HYDROLOGY G18/D20 2 PLANS

G18/D20

2 Plans

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

January 20, 1984

Mr. Gary Tibljas
Denney-Gross & Associates, Inc.
2400 Comanche Road NE
Albuquerque, NM 87107

REF: GRADING AND DRAINAGE PLAN FOR GRANDY'S RESTAURANT (G18-D20)
RECEIVED JANUARY 16, 1984

Dear Mr. Tibljas:

The above referenced submittal is in compliance with our request. The revised plan dated January 16, 1984 is approved.

Please attach a copy of this plan along with the appropriate approved "Construction Within Public R/W" documents to the building set prior to sign-off.

If I can be of further assistance, please contact me at 766-7644.

Sincerely yours,

Billy J. Goolsby

Billy J. Goolsby, PE
City/County Flood Plain Administrator

BJG:mrk

DENNEY-GROSS & ASSOCIATES, INC.
CONSULTING ENGINEERS
2400 COMANCHE ROAD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 984-0696

January 16, 1984

G 18
D 20

Mr. Billy Goolsby, P.E.
City of Albuquerque
Hydrology Department
123 Central, N.W.
Albuquerque, NM 87103

Re: Grandy's Restaurant
DGA Job #692.11

Dear Billy:

Per our telephone conversation of January 13, 1984, transmitted herewith for your review and approval is the revised grading and drainage plan along w th calculations for subject project.

Per our discussions we submit the following:

Undeveloped Condition: (Entire Project Site)
Runoff Coefficient: C factor 0.34 (plate 22.2 C-1 of DPM)
Area: 27,069 sq.ft.
Precipitation: P_{100} = 2.22 (plate 22.2 D-1 of DPM)
Runoff Volume = CPA = 0.34x2.22x27069/12 = <u>1703 cu. ft.</u>
Time of Concentration:

$$T_c = 0.0078 \frac{L^{0.77}}{S^{0.385}} = 0.0078 \frac{(150)^{0.77}}{(\frac{2.8}{150})^{0.385}} = 1.71 \text{ min. use 10 min.}$$

$$V = \tfrac{1}{2} Q\, 3T_c \text{ or } Q = \frac{2V}{3T_c} \qquad Q = \frac{2x1703}{3x10x60} = \underline{\underline{1.89 \text{ cfs}}}$$

Developed: (Area B Only) All runoff from Area A will be retained on site.

<u>Area B</u>

Composite Runoff Coefficient:

A. Runoff Factor (C):
Paving & Roofed = 0.90
Natural Soil = 0.92 based on a SCS soil group B, 95% impervious as outlined in DPM and plate 22.2, C-1
Paving & Roofed = 10,341 x 0.9 = 9,307
Natural Soil = 532 x 0.92 = 489

B. Composite Runoff Coefficient:
(9,307 + 489)/10,873 = 0.90

C. Required Volume:
(CPA/12) = ((0.90)(2.22)(10,873)/12) = 1,810 cf

D. Pond Volume B:
Top Area = 704 SF Bottom Area = 460 SF
Average Area = 582 SF
(582 SF x 1.12) = 652 cf Retained in Pond B

E. Free Discharge Quantity:
Time of Consentration:

$$T_c = 0.0078 \frac{L^{0.77}}{S^{0.385}} = 0.0078 \frac{185^{0.77}}{\left(\frac{1.5}{185}\right)^{0.385}} = 2.77 \text{ min} \quad \text{use 10 min.}$$

$$V = \tfrac{1}{2} Q 3 T_c = Q = \frac{2V}{3T_c} = \frac{2(1810 - 652)}{3 \times 10 \times 60} = 1.29 \text{ cfs}$$

Total Free Discharge: 1810 cf - 652 cf = 1158 cu. ft. 1158 cf will be free discharged to San Mateo Blvd. This volume consists of 64% of the Total Area Of Area B. The shaded area on the grading plan contains 36% of Area B (652 cf of runoff) where runoff is detained in Pond B.

We trust that this information will suffice in satisfying your remaining requirements for subject drainage plan. Your expeditious approval is respectfully solicited.

Very truly yours,

Gary W. Tibljas, P.E.

GWT/gw

DENNEY-GROSS & ASSOCIATES, INC.
CONSULTING ENGINEERS
2400 COMANCHE ROAD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0696

January 10, 1984

Mr. Fred Aguirre, P.E.
City of Albuquerque
Hydrology Department
123 Central Ave., N.W.
Albuquerque, NM 87103

Re: Tract 3C-1 of Tremont
Grandy's Restaurant
Drainage Management Report
DGA Job #692.11

Dear Fred:

This letter is in response to my meeting with you and Billy on December 7, 1983, concerning subject drainage management report.

As you know Fred, we are having difficulity in detaining approximately 1,173 cubic feet of runoff on site within area B of the grading plan (exhibit E of the report.)

The problems we have encountered are as follows:

1. The site (0.62 acres) is relatively small as it relates to supporting a restaurant facility. Once the building location, parking scheme and circulation patterns were developed the remaining portions of the parcel were to be utilized as detention pond facilities for storm runoff. The depths of the two ponds are limited by the gutter flow line elevations on San Mateo Blvd. as stormwater is to be evacuated from the ponds via 3" diameter pipes.

2. The runoff generated within area A has been detained partially within pond A and portions of the parking lot. Although the site slopes uniformly from west to east at a 2% rate, the parking lot on the west of the building was able to be utilized for detention due to the width of the parking lot in that area. Such a width allowed the upper pond elevation of 02.9 to be established within the parking lot north to south without creating any excessive slopes in this area.

