HYDROLOGY E19/D11A ONE PLAN

E19-D11A

1 PLAN

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4481
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7871

November 17, 1981

E19-D11A

Mr. Charles M. Easterling
Principal Assistant City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
NOV 19
ENGINEERING

Re: Academy Campus Conceptual Drainage Report

Dear Chuck:

Enclosed is a copy of the Conceptual Drainage Report for the Albuquerque Academy Campus. Brian Burnett met with Jim Kirkpatrick and Dave Millikan on November 13, 1981, to discuss a preliminary copy of this report. The additional information, which Brian requested, has been included.

Please review the report at your earliest convenience. A copy of the report and this letter are being sent to Rich Leonard.

If you have any questions, please call Dave Millikan or me.

Sincerely,

Michial M. Emery, P.E.
Vice President

Enclosure

cc: Mr. Jim Kirkpatrick w/enclosure
Mr. Rich Leonard w/enclosure

DMYM/cs
Job No. 1 087 3

RECEIVED
NOV 18 1981
CITY ENGINEER

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L.S.
LARRY W. HUSTON
DONALD T. CREMANS, P. E.
C. J. (SKIP) MEAD, P. E.
MICHIAL M. EMERY, P. E.

ASSOCIATES
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JACK EICHORN
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G. LEE TRUSSELL
ISAAC J. PINO, P. E.
RAMON LARA, P. E.
DARRELL L. WADE, P. E.
PATRICK L. STIEHR, P. E.
DAVID M. Y. MILLIKAN, P. E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

E19 - D11A

December 7, 1981

Mr. Dave Millikan
Bohannan-Huston, Inc.
4125 Carlisle N.E.
Albuquerque, NM 87106

RE: ALBUQUERQUE ACADEMY CAMPUS MASTER PLAN OF DRAINAGE

Dear Dave:

The referenced plan is approved in concept. However, at this time the Hydrology Department wishes to add the following recommendations for any development in the area.

1. Due to the fact that any development will increase significantly the number of runoff events to both Wyoming Blvd. and the Pino Arroyo, frequencies up to the 2 year storm must be detained on-site and released at a controlled discharge. In the event the Pino Arroyo is concrete lined or conveyance is made through a pipe, free discharge will be allowed provided that the inlet structures are adequately designed.

2. The last sentence on page 4 should be deleted. With respect to AMAFCA 80-15, Tract A3 should be allowed undeveloped discharge to Tract A2. Tract A2 should be designed in accordance with this stipulation and the criteria outlined in #1 above.

3. All phased development within a specific tract must provide interim solutions acceptable to the City Engineer. Any conveyance facilities or associated structures should be constructed in temporary drainage and/or access easements.

4. Any proposed channel treatment for a development along the Pino Arroyo must be compatible with future plans upstream and downstream of the reach in question.

This office appreciates your work on this project and the conperation of the Boys Academy. If you should have any questions concerning the above points, please call.

Very truly yours,

Brian G. Burnett

Brian G. Burnett
Civil Engineer

BGB/tsl
cc: Mr. Jim Kirkpatrick

INFORMATION SHEET

E19 D11A

PROJECT TITLE Academy Campus **TYPE OF SUBMITTAL** Drainage Report

ZONE ATLAS PAGE NO. E-19, E-20 **CITY ADDRESS**

LEGAL DESCRIPTION Tract A-1 of Academy Campus

ENGINEERING FIRM Bohannan–Huston, Inc. **CONTACT**

ADDRESS 4125 Carlisle Blvd., NE **PHONE** 881-2000

OWNER Albuquerque Academy **CONTACT** Jim Kirkpatrick

ADDRESS 6400 Wyoming Blvd., NE **PHONE** 821-1[illegible]

ARCHITECT Flatow, Moore, Bryan & Associates **CONTACT** Bob Shepp[illegible]

ADDRESS 5608 Zuni, S.E. **PHONE** 26[illegible]783

SURVEYOR Bohannan–Huston, Inc. **CONTACT** Dwain Weaver

ADDRESS 4125 Carlisle Blvd., NE **PHONE** 881-2000

CONTRACTOR **CONTACT**

ADDRESS **PHONE**

DATE SUBMITTED 6-28-83

BY David M y Mullika

RECEIVED JUN 2 1983 ENGINEERING

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 12, 1983

Mr. Dave Millikan
Bohannan-Huston, Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, N.M. 87106

RE: DRAINAGE REPORT FOR ALBUQUERQUE ACADEMY CAMPUS MIDDLE SCHOOL DATED JUNE, 1983 (E19-D11A)

Dear Dave:

The referenced drainage report is in substantial compliance with the approved Conceptual Drainage Report, therefore, this plan is approved. However, I would appreciate clarification on the following items with your Drainage Plan submittal:

1. Does the 27 cfs from Basin "A" include the runoff from subbasin 1?

2. Does the 10 cfs from Basin "B" include the runoff from subbasin 2?

3. Is it the intention of the report to route all of Basin "C" through the pond (excluding the portion immediately downstream of the pond).

If you should have any questions regarding these comments, please feel free to call me at 766-7467.

Very truly yours,

Fred J. Aguirre, P.E.
Civil Engineer/Hydrology

FJA/tsl

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

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6773 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

September 6, 1983

Mr. Fred Aguirre
Building Code Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Drainage Report for Albuquerque Academy Campus Middle School (E19–D11A)

Dear Fred:

In response to your comments concerning the Middle School Drainage Report, we offer the following additional information.

The 27 cfs discharge from Basin A on Plate 2 includes the discharge from subbasin 1. The 10 cfs discharge from Basin B includes the discharge from subbasin 2.

All of the runoff from Basin C is to be routed through the detention pond within Basin C.

If you have additional questions, please do not hesitate to contact Dave Millikan or me.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Mr. Jim Kirkpatrick

DMYM/blm
Job No. 3 136 0

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L.S.
LARRY W. HUSTON
DONALD T. CREMANS, P. E.
C.J. (SKIP) MEAD, P. E.
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RAMON LARA, P. E.
DARRELL L. WADE, P. E.
PATRICK L. STIEHR, P. E.
DAVID M.Y. MILLIKAN, P. E.

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

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6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4481
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

September 8, 1983

Mr. Fred Aguirre
Building Code Department
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RECEIVED
SEP 09 1983
ENGINEERING

E19-D114

Re: Academy Campus Middle School

Dear Fred:

At your request, Dave Millikan met with you on Wednesday, September 7, to discuss the coordination of improvements for the Albuquerque Academy Campus Middle School. The approved drainage report for the middle school includes several detention ponds with outlet pipes discharging to Wyoming Boulevard.

