HYDROLOGY L18/D11 ONE PLAN

L18-D11

1 PLAN

CONSTRUCTION PLAN REQUIREMENTS
Checklist

Date JULY 13, 1981 Zone Atlas Page No. L-18-Z

Drainage Report Title: COMMERCIAL BUILDING

Address: 1218 SAN PEDRO, S.E. Subdivision _____ Lot ___ Blk. ___

Engineer CHAVEZ GRIEVES Contact VICTOR CHAVEZ

Address 6121 INDIAN SCH RD. N.E Phone 881-7376

Architect/Surveyor _____ Contact _____

Address _____ Phone _____

Engineer Will Cerfit,: YES _____ NO _____

GENERAL:

Yes No NA

1. Professional's Stamp with signature and date:
   - ✓A. Engineer who prepared the Drainage Report
   - ✓B. Engineer or Surveyor who performed survey
   - ✓C. Engineer, Architect or Surveyor who prepared the grading plan.

2. North arrow and standard engineering scales used - 1" = 10' for sites less than one acre, 1" = 20' for sites less than five acres; 1" = 50' for sites greater than 5 acres.

3. ✓Vicinity map with zone atlas page and legal description.

4. Reference Albuquerque Control Survey Vertical Datum Location and temporary bench mark description - Ground elevation on the site based on mean sea level datum as established by the U.S. Coast and Geodetic Survey, North American datum 1929.

5. Legend.

TOPOGRAPHY:

Yes No NA

6. Existing contours (at one foot intervals) and spot elevations adequately showing conditions on-site and any other significant spot elevations off-site which would increase clarity.
   Note: Contours and spot elevations should be extended a minimum of 10' beyond property line.

7. Proposed contours (at one foot intervals) superimposed over existing contours, adequately supporting the drainage plan.

8. ✓Proposed and existing contours or spot elevations at the property line adequately demonstrating any changes in grade.

9. Existing and proposed (City approved) top-of-curb and flowline elevations adjacent to the site with mean sea level designation. This also applies to alleys.

10. Finish building floor elevation(s) with mean sea level designation.

11. ✓Swales defined by arrows and spot elevations.

12. ✓Required spot elevations for the standard City drivepad.

CONSTRUCTION DETAIL:

Yes No NA

13. Swales defined by arrows and spot elevations.

14. Elevation of property line at least 4" above top of curb.

15. Internal contributory drainage areas, including roof areas, outlined on the plan. Also, include location of canales, scuppers and drain pipes.

* 16. Notes defining property line, asphalt sidewalks, planting areas, ponding areas, and all other areas whose definition would increase clarity.

17. Erosion Control Plan.

18. Indication of all easements and right-of-ways on, or adjacent to, the site with dimensions and purpose shown.

19. Retaining wall required when a vertical grade change greater than 18" is indicated.

* 20. Details of ponds, swales, rundowns, curb cuts, water blocks, emergency spillways, retaining walls, pond outlets, safety fences, slopes, and all other significant drainage structures with contours, cross-sections and spot elevations when appropriate. ALL CROSS-SECTIONS MUST BE DRAWN TO STANDARD ENGINEERING SCALE OR ADEQUATELY DIMENSIONED.

Note: All proposed construction within the public right-of-way must follow the City Engineer's Special Order No. 19.

21. Indicate all existing structure on or adjacent to the site, such as: retaining walls, buildings, pavement, etc.

22. Indication of street name(s) adjacent to the site.

23. Storm runoff routed through the drivepad or a City approved curb cut.

24. Slopes (cut or fill) with height of less than 18", not steeper than 2:1. Slopes with height greater than 18", not steeper than 3:1.

*Refer to written comments below.

