HYDROLOGY M12/D1 TWO PLANS

M12/D1

2 PLANS

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) 778-4491
330 GARFIELD SANTA FE, NEW MEXICO 87501 (505) 988-7671

June 15, 1983

Mr. Clyde Vigil
Assistant Building Official
County Zoning
Bernalillo County
P. O. Box 1293
Albuquerque, NM 87103

RECEIVED
JUN 21 1983
CITY ENGINEER

Re: Drainage Report for Smith's Food and Drug No. 428 (CZ 80-21)

Dear Mr. Vigil:

Enclosed are two (2) copies of the drainage report and one copy of the subsurface investigation report for the proposed Smith's Food and Drug Store at the northwest corner of Goff Boulevard and Arenal Road, S.W. We request your review of this plan which is in accordance with the revised site development plan requested by the County Commission.

If you have any questions or need any additional information to facilitate your review, please do not hesitate to call Jim Domenick or me at this office.

Sincerely,

Michial M. Emery, P.E.
Vice President

cc: Mr. Tom Gilmore w/enclosures
Mr. Dave Pugsley w/enclosures
Mr. Brian Burnett w/enclosures
Mr. Gene Mares

Enclosures

JVD/dlh
Job No. 3 940 8

10-8140

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
ANDRES ARAGON VIAMONTE, P.E.
JACK EICHORN
ROBERT H. GREENLEE, P.E.
G. LEE TRUSSELL
ISAAC J. PINO, P.E.
RAMON LARA, P.E.
DARRELL L. WADE, P.E.
PATRICK L. STIEHR, P.E.
DAVID M. MILLIKAN, P.E.

BOHANNAN HUSTON INC.

DRAINAGE REPORT
FOR
SMITH'S FOOD & DRUG NO. 428

BERNALILLO COUNTY, NM

JUNE, 1983

DRAINAGE REPORT
FOR
SMITH'S FOOD & DRUG NO. 428

BERNALILLO COUNTY, NM

JUNE, 1983

JAMES V. DO
NEW MEXICO
7643
REGISTERED PROFESSIONAL ENGINEER

DRAINAGE REPORT
FOR
SMITH'S FOOD & DRUG NO. 428

BERNALILLO COUNTY, NEW MEXICO

PREPARED FOR:

SMITH'S MANAGEMENT CORPORATION
P. O. BOX 30550
SALT LAKE CITY, UTAH 84130

PREPARED BY:

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

JUNE, 1983

INFORMATION SHEET

PROJECT TITLE Smith's Food & Drug No. 428 **TYPE OF SUBMITTAL** Drainage Report

ZONE ATLAS PAGE NO. M-12-Z **CITY ADDRESS** NW corner, Goff Blvd. & Arenal Rd., SW

LEGAL DESCRIPTION Tract 5A, Unit 2, Lands of A. P. Armijo, Bernalillo County, NM (Filed Nov. 21, 1980; C17, 131)

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

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

OWNER Smith's Management Corp. **CONTACT** Tom Gilmore

ADDRESS P.O. Box 30550, Salt Lake City, UT **PHONE** (801) 973-4849

ARCHITECT Prescott Muir Associates **CONTACT** Dave Pugsley

ADDRESS 235 West Fourth South, Salt Lake City, UT **PHONE** (801) 521-9111

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

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

CONTRACTOR _____ **CONTACT** _____

ADDRESS _____ **PHONE** _____

DATE SUBMITTED _____

BY _____

INTRODUCTION

This drainage report is for a proposed Smith's Food and Drug store at the northwest corner of the intersection of Goff Boulevard and Arenal Road, SW. The site is bounded on the east by Goff Boulevard, on the south by Arenal Road and on the north and west by agricultural land. It consists of approximately 5.35 acres and is outside the city limits but within its extraterritorial jurisdiction. Figure 1 is a vicinity map.

Smith's Management Corporation purchased this site from Mr. Juan P. Armijo, who also owns the adjacent land to the north and west. Figure 2 is a copy of the plat. Some of the early correspondence with the Middle Rio Grande Conservancy District MRGCD) regarding the disposition of the ditch passing through the site occurred prior to Smith's purchase of the land, so the letters from MRGCD are addressed to Mr. Armijo. Copies of pertinent letters are contained in Appendix B.

METHOD OF ANALYSIS

Discharges and runoff volumes were computed for this parcel with the Rational Formula, in accordance with guidelines set out in Chapter 22 of the Development Process Manual. Computation for rainfall, runoff and pond volumes for the site are contained in Appendix A.