3. The situation outlined in number 2 above cannot be reproduced in area B. A total of 1,825 cubic feet of storage is required within area B of which 652 cubic feet can be detained in detention pond B. Due to the narrowness of the east/west parking lot corridor on the south side of the building, utilization of the parking lot area for detention would be

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undesirable primarily due to the creation of excessive slopes in this parking area. One can see that the further the upper storage contour (03.0) of the detention facility is extended to the east of pond B, such a contour is loosing ground relative to an ever increasing natural topography. This situation would create unacceptable peaks and valleys in the parking area.

4. The only solution that could be applied so that portions of the parking lot within area B could be used for detention would be to reduce the east/west grade of the site from 2% to a minimum slope of 0.05%. The only way such a grade differential could be accomplished would be to construct a three foot high retaining wall along the eastern property line. Such an installation would have an estimated construction cost of $7,000.

In an attempt to mitigate the problem we gathered data on peak flow conditions at the intersection of San Mateo Blvd. and Montgomery Blvd., N.E. We calculated the time it would take for the 1,173 cubic feet of flow to reach this intersection if it were allowed to free discharge from the site. Our calculations indicated that this flow was reaching the intersection at the same time during which the peak flow occurs at this point.

As for a solution Fred, we request that you reexamine your decision on the French Drain system. Admittedly it is a crude and problematic solution but in lieu of adding to the flooding problems prevalent at San Mateo and Montgomery, we feel it is an acceptable one. The cost of installing this system is certaintly more economical than installing the retaining wall on the eastern property line. By solving the problem in this way, a smooth vehicular traveling pattern and grades can be maintained throughout the site.

Our calculations also indicate that at the present time the entire site discharges approximately 1.9cfs to San Mateo in its undeveloped state. If we were allowed to free discharge this excess developed runoff from area B, this discharge would be reduced to approximately 1.2cfs thereby reducing the problem at the San Mateo and Montgomery intersection in a minimal way.

In closing Fred, we feel that the grading and drainage plan we have presented to you is the most feasible and economical solution that we have attempted. We ask your reconsideration on the problem and we will be glad to meet with you at any time to discuss the matter further. Also, your expeditious handling of this request is respectfully solicited as this matter is the final obstacle remaining prior to our client preceeding with construction.

Very truly yours,

Gary W. Tibljas, P.E.

GWT/gw
cc: Ron Hone

DENNEY-GROSS & ASSOCIATES, INC.
CONSULTING ENGINEERS
2400 COMANCHE ROAD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0696

December 8, 1983

G18-D26

Mr. Billy Goolsby, P.E.
City of Albuquerque/Hydrology
123 Central, N.W.
Albuquerque, NM 87102

Re: Drainage Management Report
Grandy's Restaurant
DGA Job # 692.11

Dear Billy:

Transmitted herewith are two (2) revised grading and drainage plans for subject report. If you examine the existing grading and drainage plans that were submitted with the report you will notice that the existing contour information was inadvertently omitted from the drawings. These revised copies do contain that particular information.

We apologize for the omission and if you should have any questions, please feel free to call.

Very truly yours,

Gary W. Tibljas, P.E.

GWT/gw

Enclosures

DEC 12

INFORMATION SHEET

PROJECT TITLE Drainage Management Report for Tract 3C-1 of Tremont Grandy's Restaurant

TYPE OF SUBMITTAL Grading Plan & Drainage Report

ZONE ATLAS PAGE NO. G-18-Z

CITY ADDRESS San Mateo Blvd. & Homestead N.E.

LEGAL DESCRIPTION The tract is bound by San Mateo N.E. to the west, Tract 3C-2 to the East, Lot 1, Blk 48 of the Altamonte Subdiv. & Homestead Rd. to the North.

ENGINEERING FIRM Denney-Gross & Assoc., Inc. CONTACT Gary W. Tibljas

ADDRESS 2400 Comanche Rd. N.E. City PHONE (505) 884-0696

OWNER Banyan, Inc. CONTACT Gary W. Tibljas, Agent

ADDRESS %Denney-Gross & Assoc., Inc. PHONE (505) 884-0696

ARCHITECT N/A CONTACT N/A

ADDRESS N/A PHONE N/A

SURVEYOR Denney-Gross & Assoc., Inc. CONTACT Steve Youtsey

ADDRESS 2400 Comanche Rd, N.E. City PHONE (505) 884-0696

CONTRACTOR N/A CONTACT N/A

ADDRESS N/A PHONE N/A

DATE SUBMITTED November 30, 1983

BY Gary W. Tibljas

Gary W. Tibljas, P.E.
Agent for Owner

Use this Information Sheet when submitting the following:

Drainage report or plan, conceptual grading and drainage plan, engineer's certification plan, erosion plan and grading plan. Provide the information applicable to your submittal.

DENNEY-GROSS & ASSOCIATES, INC.
CONSULTING ENGINEERS
2400 COMANCHE ROAD, N.E.
ALBUQUERQUE, NEW MEXICO 87107
(505) 884-0696

November 30, 1983

G18
D20

Mr. Fred J. Aguirre
Design Hydrologist
City of Albuquerque
123 Central Avenue N.W.
(Second Floor)
Albuquerque, NM 87103

RECEIVED
DEC 02 1983
ENGINEERING

Re: Drainage Management Report
for Tract 3C-1 of Tremont
Grandy's Restaurant
Owner - Banyan, Inc.
DGA Job No. 692.11

Dear Fred:

Transmitted herewith for your review and approval are two copies of the Drainage Management Report for subject project along with the grading plan and the required Information Sheet per the Design Process Manual, Chapter 22, Section 7.

Your expeditious review and approval of this report is respectfully solicited. If you have any questions, or require any additional information, please do not hesitate to give us a call.

Very truly yours,

Gary W. Tibljas, P.E.

GWT/lm

Enclosures (2)

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. _____ DATE: 11/10/83

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: Grandy's Restaurant (G-18)

WHO	REPRESENTING
ATTENDANCE: Gary Tibbles	
Billy Goolsby	

FINDINGS: ① Drainage Plan required per DPM

② Ponding required due to downstream capacities.