16. OUTLINE THE 100 YR WATER SURFACE ELEVATION OF THE PONDS.

20. PROVIDE CROSS-SECTIONS OF THE PONDS AND PIPE OUTLETS.

NOTE: Comply WITH CONSTRUCTION NOTES FOR Dwg K-15

ALSO, ADDRESS THE FOLLOWING COMMENTS REGARDING THE DRAINAGE REPORT:

① ADDRESS PONDING WITHIN 15' OF ANY STRUCTURE ON OR ADJACENT TO THE SITE.

② PROVIDE THE Qs DISCHARGE RATE CALCULATIONS.

③ REFERENCE THE ROUTING TECHNIQUE USED IN THE REPORT.

CHAVEZ GRIEVES / CONSULTING ENGINEERS, INC.
6121 INDIAN SCHOOL RD., N.E. SUITE 120
ALBUQUERQUE, N.M. 87110
PH. (505) 881-7376

July 15, 1981

Yum Kee Fu, Architect
500 Seventeenth Street, N.W.
Albuquerque, New Mexico 87104

Re: Drainage Report
ommercial Building
1218 San Pedro, S.E.

Attached is the revised plan for the referenced Drainage Report reflecting; 100-year water surface elevations, typical pond curb cross section, Zone Atlas Map No and reference to City Standard Drawing K-15 for drain line outlets.

In addition, we offer the following comments:

1. The pervious ponding areas will not be located within fifteen feet of the proposed structure, therefore, no special treatment is required.

2. The Q5 developed is 1.28 cfs which is greater than the rate of 1.02 cfs that has been maintained through the use of temporary detention.

3. The routing technique is that outlined by Mr. Coniglianno, titled "Design Procedures, Routing of the Runoff Through The Ponding Area" and APWA Special Report, "Practices in Detention of Urban Stormwater Runoff."

Please call if I can be of any further assistance.

Sincerely,

Victor J. Chavez

Victor J. Chavez, P. E.

CHAVEZ GRIEVES / CONSULTING ENGINEERS, INC.

6121 INDIAN SCHOOL RD., N.E. SUITE 120
ALBUQUERQUE, N.M. 87110
PH. (505) 881-7376

February 9, 1982

Mr. Fred Aguirre
City Hydrologist
P. O. Box 1293
Albuquerque, New Mexico 87103

Re: Commercial Building
1218 San Pedro Blvd., S.E.

Dear Mr. Aguirre:

Ponding volume calculations on the referenced project have been revised to reflect the As-Built conditions shown on the attached grading plan.

Asphalt "speed bumps" have been installed in the driveways to direct flows to the ponding areas and to provide the depth required to generate the ponding volumes. In addition, a short concrete curb has been installed along the southwest corner of the property to prevent the ponded water from exiting the site with little or no detention.

As a result of these changes, the ponding volume has been generated to meet the requirements of the original drainage study. In fact, the total volume provided, exceeds the original requirements.

Please call if we can be of any further assistance in this matter.

Sincerely,

Victor J. Chavez

Victor J. Chavez, P. E.

VJC:mb

RECEIVED
FEB 10 1982
RECEIVED

Job Commercial Bldg - 1218 San Pedro
Subject Revise Ponding Vol. Calculations
Client Daniel Yu

Sheet No. 1 of
Job No.
By VJC Date 2/82

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Ponding Area "A"

Max Water Surface Elev = 308.85

Vol. in Planting Area = 65(4)(.85) + 24(4)(.86) + 31(4)(.85)(.5)
= 356 ft³

0.1' South of Ponding Area

X-Section Area = .35(25) + $\left(\frac{.35+.18}{2}\right)$25 + .18(7)(.5) = 7.26 ft²

33' South of Ponding Area

X-Section Area = .05(33) = 1.65 ft²

Vol. = $\left(\frac{7.26+1.65}{2}\right)$33 = 147 ft³

Total Vol. = 503 ft³ > 489 ft³ req.

