HYDROLOGY K15/D13 1 PLAN

K15/D13

1 Plan

ENCHANTMENT ENGINEERING, INC.
9910 Indian School Road, NE
[redacted]
PHONE 294-8839
CIVIL CONSULTING ENGINEERS
J.W. BETTIS, REG. P.E. & L.S.
MAIL TO BOX 11871
ALBUQUERQUE, NEW MEXICO 87192

August 18, 1983

City of Albuquerque
Building Inspection - Hydrology

Attn: Fred Aguirre

Dear Mr. Aguirre:

Per the request of National Child Care Centers and your office, I conducted a field survey of the stormwater retention facilities at 4515 Lower Terrace Circle, NE on August 13. I found the construction of the ponding area, the inflow and discharge outlets and the grading of the entire site to be in close compliance with the drainage plan submitted on April 22. I did find that the south curb abutting the pond and parking area was low and recommended raising that curb some three tenths of a foot to achieve full pond capacity. The spot elevations of a survey taken on the 14th reflects these minor changes and the calculations from the field notes indicate that the retention area should detain stormwaters and release them at a controlled rate as specified in our original plan.

Sincerely,

J. W. Bettis
Reg. P.E. & L.S. #3441

The City of Albuquerque will not be held responsible for any water entering into the right of way

Wallace McDonald

ATL ENGINEERING SERVICES

April 30, 1981

City of Albuquerque
Building and Inspections Department
400 Marquette Avenue, N.W.
Albuquerque, New Mexico 87102

Attention: Mr. Fred Aguirre

Re: On-site Drainage Retention for National Child Care Center on Lower Terrace Circle, N.E.

Gentlemen:

We have discussed the on-site retention plans for the referenced project with Mr. Herbert Hobbs of National Child Care Centers and with Mr. Ed Kiess of Enchantment Engineering. In our opinion, the possibility of a washout occurring beneath the footing of the block wall along the northwestern property boundary can be prevented by installing a sloped polyurethane barrier as shown on the plans, by providing a slope away from the wall also as shown on the plans, and by lining the slope with at least a 6 inch thickness of gravel having a minimum particle diameter of 2 inches.

Should you have any further questions regarding this subject, please call me.

Respectfully,

ATL ENGINEERING SERVICES

James H. Clary, Geologist

JHC/ksc

Albuquerque Testing Laboratory • 532 Jefferson, N.E. • Albuquerque, New Mexico 87108 • Telephone (505) 268-4537

4529 Lower Terrace Cir. NE
3/26/81

Office of the City Engineer
Building Plans
Drainage Review

Disapproved

Date Issued_____

DISAPPROVED FOR DRAINAGE
3/26/81
DATE
SIGNATURE
TITLE

Gentlemen:

In order to expedite the passage of building construction plans through the drainage review we have compiled this list of requirements. With a few exceptions, these requirements are complete.

(1) Any building site 1.00 acres or larger will require a formal drainage report prepared by a professional engineer licensed to practice in New Mexico. This report must be submitted to the office of the Asst. City Engineer/Hydrology for review and acceptance prior to submission of construction plans for review.

(2) Before attempting to submit a set of plans for a building located in a flood hazard area, contact the Drainage Division. Failure to do this will often result in much lost time.

(3) When construction plans are submitted, the following items must be included:

(A) A grading plan showing:

1) existing contours extending approximately 10 feet beyond the property line. If it is not feasible to provide contours beyond the property line, spot elevations, at the the property line, <u>designated as existing and proposed</u> may be substituted.

2) proposed contours at one foot intervals and proposed spot elevations at key points.

3) finish building floor elevation (s).

✓ 4) notes defining asphalt, sidewalks, planting areas, ponding areas, property line, and any other areas whose definition would increase clarity.

5) proposed alley grades, if property abuts a dedicated unpaved alley. These grades are available, at no charge, fro the City Engineer's office. An advance request will expedite your project.

B) A drainage plan showing:

✓ 1) direction of roof drainage including canales, gutters, and downspouts.

2) outlined contributory drainage areas, including roof areas.

3) swales with top and bottom spot elevations.

✓ 4) curb and sidewalk spot elevations.

✓ 5) flow lines with arrows and spot elevations for confirmation.

