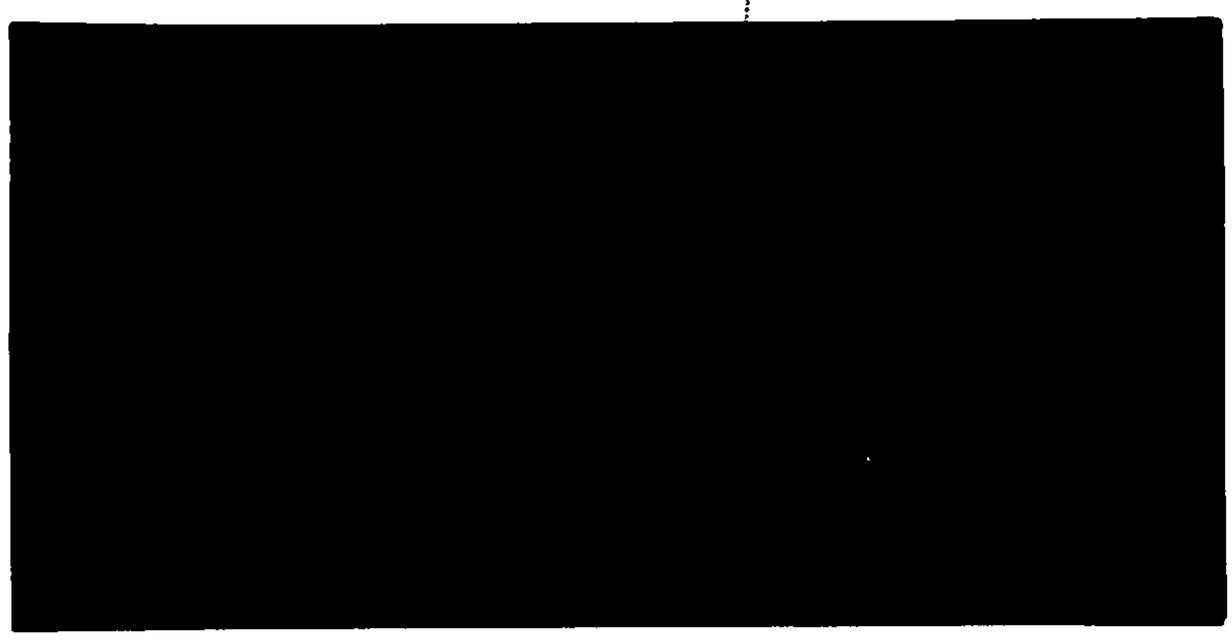


DRAINAGE REPORT

FOR

CASITAS CORONADO

RECEIVED
AUG 11 1989
HYDROLOGY SECTION

Prepared by

D. MARK GOODWIN AND ASSOCIATES, P.A.

PO Box 21307

Albuquerque, New Mexico 87154

March 1989

Amended August 11, 1989

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

August 11, 1989

Mr. Stewart Reeder
Public Works Department
Hydrology Section
CITY OF ALBUQUERQUE
PO Box 1293
Albuquerque, NM 87105

Re: Casitas Coronado Subdivision: Project No. 3812

Dear Mr. Reader:

Attached you will find a revised Grading and Drainage Plan with Detail Sheet for the referenced project. In addition, we are including nomographs and calculations verifying the adequacy of curb openings and rip-rap sizing. You will note that the rear yard concrete swales have been added as agreed upon, and that we increased the rip-rap thickness above that required as an added factor of safety.

As you requested, we have reevaluated the peak flow rate for the Hidden Valley channel crossing utilizing the Rational Method. Per the attached calculations, the peak flow rate for the 100 year - 6 hour event will be 230 cfs. The crossing structure has been resized accordingly.

As a final measure we have added one foot of freeboard to the diversion swales.

This should conclude the drainage report and grading plan for this project. If there are questions or comments, please call.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

Enclosures

dmg D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Rip-Rap
JOB NO. _____ SHEET 1 OF 3
BY MG DATE 7/24/89
CHECKED _____ DATE _____

We will provide typical Swale lining & bedding design per Simons & Li:

$Q = 15$ cfs
$d = 0.75'$
$R = 0.37$
Side Slope = 6:1
$V = 4.39$ fps

$\frac{V^2}{R^{.33}} = 26.8 \Longrightarrow$ Type VL Rip-Rap
$k_m = 6''$

For Rip-Rap
$D_{50} = 6'' = 153$ mm
$D_{100} = 9'' = 230$ mm
$D_{15} = 2'' = 51$ mm