RECEIVED FEB 10 1982

Job Commercial Bldg. 1218 San Pedro
Subject Revise Ponding Vol. Calculations
Client Daniel Yu

Sheet No. 2 of
Job No.
By VJC Date 2/82

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Ponding Area "B" (Max W.S. Elev. = 308.61)

Volume w/in Planting Area = [8(31) + 4(28)] .93 = 334 ft³

23' North of Pond. X-Sec Area = .25(33)(.5) = 4.13 ft²

0.1' North of Pond X-Sec. Area = $\left(\frac{.34+.12}{2}\right)26 + .15(.12)(.5) = 6.9 ft^2$

Vol. = $\left(\frac{4.13+6.9}{2}\right)23 = 126.9 ft^3$

1' South of Pond X-Sec. Area = $\left(\frac{.21+.42}{2}\right)29 + 9(.21)(.5) = 10.1 ft^2$

49' South of Pond X-Sec. Area = $\left(\frac{.34+.18}{2}\right)25 = 6.5 ft^2$

70' South of Pond X-Sec. Area = .29(.5)(.5) = 2.18 ft²

Vol. = $\left(\frac{10.1+6.5}{2}\right)49 + \left(\frac{6.5+2.18}{2}\right)21 = 498 ft^3$

Total Ponding Vol. = 334 + 127 + 498 = 959 ft³

Ponding Vol. Req = 348 ft³ ∴ OK.

RECEIVED
FEB 10 1982

Home Owners Copy

81 59018

REAL PROPERTY ENCROACHMENT AGREEMENT

THIS AGREEMENT made this 27th day of OCT, 1981 by and between the City of Albuquerque, a New Mexico municipal corporation, (City) and DANIEL T. YU (User).

RECITAL

The User is the owner of certain real property located at 1218 SAN PEDRO. S.E. ALBQ N.M. 87108 in Albuquerque, New Mexico, and more particularly described as follows:

LOT 7A IN BLOCK 25-A AND INCLUDING THE VACATED ALLEY OF ELDER HOMESTEAD ADDITION.

The City is the owner of certain real property, easement, or public right-of-way adjoining or abutting the above described property of the user. The User wishes to encroach upon the City's property by constructing an improvement thereon or has already encroached upon the City property as follows:

PONDING LANDSCAPING PLANTER ENCROACHED UPON THE CITY'S PROPERTY (REFER TO ATTACHED DIAGRAM)

According to Celia Tomlinson this was not an encroachment agreement when she signed off 11-24-81

A sketch of the proposed or existing improvement is attached hereto and made a part of this Agreement.

The City is agreeable to the encroachment of said improvement provided that the User comply with the provisions and covenants contained herein.

NOW THEREFORE, in consideration of the mutual covenants contained herein, it is agreed by and between the City and User that the User may construct and/or maintain, at his own expense, the improvement described herein.

RESPONSIBILITY

The User shall be responsible for the construction and/or maintenance of said improvement and it shall conform to all laws and ordinances and administracive regulations applicable thereto. Said improvement shall not constitute a hazard to the health or safety of the general public and shall not interfere with the City's use of the property.

INDEMNIFICATION AND HOLD HARMLESS

The User shall agree to defend, indemnify, and hold harmless, the City, its officials, agents and employees from and

against any and all claims, actions, suits or proceedings of any kind brought against said parties for or on account of any matter arising from the encroachment by the User or the User's failure to maintain, modify, or remove the encroachment under this Agreement.

REMOVAL

The User shall remove, modify, maintain, or cause same to be done and cause the premises to be returned to its original condition within 30 DAYS after receipt of written Notice from the City. Notice shall be considered to have been received within six days after the notice is mailed if there is no actual evidence of receipt. In the event the User shall fail to comply with the Notice after the receipt of same, the City may undertake the project, at the expense of the User, and enter upon the property of the User as may be necessary to do so. The City shall assess the charge for same and any other expenses and damages arising therefrom to the User and file a lien therefor on the real property of the User.

LIABILITY

The City shall not be liable for any damages to the User's property or the improvement that may result from the maintenance, removal or any modification of the improvement.