C) If ponding is required the drainage plan must also show: No ponding required, but if you intend to pond please comply with the following items.

1) calculations showing developed and undeveloped volumetric flow rate.

2) pond volume calculations.

✓ 3) that pond volumes balance with area contributing to the pond.

✓ 3.5) Close proximity of ponding to any structure requires the concurrence of a soils investigation report.

4) the pond overflow point with a spot elevation and slope protection if necessary.

5) positive discharge of ponds with required rate calculations and orifice calculations, if applicable.

D) A discussion of offsite flows must be included. If the contour maps disagree with the designers opinion of offsite flows, further information will be required.

E) A discussion of any other local conditions that effect site drainage should be included.

✓ F) Details of ponds, curbcuts, water blocks, and any other significant drainage structures must be included. Show details pertaining to the outlets ~~inverts of both ends~~

G) The professional who designs the drainage scheme must affix his/her stamp to the drainage plan.

✓ H) A copy of the ~~approved~~ drainage plan must also be included ~~submitted~~ with the construction plans for drainage files, ~~only prior to inspection~~.

I) Construction in the public right of way requires approval, prior to construction, from the City Engineers office.

Approved_____

R. S. Heller

J) Indicate all easements on site: Location, width, and purpose

✓ K) Provide a benchmark based on mean sea level datum or assumed elevation with a description of said benchmark.

✓ L) Provide a location map with the zone atlas number and legal description.

M) Storm runoff must be routed over the drivepad or thru a city approved curb cut.

✓ N) Also include the required elevation for the Standard City Drivepad (DWG-P-11)

April 24, 1981

Assistant City Engineer -
Hydrology

Re: Drainage Plan, Lot 5-A
Replat of Tr. 16
O. J. Gutierrez Lower Ter. Subdiv.

Dear Mr. Conegliano:

It is my understanding that the proposed drainage control plan for the new National Child Care Centers building to be built on lot 5-A will entail some routing of storm waters along a retaining wall on the property line separating lots 5-A and 6-A. It appears to me that the actual projected maximum rate of flow will not incur any major or permanent drainage if such a flow is routed in this manner. Therefore, acting as agent for the owners of the remaining undeveloped parcel (lot 6-A) I agree that this is an acceptable arrangement until that time when lot 6-A is developed.

Sincerely,

Robert A. Gutierrez

Robert Gutierrez

cc: Fred Aquirre
Herbert Hobbs - National Child Care Centers

ACCEPTABLE
TO B. CONEGLIANO
DJG 4-27-81

ALBUQUERQUE
BLDG. DEPT.
APR 28 1981
U.B.C.
PLAN CHECK
SECTION

GEOTECHNICAL INVESTIGATION FOR THE PROPOSED
NATIONAL CHILD CARE CENTER NEAR MONTGOMERY BLVD.
AND EUBANK AVENUE, N.E., ALBUQUERQUE, NEW MEXICO

ATL ENGINEERING SERVICES NO. 281

JANUARY 7, 1981

ATL ENGINEERING SERVICES

January 7, 1981

Manry Construction Company
11907 Sharpcrest
Houston, Texas 77072

Attention: Mr. Herbert Hobbs

Re: ATL Engineering Services No. 281. Geotechnical Investigation for the Proposed National Child Care Center near Montgomery Blvd. and Eubank Avenue, N.E., Albuquerque, New Mexico.

Gentelemen:

Transmitted herewith is our GEOTECHNICAL INVESTIGATION REPORT for the above referenced project.

INTRODUCTION:

The test borings were drilled on January 2, 1981 using a Mobile B-61 "Pacemaker" Rotary Drill mounted on a 1979 Ford truck, the drill itself being powered by a Ford Industrial Engine. The test holes were advanced "dry" using 5-3/8" O.D. by 3-1/4" I.D., continuous flight, 5-foot sectional hollow stem augers. Standard penetration tests were made at 2-1/2 to 5 foot vertical intervals in the holes and through the hollow stems of the augers at the time of drilling. The purpose of the standard penetration test is to obtain a measure of the relative density or consistency of the subsurface soils encountered and to obtain samples of the soils and/or rock for visual inspection and laboratory testing.