As you are aware, the architectural drawings which have been submitted for the building permit do not include details for the ponding areas, or the outlets from the ponding areas. We are in the process of preparing these details along with construction drawings for the loop road within the campus, and the intersection improvements at Wyoming. These drawings will be submitted to you for review by October 1.

We have discussed with our client your request that an engineer certify compliance with the approved drainage report. The Academy has agreed to retain us to certify compliance. It is our understanding that certification will be required by you before a "Certificate of Occupancy" is issued.

Upon receipt of the above information, it is our understanding that you will approve the issuance of a building permit for the middle school. If this is not the case, or you have any questions, please call Dave Millikan or me immediately.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

cc: Mr. Jim Kirkpatrick

DMYM./blm
Job No. 3 136 3

PRINCIPALS
JERRY R. BOHANNAN, P. E. & L.S.
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PATRICK L. STIEHR, P. E.
DAVID M. Y. MILLIKAN, P. E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 12, 1983

Mike Emery
Bohannan-Huston, Inc.
4125 Carlisle Blvd. N.E.
Albuquerque, NM 87107

RE: ACADEMY CAMPUS MIDDLE SCHOOL (E19-D11A)

Dear Mike:

With respect to your letter dated September 8, 1983, your understanding regarding the release of building permits for the referenced site is correct, with one exception. That is, your organization will provide a comprehensive drainage plan that incorporates the Loop Road design and includes copies of the approved "Construction within Public Right-of-Way" documents for review by October 1, 1983.

If you have any questions regarding this understanding, please feel free to contact me.

Very truly yours,

Fred J. Aguirre
Civil Engineer/Hydrology

FJA/tsl

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000

September 30, 1983

Mr. Fred Aguirre
Civil Engineer/Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

E19-D11A

RECEIVED
SEP 30 1983
ENGINEERING

Re: Academy Campus Middle School Drainage Report and Grading Plans

Dear Fred:

Enclosed are the comprehensive grading plans for the improvements at the Albuquerque Academy Campus. We are also enclosing a preliminary set of the drawings for the street and drainage improvements to be built within the Wyoming Boulevard right-of-way.

Please note that these plans indicate two changes from the approved drainage report. In place of a 15" RCP drainline from the interior courtyard in sub-basin 1 (see Plate 2A of Drainage Report) five 8" PVC drainlines will be used to convey the runoff beneath the sidewalk and berm. At the outlets of these pipes, a gravel bed and some plantings will be placed to reduce the likelihood or erosion.

The other change is the elimination of a retaining wall at the east side of the gymnasium (building immediately west of tennis courts). The grading in this area has been modified to provide acceptable protection for runoff in this area. Also, a temporary paved access (road) from the existing road to the new parking lot at the south end of the middle school has been added. This access has been graded so that it intercepts the upland runoff impacting the gymnasium and conveys it to the same pond as outlined in the approved report.

If you have any questions or need additional information, do not hesitate to call Dave Millikan or me.

Sincerely yours,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

Enclosures

cc: Mr. Jim Kirkpatrick
Mr. Bob Sheppard

DMYM/blm
Job No. 31360

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

FILE COPY

November 3, 1983

Mike Emery
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87107

REF: ACADEMY CAMPUS MIDDLE SCHOOL (E19-D11A)

Dear Mr. Emery:

The referenced drainage plan is in accordance with my letter dated September 12, 1983; therefore, this plan is approved. Please provide the contractor with a copy of this approved plan.

With respect to the certification of the subject project for the purpose of obtaining a Certificate of Occupancy. It is understood per your letter dated September 8, 1983, that your client has retained your organization to perform this service.

Upon completion of the required drainage improvements, please provide this office with the required certification information per the DPM.

Sincerely,

Fred J. Aguirre
Civil Engineer/Hydrology

FJA:mrk

ENGINEERS PLANNERS PHOTOGRAMMETRISTS

BOHANNAN-HUSTON INC.

4125 CARLISLE BLVD. N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N.M. 87509 505 988-7671
673 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

E19-D11a

August 23, 1984

Fred Aguirre, Design Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Albuquerque Academy Middle School Drainage Certification

Dear Fred:

As a follow-up to your discussion with Dave Woods on August 22, 1984 regarding the referenced certification, I am forwarding a statement indicating that we believe the drainage improvements for the middle school are in substantial compliance with the approved plan. It is my understanding that this is sufficient for your department to release a 60-day, temporary Certificate of Occupancy. Prior to the expiration of this permit, we will submit a formal certification as outlined in the Development Process Manual.

We are most anxious to see this issue resolved. Thank you for your assistance and if you have any questions, please do not hesitate to call.

Sincerely yours,

Brian G. Burnett

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Jim Kirkpatrick
Mr. Joe Almers

BGB/mws
Job No. 3 136 3

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD. N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N.M. 87509 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

I, Brian G. Burnett, a Registered Professional Engineer in the State of New Mexico, do hereby certify that the drainage facilities constructed for the Albuquerque Academy Middle School Campus are in substantial compliance with the approved plan.

BRIAN G. BURNETT NEW MEXICO 8541 REGISTERED PROFESSIONAL ENGINEER

Brian G. Burnett 8-23-84

Brian G. Burnett, P.E.
N.M.P.E. No. 8541

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

BOHANNAN-HUSTON INC.

4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N. M. 87509 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

September 20, 1984

Mr. Steve Chavez
Inspector
City Hydrology Section
City of Albuquerque
Post Offie Box 1293
Albuquerque, NM 87102

Re: Albuquerque Academy Middle School - Project Certification

Dear Steve:

This letter is to document our conversation of September 14, 1984 regarding certification of the Albuquerque Academy Middle School Campus.

As we discussed, the pond outlets to Wyoming Boulevard are provided under City project No. 1950 which is currently under construction. It is my understanding that a final Certificate of Occupancy (CO) will not be issued until the facilities have been installed. You did, however, indicate that the existing 60 day temporary CO could be extended by 30 days if necessary.

We will keep you informed on the progress of this work. If you have any questions on this matter, please do not hesitate to call.