NOTICE

The written notice provided for herein shall be accomplished by mailing same to:

The User may change said address by giving written notice, certified mail, return receipt requested, to the City Engineer, at 400 Marquette, N.E., Albuquerque, New Mexico 87102.

COVENANT RUNNING WITH THE PROPERTY

The obligation of the User set forth herein shall be binding upon the User, his heirs, and assigns, and the property of the User as described herein and will run with said property until released by the City.

USER

By: _____

Title: GENERAL PARTNER

REVIEWED BY THE LEGAL DEPARTMENT:

_____
Assistant City Attorney

CITY OF ALBUQUERQUE

_____
Chief Administrative Officer
acting

ACKNOWLEDGEMENTS

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this _____ day of _____, 1981, by _____, _____, of
(Name of Officer) (Title)
_____, a _____
(Name of Corporation) (State of Incorporation)
corporation, on behalf of said corporation.

_____
Notary Public

My Commission expires:
_____

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 27th day of October, 1981, by
Daniel T. Yu.
(Name of Acknowledging Partner or Partners)
On behalf of _____,
(Name of Partnership)
a partnership.

Kenneth M. Jones
Notary Public

My Commission Expires:
7-12-82

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me by _____, on this ____ day of _____, 1981.

_____
Notary Public

My Commission Expires:
_____

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 4th day of December, 1981, by Arthur A. Blumenthal, Acting Chief Administrative Officer of the City of Albuquerque, municipal corporation, on behalf of said corporation.

Karen M. Aceves
Notary Public

OFFICIAL SEAL
KAREN M. ACEVES
NOTARY PUBLIC - STATE OF NEW MEXICO

My Commission Expires:
3/24/85

CHAVEZ GRIEVES

CONSULTING ENGINEERS, INC.

DRAINAGE REPORT
FOR
COMMERCIAL BUILDING
1218 SAN PEDRO, S.E.
ALBUQUERQUE, NEW MEXICO

JUNE, 1981

CHAVEZ GRIEVES / CONSULTING ENGINEERS, INC.
6121 INDIAN SCHOOL RD., N.E. SUITE 120
ALBUQUERQUE, N.M. 87110
PH. (505) 881-7376

June 9, 1981

Yum Kee Fu, Architect
500 17th Street, N.W.
Albuquerque, New Mexico 87104

Re: Drainage Report for Commercial Building
1218 San Pedro, S.E.

Dear Kee:

Transmitted herewith are four(4) Drainage Reports for the proposed Commercial Building located at 1218 San Pedro, S.E. Presented are development guidelines for the project as required by the City of Albuquerque.

Please feel free to call should you have any questions or if we can be of any further assistance in this matter.

Very Truly Yours,

Victor J Chavez

Victor J. Chavez, P.E.
#5713

VJC/mb
Attachments

DRAINAGE REPORT
FOR
COMMERCIAL BUILDING
1218 SAN PEDRO, S.E.
ALBUQUERQUE, NEW MEXICO

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LOCATION AND DESCRIPTION 2
EXISTING DRAINAGE CONDITIONS 2
PROPOSED DRAINAGE CONDITIONS 3
CONCLUSIONS AND RECOMMENDATIONS 4

APPENDIX A

STUDY SITE A-1
FIG H - SEELYE A-2
CONFERENCE RECAP A-3

CALCULATIONS ..... APPENDIX B

DRAINAGE PLAN ..... APPENDIX C

DRAINAGE REPORT
FOR
COMMERCIAL BUILDING
1218 SAN PEDRO, S.E.
ALBUQUERQUE, NEW MEXICO

PURPOSE

The purpose of this report is to transmit storm drainage data relative to the proposed commercial building to be located at 1218 San Pedro, S.E. and to present development guidelines such that the proposed improvements will not be susceptible to flooding and that those improvements will not increase the threat of flooding to downstream areas.