TEST DATA AND RESULTS:

A sketch showing the locations of the three (3) test holes is shown on page 2 and was made from a print of the site plan furnished to our office. "Boring Log Graphs" of the Test Holes are shown on pages 3, 4 and 5 and depict the subsurface soils encountered in the holes along with the results of the standard penetration tests, natural or existing moisture content, dry densities where obtainable, grain size classifications and Atterberg Limit Tests made on typical recovered samples. Notes and Definitions pertaining to the "Log Graphs" are shown on page 6. Conclusions and Recommendations follow.

If any questions should arise concerning the report, please contact our office.

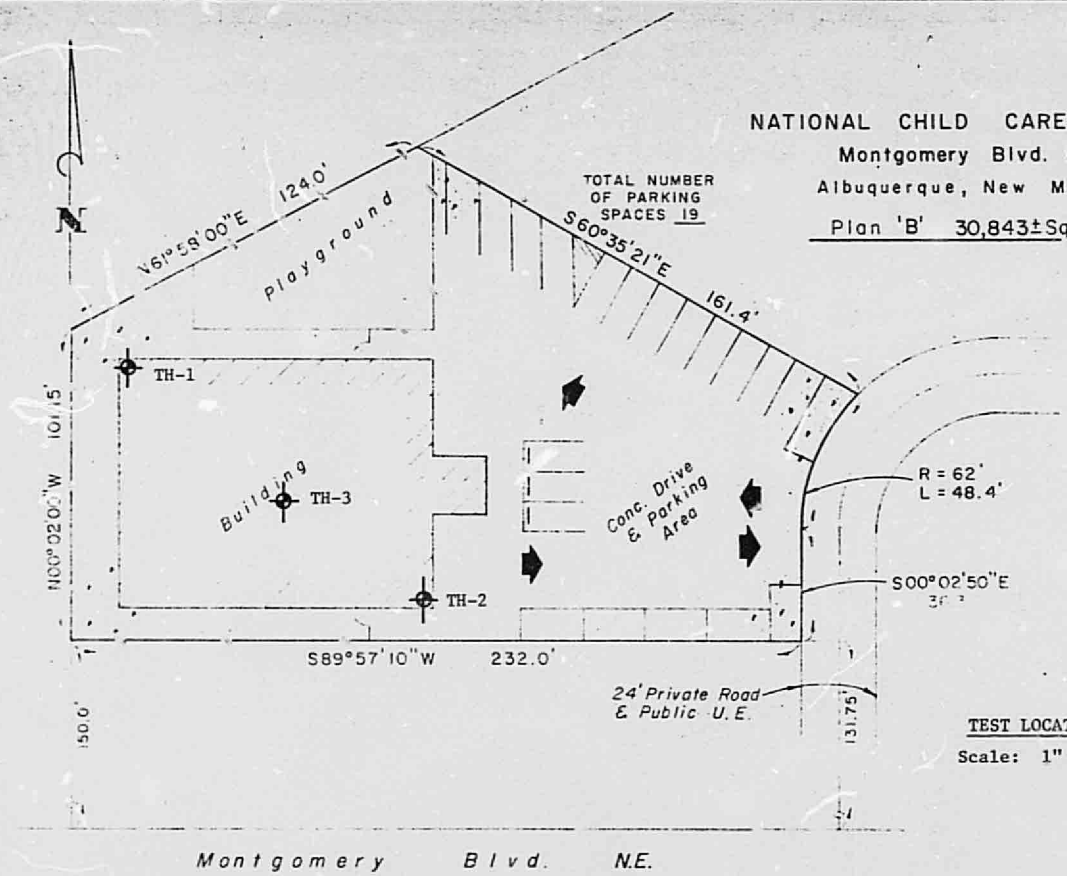
Very truly yours,

ATL ENGINEERING SERVICES

James H. Clary, Geologist

Robert K. Lloyd, P.E.

lcc: John Carver
13538 Method Street
Dallas, Texas 75243



October 13, 1980

ALBUQUERQUE TESTING LABORATORY

PROJECT: National Child Care Center, near Eubank and Montgomery Blvd.