EXISTING CONDITIONS

The site for the proposed store is currently used for agriculture and is low-lying valley land with little slope. There is a ditch passing through the site (the Acoma Lateral) which was formerly used for irrigation but is now used only occasionally to carry excess flows diverted by upstream users.

The surface soils on the site are Agua and Gila types as classified by the SCS Soil Survey, which belong to Hydrologic Group B. Figure 3 is a copy of the Soil Survey map showing the site. The subsurface soil investigation confirmed the mixed soil types at the surface, including sands, silts and loam. Clean sand was typically encountered at depths of six to seven feet, and the water table was found approximately nine feet below the surface. Refer to the subsurface investigation report by F M Fox & Associates for more information.

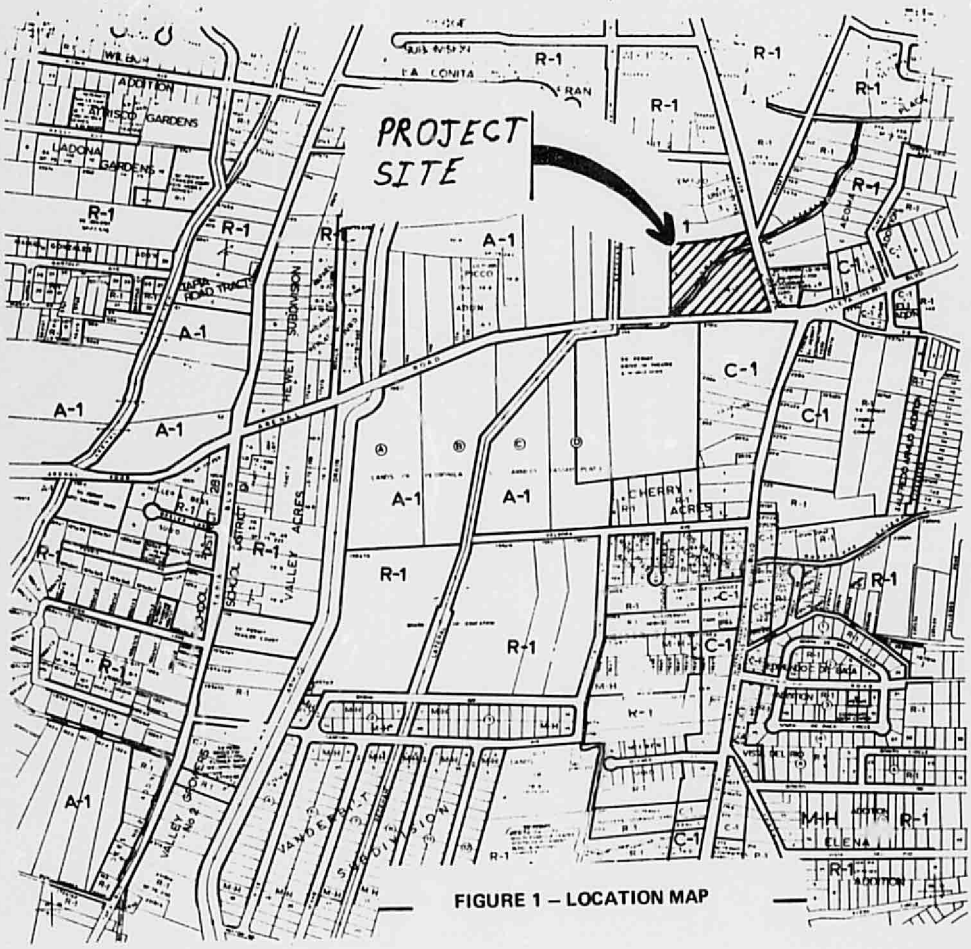
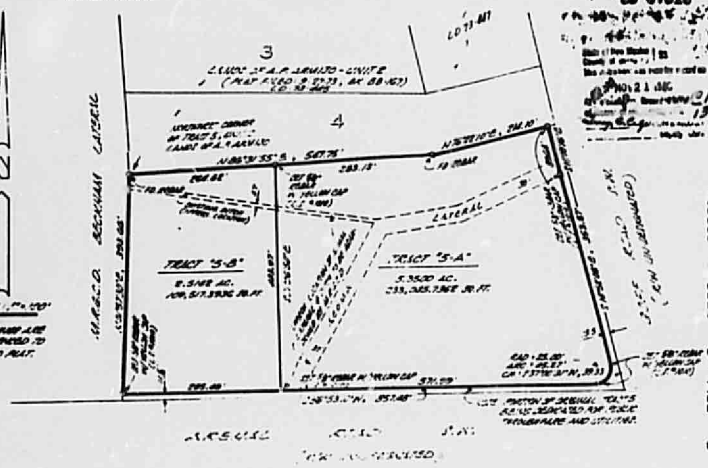