SCOPE

The scope of this report is limited to an investigation of the study site and those immediate areas which either influence conditions on the site or are effected by the proposed development. Calculations have been prepared to reflect development plans which will maintain existing rates of runoff by routing flows through temporary retention ponds. The conclusions of this report are intended to provide development guidelines only and to show the feasability of the proposed development.

DESIGN CRITERIA

Ponding volumes, grading elevations and outlet sizes have been determined such that the original undeveloped rate of runoff will be maintained in the event of a 100-year frequency storm. Design Storm is the 100-year frequency storm with intensity as shown on the curves of Chart I "1963 Master Plan of Drainage for the City of Albuquerque

and Environs" as prepared by Gordon Herkenhoff and Associates, Inc., Consulting Engineers. Existing runoff conditions in surrounding and downstream areas are those shown in "Albuquerque Master Drainage Study Volume II" as prepared by Bohannon-Houston, Inc., Consulting Engineers. The time-rainfall depth relationship for the design storm is that published in "Design Procedures-Routing of runoff through a ponding area" as prepared by the City of Albuquerque.

LOCATION AND DESCRIPTION

The study site is located in the southeast heights of Albuquerque, north of the intersection of San Pedro Drive and Gibson Boulevard. The parcel of land consists of Lots 6 and 7 and a portion of Lots 5 and 8 of Block 25.a of the Elder Homestead Addition containing approximately 0.46 acres. The site is shown on Sheet L-18-2 of the Zone Atlas.

The site is presently undeveloped. Site conditions consist of barren soils with gentle slopes to the west of approximately one per cent. Existing sub soil conditions have not been investigated, however, ponding areas will be established downstream and more than fifteen feet from the building perimeter.

EXISTING DRAINAGE CONDITIONS

The site is located immediately adjacent to a 100-year Flood Hazard Area -ocated in the area of Gibson Boulevard and as shown on Sheet L-18 of the referenced Master Drainage Study. As shown on Sheet L-18, additional Flood Hazard Areas are located north of the site along Eastern Avenue. Improvements which will eliminate the indicated flood hazard areas are considered high priority, however, it is likely that the improvements will not be completed for several years following the completion of the proposed construction. Residential streets located east of the site divert upstream flows south to Gibson Boulevard. Flows from areas north of the site are intercepted by Eastern Avenue. Drainage patterns are indicated in the Appendix of this report and reflect those shown on L-18 of the Drainage Master Plan.

Areas located immediately east of the site have been partially developed for multi-family housing. The northern half of the eastern boundary is an existing cmu wall enclosing the backyard of the developed apartment units. The southern half has been only partially developed in that site grading has been completed. Grading consists of the installation of raised fill area which effectively restricts flows from the majority of the site. The westernmost 10 feet of the site flows to the southwest and does generate a small amount of runoff which crosses the southeast corner of the study site.

Adjacent areas immediately north and south of the site have flow patterns to the west and onto San Pedro Boulevard and, as a result, do not contribute flows to the study site.

PROPOSED DRAINAGE CONDITIONS

Development plans for the site include the construction of a single commercial building with associated parking facilities, sidewalks and landscaped areas. The fully developed coefficient of runoff will be significantly higher than the original undeveloped coefficient. Due to the proximity of flood prone areas, it is necessary to provide temporary detention ponds with uncontrolled outlets limiting the total site runoff to that which existed prior to development. The proposed site grading and ponding areas are shown on the attached Drainage Plan. Two ponds will be located in landscaped areas next to San Pedro including a portion of the adjacent parking lot area. Ponding will not be required in the parking lot for storms with less than a 10 year frequency.

Flows from the ponds will be restricted using 4" diameter cast iron drains. Evaporation and percolation from the ponds will be relatively insignificant.

Flows from areas east of the site will be allowed to cross the site in the existing manner.

Flows from areas north of the site will be restricted through the construction of a concrete curb around the proposed planter area.