Lab No. 281

Date: January 7, 1981

BORING LOG GRAPH - TEST HOLE NO. 1

Depth - Ft.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT % M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS % LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Brown silty, sandy clay (CL) Probable Fill soils Very Firm 2'	26	5 10 16		S	6.6		3	40	57	29	17	12
2½	Light to medium brown, silty to	5	2 2 3		C	1.6 1.7 1.6	112 109 111	11	81	8			
5	relatively clean sand (SM-SP)	13	5 6 7		S	4.3		3	64	33			
7½	slightly gravelly; decomposed granite	11	3 6 5		S	4.3		5	57	38			
10	Loose to Medium Dense	11	6 6 5		S	5.0		7	59	34			
12½													
15		10	4 4 6		S	4.3		5	75	20			

ALBUQUERQUE TESTING LABORATORY

PROJECT: National Child Care Center, near Eubank and Montgomery Blvd.

Lab No. 281

Date: January 7, 1981

BORING LOG GRAPH - TEST HOLE NO. 2

Depth - Ft.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT% M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS % LIQUID LIMIT	PLASTIC LIMIT	P.I.
	Brown, silty,	16	4 10 6		S	4.9							
	slightly clayey												
2½	to clean, pea	29	9 14 10		C	4.8 2.6 4.3	99 108 101						
	gravelly sand												
5	(SM-SC-GP)	8	4 4 4		S	5.3							
	decomposed												
7½	granite	4	3 2 2		S	5.3							
	Variably Very												
10	Loose to Loose	5	2 2 3		S	8.3							
	and												
12½	Medium												
	Dense												
15		32	12 12 20		S	2.6							

ALBUQUERQUE TESTING LABORATORY

PROJECT: National Child Care Center, near Eubank and Montgomery Blvd.

Lab No. 281

Date: January 7, 1981

BORING LOG GRAPH - TEST HOLE NO. 3

Depth - Ft.	VISUAL DESCRIPTION	PENETRATION RESISTANCE Per Foot N	Per 6" or as Noted	Per Foot C	SAMPLER TYPE	MOISTURE CONTENT% M	DRY DENSITY P.C.F. D	PARTICLE SIZE DISTRIBUTION % GRAVEL	SAND	SILT & CLAY	ATTERBERG LIMITS % LIQUID LIMIT	PLASTIC LIMIT	P.I.	
	Brown, silty, clayey, pea gravelly sand (SM-SC) decomposed granite					4.4 Auger Cuttings 0-2½'								
2½						13.0 Auger Cuttings 2½'-5'								
5														

NOTES AND DEFINITIONS

1. **Penetration Resistance** - Blows per foot using "A" rod, 140 lb. hammer with 30-inch guided free fall unless otherwise noted.
   - N - Standard Penetration Resistance (ASTM: D-1586), 2" O.D. split barrel sampler
   - C - Continuous Penetration Resistance, 2½" O.D., conical, steel drive point
   - R - Penetration Resistance, 3" O.D. Modified Dames & Moore Split Ring Sampler

2. **Sample Type**
   - S - Standard Split barrel; 2" O.D. x 1-3/8" I.D.
   - C - California Sampler; 2-3/8" O.D. equipped with 2" I.D. x 4" high brass liners
   - R - Modified Dames & Moore Sampler; 3" O.D. equipped with 2.42" I.D. x 1" high brass liners
   - T - Shelby Tube

3. **Soil Index Properties**
   - M - Moisture Content, % of dry soil weight
   - D - Density, lbs per cubic foot computed either by volumetric or displacement methods. Soils Classifications are visual unless accompanied by grain size analysis and Atterberg Limits.

4. **Water Table** - If encountered is noted on Log Graphs as ⏚.

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM: D2487

COARSE-GRAINED SOIL

MORE THAN 50% LARGER THAN 200 SIEVE SIZE

Symbol	Letter	Description	Major Divisions
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size.
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% - 200 FINES	
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% - 200 FINES	
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% - 200 FINES	
	SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	SANDS More than half of coarse fraction is smaller than No. 4 sieve size.
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% - 200 FINES	
	SM	SILTY SANDS, SAND-SILT MIXTURES MORE THAN 12% - 200 FINES	
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES MORE THAN 12% - 200 FINES	

NOTE – Soils with 5 to 12 percent minus 200 fines should be classified with dual symbols.