FIGURE 1 – LOCATION MAP

C17-131

SP-11-80-333

NOTE: THIS PLAT DOES NOT IN ANY WAY VACATE OR ALTER ANY EXISTING EASEMENTS WITHIN THE SUBJECT PREMISES OTHER THAN SHOWN ON THE PLAT HEREON.



SUMMARY PLAT

SHOWING

TRACTS "S-A" & "S-B"

UNIT TWO (2)

LANDS OF A. P. ARMIJO

BERNALILLO COUNTY, NEW MEXICO

NOVEMBER, 1980

THE FOREGOING REPLAT OF THAT CERTAIN PARCEL OF LAND SITUATE IN SECTION 36, TOWNSHIP 10 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, BERNALILLO COUNTY, NEW MEXICO; BEING AND COMPRISING A REPLAT OF ALL OF TRACT NUMBERED FIVE (5) OF THE "PLAT OF LANDS OF A.P. ARMIJO, UNIT 2, BERNALILLO COUNTY, NEW MEXICO", AS THE SAME IS SHOWN AND DESIGNATED ON THE PLAT THEREOF FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON SEPTEMBER 27, 1973, (BK. 88-107).

SURVEYED, REPLATTED AND NOW BEING IDENTIFIED AS TRACTS "S-A" AND "S-B" OF LANDS OF A.P. ARMIJO, UNIT TWO (2), BERNALILLO COUNTY, NEW MEXICO, WITH THE FREE CONSENT OF, AND IN ACCORDANCE WITH THE WISHES AND DESIRES OF THE UNDERSIGNED OWNER(S) AND PROPRIETOR(S), THEREOF, AND SAID OWNER(S) AND PROPRIETOR(S) DO HEREBY DEDICATE TO THE COUNTY OF BERNALILLO, NEW MEXICO, THAT EASTERLY AND SOUTHERLY PORTION OF AFOREMENTIONED TRACT FIVE (5), (AS SHOWN ON THE PLAT HEREON), FOR THE USE OF PUBLIC THOROUGHFARE AND PUBLIC UTILITIES.

OWNER(S) AND PROPRIETOR(S)
(UN-DIVIDED 1/4 INTEREST)

JUAN P. ARMIJO
JACOB F. ARMIJO
BETTY A. SIMONI
EVELYN J. CARTER

BY: JUAN P. ARMIJO, AGT.

APPROVED: [illegible] CITY OF ALBUQUERQUE DATE: ——

APPROVED: Richard S. Miller [illegible] CITY OF ALBUQUERQUE DATE: 11/21/80

I, D.T. MORRISON, NEW MEXICO REGISTERED LAND SURVEYOR NO. 1910, DO HEREBY CERTIFY THAT THE PLAT AND SURVEY SHOWN HEREON WAS PREPARED BY ME OR UNDER MY SUPERVISION AND DIRECTIONS, MEETS THE MINIMUM REQUIREMENTS FOR MONUMENTS AND SURVEYS OF THE ALBUQUERQUE SUBDIVISION ORDINANCE AND SHOWS ALL EASEMENTS ON RECORD.

D.T. MORRISON, NEW MEXICO REGISTERED LAND SURVEYOR NO. 1910

MAP AND SURVEY BY: D.T. MORRISON SURVEYOR, INC.
ALBUQUERQUE, NEW MEXICO

STATE OF NEW MEXICO } SS:
COUNTY OF BERNALILLO

ON THIS 14TH DAY OF November, 1980 BEFORE ME, A NOTARY PUBLIC IN AND FOR SAID COUNTY AND STATE, THE FOREGOING INSTRUMENT WAS ACKNOWLEDGED.

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND AND OFFICIAL SEAL ON THE DAY AND DATE LAST ABOVE WRITTEN.

NOTARY PUBLIC: [illegible]
MY COMMISSION EXPIRES: Nov. 22, 1980

APPROVAL AND CONDITIONAL ACCEPTANCE, AS SPECIFIED BY THE ALBUQUERQUE SUBDIVISION ORDINANCE.