Sincerely yours,

Brian G. Burnett

Brian Burnett, P.E.
Project Manager

cc: Mr. Jim Kirkpatrick

BGB/mls

Job No. 3 136 6

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

INFORMATION SHEET

PROJECT TITLE Albuq. Academy Middle School TYPE OF SUBMITTAL Certification

ZONE ATLAS PAGE NO. E-19 CITY ADDRESS

LEGAL DESCRIPTION TRACT A-1-A, of Academy Campus

ENGINEERING FIRM Bohannan-Huston CONTACT Brian Burnett

ADDRESS 4125 Carlisle, NE PHONE 881-2000

OWNER Albuq. Academy CONTACT

ADDRESS PHONE

ARCHITECT CONTACT

ADDRESS PHONE

SURVEYOR CONTACT

ADDRESS PHONE

CONTRACTOR CONTACT

ADDRESS PHONE

PRE-DESIGN MEETING: E19-D11A

___ YES
___ NO
___ COPY OF CONFERENCE RECAP SHEET PROVIDED

PLEASE CHECK TYPE OF APPROVAL EXPECTED WITH THIS SUBMITTAL:

___ SKETCH PLAT APPROVAL
___ PRELIMINARY PLAT APPROVAL
___ SITE DEVELOPMENT PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ BUILDING PERMIT APPROVAL
X CERTIFICATE OF OCCUPANCY APPROVAL
___ ROUGH GRADING PERMIT APPROVAL
___ GRADING/PAVING PERMIT APPROVAL
___ OTHER _____ (SPECIFY)

RECEIVED NOV 06 1984 HYDROLOGY SECTION

DATE SUBMITTED: Brian D. Burnett

BY: 11/6/84

RECEIVED NOV 0 - 1984 HYDROLOGY SECTION

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N.M. 87509 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

November 5, 1984

Mr. Steve Chavez
Inspector, City Hydrology
123 Central N.W.
Albuquerque, NM 87102

Re: Engineering Certification for Albuquerque Academy Middle School

Dear Steve:

Several months ago your office released a temporary Certificate of Occupancy for the referenced project. At that time, the sidewalk culverts required to drain the ponds had yet to be installed. I'm happy to report that these structures are now in place and functioning properly. I am therefore certifying that the as-built drainage plan for the school is in substantial compliance with the approved drainage report. Enclosed you will find the as-built information superimposed on the original plan.

We are most anxious to have the permanent Certificate of Occupancy issued for the school. Please contact me if you have any questions. Thank you for your cooperation.

Truly yours,

Brian G. Burnett, P.E.
Project Manager

Enclosure

cc: Mr. Jim Kirkpatrick
Mr. Bob McCabe
Mr. Bob Hasaka

BGB/mls
Job No. 3 136 6

RECEIVED
NOV 06 1984
HYDROLOGY SECTION

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

November 6, 1984

Mr. Brian G. Burnett
Bohannan-Huston, Inc.
4125 Carlisle Boulevard NE
Albuquerque, NM 87106

REF: CERTIFICATION FOR ALBUQUERQUE ACADEMY CAMPUS MIDDLE SCHOOL (E19-D11A)

Dear Brian:

Based on the information provided on your November 6, 1984 certification submittal, listed you will find certain items that will need to be addressed before final approval is granted:

1. Certification from the City Engineer's Office Inspection Department that all structures interphased within City R/W within the work order 1950 have been completed and accepted by them.

2. Certification statement included within as-built plan stamped and dated by the Engineer (per DPM certification checklist).

If you have any questions or comments, please feel free to call me at 766-7644.

Sincerely yours,

Bernie J. Montoya

Bernie J. Montoya
Engineering Asst. C.E.

BJM:mrk

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
UNIVERSITY PLAZA, 330 GARFIELD SUITE 104 SANTA FE, N.M. 87509 505 988-7671
6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

November 9, 1984

Mr. Bernie Montoya
Inspector, City Hydrology
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Academy Middle School Certification

Dear Bernie:

As a follow-up to my correspondence of November 5, 1984 regarding certification of the Middle School, I am submitting a letter signed by C. John Baca of the City Engineer's Office. This letter confirms that sidewalk culverts constructed under project #1950 are in place.

Let me also take this opportunity to specifically address the Engineer's Certification Checklist contained in Section 22.7 of the DPM.

1. Information Sheet - Previously submitted.

2. Pad Elevations - Elevations of each building have been provided.

3. Spot Elevations - As-built elevations have been provided at appropriate locations around the site.

4. City apporval of ROW work - See attached letter from C. John Baca.

5. Roof Drain Locations - These have been noted on the plan. Basin boundaries have also been added.

6. Item #6 - I believe that sufficient spot elevations have been provided for items such as ponds, outlet pipes and swales.

7. The plan has been stamped and a compliance statement added.

8. Two as-built copies are included for your files.

RECEIVED
NOV 13 1984
DESIGN HYDROLOGY
SECTION

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

I appreciate you reviewing my prior submittal so quickly and would ask that this information be viewed in a similar manner.

If you have any questions, please do not hesitate to call.

Truly yours,

Brian G. Burnett

Brian G. Burnett, P.E.
Project Manager

Enclosures

cc: Mr. Jim Kirkpatrick
Mr. Bob McCabe
Mr. Bob Hasaka

BGB/mls
Job No. 3 136 6

RECEIVED
NOV 13 1984
DESIGN HYDROLOGY
SECTION

BOHANNAN-HUSTON INC.
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6713 VISCOUNT BLVD. EL PASO, TEXAS 79925 915 778-4491

November 9, 1984

Mr. C. John Baca
City of Albuquerque
City Engineers Office
P.O. Box 1293
Albuquerque, NM 87103

Re: Academy Middle School Sidewalk Culvert Certification

Dear C. John:

By signing this letter, you are confirming that the sidewalk culverts identified in project #1950 have been constructed and that the most southerly culvert, recently cracked by the City bikepath contractor, will be corrected in the near future. As I indicated in our conversation of November 7, 1984, this letter will be forwarded to Bernie Montoya, City Hydrology, so that the permanent Certificate of Occupancy can be issued for the structure.

Yours truly,

Brian G. Burnett

Brian G. Burnett, P.E.
Project Manager

SIGNED

C. John Baca

C. John Baca
City Inspector

BGB/mls
Job No. 3 136 6

RECEIVED
NOV 13 1984
DESIGN HYDROLOGY
SECTION

PRINCIPALS
JERRY R. BOHANNAN, P.E. & L.S.
LARRY W. HUSTON
MICHIAL M. EMERY, P.E.