FINE-GRAINED SOIL

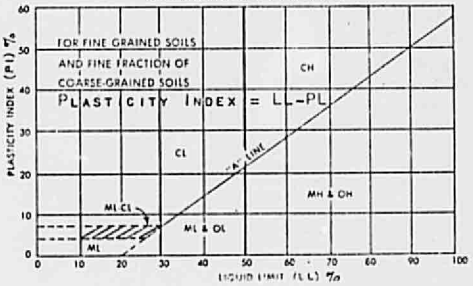
MORE THAN 50% SMALLER THAN 200 SIEVE SIZE

Symbol	Letter	Description	Major Divisions
	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	SILTS AND CLAYS Liquid limit less than 50
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
	OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY	
	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS	SILTS AND CLAYS Liquid limit greater than 50
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

SOIL FRACTIONS

Component			Size Range
Boulders			Above 12 in.
Cobbles			3 in. to 12 in.
Gravel			3 in. to No. 4 sieve
Coarse Gravel			3 in. to ¾ in.
Fine gravel	G		¾ in. to No. 4 sieve
Sand			No. 4 to No. 200
Coarse	CS	TS	No. 4 to No. 10
Medium	MS	TS	No. 10 to No. 40
Fine	FS	TS	No. 40 to No. 200
Fines (silt or clay)	S/C		Below No. 200 sieve

PLASTICITY CHART
(ATTERBERG LIMITS)



CONCLUSIONS AND RECOMMENDATIONS

Based on the conditions of the surface and subsurface soils existing at the site as revealed by a visual inspection of the area; three (3), five to fifteen foot depth test borings; standard penetration tests (A.S.T.M. D-1586) made at the time of drilling; and laboratory tests made on representative soil samples; we submit the following opinions and recommendations concerning the design of the foundations for the proposed structure:

A. SITE CONDITIONS

The site has a westerly slope with a difference in elevation of approximately 6 to 7 feet between the high east side and low west side. The area is moderately vegetated with native grasses and weeds. Man-made fill soils and rubbish occur over the majority of the area, appear to be primarily surface scatter and do not extend to significant depths.

Subsurface soils are alluvial fan deposits consisting primarily of brown, silty, clayey to clean sands (SM-SC-SP) which are variably gravelly, in a Very Loose to Medium Dense state of relative density, and of decomposed granite composition.

No water table or water bearing strata was encountered at any of the test locations.

B. PROPOSED CONSTRUCTION

It is our understanding that the proposed building will be single story, relatively lightly loaded; of steel stud and masonry construction; having continuous, reinforced concrete foundations; "on-grade" reinforced concrete floor slabs; and without a basement. The site will be raised approximately 4 feet on the west end to attain the desired, finished pad grade.

C. SITE PREPARATION

Prior to construction, the entire building and pavement areas should be completely stripped of vegetation, fill soils and rubbish and these materials wasted.

D. FOUNDATIONS

Found or base all continuous, reinforced concrete foundations and individual or "spot" footings, if used, entirely on engineered, compacted fill soils and at a minimum depth of two (2) feet beneath the adjacent, exterior finished grade. The depth of engineered, compacted fill soils beneath foundations and the lateral distance of engineered fill soils extending from perimeters of footing edges should at least be equal to two (2) feet. This may require overcutting of the natural ground section in some areas to insure that all foundations are based on a minimum depth of two (2) feet of engineered, compacted fill soils.

After the site has been completely stripped and excavations for foundations made, the area should be proof rolled with a minimum two passes of a 10 ton roller to seek out any loose or soft zones. Such zones, if encountered, should be overexcavated and properly backfilled as hereinafter specified. A representative from our office should be present during proof rolling operations.

Prior to placement of fill soils, the exposed subgrade and/or cut ground surface should be scarified to a depth of 8 inches, moistened with optimum moisture (± 2%), and compacted to a minimum of 90 percent of Modified Proctor Density (A.S.T.M. D-1557-70). "On-site" soils removed from footing excavations or imported granular fill soils consisting of a well graded sand and gravel or similar material may be used as engineered, compacted fill soils for support of foundations.