$\frac{153}{40} = 3.82$ mm $= D_{50}$ Filter

$\frac{51}{40} = 1.28$ mm $= D_{15}$ Filter

$\frac{51}{5} = 10.2$ mm $= D_{85}$ Filter

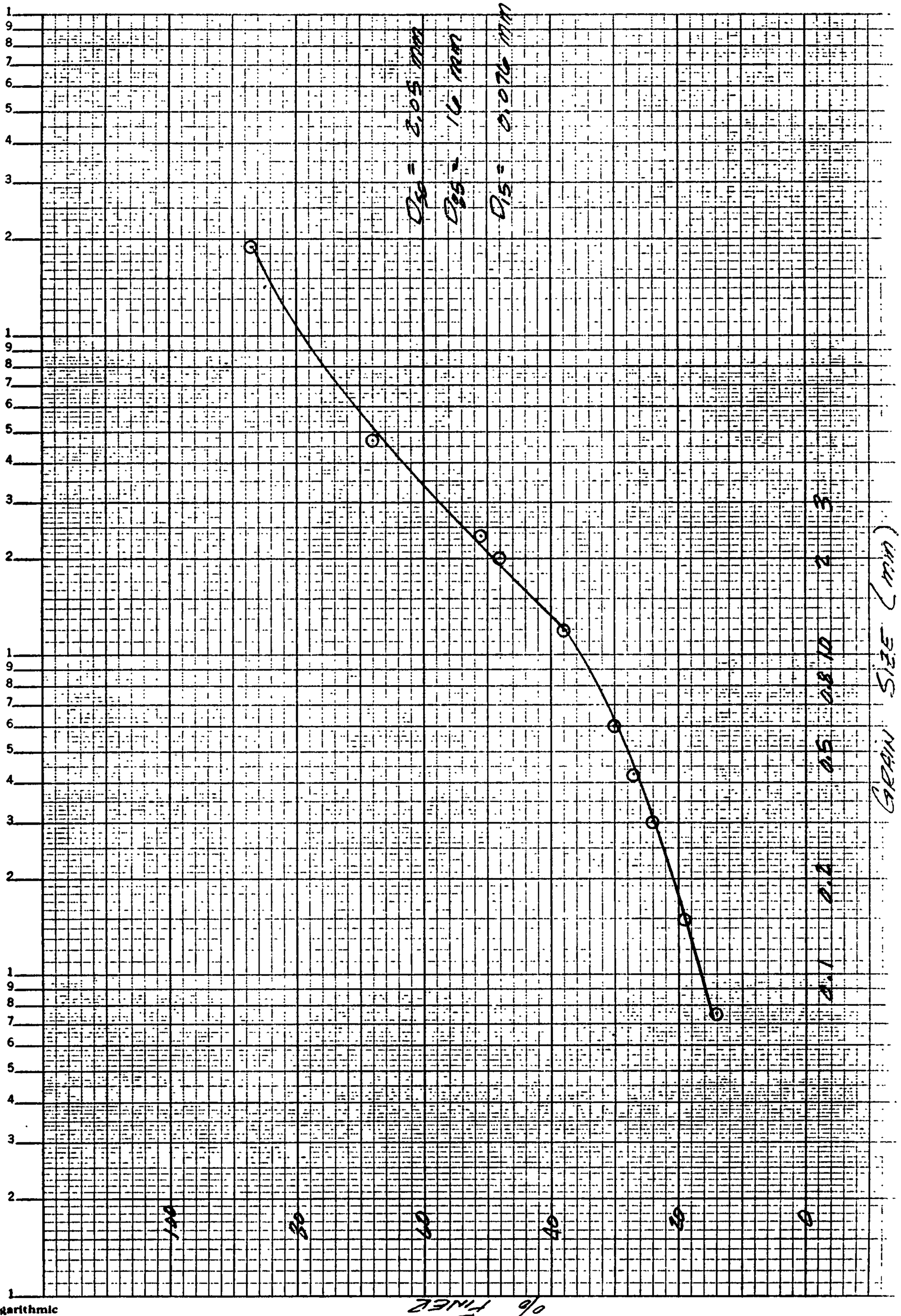
$= 10.2$ mm $> D_{15}$

1.28 mm < D_{15} < 10.2 mm

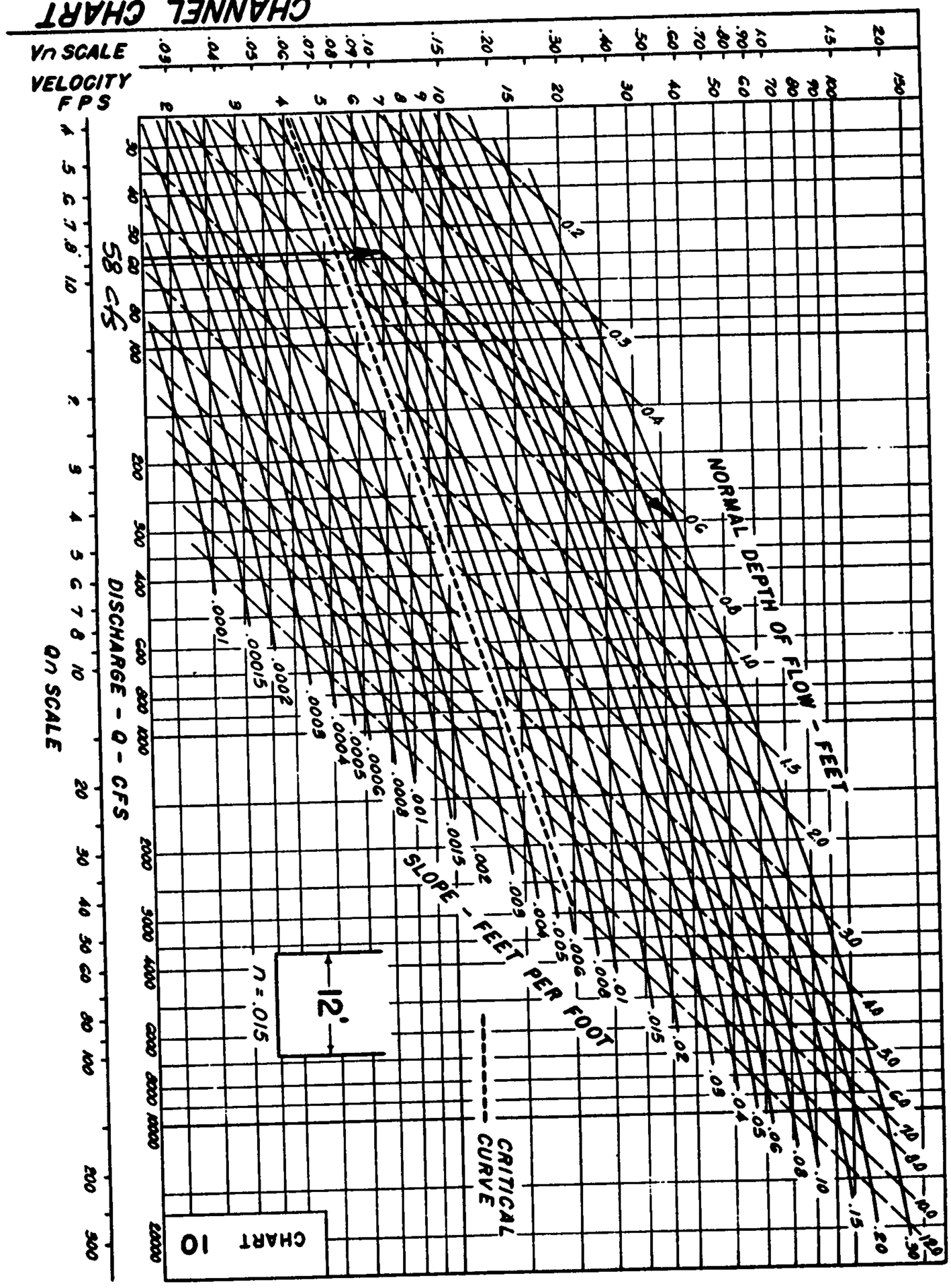
D_{50} > 3.81 mm =

D_{85} > 10.2 mm = 3/8"

Best approx. Type I Bedding
Use 6" thick


D50 = 2,05 mm
D85 = 1,6 mm
D15 = 0,076 mm
GRAIN SIZE (mm)
0,5
0,8
1,0
2
2,4
4,1
FINER %
Semi-Logarithmic
4 Cycles x 10 to the inch

CHANNEL CHART
VERTICAL b = 12 FT.



dmg D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Hidden Valley Channel
JOB NO. _____ SHEET 1 OF 1e
BY MG DATE 8/8/89
CHECKED _____ DATE _____

We will re-evaluate Q_{100} for proposed crossing structure of Calle Coronado & Hidden Valley Channel.

Drainage Basin is defined utilizing CDA Topographic Orthophoto m-23 (Attached) then field verified. Area was planimetered giving D.A. = 80.10 Ac.

P_{100} = 2.5 in.

Time of Concentration is comprised of Sheet & Gully flow:

Sht flow: $T_c = \frac{L}{3600\ V}$

$Slope = \frac{5851 - 5714}{2500} = 0.60\%$

V = 2.6 fps (Nearly bare & unfilled)

$T_{c_1} = \frac{2500}{3600(2.6)} = 0.27$ Hrs = 16.03 min.

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Hidden Valley
JOB NO. _____ SHEET 2 OF 6
BY MG DATE 8/8/89
CHECKED _____ DATE _____

Gully Flow: $T_c = \frac{L^{1.15}}{7700 H^{.385}}$

$L = 2300'$

$H = 5714 - 5565 = 149'$

$T_{c_2} = \frac{2300^{1.15}}{7700 (149)^{.385}} = 0.139 \times 115 = 8.35$ min.

$T_{c_T} = 24.38$ min.

$I_{100} = (2.5) 6.84 (24.38)^{-.51} = 3.35$ in/hr

$C = 0.85$ → exposed rock, steep slopes poor cover, etc.