③ Appropriate "Construction Within Public R/W" document required for outlets

④ City approved street grades required for Homestead Rd. NE

The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

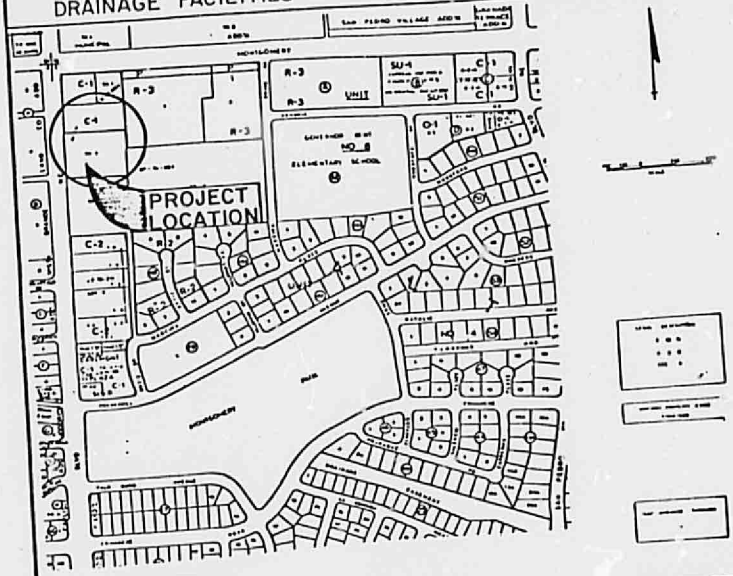
SIGNED: Billy G. Goolsby SIGNED: [illegible]

TITLE: Civil Engineer Supervisor TITLE: [illegible]

DATE: 11/10/83 DATE: [illegible]

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



STREET ADDRESS:

4240 SAN MATEO N.E.

G-18-Z

GARY W. TIBLJAS
NEW MEXICO
8117
REGISTERED PROFESSIONAL ENGINEER

NOTICE TO CONTRACTOR G-18 D-20

1. An excavation/construction permit will be required before beginning any work within City right-of-way. An approved copy of these plans must be submitted at the time of application for this permit.
2. All work detailed on these plans to be performed, except as otherwise stated or provided hereon, shall be constructed in accordance with Public Works Contract 84-1.
3. Two working days prior to any excavation, contractor must contact Line Locating Service, 765-1234, for location of existing utilities.
4. Prior to construction, the contractor shall excavate and verify the horizontal and vertical locations of all constructions. Should a conflict exist, the contractor shall notify the engineer so that the conflict can be resolved with a minimum amount of delay.
5. Backfill compaction shall be according to Major Arterial street use.

D #20

APPROVALS	NAME	DATE
A.C.E./DESIGN		6/6/84
INSPECTOR		
A.C.E./FIELD		6/6/84

TITLE: GRANDY'S RESTAURANT SITE POND EVACUATION OUTLETS

PERMIT NO.

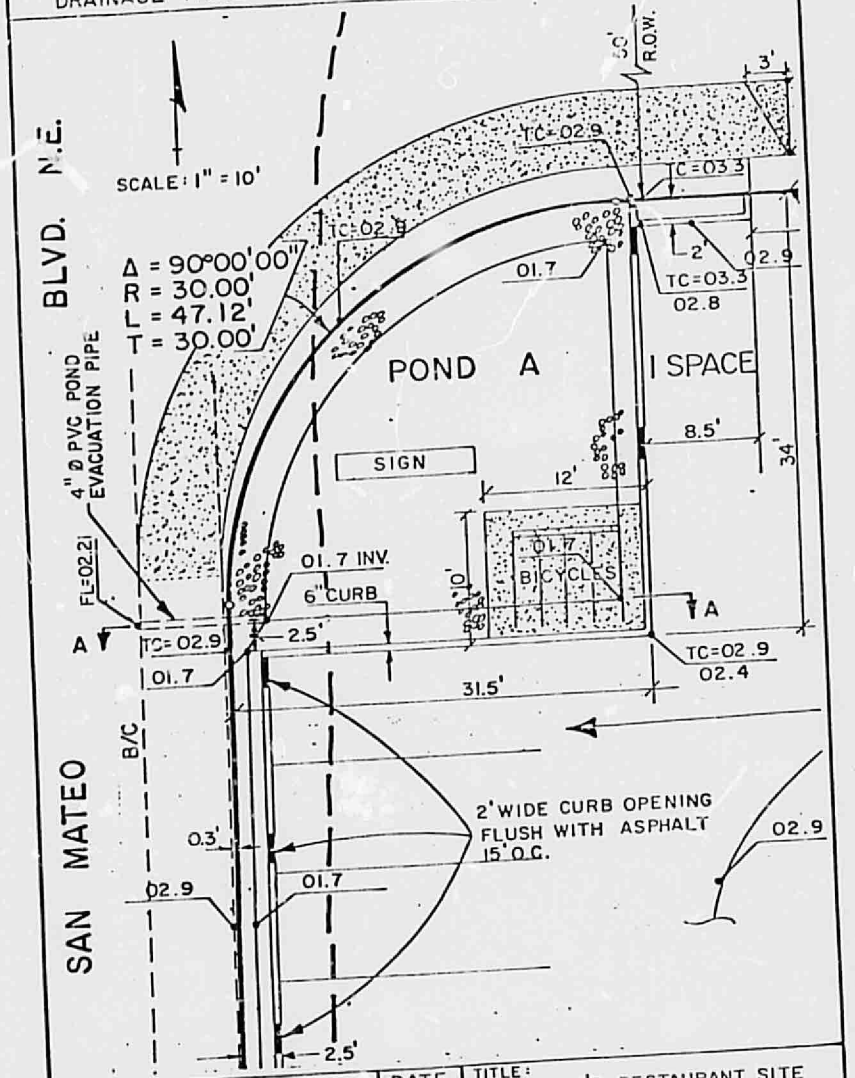
SHEET 1 OF 5

MAP NO. G-18

#11641 Tryness Corp. 4/2/84

CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



APPROVALS	NAME	DATE
A.C.E./DESIGN	[illegible]	Feb 84
INSPECTOR	[illegible]	6-6-84
A.C.E./FIELD	W.F. McNamara	6-6-84