[illegible] DIRECTOR, CITY OF ALBUQUERQUE, N.M. 11-24-80 DATE SP-80-404 SP NO.

CITY _____ COUNTY X 8-12

FIGURE 2 — PLAT

C17-131

PROPS

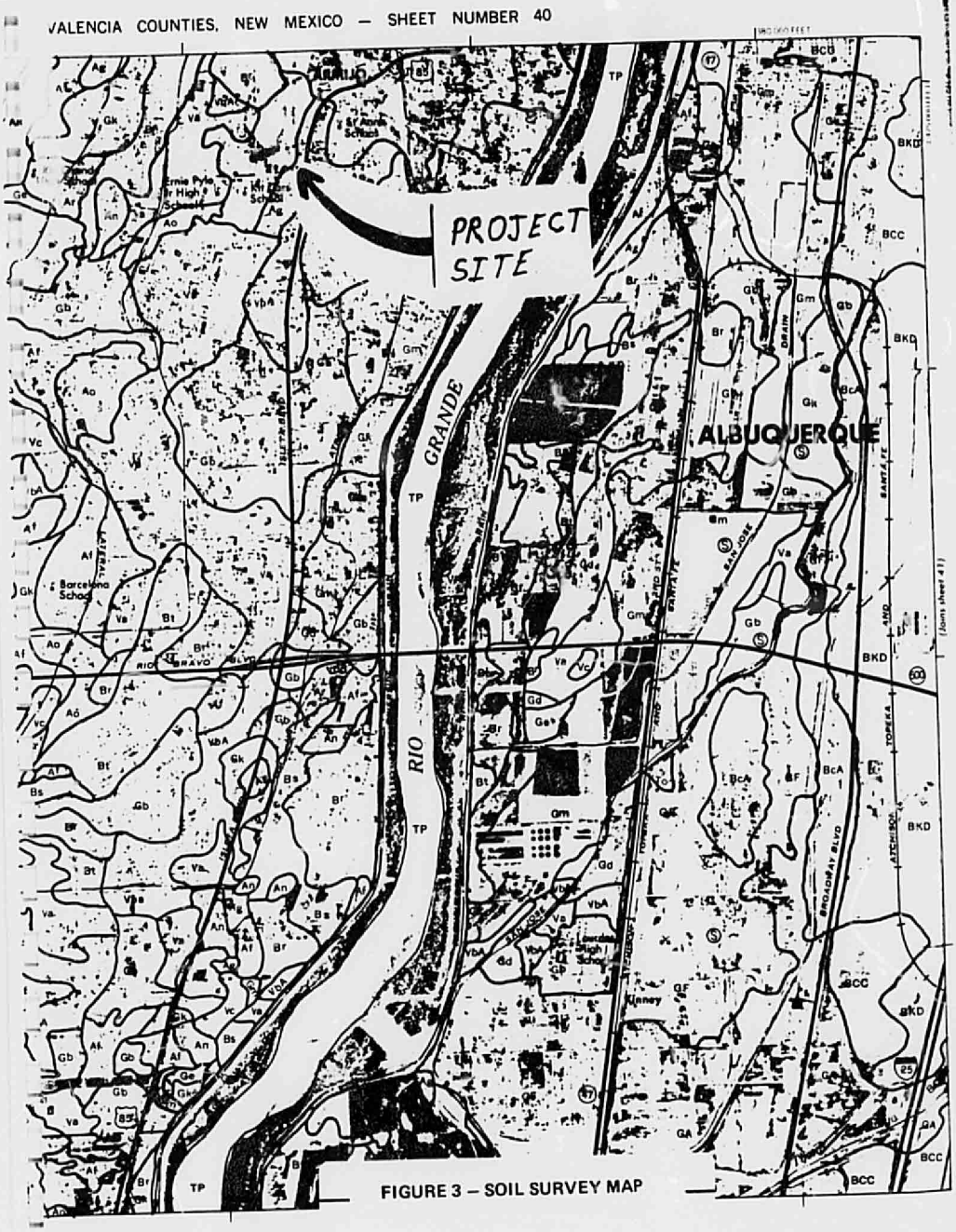


FIGURE 3 – SOIL SURVEY MAP

The primary source of flood potential is runoff from the agricultural land to the north. This water could cause shallow flooding on the northern portion of the site because the banks of the existing ditch would impound the flow preventing it from crossing or spreading over the site. The FIA map, a copy of which is reproduced as Figure 4, shows a 100-year water surface of 4,940.0 feet in this area.