DRAINAGE REPORT
FOR
ALBUQUERQUE ACADEMY CAMPUS
MIDDLE SCHOOL

JUNE, 1983

PREPARED FOR:

ALBUQUERQUE ACADEMY
6400 WYOMING BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87109

PREPARED BY:

BOHANNAN–HUSTON, INC.
4125 CARLISLE BOULEVARD, N.E.
ALBUQUERQUE, NEW MEXICO 87107

DAVID M. Y. MILLIKAN
NEW MEXICO
7547
6-27-83
REGISTERED PROFESSIONAL ENGINEER

David M Y Millikan

DAVID M.Y. MILLIKAN, P.E.
N.M.P.E. NO. 7547

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APPENDIX

PLATES

Plate 1 — Undeveloped Drainage
Plate 2 — Developed Drainage
Plate 2A— Detailed Grading and Drainage Plan
Plate 3 — Site Plan Layout
Plate 4 — Flood Hazard Boundary Map
Plate 5 — Soils Map
Plate 6 — Vicinity Map

ALBUQUERQUE ACADEMY CAMPUS
MIDDLE SCHOOL

DRAINAGE REPORT

LOCATION

The Albuquerque Academy Campus is located in northeast Albuquerque (Zone Atlas Maps E-19 and E-20). The site is bordered by Wyoming Boulevard on the west, Academy Road to the south, the extension of Layton Avenue on the east, and the Yorba Linda Subdivision, and Harper Drive on the north.

The site slopes east to west at approximately 2–4%. The soils on the site are classified as Tijeras gravelly fine sandy loam, Embudo gravelly fine sandy loam, and Embudo-Tijeras Complex. Each of these is listed as hydraulic soil type 'B.' The site is covered with sparse vegetation. The Pino Arroyo traverses the north part of the site.

The only portion of the site that is to be developed at this time is included in Tract A-1 of the Academy Campus. This tract contains approximately 130 acres. The proposed improvements, at this time, include the construction of the middle school and associated roadways. This area was previously analyzed in the "Conceptual Drainage Report for the Albuquerque Academy Campus" by Bohannan–Huston, Inc. (November, 1981). Since that report was prepared, the Drainage Ordinance has been revised. This report has been prepared to comply with the requirements of the Drainage Ordinance.

METHOD OF ANALYSIS

The flows were analyzed using the Development Process Manual (Section 22.2). Each of these basins was analyzed to determine the peak discharge during the 100-year and 10-year storms. The volume generated, due to the 100-year storm, was also determined. Composite runoff coefficients for each basin were determined based upon the types of surfaces present. The three types considered are:

1. Irrigated maintained turf (c = 0.18). This is based upon the assumption that irrigated maintained turf on Type "B" soil has the same "c" value as native vegetation on Type "A" soil.

2. Undeveloped ground with native grasses (c = 0.34).

3. Improved impervious areas (c = 1.00).

Composite runoff coefficients for each basin were determined depending on the proportion of each type of area.

Times of concentration were determined using the appropriate velocities from Plates 22.2 B-1 and 22.2 B-2. The 100-year, 6-hour storm, according to Plate 22.2 D-1, is 2.4 inches.

Runoff volumes were calculated using the rainfall values for the 100-year, 6-hour storm, the runoff coefficient, and the drainage basin area. Hydrographs of the runoff generated for each basin were prepared. Capacities of the detention ponds and discharge rates were also computed. From this information, the required pond volumes were determined. Computations are included in the appendix.

EXISTING CONDITIONS

Flows generated outside of the Academy Campus area do not impact Tract A-1. They are either conveyed around the site in the Pino Arroyo or to the west in Academy Road. Flows generated on other portions of the Academy Campus do not impact Tract A-1. The drainage basins and undeveloped flow rates are shown on Plate I. All of the flows generated on the Academy Campus area that impact Tract A-1 are discharged to Wyoming Boulevard. They are then conveyed to the north in Wyoming Boulevard to the Pino Arroyo. The computed street capacity for Wyoming Boulevard is approximately 80 cfs (see appendix).

The undeveloped area which impacts Tract A-1 consists of four basins. The total calculated runoff from these basins is 167 cfs. Therefore, Wyoming Boulevard does not have adequate capacity for runoff from its present contributing basins.

PROPOSED CONDITIONS

The developed area itself will be divided into three sub-basins (see Plate II), each of which will discharge into a detention facility. Each facility will discharge at a controlled rate to Wyoming Boulevard. Our calculations, based upon the methods outlined

in the DPM, indicate that the discharge from these facilities upon development will be approximately 4.0 cfs.

Runoff from the detention facility in Sub-Basin I will discharge through a six-inch drainline at a peak rate of 1.75 cfs. This detention pond reaches a depth of 3.6 feet due to the 100-year storm. The required pond volume of this detention pond is 0.54 acre-feet.

Runoff from the detention pond in Sub-Basin II will discharge through a six-inch drainline at a peak rate of 1.3 cfs. This detention pond reaches a maximum depth of 2.2 feet due to the 100-year storm. The required pond volume of this detention pond is .33 acre-feet.

Runoff from the detention pond in Sub-Basin III will discharge through a six-inch drainline at a peak rate of 0.9 cfs. This detention pond reaches a maximum depth of 1.2 feet due to the 100-year storm. The required pond volume of this detention pond is 0.16 acre-feet.

Computations which indicate the flow rates, velocities, and depths are included in the appendix.

Each of the detention ponds will be designed to retain the runoff from nuisance flows. An overflow spillway will be provided for each pond, as shown on Plate 2.

Upland runoff from the Academy Campus area is diverted around the site in the swales indicated on Plate 2. A portion of the roofs along the east edge of the middle school drain to these swales. The runoff from these roofs will not be detained. However, these roofs drain onto irrigated, maintained turf. The turf has the ability to infiltrate the runoff from minor storms. For this reason, the increase in frequency of runoff from the site will be minimal.

EROSION CONTROL PLAN

The detention ponds should be constructed as soon as rough grading begins. The runoff from the majority of the site will be routed through these ponds. For this reason, the impact of erosion during construction on the streets and properties downstream will be minimized.