TITLE: GRANDY'S RESTAURANT SITE POND "A" DETAIL

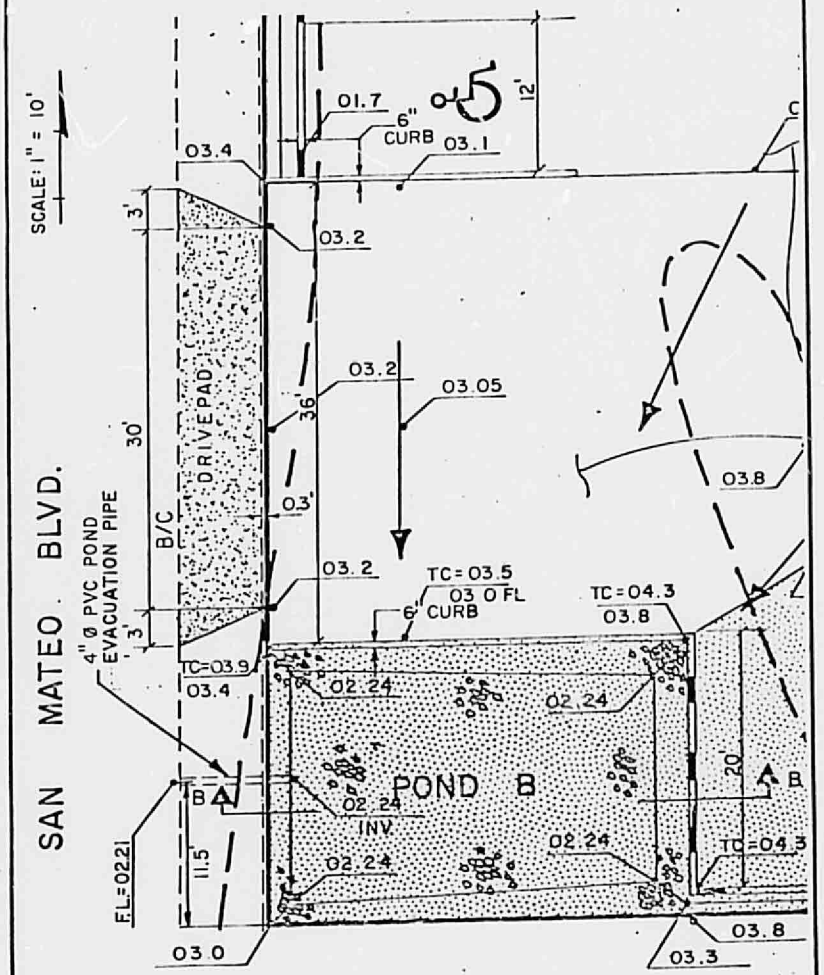
PERMIT NO.

SHEET 2 OF 5

MAP NO. G-18

CITY OF ALBUQUERQUE

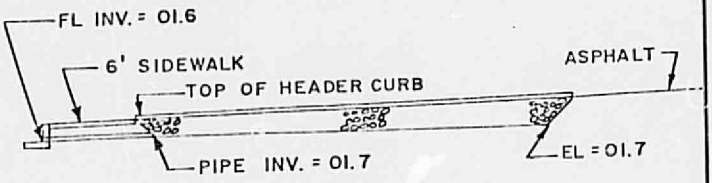
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



APPROVALS	NAME	DATE	TITLE: GRANDY'S RESTAURANT SITE POND "B" DETAIL	
A.C.E./DESIGN	[illegible]	1 Feb 84		
INSPECTOR	[illegible]	6-6-84	PERMIT NO.	MAP NO. G-18
A.C.E./FIELD	[illegible]	6-6-84	SHEET 3 OF 5	

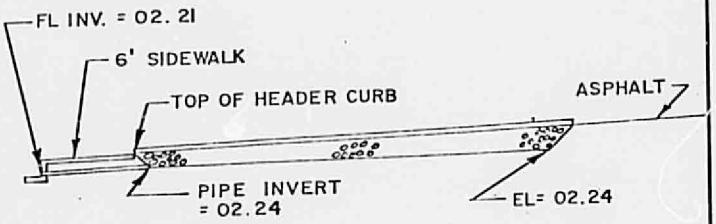
CITY OF ALBUQUERQUE

DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



SECTION A-A

SCALE: 1" = 10'



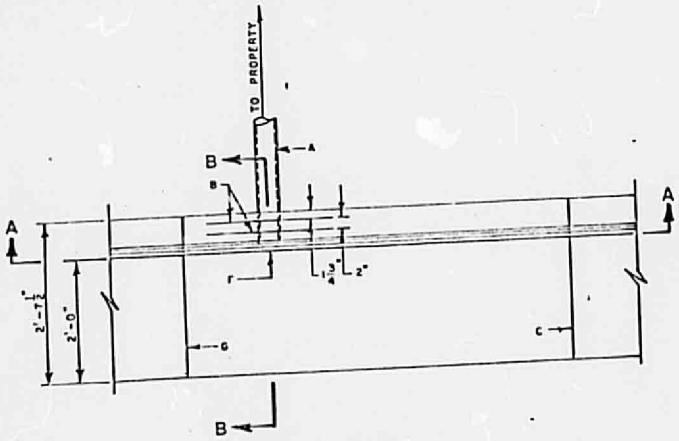
SECTION B-B

SCALE: 1" = 10'