These soils should be thoroughly mixed with optimum moisture (± 2%) outside of construction limits, then placed in thin, horizontal lifts (8 inches maximum loose depth), compacted to a minimum of 95 percent of Modified Proctor Density, and brought up to the desired grade beneath foundations. These soils may also be used to raise the building pad to within 6 inches beneath the bottom of planned floor slabs.

For foundations based entirely on engineered, compacted fill soils as recommended, an allowable soil bearing pressure of 2,000 lbs./sq.ft. may be used. This value may be increased 30 percent for the combination of dead plus full live load plus seismic loads. Minimum width of continuous footings should be 1'-4". Minimum dimension of individual or spot footings should be 2'-0".

E. "ON-GRADE" FLOOR SLABS

All "on-grade", reinforced concrete floor slabs should be based on a minimum 6 inch compacted thickness of imported, select fill soils consisting of a well-graded, pit run sand and gravel, decomposed granite sand or similar material having a Plasticity Index not exceeding 6. These soils should be thoroughly blended with optimum moisture, placed and compacted to a minimum of 90 percent of Modified Proctor Density as described in Paragraph D.

F. PAVEMENTS

Support for asphaltic concrete pavement (parking areas and drives) may be provided by a minimum 6 inch compacted thickness of imported aggregate base course and fines, placed and compacted as described in Paragraph D above The following minimum pavement sections are suggested for varying traffic conditions:

Traffic Condition	Minimum Pavement Thickness (inches)	Recommended Aggregate Base Course Thickness (inches)
Light - passenger cars and general parking areas	2	6
Medium - light to medium trucks, driveways	3	6

Specifications for asphaltic concrete pavement and select base course may be taken from the "New Mexico Standard Specifications for Public Works Construction", 1979 Edition, Section 115 and 302 respectively. In addition, the following specifications are recommended for the pavements:

Marshall Stability (Modified Method) - 1200 minimum
Marshall Flow - 10 to 16
% Aggregate voids filled with asphalt cement - 70 to 80
% Voids in compacted mix - 3 to 5
Density of compacted pavement - minimum of 96 percent of laboratory compacted specimen.

G. DRAINAGE AND PROTECTION OF FOUNDATION SOILS

It will be very important at this site to keep the soils at and below foundation depths (both compacted fill and natural ground) protected from moisture intrusions. Saturation or wetting to various degrees of these soils could cause them to consolidate with resulting settlement which, if sufficient and differential in nature, could cause structural distress. To help prevent moisture intrusions into foundation soils, we advise that the following precautions be taken:

1. Provide and maintain positive surface water drainage around and away from all exterior walls and foundations. Proper roof drains with downspouts leading runoff waters away from the building should also be provided.

2. Keep all opened excavations dry, with concreting and backfilling operations to follow as soon as is practical. The contractor shall have equipment readily available to promptly remove surface water ponded for any reason.

3. Properly compact all backfill soils in utility trenches and around foundations to a minimum of 90 percent of Modified Proctor Density.

4. Discourage the planting of vegetation adjacent to foundations unless underdrains are placed in planted areas to lead irrigation waters away from foundations. Landscaping should consist of the desert or native type which requires very little watering.

5. Runoff retention areas, if required, should be located as far from the building as possible and should include overflow drain pipes to allow the ponded water to runoff slowly rather than to seep entirely into the subsurface soils.

The conclusions and recommendations given in this report are based on the actual soil conditions existing at the test locations, a visual inspection of the site, and our understanding of the proposed construction. Any changes or deviations from the recommendations given in this report, in structure loads, foundation depths or any other factors which could affect or alter the recommendations covered herein, should be brought to our attention before finalization of plans and prior to construction.

Your attention is directed to the fact that only very small, fractional parts of the proposed site area were "opened" and the subsurface soils exposed and tested through the test borings. Subsurface soils and their in-situ properties which can materially affect design considerations may be different in areas not covered by test borings. Therefore, if during construction and when excavations for footings are opened, soil foundation conditions

differ from those encountered by the test borings of this report, our laboratory should be notified immediately for possible revision to our recommendations.