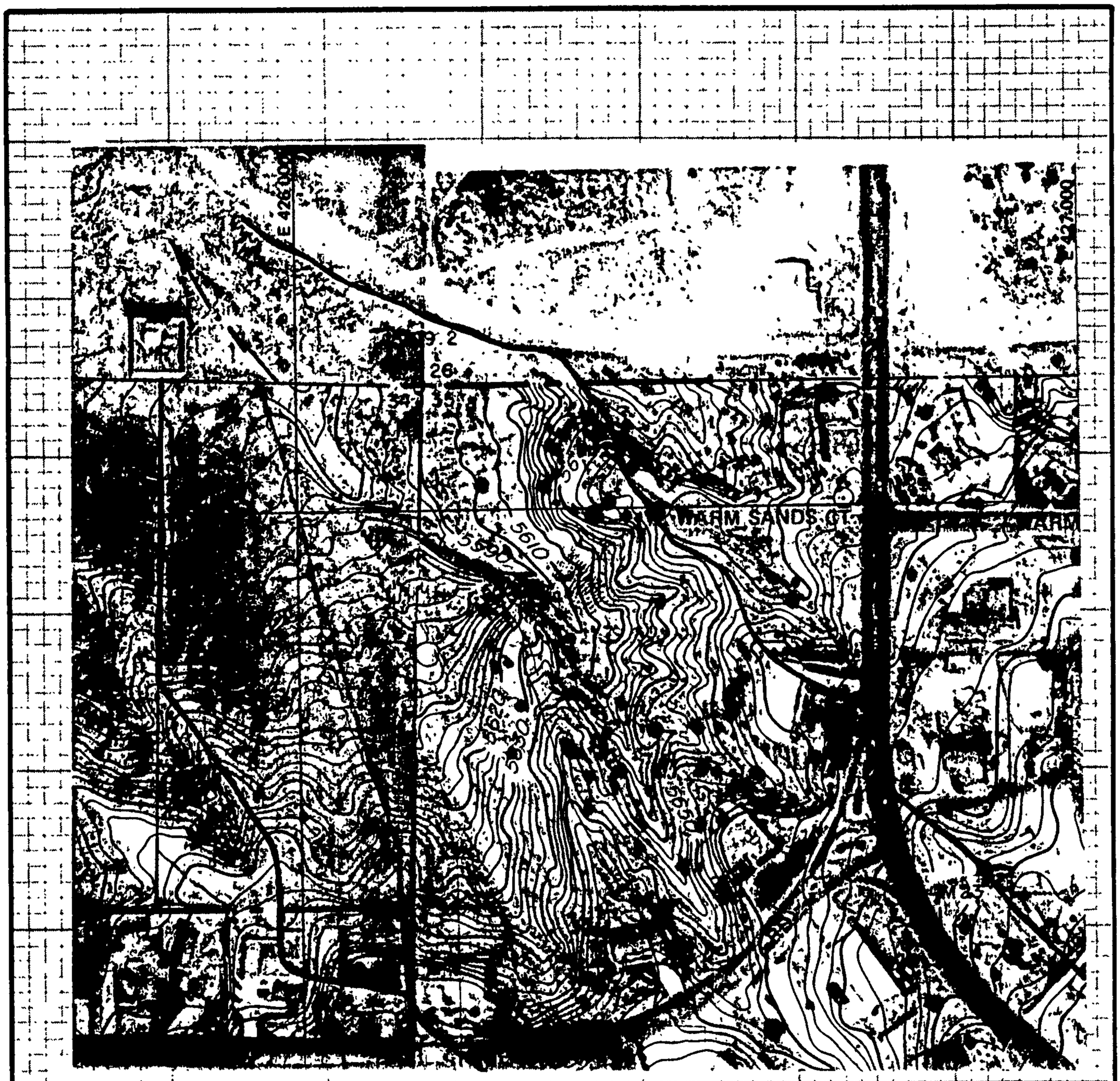
$Q_{100} = CIA = 0.85 (3.35) (80.10) = 228$

Say 230 cfs

→ We have oversized crossing → 115 feet of 7-30" culverts w/ head 6-30" RCP

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT
JOB NO. SHEET 3 OF 6
BY MG DATE
CHECKED DATE

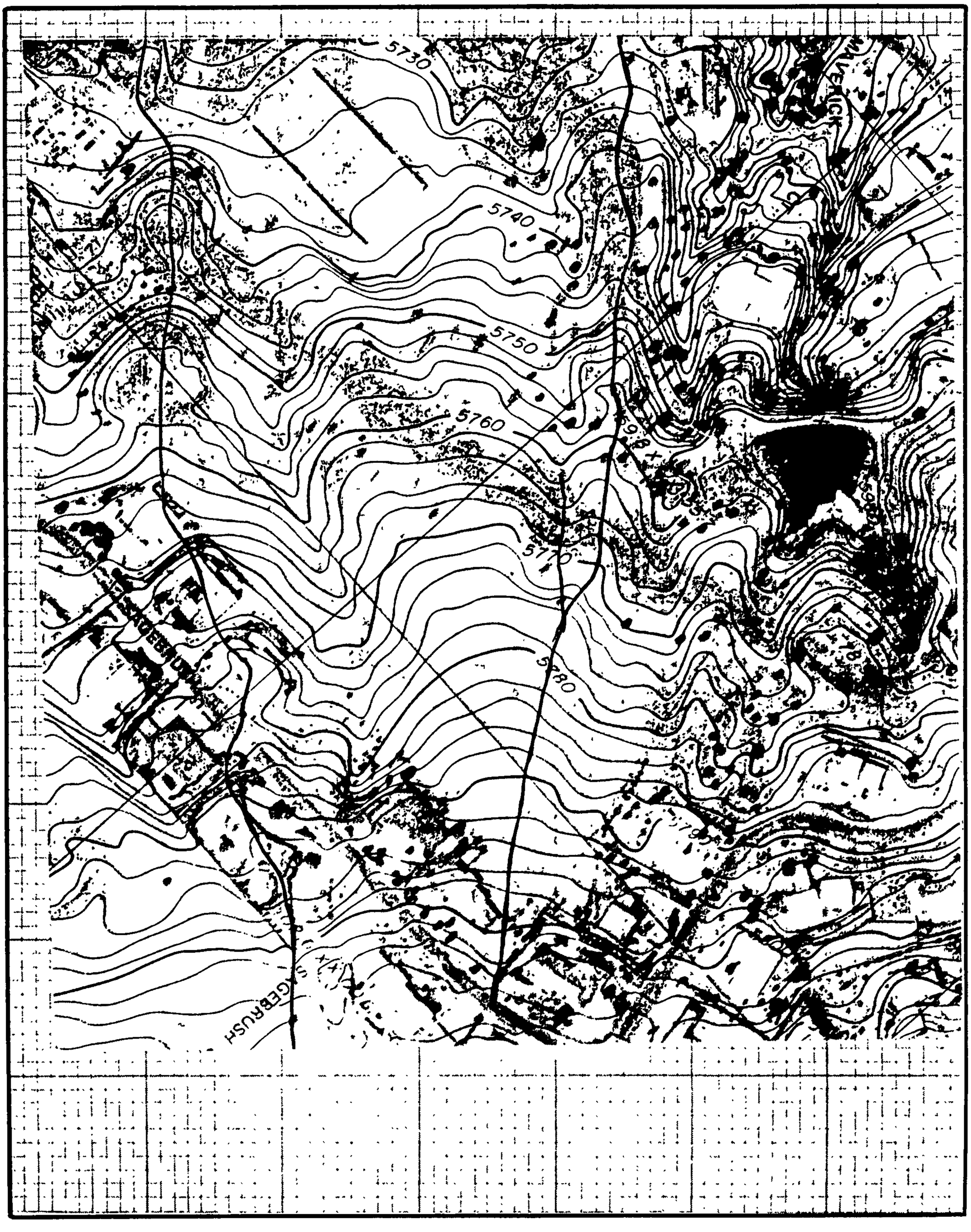


dmg D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT
JOB NO. SHEET 4 OF 6
BY MG DATE
CHECKED DATE