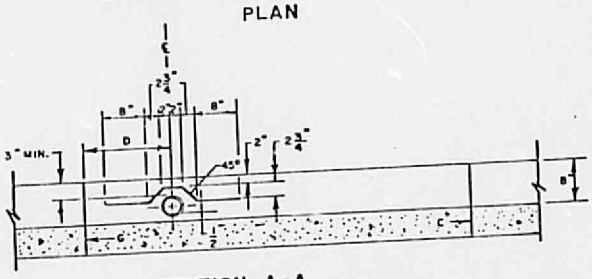
APPROVALS	NAME	DATE	TITLE: GRANDY'S RESTAURANT SITE POND A & B DRAIN DETAILS	
A.C.E./DESIGN	D. Kolick	1 Feb 84		
INSPECTOR	[illegible]	6-6-84	PERMIT NO.	MAP NO. G-18
A.C.E./FIELD	[illegible]	6-6-84	SHEET 4 OF 5	

CITY OF ALBUQUERQUE

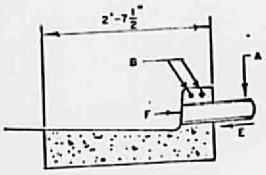
DRAINAGE FACILITIES WITHIN CITY RIGHT-OF-WAY



PLAN



SECTION A-A



SECTION B-B

GENERAL NOTES:

1. Core Drilling drain through existing curb, remove and replace entire stem of curb and gutter.
2. The City does not accept responsibility for maintenance for any drain lines installed by or for private property owners.

CONSTRUCTION NOTES:

A. Drain D.I. or SCH. 40 P.V.C. Pipe, 6" nom. Size (max.) to property.
B. 2-No. 3 bars, 2'-6" long, placed as shown.
C. Cold Joint.
D. Distance from Construction drain to nearest joint, variable with 16" min.
E. Slope 1/4" per ft. within R.O.W.
F. Drain pipe not to protrude beyond curb face.
G. Joint nearest to drain to be an expansion joint.

APPROVALS	NAME	DATE	TITLE: GRANDY'S RESTAURANT SITE DRAIN LINE THROUGH CURB	
A.C.E./DESIGN	O. Gallegos	1 Feb 84		
INSPECTOR	[illegible]	6-6-84	PERMIT NO.	MAP NO: G-18
A.C.E./FIELD	[illegible]	6-6-84	SHEET 5 OF 5	

DRAINAGE MANAGEMENT REPORT

FOR

TRACT 3C-1 OF TREMONT

GRANDY'S RESTAURANT

Prepared For

Banyan, Inc.

NOVEMBER 1983

Prepared By

Denney-Gross & Associates, Inc.

2400 Comanche Road, N.E.

Albuquerque, New Mexico 87107

DGA Job No. 692.11

I, Gary W. Tibljas, hereby certify that the enclosed documents and drawings were prepared under my supervision and are true and correct to the best of my knowledge and belief.

Gary W. Tibljas

New Mexico Professional Engineer No. 8117

GARY W. TIBLJAS
NEW MEXICO
8117
REGISTERED PROFESSIONAL ENGINEER

DRAINAGE MANAGEMENT REPORT

I. LOCATION OF PROJECT:

The location of this project is illustrated on the Zoning Atlas Map 6-18-Z (Exhibit A) and it consists of Tract 3C-1 on the replat of Tract 3C of "Tremont" dated October 1983. The proposed building which is shown on the grading and drainage plan is a commercial building which will house Grandy's Restaurant. This type of usage is consistant with the tract's current C-2 zoning.

The tract contains 0.62 acres of area with topography that slopes uniformly to the east at an average slope of 2%. The tract is bound by San Mateo Boulevard N.E. on the west, Tract 3C-2 to the east, Lot 1, Block 48 of the Altamonte Subdivision (currently housing a Penzoil Zip Lube establishment) and the proposed Homestead Road to the north.

Homestead road is being designed simultaneously with this firm's activities by others. Grades which have been set on the northern edge of subject parcel are flexible so that they may be adapted to the final grades of this roadway once the design is completed. Such grade fluctuations will not alter the drainage solutions and calculations presented in this report.

The soil types are as indicated on Exhibit B.

This tract is located on Flood Hazard Map No. 10 (HUD, Federal Insurance Administration) which shows that the tract is not affected by any flood threatening runoffs. (See Exhibit C)

The site will provide facilities for the 100-year, 6-hour storm. Both detention ponds will be drained by way of 3-inch steel pipes which will transport detained runoff from the ponds to the east side San Mateo Boulevard curb. Both ponds will evacuate water in less than 24 hours.

II. OFF-SITE CONTRIBUTING WATERSHED:

Exhibit D illustrates a 27,000 SF contributing watershed area which is still in an undeveloped state with 100% pervious area. As indicated on Exhibit B, the soil type TgB is classified in group B. The following runoff to the project area can be anticipated for a 100-year, 6-hour event:

Runoff Area (A) = 27,000 SF

C Factor (DPM) = 0.34

P = 2.22 inches (DPM)

Volume of Runoff (V) = CPA/12

V = ((.34)(2.22)(27,000))/12

V = 1,698 cf

Provisions have not been taken to detain this extraneo volume of water on the project site for the following reasons:

1. If the runoff was diverted at the project's eastern project line, portions of this water would travel north and south to adjacent properties. Also, portions of this volume would pond on the parcel to the east.

2. This runoff currently flows west to east to San Mateo Boulevard through the project site.

As is indicated in Section III, adequate facilities will be provided to deal with the developed and undeveloped Q generated

on the project site. It is this firm's recommendation that the above 1,698 cf of runoff be allowed to pass through these facilities and routed to San Mateo Boulevard.