No off-site runoff reaches the rest of the site, and rainfall on the site will not drain away from it. Therefore, rainfall which does not infiltrate immediately would pond in local depressions on the site (south of the ditch). This water would remain until it evaporated or infiltrated.

DEVELOPED CONDITIONS

The portion of the Acoma Lateral passing through the site will be obliterated during development. In order to keep the off-site runoff from the north off the site, the grade along the north property line will be maintained above elevation 4,940.0 feet. The adjacent landowner, Mr. Armijo, has agreed to this arrangement (see letter in Appendix B). The culvert under Goff Boulevard will also be plugged to prevent water in the ditch upstream from reaching the site.

As part of their agreement with Mr. Armijo, Smith's will construct an earth channel along the west property line to carry excess runoff from Mr. Armijo's land to the Acoma Lateral downstream of the portion being abandoned. This ditch will convey these flows to the existing 24" RCP under Arenal Road, which is the present discharge point for these waters.

Since there is no available stormwater outlet besides the Acoma Lateral, all runoff from the building and parking lot will be retained on-site. Three retention ponds will be constructed in the landscaped areas along Goff Boulevard and Arenal Road. These ponds will have a maximum depth of 18 inches for the 100-year runoff. At that depth, two of these ponds have insufficient capacity for the runoff, so we will construct cobble/gravel sumps with a 50% porosity in the bottoms to hold this additional water. Plate 1 shows the locations and required volumes of these sumps, and Plate II shows a typical detail.

Since the soils at the site are clay at the surface, with sand at a depth of about seven feet, stormwater in the ponds will not infiltrate unless it can penetrate to the

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

FIGURE 4 – FLOOD HAZARD MAP

sand layer. We plan to construct drains consisting of 12" diameter holes filled with gravel and penetrating at least two feet into the sand every 20 feet along the pond bottoms. These will be needed in all three ponds. Although no gravel sump is needed for the southernmost pond (Basin 3), we will have a gravel strip along the bottom connecting the gravel-filled holes for the sake of appearance. More information about the soils on the site can be found in the Subsurface Investigation Report by F M Fox & Associates.

SUMMARY

The drainage plan for Smith's Food and Drug No. 428 consists of preventing shallow flooding from off-site flows by raising the elevation of the north end of the parking lot and retaining on-site runoff in ponds and gravel sumps. The existing ditch on the site will be abandoned.

Appendix A contains computations of runoff volumes and required pond volumes. Appendix B contains copies of correspondence relating to abandonment of the ditch and diverting off-site runoff away from the site.

REFERENCES

1. City of Albuquerque, Development Process Manual, Chapter 22.

2. U.S. Department of Agriculture, Soil Conservation Service and Forest Service, "Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico," June 1977.

3. Federal Emergency Management Agency, Bernalillo County Flood Insurance Study, 1982.

4. F M Fox Consulting Engineers & Geologists, Subsurface Investigation, Smith's Food & Drug No. 428, May 10, 1983.

APPENDIX A

COMPUTATIONS

SMITH'S #428

DRAINAGE AREA (SITE) = 5.35 AC
SOILS - HYDROLOGIC GROUP B
SCS CN = 61 (GOOD PASTURE LAND) (PLATE 22.2C-1)

EXISTING CONDITIONS

- SHALLOW FLOODING NORTH OF ACOMA LATERAL
  FROM FIA MAPS W.S. ELEV = 4940.0
- 0% IMPERVIOUS
- 6 HR - 100 YR RAINFALL = 2.25"
  (PLATE 22.2 D-1)
- SINCE THERE IS NO DISTINGUISHABLE OUTLET SOUTH OF THE DITCH, RUNOFF WILL POND IN THE SOUTHWEST CORNER OF THE SITE UNTIL IT INFILTRATES OR EVAPORATES.