CONCLUSIONS AND RECOMMENDATIONS

Proposed development plans should incorporate the following features:

1. Allow historic flow patterns from areas immediately east of the site to remain as they presently exist.
2. Provide site grading for diverting 80% of the site to two ponding areas located adjacent to San Pedro Boulevard as shown on the attached Drainage Plan.
3. Construct one 4" diameter cast iron drain in each pond.

Provided that these items are incorporated into the construction documents, the proposed development will not be susceptible to flooding nor increase the threat of flooding to downstream areas.

Victor J. Chavez

Victor J. Chavez, P. E.
#5713

APPENDIX A

DRAINAGE — RUNOFF — I

FIG A. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 2 YEARS.

FIG B. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 10 YEARS.

FIG C. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 50 YEARS.

FIG D. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 5 YEARS.

FIG E. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 25 YEARS.

FIG F. – ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 100 YEARS.

COMPUTATION OF i IN RATIONAL FORMULA.

EXAMPLE: Assume expectancy period = 5 years, See Fig. D, assume locality, find 1 hour intensity = 1.75 in. per hour.

FIG. G-INTENSITY EXPECTATION FOR ONE-HOUR RAINFALL*.

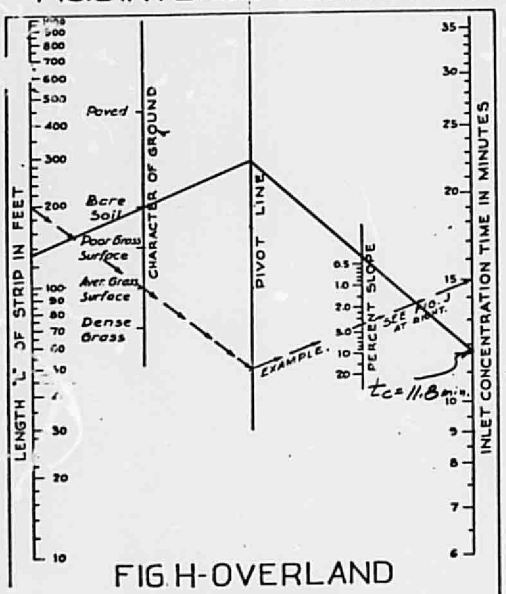


FIG. H-OVERLAND FLOW TIME.

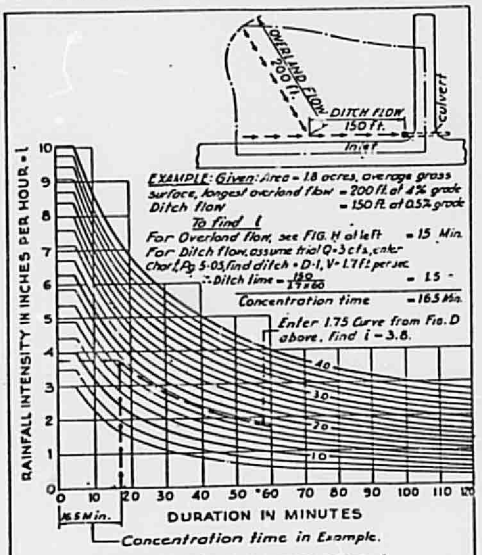


FIG. J-VALUES OF i
RAINFALL INTENSITY-DURATION+

*Reproduced from Miscellaneous Publication No. 204, U.S. Dept. of Agriculture, by David L. Yarnell.
+Adopted from Engineering Manual of the War Department, Part XIII, Chap. 1, Dec. '45.

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION

HYDROLOGY SECTION PROJ. NO. L-18 DATE: 5/15/81

PLANNING DIVISION NO. _____

CONFERENCE RECAP

SUBJECT: RESTAURANT ON SAN PEDRO 1/2 BLOCK N. OF GIBSON SE

	WHO	REPRESENTING
ATTENDANCE:	C.M. EASTERLING	CITY ENGINEERING
	V.J. Chavez	Chavez

FINDINGS:

1 DRAINAGE AND GRADING PLAN PRIOR TO ISSUANCE OF FOUNDATION PERMIT.
2: FOLLOW INTERIM DRAINAGE GUIDELINES (NOV. 1979)

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: C.M. Easterling	SIGNED: V.J. Chavez
TITLE: P.A.C.E. / HYDRO	TITLE: Proj. Eng.
DATE: 5/15/81	DATE: 5/15/81

APPENDIX B

Job Commercial Bldg - 1218 San Pedro
Subject Drainage Report
Client Yum Kee Fu

Sheet No. 1 of
Job No.
By VJC Date 6/81

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Existing coefficient of runoff = 0.40

slope ≈ .0036

$T_c \approx 12$ min. (See Fig 11 - Seelye)

$i = 189/25+12 = 189/37 = 5.1$ in/hr.

Area = 19,950 ft² = .46 Ac.

$Q_u = .4(5.1)(.46) = .94$ cfs.

Vol. = $.4(2.4)(19,950)/12 = 1596$ ft³

Proposed Conditions

Landscaping	1220 ft²	(.4)	= 488
Paved. & Roof	18,730	(.9)	= 16,857
			17,345

$C = 17,345/19,950 = 0.87$

$Q = 0.87(5.1)(.46) = 2.04$ cfs.

Vol. = $.87(2.4)(19,950)/12 = 3,471$ ft³

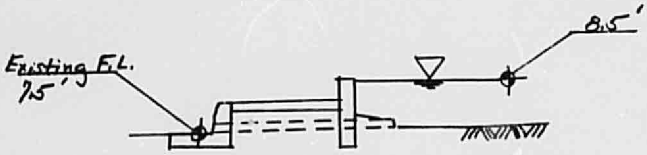
Δ Vol. = 1875 ft.³

Job Commercial Bldg. - 1218 San Pedro
Subject Drainage Report
Client Yum Kee Fu

Sheet No. 2 of
Job No.
By VJC Date 6/81

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Route runoff through ponds to maintain existing rate of runoff. Use 4"ϕ C.I. drains to existing c.&g. flow lines.



length ≈ 12'

Due to proximity of Zone "A" area, water will be standing approximately six inches deep @ curb.

∴ Assume full pipe flow conditions & slope = 0.5/12 = .0417

$$V = \frac{1.48}{.011}(.0417)^{1/2}(.0825)^{2/3} = 134.5(.2042)(.1875)$$

$V = 5.2$ f.p.s.

$Q = 5.2(\pi)(.33)^2/4 = .44$ cfs.

Include losses @ entrance

$V \approx 4.5 \qquad k_L \approx 0.85$

$$h_L = .85\left(\frac{4.5^2}{64.4}\right) = .27'$$

$S = (.5 - .27)/12 = .0192$

$V = 5.2(.68) = 3.5$ f.p.s. $\qquad Q = .44(.68) = .3$ cfs.

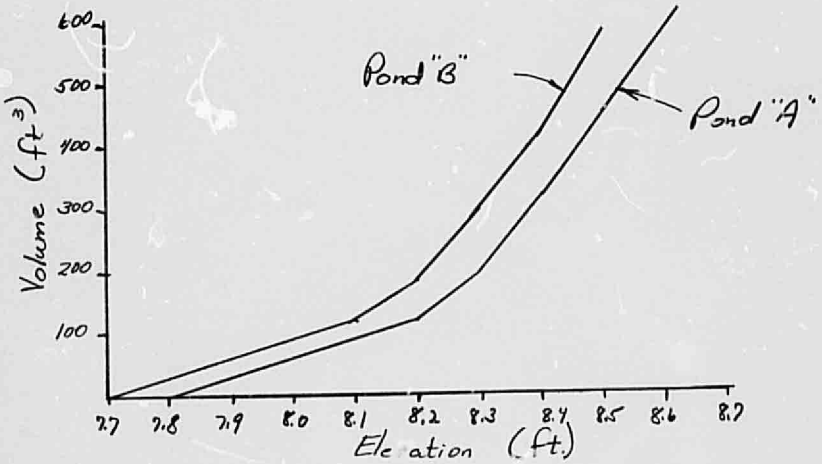
Use $Q_{max} = .33$ cfs.