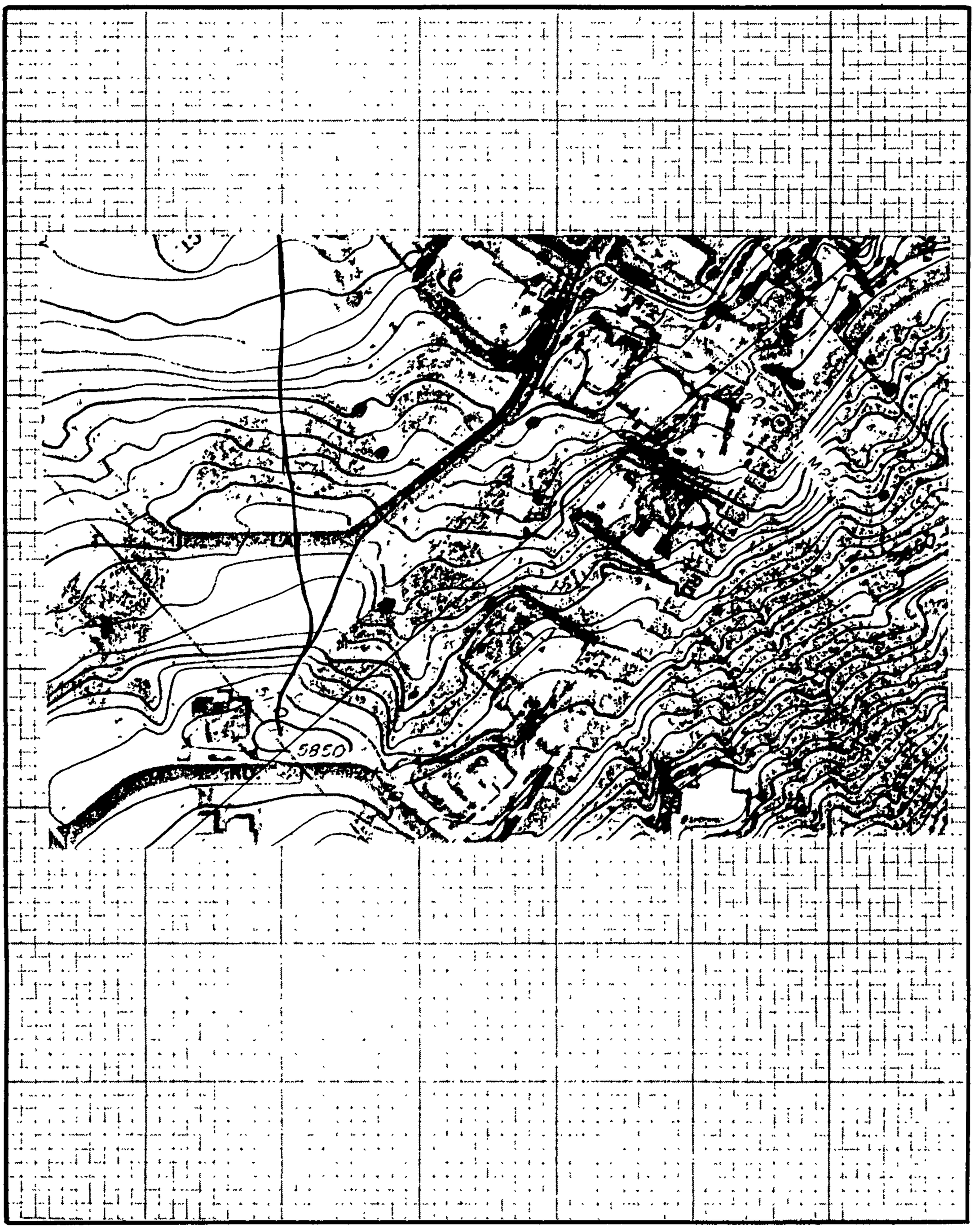
D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT
JOB NO. SHEET 5 OF 6
BY MG DATE
CHECKED DATE



D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT
JOB NO. SHEET 6 OF 6
BY MG DATE
CHECKED DATE



D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

Mark

July 3, 1989

Mr. Clifford Anderson
ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY
2600 Prospect NE
Albuquerque, NM 87107

Re: Casitas Coronado Subdivision: DRB 89-113

Dear Mr. Anderson:

Thank you for meeting with Mr. Stewart Reeder of the City of Albuquerque and me concerning the referenced project. As you are aware, the meeting was held in order to resolve the concerns raised in your letter of June 22, 1989. As discussed at this meeting, we offer the following comments and/or solutions:

1. We agree that joint concurrence by AMAFCA and the City is required. We will therefore resolve any questions from either Agency.

2. Our hydraulic analysis indicates that the capacity of the Hidden Valley channel is on the order of 1,800 cfs depending on the slope of the reach in question. Review of several Drainage Reports on file with the City indicates peak rates of runoff of 350 cfs for the City owned portion, and 474 cfs for the AMAFCA owned section. The Casitas Coronado Subdivision will increase the peak rate by 34 cfs upon completion. This is a 10% increase for the City owned section and a 7% increase for the AMAFCA section. We feel very strongly that this increase does not warrant substantial improvements to the existing channel, and should certainly justify direct discharge from this project. The 34 cfs increase will not have an adverse impact on the channel, nor should it require an increase in the maintenance effort.

3. As we discussed in our meeting, minor channel and structure repair is appropriate in the City owned portion. We have already detailed this. We do not feel that any action should be taken in AMAFCA's portion, nor do we feel that the Hidden Valley Home Owners Association would be too pleased. We do agree that ultimately an all weather crossing needs to be placed on Hidden Valley Drive, but it is not appropriate to burden our client with this in light of the small contributory flows from his development. This structure should be the responsibility of Hidden Valley, or placed in a Special Assessment District.

4. An all weather crossing will be placed upstream of the existing drop structure in an easement granted by the Home Owners Association. This crossing will improve the current situation in that it will confine the runoff to the drop. Furthermore, due to the subdivision grading scheme, we will be reducing the flows upstream of the crossing. The crossing structure is designed for a peak flow = 350 cfs as determined in a previous report and on file at the City.

5. We agree that the small swales need to be designed according to AMAFCA and DPM standards. We request that these be approved prior to the Work Order release at the DRC level and your concurrence.

This project goes back before the DRB on July 11, 1989 and as such, we would greatly appreciate your concurrence with this discussion so that we may gain Preliminary Plat approval at that time. We feel that all of your concerns have been addressed to your satisfaction, however should you have other questions or comments, please contact me.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

xc: Stewart Reeder, COA
Ron Bohannan, Tierra West

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

June 22, 1989

Mr. Stewart Reeder
Public Works Department
Hydrology Section
CITY OF ALBUQUERQUE
PO Box 1293
Albuquerque, NM 87103

Re: Casitas Coronado Subdivision: Project No. 3812

Dear Mr. Reeder:

Per your telephone comments to us and DRB comments, we have revised the Grading Plan, and offer the following revisions to the Drainage Report for the referenced project.

1. The peak rates of runoff utilized in swale sizing and capacity verifications were recalculated utilizing the Rational Method as requested. These calculations are attached for your review. You will note that the drainage swales and street typical sections as originally proposed are adequate to carry these flows.

2. As agreed to at the DRB, the rear yard ponds will be allowed, but encompassed within drainage easements. The revised plat reflects these easements. In addition, downstream emergency outlets in the form of wall openings will be provided as shown on the detail sheet of this submittal.

This should resolve the concerns that you voiced to us. In addition, the following items have been detailed further, or will be included in the plan set for DRC approval based upon comments from other departments with the City:

1. An all weather crossing will be constructed where Calle Coronado crosses the Hidden Valley channel as dictated by Traffic. The crossing will pass a design Q = 350 cfs as calculated by MSM in their design of the channel. We propose to pass the design flow rate via seven 30" CMP beneath the driving surface. This structure will be detailed to the satisfaction of the DRC.

2. A rip-rap channel will be placed adjacent to lot 75 to replace an existing channel at this location. We feel that the original intent was to provide for a controlled overflow from Stagecoach Road, but we cannot find any record of this. We feel that it is prudent to replace it in kind.