III. CALCULATIONS:

Precipitation: P_{100} = 2.22 (Plate 22.2 D-1 of DPM)

Area A

Composite Runoff Coefficient:

A. Runoff Factor (C)

Paving & Roofed = 0.90

Natural Soil = 0.88 based on a SCS soil group B, 92% impervious as outlined in DPM and Plate 22.2, C-1 of DPM

Paving & Roofed = 14,975 SF x 0.90 = 13,478

Natural Soil = 1,221 SF x 0.88 = 1,074

B. Composite Runoff Coefficient

(13,478 + 1,074)/16,196 = 0.90

Q_{100}=1.54cfs

C. Required Volume:

(CPA/12) = ((.90)(2.22)(16,196)/12) = 2,696 cf

D. Pond Volume A:

The ponding volume provided for Area A contains 2,698 cf of detention capacity which utilizes a portion of the parking lot for storage as indicated on Exhibit E.

E. Positive Discharge:

Average Rate at which Pond A will discharge:

$Q = Cd \times A \times \sqrt{2gh}$

Cd = 0.61 A = 0.0491 g = 32.2 h = 1.2'

$Q = (0.61)(0.0491)(\sqrt{2(32.2)(1.2)}) = 0.26$ cfs

Time to Excavate Pond A = 2,698 cf/0.26 cfs = 10,377 sec. or 2.9 hours

Area B

Composite Runoff Coefficient:

A. Runoff Factor (C):

Paving & Roofed = 0.90

Natural Soil = 0.92 based on a SCS soil group B, 95% impervious as outlined in DPM and plate 22.2, C-1

Paving & Roofed = 10,341 x 0.9 = 9,307

Natural Soil = 532 x 0.92 = 489

B. Composite Runoff Coefficient:

(9,307 + 489)/10,873 = 0.90

$Q_{100} = 1.05$ cfs

C. Required Volume:

(CPA/12) = ((0.90)(2.22)(10,873)/12) = 1,810 cf

D. Pond Volume B:

The ponding volume provided for Area B contains 1,825 cf of detention capacity. This pond consists of 652 cf being provided above the cobbled surface to the pond's rim and the remaining volume being stored in a french drain as follows:

Pond B:

Top Area = 704 SF Bottom Area = 460 SF

Average Area = 582 SF

(582 SF x 1.12) = 652 cf (Top Portion of Pond)

French Drain System:

Bottom Area = 460 SF Depth of Drain = 8.5'

Total Volume = 460 SF x 8.5' = 3,910 cf

30% void storage with 4"-6" diameter cobbles

occupying drain: 0.30 x 3,910 cf = 1,173 cf

Total Capacity Pond B = 1173 cf + 652 cf = 1,825 cf

E. Positive Discharge:

The runoff contained in the french drain of Pond B will be allowed to percolate into the ground surrounding the drain. Therefore, only 652 cf of runoff will, on the average, exit the pond with the 3" diameter evacuation pipe.

$Q = cd \times A \times \sqrt{2gh}$

cd = 0.61 A = 0.0491 g = 32.2 h = 1.12

$Q = (0.61)(0.0491)(\sqrt{2(32.2)(1.12)})$

Q = 0.25 cfs

Time to evacuate Pond B = 652 cf/0.25 cfs = 2,608 sec.