Professional opinions and recommendations presented in this report are based on our evaluations of the subsurface soil conditions at the site, our understanding of the proposed construction and our experience in the geotechnical field. Our only guarantee concerning the project is that our engineering and geological work and judgments given herein meet the standards of our profession at this time.

Respectfully submitted,

ATL ENGINEERING SERVICES

James H. Clary, Geologist

Reviewed by Robert K. Lloyd
Robert K. Lloyd, P.E.

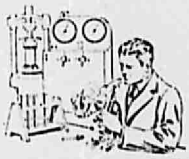
No. 074000

INVOICE - STATEMENT

Albuquerque TESTING LABORATORY

CHEMICAL & PHYSICAL TESTING — RESEARCH — INSPECTION — CONSULTING ANALYSIS

532 JEFFERSON ST., N. E. P. O. BOX 4101 PHONE 255-8916 255-1322
ALBUQUERQUE, NEW MEXICO 87106



CUSTOMER NO.

SOLD TO Manry Construction Company
11907 Sharpcrest
Houston, Texas 77072

January 7, 1981

Attn: Mr. Herbert Hobbs

DATE	LAB. NO.	DESCRIPTION	UNIT PRICE	AMOUNT	
		For Professional Services			
2/81	281	Geotechnical Investigation for the Proposed National Child Care Center near Montgomery Blvd. and Eubank Avenue, N.E., Albuquerque, New Mexico Auger drilling of three (3), five to fifteen foot depth test borings. Price includes standard penetration tests (A.S.T.M. D-1586) at 2-1/2 to 5 foot vertical intervals; laboratory tests including moisture contents, grain size gradations, dry densities, and Atterberg Limits; and Engineering Report complete with conclusions and recommendations.		630.00	
					630.00
			4% Tax		25.20
					$655.20

ATL ENGINEERING SERVICES

April 30, 1981

City of Albuquerque
Building and Inspections Department
400 Marquette Avenue, N.W.
Albuquerque, New Mexico 87102

Attention: Mr. Fred Aguirre

Re: On-site Drainage Retention for National Child Care Center on Lower Terrace Circle, N.E.

Gentlemen:

We have discussed the on-site retention plans for the referenced project with Mr. Herbert Hobbs of National Child Care Centers and with Mr. Ed Kiess of Enchantment Engineering. In our opinion, the possibility of a washout occurring beneath the footing of the block wall along the northwestern property boundary can be prevented by installing a sloped polyurethane barrier as shown on the plans, by providing a slope away from the wall also as shown on the plans, and by lining the slope with at least a 6 inch thickness of gravel having a minimum particle diameter of 2 inches.

Should you have any further questions regarding this subject, please call me.

Respectfully,

ATL ENGINEERING SERVICES

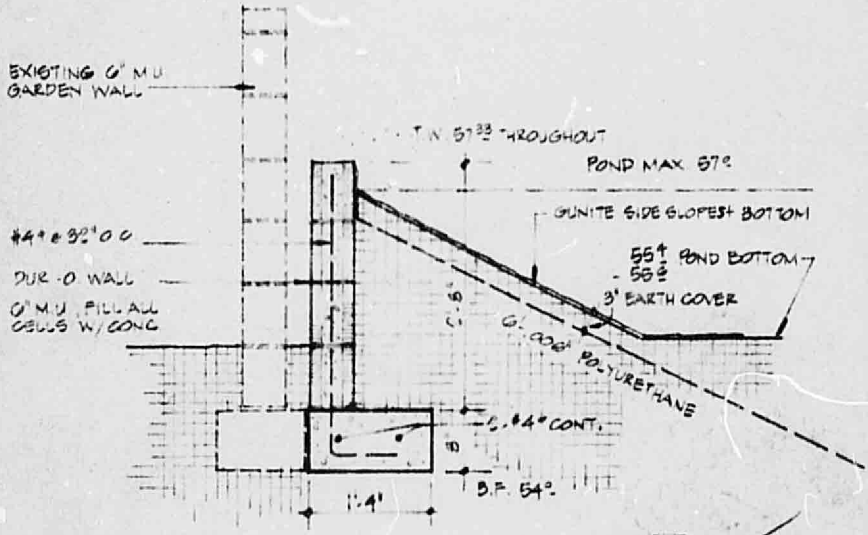
James H. Clary, Geologist

JHC/ksc

Albuquerque Testing Laboratory • 532 Jefferson, N.E. • Albuquerque, New Mexico 87108 • Telephone (505) 268-4537