3. We have added more detail concerning rip-rap linings and discharge points for added clarity.

We feel that all concerns and details have now been addressed. We request final approval of this plan at your earliest convenience and Rough Grading approval.

We appreciate your efforts concerning this project, and if you have further questions, please call us.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

Enclosures

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 1 OF 2
BY MG DATE 6/13/89
CHECKED _____ DATE _____

Per comments received from City of Albuquerque, we will re-calculate peak rates of runoff utilizing the Rational Formula:

Peak Rate to South Boundary

$A = 1.61$ Ac.

C (for 1/2 Ac. R-1 lots) $= .70$

$I = (2.5)(6.84)\,10^{-0.51} = 5.28 \rightarrow Q = 6$ cfs

$\Rightarrow$ swale in original report was sized for 5 cfs $\rightarrow$ no changes req'd.

Peak Rate to East Boundary

$A = 7.2$ Ac.

C (for undeveloped) $= 0.40$

$I = 5.28$ $Q = 15$ cfs

$\rightarrow$ swale in original report was for 9 cfs
$\rightarrow$ adequacy of this swale needs checking

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 2 OF 2
BY MG DATE 6/13/89
CHECKED _____ DATE _____

On-Site Peak Rate

A = 13 Ac.

C = 0.85

I = 5.28 Q = 58 cfs

→ Streets will carry 62 cfs (from original report) → no changes req'd.

East Boundary Swale Capacity

@ d = 1.0' A = 6 sf WP = 12.17'

$$V = \frac{1.486}{.04}\left(\frac{6}{12.17}\right)^{2/3}(.0525)^{1/2} = 5.31 \text{ fps}$$

Q = 32 cfs > 15 cfs

→ Swale as originally sized is adequate

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

March 23, 1989

CITY OF ALBUQUERQUE
Public Works Department
Hydrology Section
PO Box 1293
Albuquerque, New Mexico 87103

Re: Proposed Residential Subdivision: Casitas Coronado

Gentlemen:

Please find enclosed the Drainage Report for the project referenced above.

We have incorporated all current City of Albuquerque design criteria, and have addressed all items discussed at the pre-design. We request that you review and approve this report.

If you should have questions or comments, please contact me.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

Attachment

PROJECT LOCATION AND DESCRIPTION

The proposed Casitas Coronado subdivision is planned for a 13 acre site located at the north end of Four Hills, north of Stagecoach Road, and south of Hidden Valley Subdivision. (See following location map.)

The project site is relatively steep, has poor vegetative cover and is comprised of Embudo soils. The difference in elevation from the south property line to the north property line is forty (40) feet in an approximate distance of 700 feet. Several small arroyos run through the property towards the Tijeras Arroyo to the north. These arroyos originate within the property itself, having been effectively intercepted by Stagecoach Road to the south. A single "C" curb drop inlet in Stagecoach discharges runoff to one arroyo via a 24 inch outlet. Off-site sheet flows from the south and east also enter the site, ultimately entering the small arroyos. These flows as well as the inlet discharge will be accommodated as discussed later in this report. These flows currently discharge to the Hidden Valley Channel at the northeast corner of the site, or are intercepted by a bar ditch adjacent to an unpaved road, and then conveyed to the Hidden Valley channel.

PROPOSED DRAINAGE PROVISIONS

The intent of the proposed plan is two-fold:

a. to intercept off-site flows and direct to the Hidden Valley channel, and

b. to collect on-site flows by means of the interior streets and convey to the Hidden Valley channel.

As per the pre-design, free discharge of these flows is appropriate and hereby requested.

The first item addressed by this analysis was the interception of the off-site flows and determination of the conveyance methods.

The off-site flows from the south are generated by large (> 1/4 acre) lots fronting Stagecoach and backing against this proposed site. Runoff calculations indicate peak 100 year - 6 hour rates of 5 cfs need to be intercepted. We propose to collect this runoff in swales along the south boundary and conveyed to Calle Verde within this subdivision. The swales would be one foot deep. Due to space limitations, these swales would have 2:1 side slopes. Velocities would be on the order of 4 fps, so we do not propose to line these swales.

The off-site flows from the east are generated by a 7 acre undeveloped tract. Future development would in all likelihood eliminate these flows, but until then, we propose to collect these in a swale. Runoff calculations show this peak rate to be 9 cfs. This swale would run north along the east boundary (in an appropriate easement), and discharge to Calle Coronado. Since space is not limited, the swale would be one foot deep and have 6:1 side slopes. Rock lining will have to be performed to avoid erosion. This would conclude off-site considerations.

For the most part, on-site flows will be directed to the interior streets and conveyed to the Hidden Valley channel. Adequacy of the streets is shown in the calculations included in this report. However, due to severe elevation changes at a few locations, we propose to provide

rear yard ponds on 21 lots, and the 15 lots on the north boundary will drain the back half to a swale we propose to run in the adjacent Public Service Company of New Mexico (PNM) easement to the Hidden Valley channel. The rear yard ponds require a volume of 290 cu ft. Typically, they would be 1 x 15 x 27. The swale in the PNM easement would be one foot deep with 6:1 side slopes, and would be rock lined. Adequate permission has been granted by PNM for this swale.

Calculations for all runoff determinations and structure sizing are included in this report for review.

One last item to address is the single "C" inlet in Stagecoach. As mentioned, this inlet discharges to the proposed site. We propose to extend this 24 inch outlet through our project underground in Calle Verde to Calle Coronado to the Hidden Valley channel. The outlet design would be included in the working drawings, and be approved prior to work order approval.

CONCLUSIONS

While this site is complicated to grade, the drainage is fairly straightforward and easily accommodated.

This plan adequately addresses off-site flows as well as on-site flows and meets current City Standards.

The structures as shown are easily maintained, and will control the peak rates of runoff and anticipated runoff volumes. It is concluded that the proposed development will not have an adverse impact on areas downstream, and will blend with the surrounding improvements.

CITY OF ALBUQUERQUE
MUNICIPAL DEVELOPMENT DEPARTMENT
ENGINEERING DIVISION/DESIGN HYDROLOGY SECTION

CONFERENCE RECAP

DRAINAGE FILE/ZONE ATLAS PAGE NO.: M-22 DATE: ~~11/1/88~~ 11/30/88 @ 10:00

PLANNING DIVISION NOS: EPC: _____ DRB: _____

SUBJECT: (Hidden Valley - Existing Report)

STREET ADDRESS (IF KNOWN): _____

SUBDIVISION NAME: Unplatted

APPROVAL REQUESTED:

X	PRELIMINARY PLAT	X	FINAL PLAT
~~X~~	SITE DEVELOPMENT PLAN	_____	BUILDING PERMIT
_____	OTHER	_____	ROUGH GRADING
_____			

	WHO	REPRESENTING
ATTENDANCE:	D.M. Goodwin	D.M.G & Assoc.
	Roger Green	Hydrology Section
	_____	_____

FINDINGS:

(1). An approved Grading Plan is required prior to Preliminary Plat approval. Plan must be of enough detail to identify all required infrastructures. Final Plat approval will require a very detailed Grading Plan showing all site specific lot elevations and finish floors etc.

(2). Existing 24" RCP outlet must be accepted and extented downstream to an acceptable outfall.

(3). Free discharge is approved to the existing channel and drop structure north east of project site. (See L22/D13)

(4). Any existing flows from the south must be accepted and conveyed to an acceptable outfall.