APPENDIX

COMPUTATIONS

UNDEVELOPED

BASIN 'A'

OVERLAND FLOW SEGMENT

L = 1400
ΔELEV = 50
SLOPE = .0263
VEL = .9
Tc = 35.2

STREET FLOW SEGMENT

LENGTH = 1200
ΔELEV = 8
SLOPE = .0067
V = 1.27
Tc = 15.74

Tc TOTAL = 50.94
I = 2.21
AREA = 34.6

C FACTOR = 15% .18 TYPE A
85% .34 TYPE B
C = .32

Q = 24.5 VOLUME = 2.22

BASIN 'B'

LENGTH = 2970
Δ ELEV = 66
SLOPE = .022
V = .85
Tc = 58.23
I = 2.07

C FACTOR 50% .16 TYPE A
40% .34 TYPE B
10% 1.0 100% IMP
C = .32

Q = 14.6 VOLUME = 1.42

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

BASIN C

LENGTH = 2050
ΔELEV = 50
SLOPE = .024
VEL = .80
Tc = 42.7
I = 2.42

C FACTOR = 40% .18 TYPE 'A'
40% .34 TYPE 'B'
20% 1.0 IMP.
C = .41

Q = 30.00 VOLUME = 1.66

BASIN 'D'

CHANNEL
EST: Q = 100 D = .97 n = .025
SLOPE = .026
LENGTH = 1900 ft

Q = 97.56
VEL = 7.68
Tc = 4.1 min

ABOVE CHANNEL L = 2400
ΔELEV = 90'
SLOPE = .0375
Tc = 33.3 VEL = 1.20

Tc TOTAL = 4.1 + 33.3 = 37.4
I = 2.58

C FACTOR 10% .18 TYPE A
10% 1.0 TYPE B (DEVEL)
80% .34 TYPE 'C'
AREA = 106.6 C = .39

Q = 107.7 VOLUME = 8.31

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

DEVELOPED AREAS

SUB BASIN '1'

AREA = 2.723 ACRES

C = 40% 1.0 100% IMP.

35% .34 TYPE 'B'

25% .18 TYPE 'A'

CFACTOR = .56

Tc = 10 min

I = 5.07

Q = 13.8 CFS 1.75 VOLUME = .55

SUB BASIN 2

AREA = 3.03 ACRES

CFACTOR ⇒ 45% 1.0

55% .18 'A'

C = .55

I = 5.07

Q = 8.5 CFS 1.3 VOLUME = .32

SUB-BASIN '3'

AREA = 2.18 ACRES

C ⇒ 23% @ 1.0 IMP.

77% .18 TYPE A

CFACTOR ⇒ .37

Q = 4.16 CFS .9 cfs VOLUME = .16

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____

PROJECT NO. ____ BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____

DEVELOPED DRAINAGE BASINS.

BASIN 'A'

OVERLAND FLOW

L = 2900
Δ ELEV = 70
SLOPE = .0241
VEL = .8
Tc = 60.41

STREET FLOW

L = 1200
Δ ELEV = 8
SLOPE = .0067
VEL = 2.2
Tc = 9.1
Tc TOTAL = 69.5

I = 1.89

C FACTOR

35% TYPE A .18
5% IMP. 1.0
60% TYPE 'B' .34
C = .30

AREA = 43.45

Q = 24.7 VOLUME = **2.643**

BASIN 'B'

Tc = 10
I = 5.07
C FACT: (CHART 22-2 C-1) ⇒ .40
A = 4.81

Q = 8.5 VOLUME = .33 ACRE FT

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

BASIN 'C'

T_c = 42.7

I = 2.41

C FACTOR: 40% TYPE 'A' .18

35% TYPE B .34

25% 1.0 IMP.

C = .44

AREA = 16.38

Q = 17.4 CFS VOLUME = 1.44 Acre ft

BASIN 'D'

T_c = 37.26

I = 2.59

C FACTOR

10% TYPE A (18)

10% 1.0 (IMPERVIOUS)

80% TYPE B (.34)

C = .39

AREA = 10.66

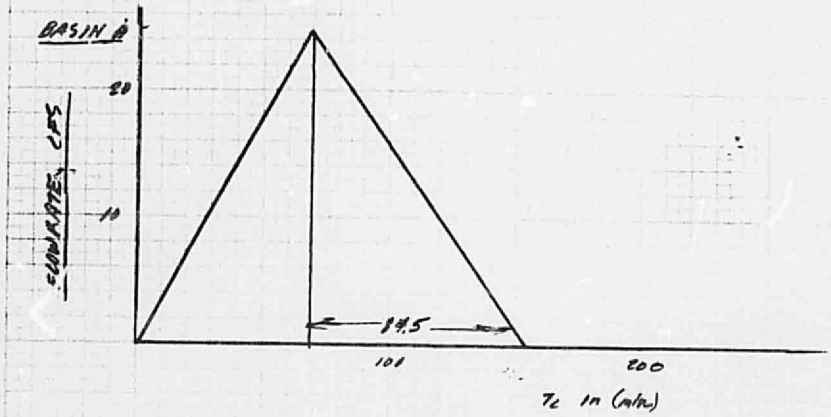
Q = 107.7 CFS VOLUME = 8.31 Acre ft

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____

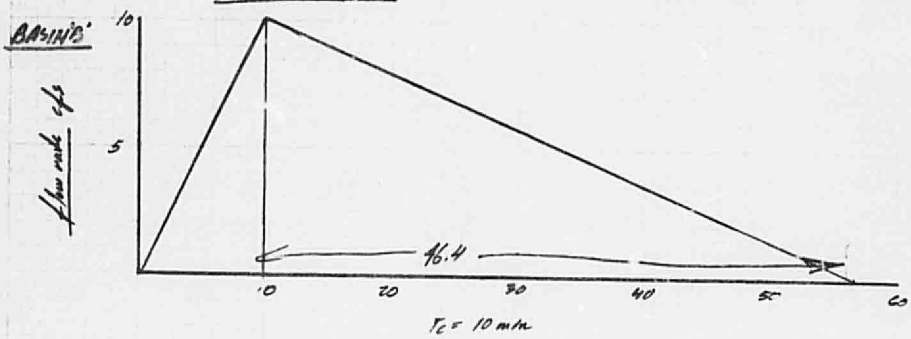
PROJECT NO. ____ BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____

INFLOW HYDROGRAPHS



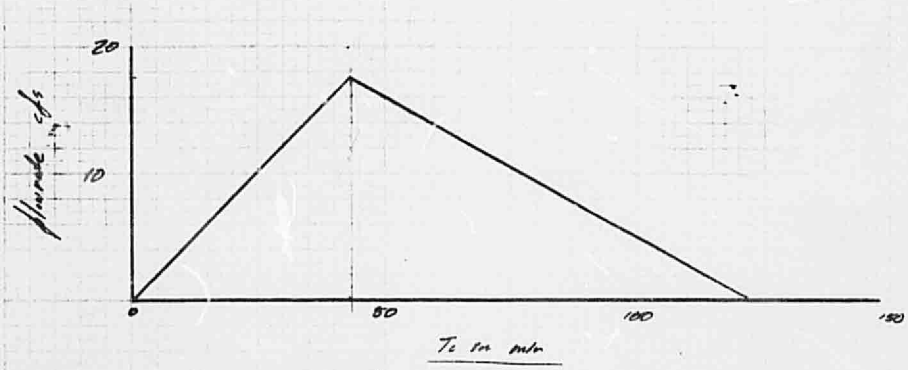
Q = 24.9 Tc = 69.5
A = 1.19 Aft ⇒ 51916 cf
A+B = 114998 cf
B = 63082
L = 139.5 min