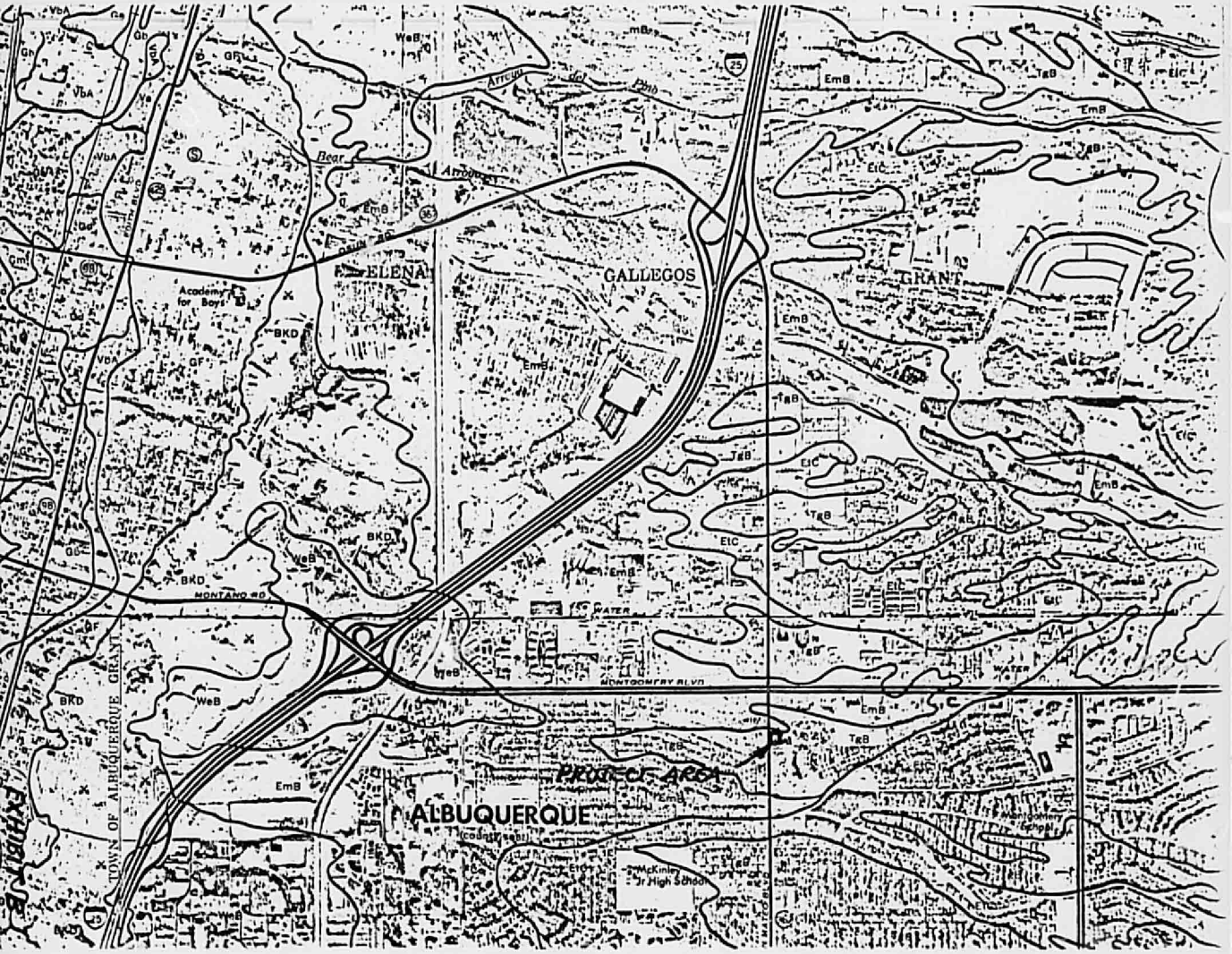
or approximately 45 minutes

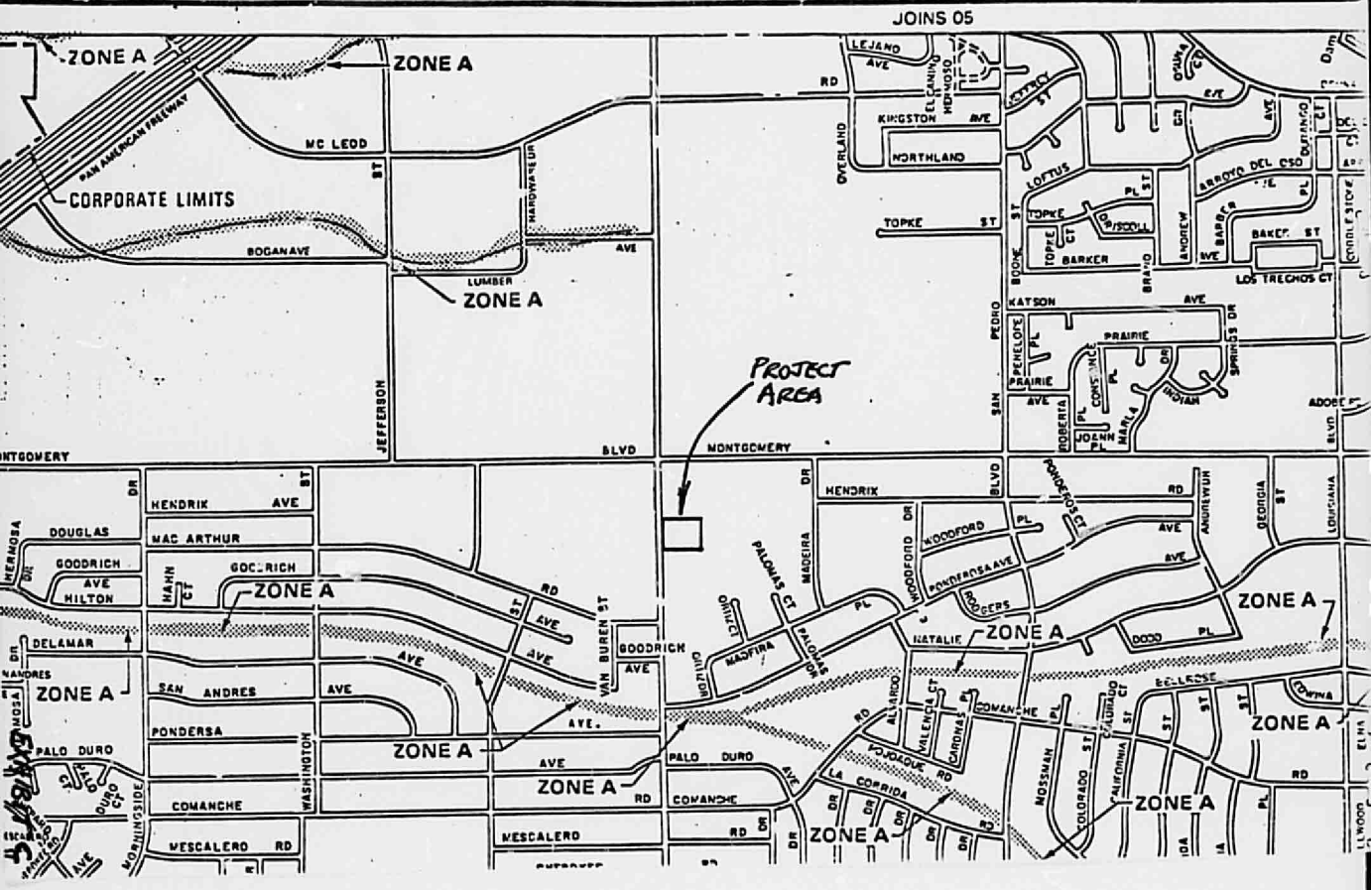
$Q_{100\ Total} = 2.59$ cfs

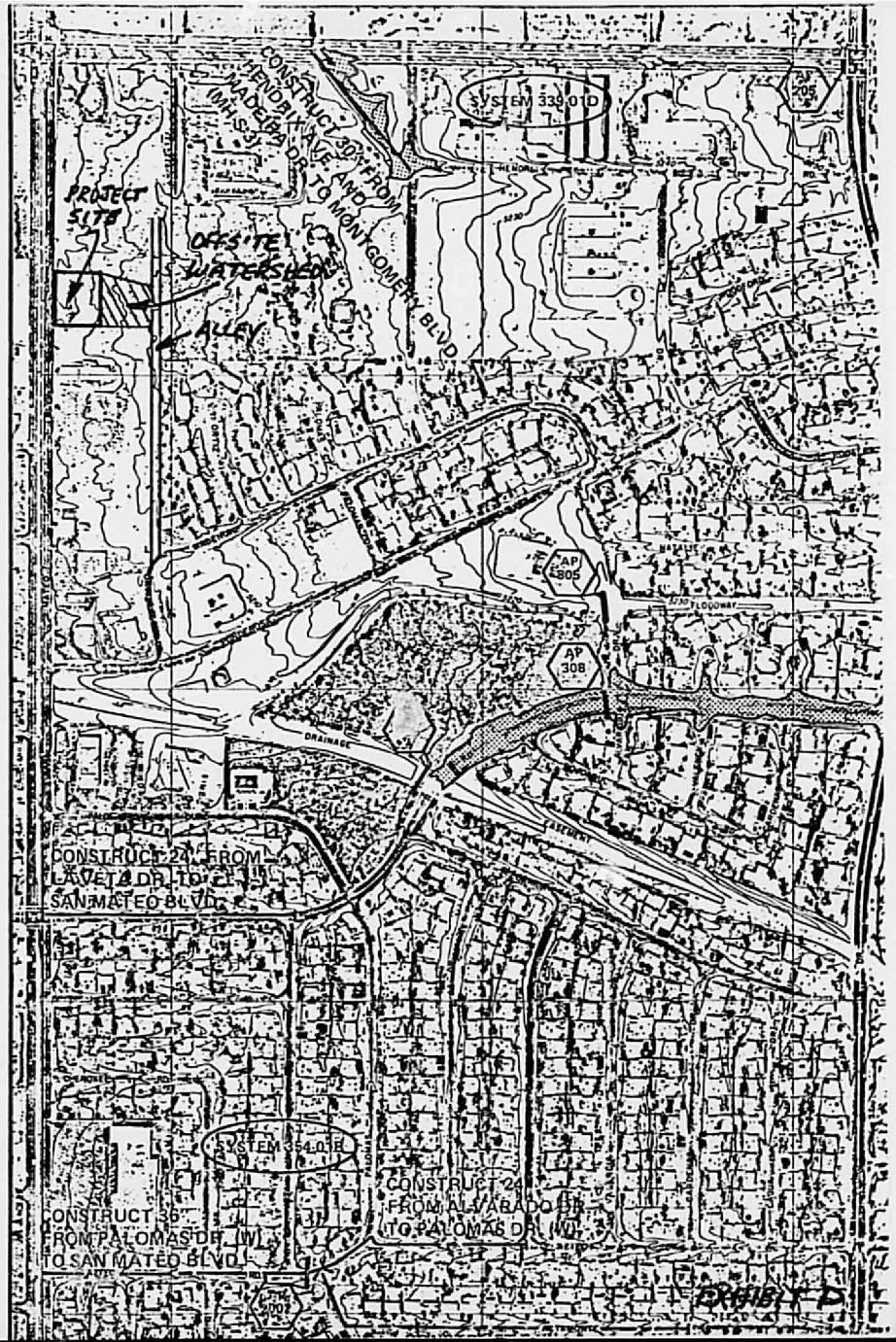
G-18-Z

EXHIBIT A

EXHIBIT A


ELENA
GALLEGOS
GRANT
Bear
Arroyo del Oso
Academy for Boys
MONTANO RD
MONTGOMERY BLVD
WATER
PROJECT AREA
ALBUQUERQUE
McKinley Jr High School
TOWN OF ALBUQUERQUE GRANT
EXHIBIT B


JOINS 05
ZONE A
ZONE A
PAN AMERICAN FREEWAY
CORPORATE LIMITS
MC LEOD
BOGAN AVE
LUMBER
ZONE A
HARDWAREUR
JEFFERSON
MONTGOMERY
BLVD
PROJECT AREA
LEJANO AVE
EL CAMINO HERMOSO
KINGSTON AVE
NORTHLAND
OVERLAND
TOPKE ST
LOFTUS
TOPKE
BARKER
BROOK
ANDREW
BRAND
BAKER ST
LOS TRECHOS CT
KATSON AVE
PEDRO
PRAIRIE
PENELOPE
SPRINGS DR
INDIAN
ADOBE
ROBERTA
MARIA
JOAN
HENDRIX AVE
HENDRIX BLVD
DOUGLAS
