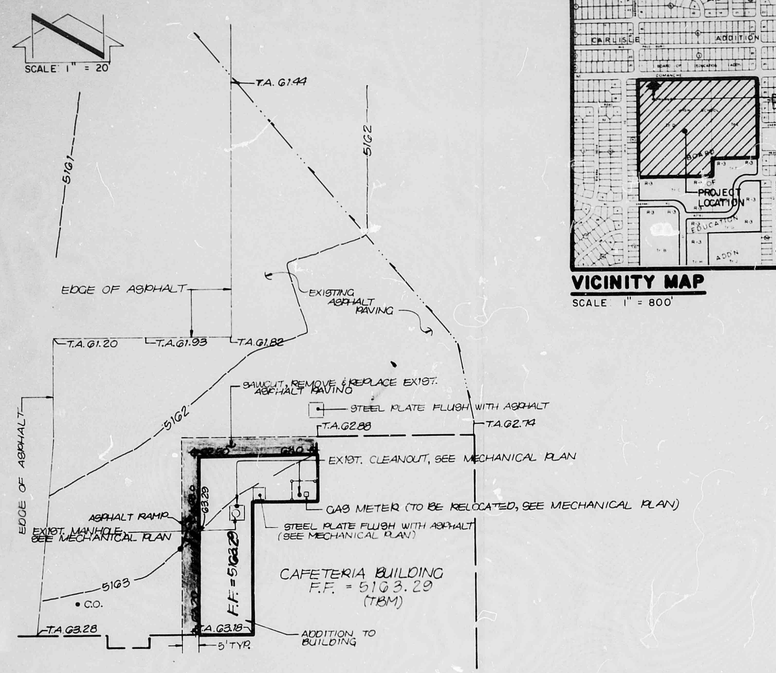
HYDROLOGY G17/D19 McKINLEY MIDDLE SCHOOL

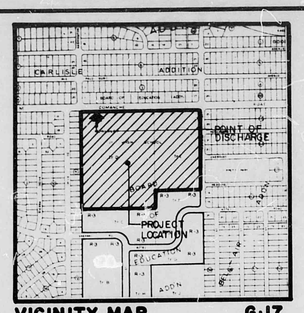
G17 / D19

McKinley Mid.
School

1 PLAN



CAFETERIA ADDITION



VICINITY MAP **G-17**

SCALE 1" = 800'

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 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.
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.

• LEGEND •

⊕	EXISTING SPOT ELEVATION
⊕	PROPOSED SPOT ELEVATION
5815	EXISTING CONTOUR
56	PROPOSED CONTOUR
——	SWALE
T.C. 86.86	EXISTING TOP OF CURB ELEV.
F.L. 88.82	EXISTING FLOW LINE ELEV.
▭	CONCRETE
—··—	BASIN BOUNDARY

MISCELLANEOUS INFORMATION

1. Project Benchmark:

   ACS BM 3-G17

   Elevation: 5162.30 feet (MSLD)

2. TBM (Science Building):

   Finish floor of existing clas room building immediately north of the proposed building.

   Elevation: 5168.23 feet (MSLD)

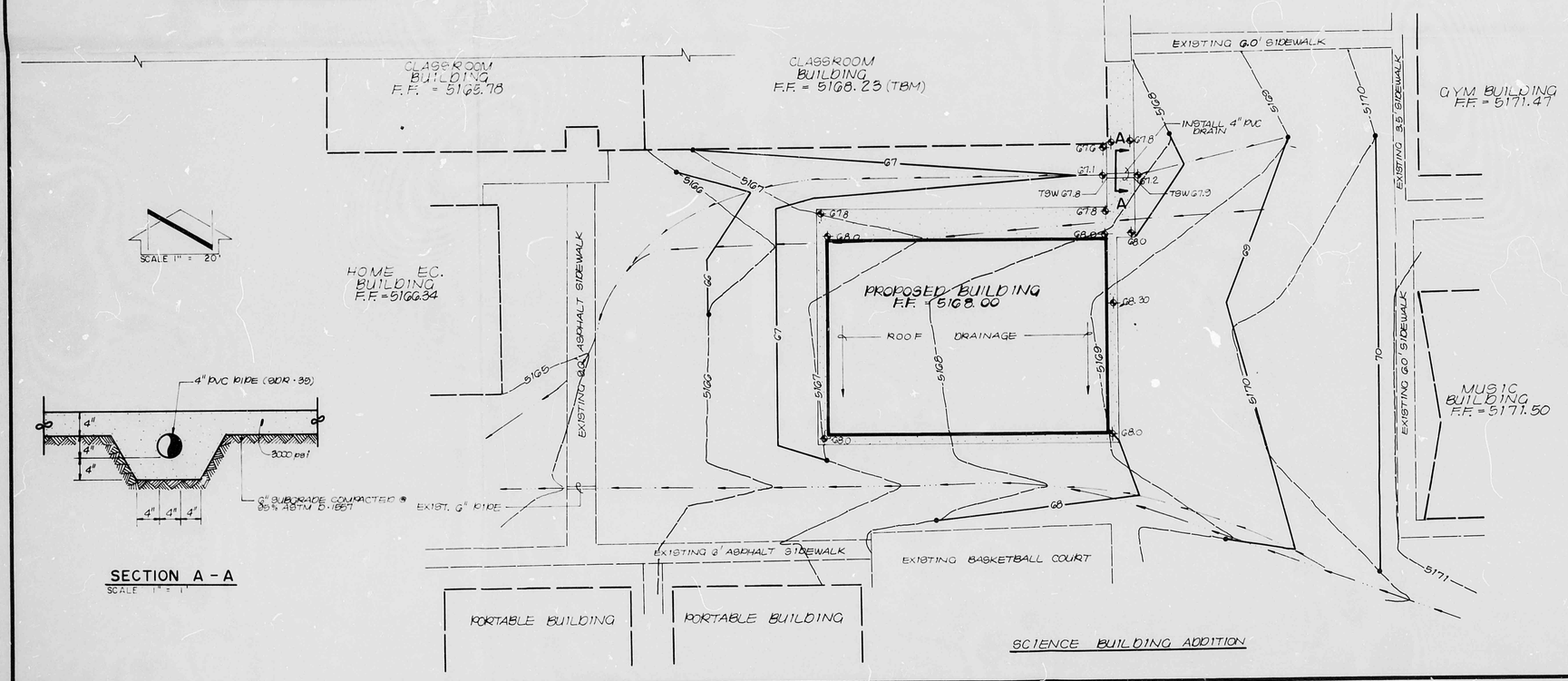
3. TBM (Cafeteria Addition):