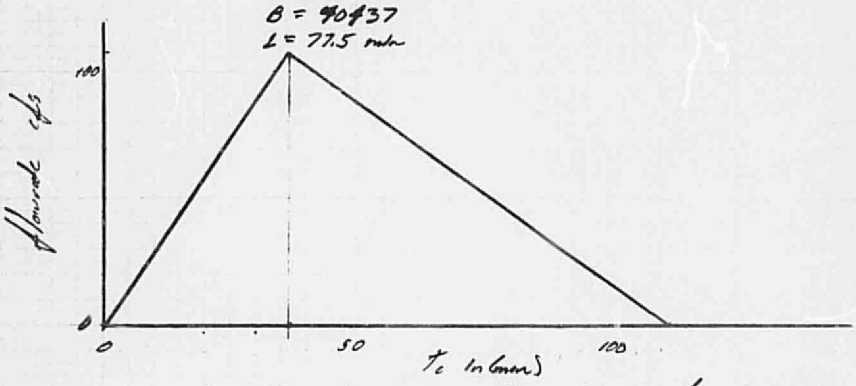
Q = 8.5 Tc = 10
A = 2550
A+B = 14375
B = 11825
L = 46.4 min

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

INFLOW HYDROGRAPHS.



Q = 17.4
Tc = 42.7 min
A = 22289
A+B = 62726
B = 40437
L = 77.5 min



Tc = 37.3 Q = 107.7 VOL = 8.31 Acre-ft = 361984

A = 120 516
B = 241468
L = 74.7

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

FLOW RATES FOR PONDS

$Q = CA\sqrt{2gh}$

DEPTH	Q 6"	
1'	.82	.43
2'	1.25	.32
3'	1.57	.26
4'	1.83	.23
5'	2.06	

VOLUMES OF PONDS

SUB BASIN 1	0-1	3687.5 ft³
	1-2	8912.5 ft³
	2-3	15887.5 ft³
	3-4	25725.0 ft³
SUB BASIN 2	0-1	5275 ft³
	1-2	12125 ft³
	2-3	20787 ft³
	3-4	31775 ft³
SUB BASIN 3	0-1	7000 ft³
	1-2	18950 ft³
BASIN 6	0-1	17262 ft³
	1-2	39724 ft³
	2-3	68086 ft³

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

SUB-BASIN 1

time	Q in	Vol in	Acc vol	Q out	Vol out	DETAINED VOLUME
0	0	0	0	0	0	0
5	6.85	1025	1075	0	0	1075
10	13.7	3082.5	4110	.223	68.8	4041
15	12.84	3896	8001	.84	252.5	7748
20	10.75	3448	11470	1.15	344	11106
25	8.57	3073	14463	1.35	404.8	14058
30	6.87	2584	17047	1.44	447	16600
35	6.44	2150	19196	1.54	477	18719
40	4.99	1744	20940	1.64	492	20448
45	3.54	1280	22189	1.69	506.3	21682
50	2.09	945	23034	1.72	516	22516
55	.63	402	23436	1.75	324.0	22917
60						
65						
70						
75						
80						
85						
90						
95						
100						
105						
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210						
215						
220						
225						

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

SUB CALCN 2

6" PIPE

time	Qin	WEIR HOLD VOL	BUZDA VOL	Q OUT	VOL OUT	DEPOSITED VOL
0	0	0	0	0	0	0
5	4.2	630	630	0	0	630
10	8.3	1875	2505	.10	29.52	2475
15	7.42	2355	4863	.34	118	4745
20	6.54	2094	6957	.66	198.8	6760
25	5.66	1836	8787	.90	270.5	8516
30	4.78	1596	10383	1.0	301	10081
35	3.9	1332	11715	1.1	331	11384
40	3.02	1038	12753	1.18	353	12400
45	2.14	774	13527	1.25	375	13152
50	1.27	516.5	14039	1.24	394	13645
55	.388	246.7	14287	1.29	397	13889
60						
65						
70						
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210						
215						
220						
225						

PROJECT NAME ACADEMY CAMPUS SHEET ___ OF ___
PROJECT NO. ___ BY ___ DATE ___
SUBJECT ___ CH'D ___ DATE ___

SUB BASIN '3' 6" PIPE

time	Q IN	INCRE VOL IN	ACCUM VOLUME		Q OUT	Vol OUT	DRAINED VOL
0	0	0	0		0	0	0
5	2.43	364.5	364.5		0	0	364.5
10	4.86	1093	1458		.09	12.5	1445
15	4.37	1384	2842		.16	49.2	2793
20	3.88	1237	4079		.35	98.4	3980
25	3.39	1090	5169.5		.45	135.3	5034
30	2.9	943.5	6113		.58	174.6	5938
35	2.42	798	6911		.70	209.1	6702
40	1.93	652.5	7563.5		.80	241	7325
45	1.44	505.5	8069		.83	249	7820
50	.96	360	8429		.85	256.3	8173
55	.4831	214.5	8644		.90	270.6	8373
60							
65							
70							
75							
80							
85							
90							
95							
100							
105							
110							
115							
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200							
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210							
215							
220							
225							

PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

BASIN C POND

time	Q IN	INCRE VOL IN	ACCUME VOL.			Q OUT	VOL. OUT	DETAINED VOL.					
0	0	0	0			0	0	0					
5	2.04	306	306			0	0	306					
10	4.08	1818	2124			.016	5	2119					
15	6.16	1536	3660			.101	35	3625					
20	8.15	2146	5806			.192	87	5719					
25	10.2	2753	8559			.27	81.5	8477					
30	12.23	3364	11923			.40	120.8	11802					
35	14.3	3979	15903			.56	168	15735					
40	15.3	4590	20493			.75	224	20269					
45	16.9	4980	25473			.87	262	25211					
50	15.7	4890	30363			1.02	305	30058					
55	14.6	4545	34908			1.07	322	34586					
60	13.5	4215	39123			1.16	348	38775					
65	12.3	3870	42993			1.24	372	42620					
70	11.2	3525	46518			1.29	385	46132					
75	10.0	3180	49698			1.32	396.1	49302					
80	8.9	2835	52533			1.36	409	52124					
85	7.75	2498	55031			1.39	417.2	54614					
90	6.61	2159	57185			1.42	425	56760					
95	5.47	1812	58997			1.44	432.6	58564					
100	4.33	1470	60467			1.46	437.4	60030					
105	3.19	1129	61595			1.47	442	61153					
110	2.05	786	62381			1.49	448	61933					
115	.91	449	62825			1.5	451	62374					
120													
125													
130													
135													
140													
145													
150													
155													
160													
165													
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220													
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PROJECT NAME ACADEMY CAMPUS SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

REVISION OF DRAINAGE FOR 10 YEAR STORM.