DEVELOPED CONDITIONS

- NO OFF-SITE RUNOFF WILL REACH THE SITE
  (SEE JUAN ARMIJO'S APPROVAL)

PROJECT NAME SMITH'S # 428 SHEET 1 OF 5
PROJECT NO. 39408 BY JD DATE 5/31/03
SUBJECT DRAINAGE CH'D _____ DATE _____

- ON-SITE RUNOFF WILL HAVE TO CONTINUE TO BE PONDED SINCE THERE IS NO PLACE TO DISCHARGE IT

- USE RETENTION PONDS IN LANDSCAPE AREAS ALONG ROADS (SEE SHEET 1 OF DRAINAGE PLAN)
  - 3 PONDS — 3 BASINS
  - SURFACE PONDING - MAX 18" DEEP
  - RETAIN EXCESS IN COBBLE/GRAVEL BED W/ 50% POROSITY
  - NEED GRAVEL DRAINS THROUGH CLAY LAYER TO SAND TO ALLOW INFILTRATION

POND VOLUMES

BASIN 1:

AREA = 0.90 AC

% IMPERVIOUS = 93%

COMPOSITE CN ≅ 95 (PLATE 22.2 C-3)

RUNOFF VOLUME = 1.75" (PLATE 22.2 C-4)

= 5886 FT^3 = 0.14 A-F

PROJECT NAME SMITH'S #428 SHEET 2 OF 5
PROJECT NO 39408 BY JD DATE 3/31
SUBJECT CH'D DATE

POND SURFACE AREA ≈ 2850 FT^2

→ ASSUME 2800 FT^2 @ 12" DEEP = 4200 FT^3

RUNOFF 5886

− POND 4200

1686 FT^3 TO BE PUT IN GRAVEL SUMP

@ 50% POROSITY, WE NEED 3372 FT^3 IN THE GRAVEL SUMP

⇒ USE ≈ 35' x 35' x 3' DEEP SUMP

VOL = 3675 FT^3

BASIN 2:

AREA = 1.60 AC

% IMPERVIOUS = 90%

COMPOSITE CN = 94 (PLATE 22.2 C-3)

RUNOFF VOLUME = 1.65" (PLATE 22.2 C-4)

= 9583 ft^3 = 0.22 A-F

POND SURFACE AREA ≈ 6100 FT^2

PROJECT NAME SMITHS #428 SHEET 3 OF 5

PROJECT NO. 39408 BY JD DATE 4/23

SUBJECT DRAINAGE CH'D DATE

USE 6000 ft^2 @ 18" DEEP = 9000 ft^3

∴ GRAVEL SUMP MUST BE 9583 - 9000
= 583 FT^3 (2)
= 1166 FT^3

⇒ USE ≈ 130' LONG x 3' WIDE x 3' DEEP SUMP

BASIN 3:

AREA = 2.80 AC

% IMPERVIOUS = 88 %

COMPOSITE CN = 93 (PLATE 22.2 C-3)

RUNOFF = 1.6" (PLATE 22.2 C-4)

= 16,262 FT^3

= 0.37 AF

POND AREA ≈ 0.29 AC = 13,200 FT^2

USE 12000 FT^2 @ 18" DEEP = 18,000 FT^3

∴ NO GRAVEL SUMP NEEDED FOR STORAGE.

PROJECT NAME SMITH'S #428 SHEET 4 OF 5
PROJECT NO 39408 BY JD DATE 6/23
SUBJECT CH'D DATE

HOWEVER WE DO STILL NEED TO GET THROUGH THE CLAY LAYER, SO PUT A GRAVEL STRIP IN THE MIDDLE OF THE POND, 200' x 2' WIDE x 1' DEEP.

PROJECT NAME SMITHS 428 SHEET 5 OF 5
PROJECT NO. 39408 BY JS DATE 6/1/87
SUBJECT DRAINAGE CH'D _____ DATE _____

APPENDIX B

PERTINENT CORRESPONDENCE

PC

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

MAYOR
David P. Rusk

RECEIVED JAN 22 1981

January 21, 1981

Nathan Coulter 264-8800
948 East 7145 South, Suite 204
Midvale, Utah 84047

RE: CZ-80-21

Dear Mr. Coulter:

At their meeting of January 20, 1981 the Board of County Commissioners approved the Development Plan for the southeastern portion of Lot 5, LD-73-445, zoned A-1/Special Use permit for a Planned Commercial Development, located on the northwest corner of Arenal Road and Goff Boulevard SW, containing approximately 5.4 acres, subject to the Findings:

1. A revised development plan is required.
2. Removal of the satellite development at the corner is required.
3. Staff must approve the revised plan, including a review of the entrances, landscaping and signage.
4. At least two of the four cottonwood trees must be retained.
5. There must be at least 6 feet high of solid wall or fencing on the north side.

If you have any questions concerning this case, feel free to call 766-7422.