   Finish floor of existing cafeteria

   Elevation: 5163.29 feet (MSLD)

3. ADDRESS:

   4500 Comanche Road N.E.



SECTION A - A

SCALE 1" = 1'

SCIENCE BUILDING ADDITION

DRAINAGE PLAN

The following items concerning the McKinley Middle School Additions Drainage Plan are contained hereon:

1. Vicinity Map
2. Grading Plan
3. Calculations

The proposed improvements, as shown by the Vicinity Map, are located on the south side of Comanche Road N.E. between Montclaire Drive N.E. and Monroe Street N.E. At present, the site is developed as a middle school campus. The surrounding area is already developed residentially.

Review of the Federal Insurance Maps reveals that a designated flood hazard zone exists across the northeast corner of the site. However, this presence does not affect the proposed improvements. It must be recognized at this time, however, that prior to further development of this school campus the City of Albuquerque Hydrology Section will require that a master drainage plan be prepared to fully analyze the entire site. This requirement, as mentioned above, will not affect the review and processing of this plan.

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 include the construction of a new science building along with a cafeteria addition. At present, the site of the science building addition drains from east to west toward the west property line of the site. Runoff does not reach the block wall which is situated along this property line but rather is intercepted by a graded swale which turns the water to the north. At this point, the runoff flows slowly (due to a relatively flat slope) to the paved parking lot. The runoff which flows onto the parking lot drains across the parking lot and exits the site via a drivepad; this point of discharge is shown on the Vicinity Map. The cafeteria addition merely drains across the parking lot to the aforementioned point of discharge onto Comanche Road N.E. The drainage patterns mentioned above are existing and will not be altered by construction.

The Calculations which appear below analyze both the existing and proposed conditions for the 100-year, 6-hour rainfall event for the science building addition only. 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, only a minor increase in runoff is anticipated due to the proposed building. It is quite possible, however, that this additional increment of runoff may never reach Comanche Road due to the fact that the majority of the flow path is over a paved surface which is highly susceptible to infiltration. No calculations have been performed for the cafeteria addition because that proposed work will not alter the amount of impervious area at that corner of the campus. This is to say that the proposed addition will not alter the existing drainage characteristics in the vicinity of the addition.

Calculations

Ground Cover Information

1. From SCS Bernalillo County Soil Survey, Plate 21:

   EtC Embudo-Tijeras Complex

   Hydrologic Soil Group B

2. Existing Condition

   A_{total} = 31,200 sf = 0.72 Ac

   A_{imp} = 0 sf

   % impervious = 0%

   'C' = 0.34 (DPM Plate 22.2C-1)

3. Developed Condition

   A_{total} = 31,200 sf = 0.72 Ac

   A_{imp} = 7500 sf

   % impervious = 7500/31,200 = 24%

   'C' = 0.45 (DPM Plate 22.2C-1)

Rational Method

1. Discharge: Q = CiA

   where C varies

   $i = P_6 (6.84) T_c^{-0.51} = 4.76$ in/hr

   P_6 = 2.25 in (DPM Plate 22.2D-1)

   T_c = 10 min (minimum)

   A = 0.72 Ac (area affected by addition)

2. Volume: $V = CP_6A(1/12)$

   where C varies

   P_6 = 2.25 in (DPM Plate 22.2D-1)

   A = 31,200 sf (area affected by addition)

Existing Condition

Q_{100} = CiA = 0.34(4.76)(0.72) = 1.2 cfs

$V_{100} = CP_6A$ = 0.34(2.25/12)(31,200) = 1989 cf

Developed Condition

Q_{100} = CiA = 0.45 (4.76)(0.72) = 1.5 cfs

$V_{100} = CP_6A$ = 0.45 (2.25/12)(31,200) = 2632 cf

Comparison

ΔQ_{100} = 1.2 - 1.5 = 0.3 cfs (increase)

ΔV_{100} = 1989 - 2632 = 643 cf (increase)

REGISTERED PROFESSIONAL ENGINEER — STATE OF NEW MEXICO — THOMAS T. MANN — 3792 — AND LAND SURVEYOR

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ENGINEERS

NO.	DATE	BY	REVISIONS

DESIGNED BY J.G.M.
DRAWN BY J.M.C.
APPROVED T.T.M.

JOB NO. 01052
DATE 7-83

GRADING & DRAINAGE PLAN

McKINLEY MIDDLE SCHOOL ADDITIONS

FILE NO.

SHEET 1 OF 1