UNDEVELOPED

BASIN 'A' Q = 16.03

BASIN 'B' Q = 9.6

BASIN 'C' Q = 13.14

BASIN 'D' Q = 70.8

DEVELOPED

SUB-BASIN '1' Q = 9.1

SUB-BASIN '2' Q = 5.6

SUB-BASIN '3' Q = 2.73

BASIN 'A' Q = 16.4

BASIN 'B' Q = 5.6

BASIN 'C' Q = 11.43

BASIN 'D' Q = 70.8

PROJECT NAME Academy Campus SHEET ____ OF ____
PROJECT NO. ____ BY ____ DATE ____
SUBJECT ____ CH'D ____ DATE ____

STREET CAPACITY FOR WYOMING BLVD

Longitudinal slope = .0050

n = .017

$$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

A = 16.167 X2 = 32.33.

Perimeter = 64.4

$\boxed{Q = 79.2 \text{ cfs capacity}}$

PROJECT NAME Academy Campus SHEET ____ OF ____

PROJECT NO. ____ BY ____ DATE ____

SUBJECT ____ CH'D ____ DATE ____

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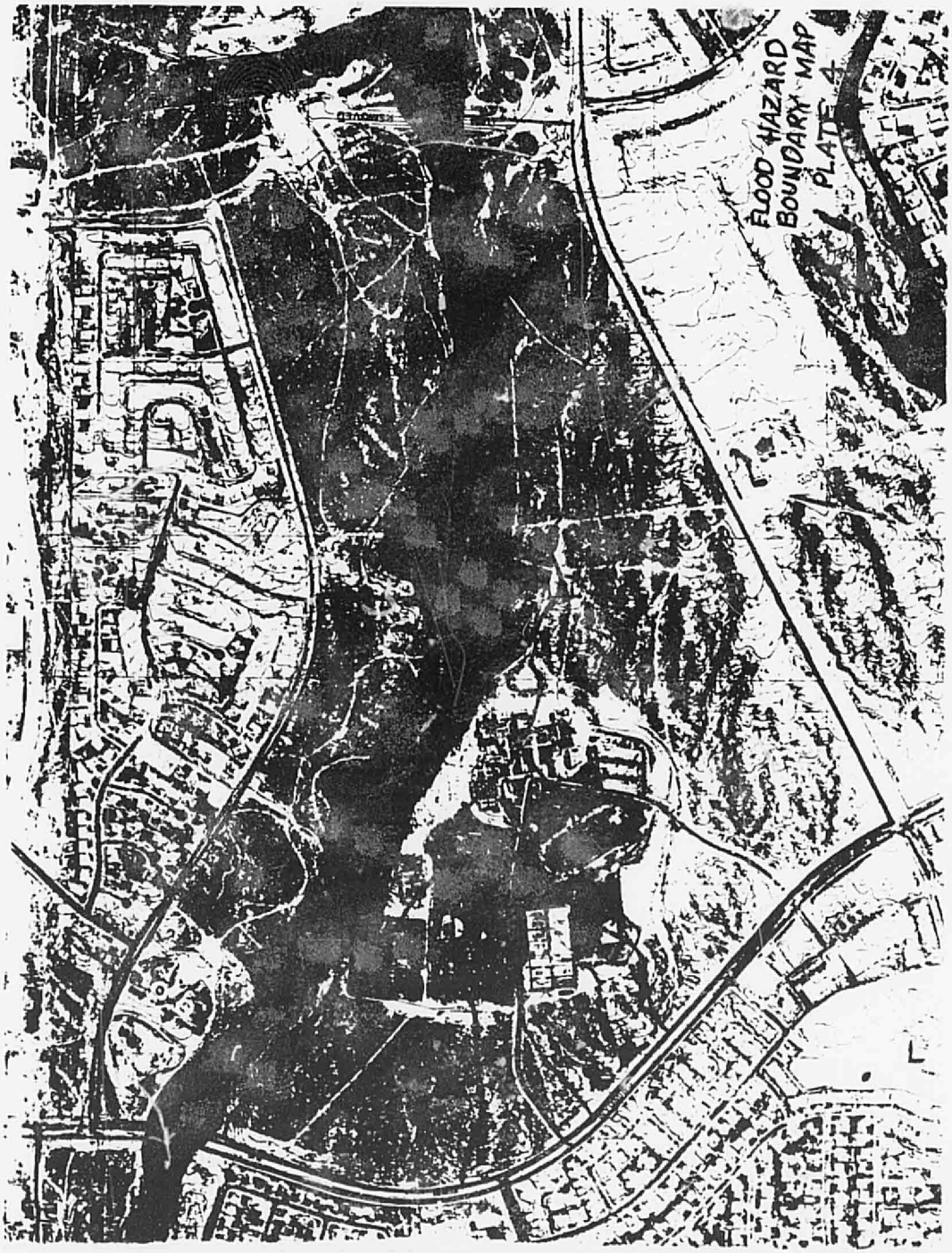
OF THE ORIGINAL DOCUMENT