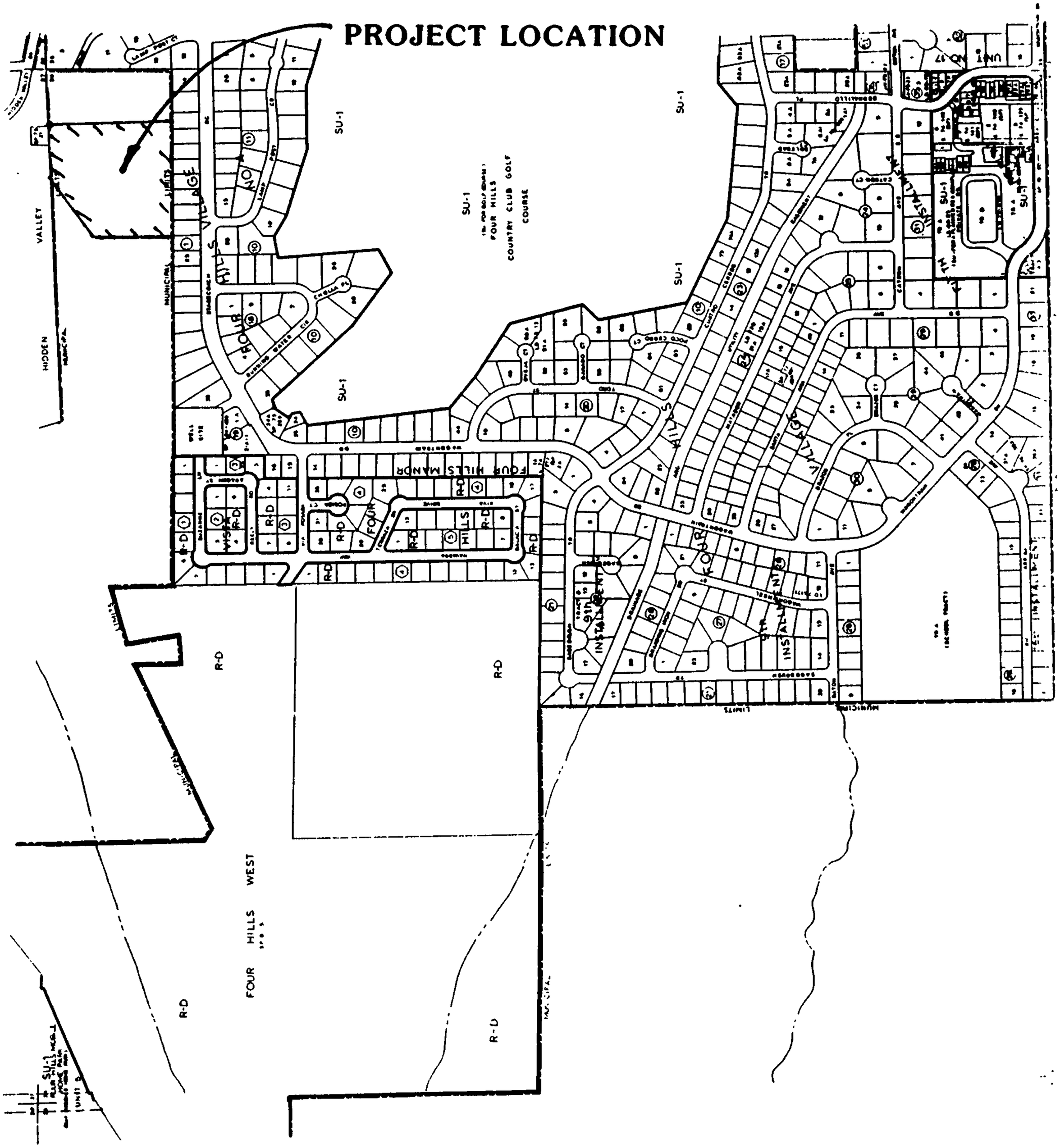
The undersigned agrees that the above findings are summarized accurately and are only subject to change if further investigation reveals that they are not reasonable or that they are based on inaccurate information.

SIGNED:	Roger A Green PE	SIGNED:	Mark Goodwin
TITLE:	Civil Engineer	TITLE:	_____
DATE:	11-30-88	DATE:	_____

NOTE: PLEASE PROVIDE A COPY OF THIS RECAP WITH THE DRAINAGE SUBMITTAL

M-22-7

PROJECT LOCATION



LOCATION MAP

I.M.P.M.

The private ingress-egress easement is created to provide ingress and egress to the following-described property (the "Benefitted Property"):

A certain tract of land situate in the SW 1/4 and the SE 1/4 Section 27, T10N, R4E, N.M.P.M., Bernalillo County, New Mexico. Being more particularly described by metes and bounds survey as follows:

Beginning at the Southeast corner of the tract herein described, a point on the southerly line of said Section 27 (said corner being common to the Southwest corner of the aforementioned 54.647 acre parcel), whence the Section Corner common to Sections 26, 27, 34 and 35, T10N, R4E, N.M.P.M., bears S 89°14'10" E, 1,854.01 feet along said Southerly line of Section 27; thence, N 12°41'10" W, 123.00 feet to a point; thence, N 49°27'40" E, 709.00 feet to a point; thence, N 0°26'00" E, 393.00 feet to a point; thence, N 26°55'50" W, 60.00 feet to a point; thence, N 63°04'10" E, 100.00 feet to a point; thence, N 26°55'50" W, 354.11 feet to the Northeast corner of the tract herein described; thence, S 63°04'10" W, 838.31 feet to a point; thence, S 68°56'10" W, 1,172.56 feet to the Northwest corner of the tract herein described; thence, S 06°54'40" W, 434.92 feet to a point; thence, S 70°54'40" W, 300.10 feet to the Southwest corner of the tract herein described; thence, S 87°04'20" E, 898.52 feet to the South One-Quarter Corner of said Section 27 (a U.S. Bureau of Land Management Brass Cap in place); thence, S 89°14'10" E, 866.89 feet along the southerly line of said Section 27 to the point and place of beginning and containing 39.579 acres, more or less.

The owner of the Benefitted Property has the obligation to maintain the access easement, which obligation shall run with and be appurtenant to the Benefitted Property. The City's approval of this Plat constitutues approval of the configuration, and the right-of-way width of the private access easement for purposes of a private way to serve the Benefitted Property so long as the Benefitted Property is developed only for residential purposes, and is improved pursuant to the City of Albuquerque Subdivision Ordinance prior to subdivision of the Benefitted Property.

C29-200

A Portion of HIDDEN VALLEY Recorded 9-13-74 Volume D6, Page 84

AMENDED HIDDEN VALLEY PHASE II Recorded 10-22-76 Volume D-7, Page 73

AMENDED HIDDEN VALLEY PHASE IV-A Recorded 11-14-78 Volume D-9, Page 21

A Portion of HIDDEN VALLEY Recorded 9-13-74 Vol D6, Page 84

HIDDEN VALLEY COMMUNITY SERVICE

Richard B Elliott Et Ux

Tract A-A-1 Recorded 10-22-76 Vol-D7, Folio 73

40 Access Easement

20' Sanitary Sewer Easement

10' Sanitary Sewer Easement

Drainage Easement

Open Space

R.O.W.

15' Utility Esm't w/in 150' PNM Esm't.

Set #5 Rebar w/ CAP

Fnd #5 Rebar

Fnd 3/8" IP

Fnd #6 Rebar

Fnd 1/2" IP

Fnd BLM Brass Cap

P.N.M 8-4-75 B10-41

Recorded 11-19-84 Book 2264, Pages 52-53

TION R 4E

5 Ac.

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 1 OF ___
BY MG DATE 3/20/89
CHECKED _____ DATE _____

For the proposed 13 Ac. ±75 lot residential development, several drainage aspects will have to be reviewed:

1. Adequacy of Calle Coronado to carry 100 Yr - 6 Hr Storm to discharge at Arroyo

2. Adequacy of Calle Verde to carry 100 Yr - 6 Hr Storm to Calle Coronado.

3. Some rear yard ponding will be required. Volumes need to be determined

4. Swale along S. boundary needs to be sized per off-site flows intercepted.
Method necessary to get flows to Calle Verde needs to be determined. Erosion control needs to be addressed.