Sincerely,

John R. Lucero
County Planner

cc: Juan P. Armijo, 1507 Goff Blvd, SW; 87105
County Manager
County Zoning Administrator

MIDDLE RIO GRANDE CONSERVANCY DISTRICT
POST OFFICE BOX 581
1930 SECOND ST., S.W. PHONE 243-6796
ALBUQUERQUE, NEW MEXICO 87103

Job # 39408
cc: Tom Wilson
Neil Coulter
Dave Pugsley
→ JP (new) & J
→ FILE

May 17, 1983

Mr. Michial M. Emery
Bohannan Huston, Inc.
4125 Carlisle Blvd. NE
Albuquerque, NM 87107

Re: Acoma Lateral abandonment

Dear Mike,

I have received your letter and a copy of Mr. Nanninga's letter.

As per Mr. Nanninga's latter, the District does not have any objection to abandoning portion of Acoma Lateral. You must understnad that there may be some standing water in the ditch upstream of your client's property. A deadend ditch may cause health hazards such as mosquitoes. This problem can be resolved if the water users request just an adequate amount of water for irrigation purpose. The upstream property owners may look at your client to remedy the problem due to dead end ditch.

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

Sincerely,

Subhas K. Shah
District Engineer

SKS:cj

Job # 39408
cc: Tom Sylvester
Nate Coffin
Lance Bugsby
→ J. D. Lopez
→ File

May 6, 1983

Mr. Juan P. Armijo
1507 Goff Blvd., S.W.
Albuquerque, NM 87105

Re: Proposed Smith's Food and Drug Store at Goff Boulevard and Arenal Road, S.W.

Dear Mr. Armijo:

This letter is to keep you informed of the plans for the proposed Smith's store adjacent to your land, and to request permission to prevent runoff from your land from reaching the site. Our firm is preparing the drainage and grading plans for the site.

We have informed the Conservancy District we will be obliterating the Acoma Lateral on the site, in accordance with their December 1, 1980 letter to you. Smith's will reroute that portion of the ditch, which carries the excess flows from the Beckman Lateral along the west property line on your land, and discharge the water into the existing culvert under Arenal Road.

As you know, the County Planning Commission has called for a fence to be constructed along the north property line of the Smith's site separating it from your land. We would also like to ask your permission to take measures to keep excess storm runoff from your land from draining to the Smith s site. This would probably entail raising the parking lot elevation and constructing a small earth berm along the north property line.

The Federal Flood Insurance Maps indicate shallow flooding north of the existing Acoma Lateral on Smith's and your land. A copy of this map is enclosed. Placing a berm along the north property line will prevent this shallow flooding on the Smith's site, but may increase the flooding potential on your farmlands by impounding on them the water which would currently drain to the Smith's site. If this will prove detrimental to your land, we will resort to other flood mitigation measures.

BOHANNAN-HUSTON INC.
4125 CARLISLE BLVD., N.E. ALBUQUERQUE, NEW MEXICO 87107 505 881-2000
6713 VISCOUNT BLVD., EL PASO, TEXAS 79925 915 778-4491
330 GARFIELD, SANTA FE, NEW MEXICO 87501 505 988-7671

PRINCIPALS
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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.

Smith's Management Corporation will pay for the design and construction of the berm and all facilities associated with the relocation of the ditch along the west property line and will secure your approval prior to construction.

If this proposal is acceptable to you, please sign in the space provided below and return the original of this letter to our Albuquerque office. If you would like to discuss this proposal in greater detail, please call Jim Domenick or me. We will be glad to meet with you at your convenience.

Sincerely,

Michial M. Emery

Michial M. Emery, P.E.
Vice President

APPROVED:

Juan P. Armijo

Juan P. Armijo

Date: 5/18/83

cc: Mr. Tom Gilmore
Mr. Nate Coulter
Mr. Dave Pugsley

JVD/dlh
Job No. 3 940 8

MIDDLE RIO GRANDE CONSERVANCY DISTRICT
POST OFFICE BOX 581
1930 SECOND ST., S.W. PHONE 243-6796
ALBUQUERQUE, NEW MEXICO 87103

December 1, 1980

Mr. Juan P. Armijo
1507 Goff Blvd. SE
Albuquerque, NM 87105

Dear Mr. Armijo:

The District has made a field inspection of your request to close the Acoma Lateral.

It appears that you are the last user on the ditch. The last person above you being served obtains his water at the corner of the back of tract 5B, map 43. Service to users up stream can be made with a few management changes, with no one currently using water being deprived. The Acoma Lateral is a community ditch. It is not a Conservancy ditch, and we have no record of any easement or any contract between water users and the District that would put the District in any kind of a documental position of ownership or maintenance responsibility.