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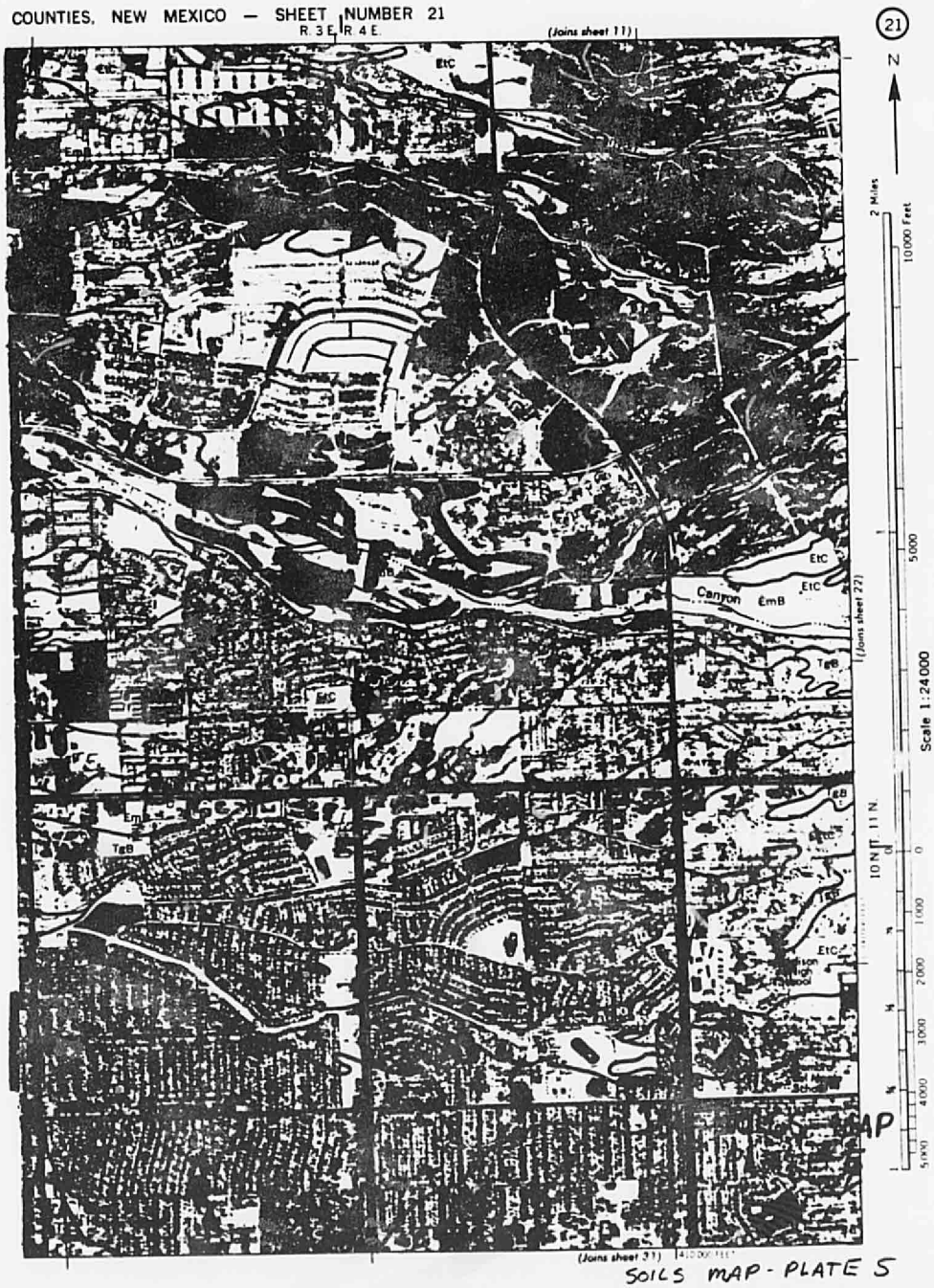
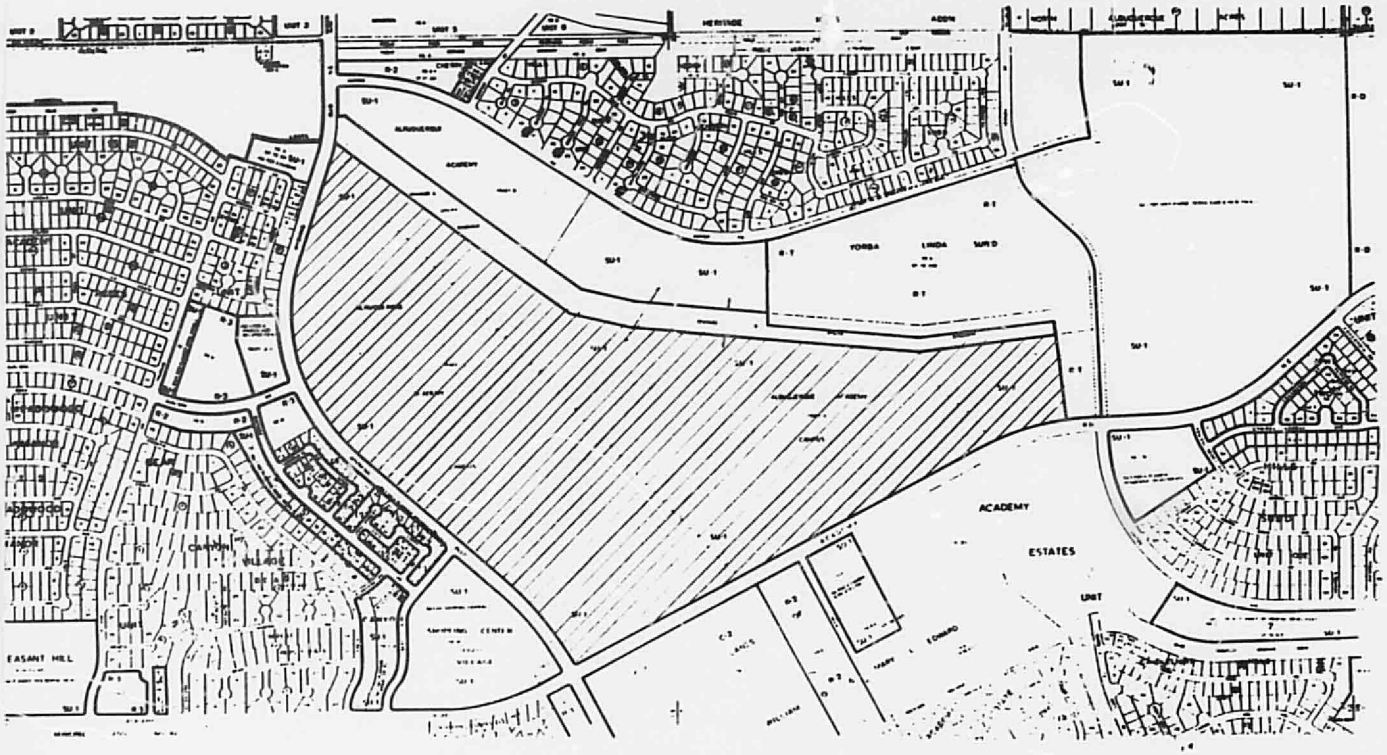
COUNTIES, NEW MEXICO — SHEET NUMBER 21



SOILS MAP - PLATE 5



VICINITY MAP
PLATE 6

1819