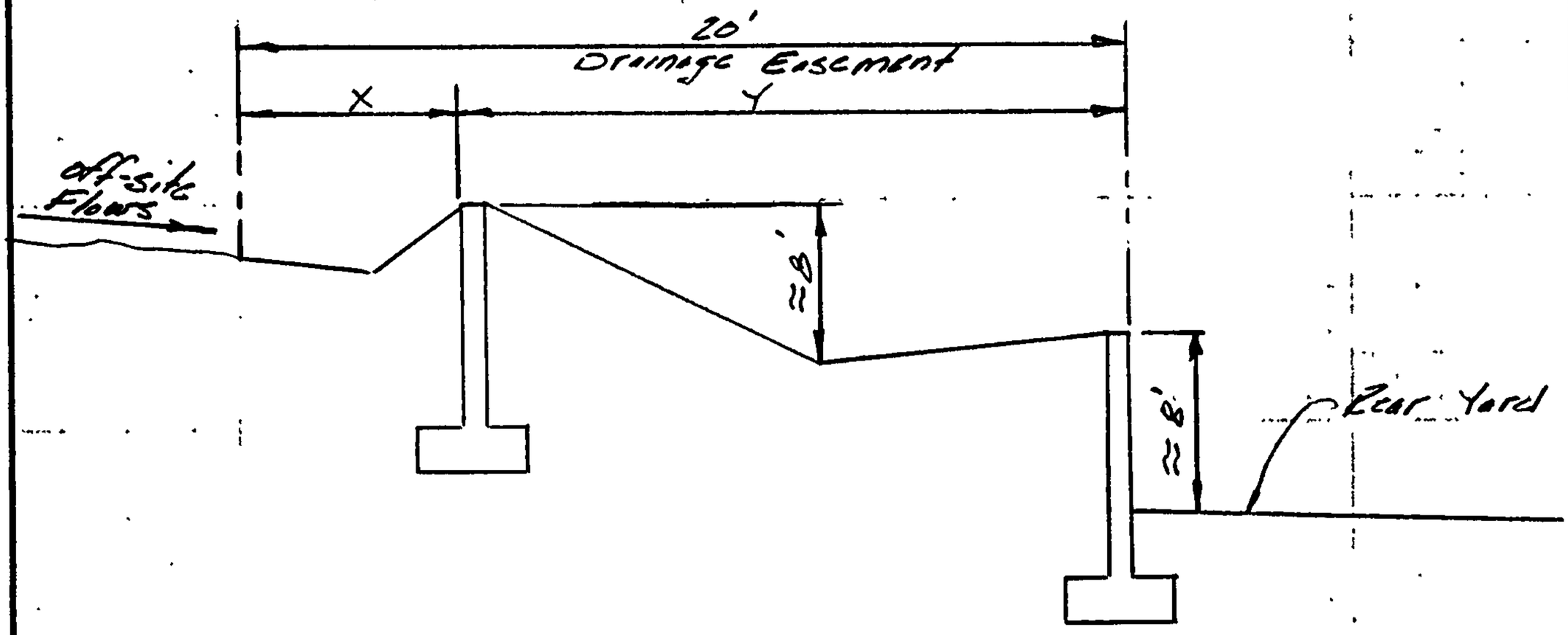
5. Swale along E. boundary needs same analysis as #4.

6. Rear Yard outlets along N. boundary need sizing then collection & conveyance to Calle Coronado thru PUM easement needs to be determined.

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 2 OF ____
BY MG DATE 3/20/89
CHECKED _____ DATE _____

First, we will size swale along S. boundary:



We need to determine average dist. x .50 we can place retaining walls. We will take largest off-site drainage area & work with it.

D.A. = 1.61 Ac. (from field review)
off-site area is residential with large lots ≃ 1/2 Ac.. Soil type is Embush = Type B ⟹ CN = 70
P = 2.5 in.

Flow is sheet flow overland:

L = 750'
ΔH = 5636 - 5620 = 16' ⟹ S = 2.13%

$$T_c = 0.0078\left(\frac{750^{.77}}{.0213^{.385}}\right) = 6 \text{ min. use } .10$$

See Runoff Calculation on next Pg.:

HYDROGRAPH COMPUTATION WORKSHEET

DATE 3/20/89
COMPUTED BY MG
CHECK BY _____

PROJECT Casitas Coronado

LOCATION South Boundary

ANALYSIS POINT # Typical off-site

(DR. AREA) A = 1.61 ACRES

T_c 10 MIN

POINT RAINFALL 2.5 IN. FROM PLATE 22.2 D-1

CN = 70 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 0.7 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 7.31 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 5 CFS

t(COLUMN)=(t/T_p) $t=T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

Vol = 4091 cu. Ft.

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1		.03	
3	.2		.10	
4	.3		.190	
5	.4		.310	
6	.5		.470	
7	.6		.660	
8	.7		.820	
9	.8		.930	
10	.9		.990	
11	1.0		1.00	
12	1.1		.990	
13	1.2		.930	
14	1.3		.860	
15	1.4		.780	
16	1.5		.680	
17	1.6		.560	
18	1.7		.460	
19	1.8		.390	
20	1.9		.330	
21	2.0		.280	
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

We will size all swales along S. Boundary for this Q: it will be slightly conservative.

PLATE 22.2 F-1

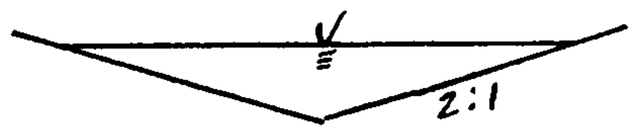
D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 4 OF ___
BY MG DATE 3/20/89
CHECKED _____ DATE _____