Since there is no documented District involvement in this ditch, there really is no ability to give up or vacate the ditch. However, since the District has been performing maintenance on the ditch, the District chooses to make a management decision to cease to maintain that section downstream from the last user of the ditch. Users of water south of Arenal Road can be served from the Beckham Lateral and you can obliterate the portion of the Acoma ditch on your property.

The enclosed map section identifies the section of ditch the District is ceasing to maintain.

If you have any questions, please advise.

Sincerely,

R. S. Nanninga

Robert S. Nanninga
General Manager

RSN:cj
Enclosure

APPENDIX C

BENCHMARK DESCRIPTIONS

CONTROL STATION DATA

City of Albuquerque, New Mexico
Public Works Department
Engineering Division

Name of Station COMMUNITY State New Mexico County Bernalillo

Establishing Agency NGS Year 1969 Chief of Party J. L. Cook

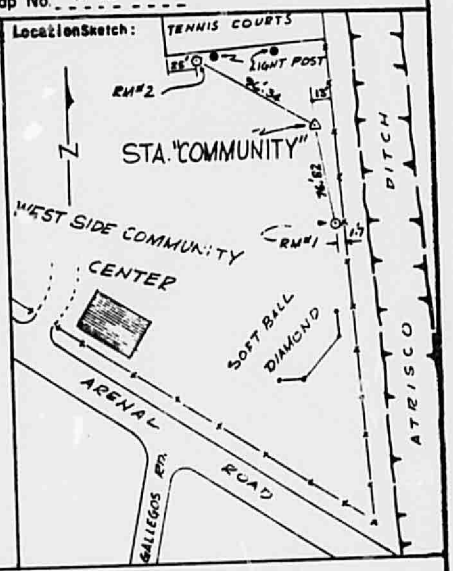
Section _____ Township _____ Range _____ Map No. M-13

Description: Station is located 2.5 miles southwest of downtown Albuquerque, on the grounds of the West Side Community Center.

To reach the station from the junction of Central Ave., and State Road 45 (Coors Rd., S.), go south on State Road 45, 2.3 miles to intersection with Arenal Road; then east on Arenal Road 1.9 mile to a gate and driveway, on the left, leading into the West Side Community Center. The station is just northeast of this point, in the east edge of a softball diamond.

The station mark is a standard USC&GS brass tablet stamped, "COMMUNITY 1969", set in top of a concrete post 0.3 ft. below the surface of the playing field.

Location Sketch:



HORIZONTAL DATA

FIELD METHOD: ☐ Traverse ☒ Triangulation ☐ Trilateration

GEOGRAPHIC POSITION (NAD 1927) 1st-order

Latitude 35° 03' 10.89370" Longitude 106° 40' 18.12236"

PLANE COORDINATES Projection TM State N.M. Zone Central

X 373,790.96 Y 1,474,812.97 Ground-to-Grid Factor 0.99968207

ELEVATION DATA

SPIRIT LEVEL ELEVATION (SLD 1929) Feet 4937.32 Meters _____ -Order

TRIGONOMETRIC ELEVATION Feet 4937 Meters 1504.9

AZIMUTH DATA

O (or Δα) Angle -0° 14' 32"

Station	Azimuth ° ' "	Back Azimuth ° ' "	DISTANCE Feet	DISTANCE Meters
STADIUM	249 24 23			

BENCH MARK DATA

City of Albuquerque, New Mexico
Public Works Department
Engineering Division

State New Mexico County Bernalillo

Geographic Quadrant of City: ☐ NW; ☐ NE; ☐ SE; ☒ SW;

Establishing Agency ACS Year 1972

BM. No.	Location	Bench Mark Description	Elevation (MSLD 1929) Ft. / Meters
2-M12	At the intersection of Isleta and Valdora, SW.	60-penny nail in power pole No. - 46.	@4936.900 1504.770
5-M13	At the intersection of Lopez and Arenal Rd., SW.	60-penny nail in power pole (on SW corner).	@4937.406 1504.924
6-M13	At the intersection of Rosie and Arenal, SW, at the north-west quadrant.	60-penny nail in power pole No. - 12.	@4936.642 1504.691
7-M13	At the junction of La Vega Dr., SW and Garden Rd., on east side of La Vega and the projected centerline of Garden Rd.	60-penny nail in power pole No. -13E 13-18.	@4938.121 1505.142

(*) = 1st-Order (**) = 2nd-Order (@) = 3rd-Order