Job Commercial Bldg. 1218 San Pedro
Subject Drainage Report
Client Yum Kee Fu

Sheet No. 3 of
Job No.
By VJC Date 6/81

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Ponding Area "A" & "B" depth-Vol. relationship.



Area Des.	Area.	C.
A	9050 ft² (.208 Ac)	.86
B	6975 ft² (.16 Ac)	.86
C	3925 ft² (.09 Ac.)	.90

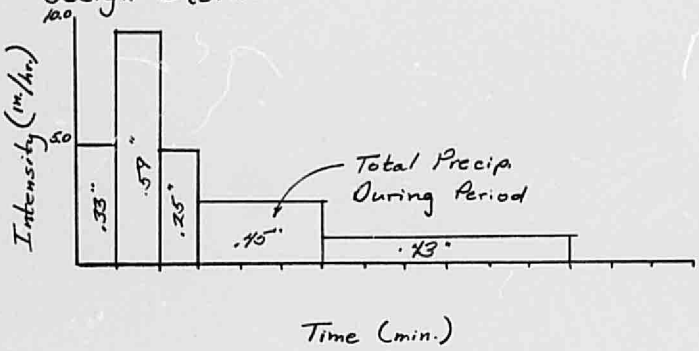
Job Commercial Bldg. 1218 San Pedro
Subject Drainage Report
Client Yum Kee Fu

Sheet No. 4 of ____
Job No. ____
By VJC Date 6/81

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Total Rainfall 2.4"

Design Storm



Outflow Characteristics.

Assume that a minimum depth of .4' will be required to allow flow out to the street due to the proximity of Zone "A" area

d	Δh.	$S^{1/2}$	Q out.
.4	.1	.091	.15
.5	.2	.129	.21
.6	.3	.158	.26
.7	.4	.183	.30
.8	.5	.204	.33

Job Commercial Bldg. - 1218 San Pedro
Subject Drainage Report
Client Yum Kee Fu

Sheet No. 5 of
Job No.
By VJC Date 6/81

CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Route Flows through Pond "A"

$Vol = [9050(i)/12] \cdot .86 = 648.6(i)$

time	i	Vol in	ΔVol.	Vol. to Pond	depth	Qout	Vout	Vol. in Pond
5	.33	214	214	214	.6	.26	78	136
10	.92	597	383	519	.75	.31	93	426
15	1.17	759	162	588	.8	.33	99	489 *
20	1.32	856	97	586	.8	.33	99	487
25	1.47	953	97	584	.8	.33	99	485
30	1.62	1051	97					

Route Flows through Pond "B"

$Vol. = [6975(i)/12] \cdot .86 = 500(i)$

time	i	Vol in.	Δ Vol.	Vol to Pond	Depth	Qout	Vout	Vol in Pond
5	.33	165	165	165	.45	.18	54	111
10	.92	460	295	406	.7	.30	90	316
15	1.17	585	125	441	.72	.31	93	348 *
20	1.32	660	75	423	.71	.31	93	330
25	1.47	735	75					
30	1.62	810	75					

* Max. Ponding Vol. Req.

Job Commercial Bldg. 1218 San Pedro
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Client Yum Kee Fu

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CHAVEZ-GRIEVES / CONSULTING ENGINEERS, Inc. Albuquerque, NM

Ponding Area "C"

$Q_{10} = .9\,(5.1)(.09) = .41$

$Q_{15} = .9\,(4.7)(.09) = .38$

Total Flow @ 10min. = .41 + .31 + .30 = 1.02 cfs.

Total Flow @ 15min. = .38 + .33 + .31 = 1.02 cfs.

Total Flow @ 20min = .34 + .33 + .31 = .98 cfs.

Max. Runoff ≈ 1.08 existing undeveloped.

APPENDIX C