WALL SECTION

NATIONAL CHILD CARE CENTERS
4515 LOWER TERRACE CIRCLE, NE



i_5 (DISCHARGE FROM S.W. COR) = 2.00 IN/HR FOR 15 MIN TC

CONTRIBUTING AREA 63428 SQ.FT

$C = .40$

$Q = CiA$ = 1.68 CFS ALLOWABLE

∴ AMENDED DISCHARGE PIPE SHALL BE 6" ø POSITIVE DRAIN

h (PER PLAN) = 2.3 FT.

a (6" ø PIPE) = .196 SQ.FT.

$Q = .62(.196)\sqrt{2(32.16)2.3}$ = 1.48 CFS < ALLOWABLE @ DISCH. PT.

FROM WENDY'S

i_5 = 3.43 IN/HR FOR 10 MIN TC.

CONTRIBUTING AREA = 40261 SQ.FT.

$C = .40$

$Q = CiA$ = 1.27 CFS

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR NO. 3441 JOHN W. BETTIS

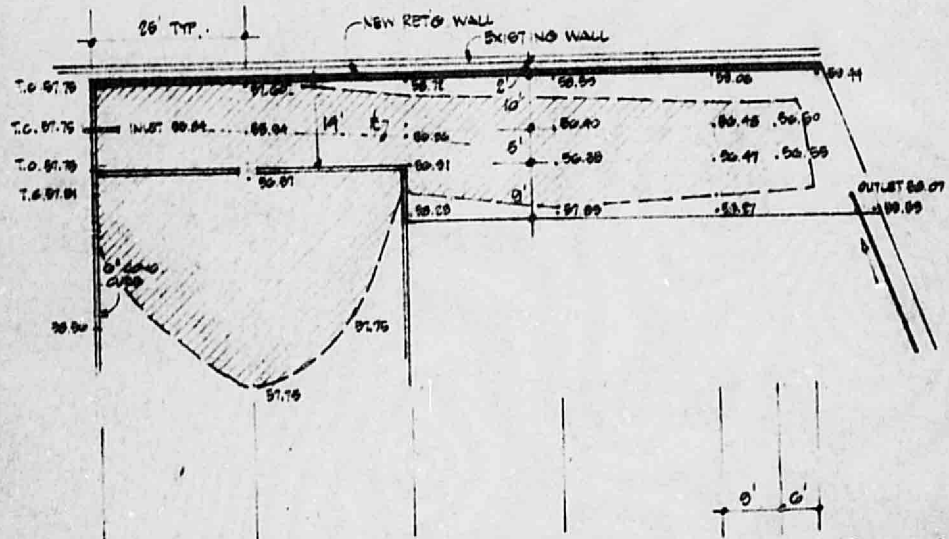
DATA FROM San Pedro East - Albuquerque NOAA. Atlas 2, Vol. 4

AS-BUILT RETENTION BASIN

REAR OF 4016 LOWER TERRACE CIRCLE, NE
TRACT 5-A
OPIMIANO J GUTIERREZ LOWER TERRACE SUBDIVISION
ALBUQUERQUE, NEW MEXICO

FOR: NATIONAL CHILD CARE CENTERS

SCALE 1" = 20'



				6'	6'		
27.0	31.5	17.5	18.5	16.0	14.0	14.0	TOP DIMENSION
–	–	3.0	5.0	5.0	4.0	–	BOTTOM DIMENSION
1.91	1.81	1.49	1.28	1.28	1.28	–	DEPTH @ SECTION
26.78	46.60	14.52	16.21	13.44	11.28	–	X-SEC AREA
304	764	384	371	111	38		VOLUME

2567 CU.FT. TOTAL CAPACITY
(2541 REQ'D.)

FIELD NOTES TAKEN AUG. 13 + 14, 1981.
BY
ENCHANTMENT ENGINEERING
9010 INDIAN SCHOOL ROAD NE
294-8869

TBM TOP OF S.E CURB
5565.03

LOWER TERRACE CIRCLE

As-built 8-17-81