MAC ARTHUR
GOODRICH
HILTON
HAHN CT
ZONE A
DELAMAR
SAN ANDRES
ZONE A
PONDERSA
PALO DURO
WASHINGTON
COMANCHE
MESCALERO RD
MORNINGSIDE
VAN BUREN ST
GOODRICH
ORTIZ CT
MADIRA
PALOMAS CT
PALOMAS DR
WOODFORD DR
WOODFORD
PONDERSA AVE
ROGERS
NATALIE
ZONE A
DODD PL
ANDREWUR
GEORGIA ST
LOUISIANA
ZONE A
ZONE A
ZONE A
ZONE A
ZONE A
ZONE A
ALVARDO
VALENCIA CT
CARDINAS
COMANCHE
VOJOAGUE RD
LA CORRIDA
MOSSMAN
COLORADO ST
CALIFORNIA ST
ZONE A
ZONE A
ZONE A
ZONE A
ZONE A
ZONE A


CONSTRUCT 30" FROM MADERA DR TO MONTGOMERY BLVD
MH 15
SYSTEM 339.01D
AP 205
PROJECT SITE
OFFSITE WATERSHED
ALLEY
AP 1805
AP 308
DRAINAGE
CONSTRUCT 24" FROM LAVETA DR TO SAN MATEO BLVD
SYSTEM 54.01B
CONSTRUCT 24" FROM ALVARADO DR TO PALOMAS DR (W)
CONSTRUCT 36" FROM PALOMAS DR (W) TO SAN MATEO BLVD
EXHIBIT D