Design Q for S. Boundary swales = 5 cfs

≃ Slope of Swale = 2%

Earthen Swale ⟹ $n = 0.03$

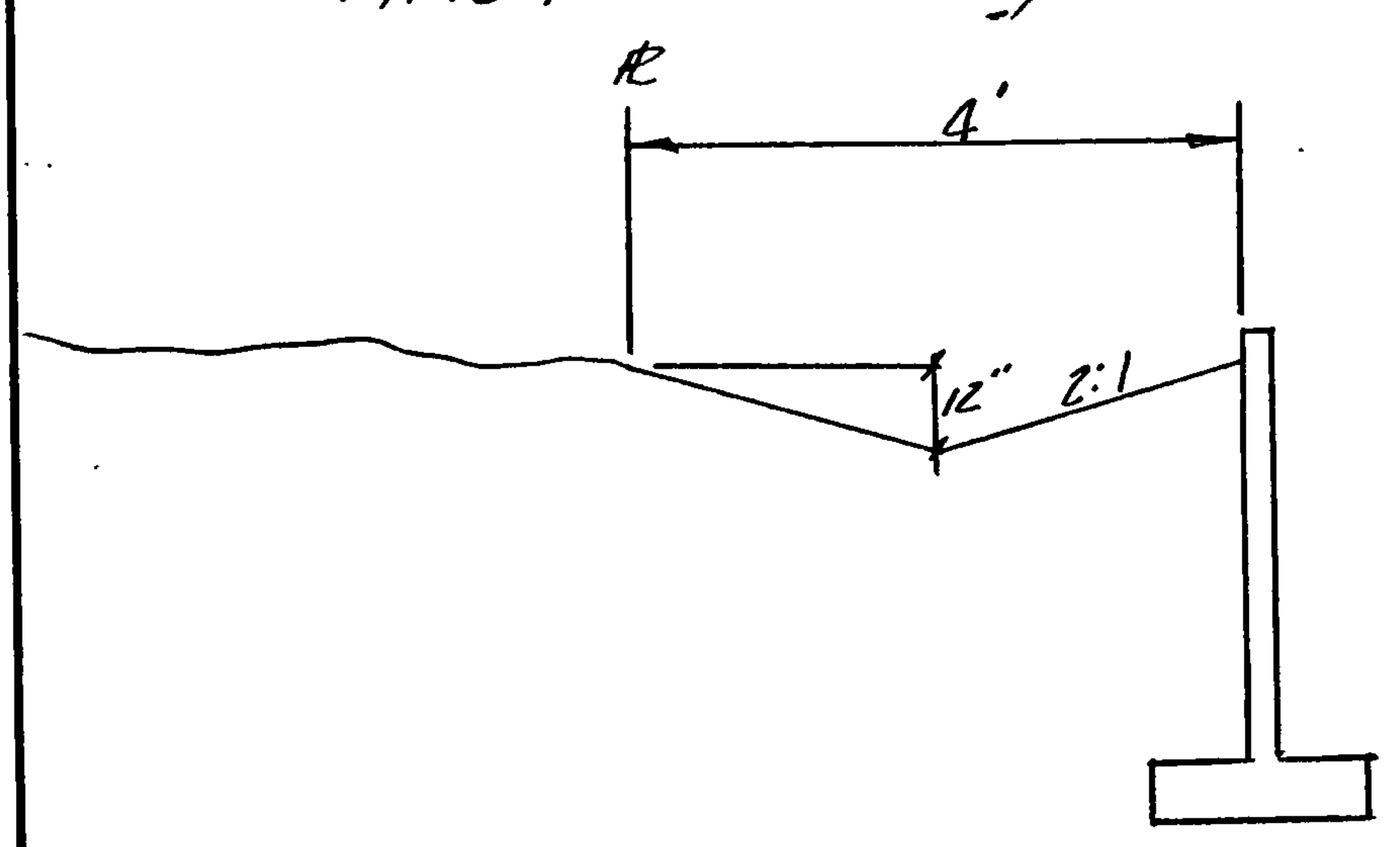


if $d = 1.0'$ ⟹ $A = 2\ \#$ $WP = 4.47'$

$$V = \frac{1.486}{.03}\left(\frac{2}{4.47}\right)^{2/3}(.02)^{1/2} = 4.10 \text{ fps}$$

$Q = 4.10(2) = 8.2$ cfs > 5 cfs ∴ Vel. is acceptable

TYPical S. Boundary Swale:



⟹ $x = 4'$ Y (dist. between Walls) $= 16'$

Where earthen swale discharges across curb into Calle Verde, we will place a 6"x18" concrete cutoff wall to prevent erosion behind curb.

Next, we wish to size swale along E. Boundary:

D.A. = 7.2 Ac.

off-site area is undeveloped. when property is developed, swale will be removed. Soil Type = B ⟶ CN = 61

Flow is sheet flow:

$L = 950'$

$\Delta H = 5660 - 5574 = 86' \Longrightarrow S = 9.05\%$

$T_c = 0.0078\left(\frac{950^{.77}}{.0905^{.385}}\right) = 4$ min. Use 10

See Runoff Calculation on Next Pg:

HYDROGRAPH COMPUTATION WORKSHEET

DATE 3/21/89
COMPUTED BY MG
CHECK BY

PROJECT Casitas Coronado

LOCATION E. Boundary

ANALYSIS POINT # off-site

(DR. AREA) A = 7.2 ACRES

T_c 10 MIN

POINT RAINFALL 2.5 IN. FROM PLATE 22.2 D-1

CN = 61 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 0.28 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_c$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 32.68 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 9 CFS

$t(COLUMN) = (t/T_p)$ $t = T_p(t/T_p)$

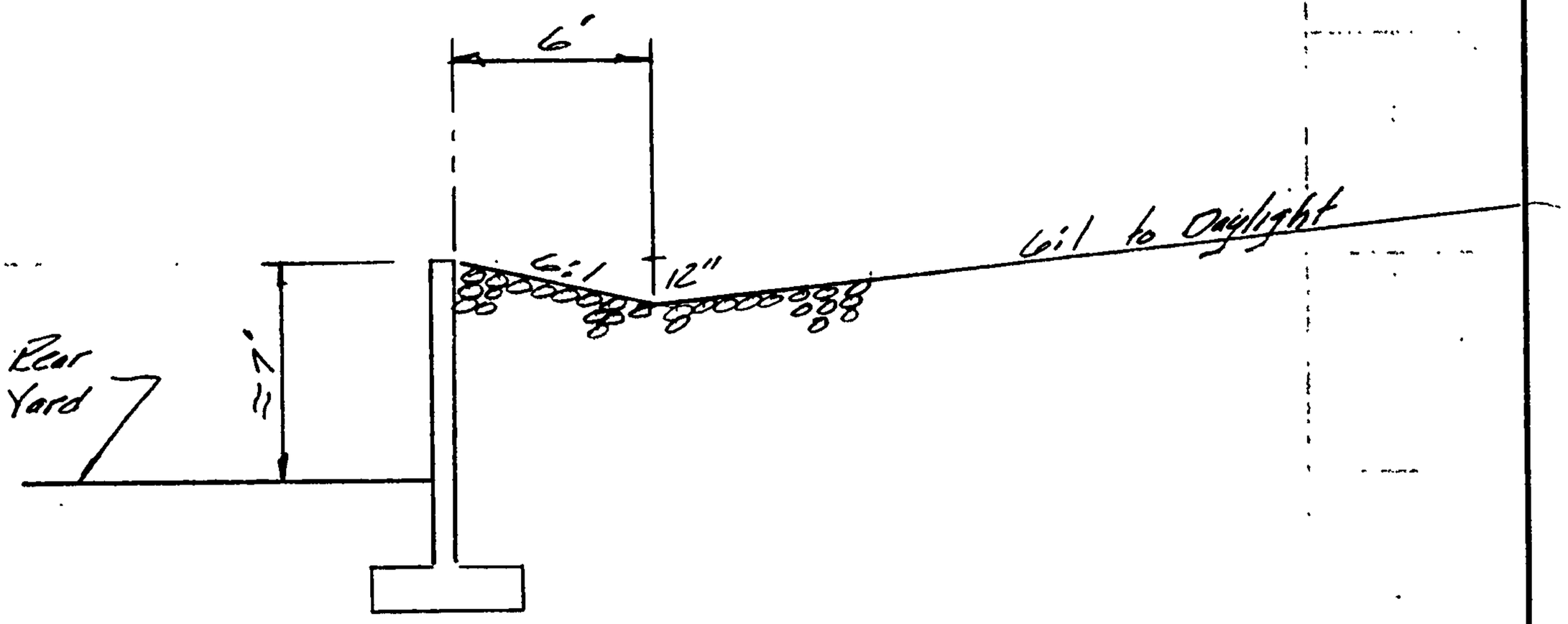
$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

Vol. = 7318 CU. FT.

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1		.03	
3	.2		.10	
4	.3		.190	
5	.4		.310	
6	.5		.470	
7	.6		.660	
8	.7		.820	
9	.8		.930	
10	.9		.990	
11	1.0		1.00	
12	1.1		.990	
13	1.2		.930	
14	1.3		.860	
15	1.4		.780	
16	1.5		.680	
17	1.6		.560	
18	1.7		.460	
19	1.8		.390	
20	1.9		.330	
21	2.0		.280	
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

Design Q for E. Boundary swale = 9 cfs
Slope of Swale = 5.25%
n = 0.04 rock lined



From Mannings ⟶ d = 0.6' V = 4 fps

This concludes the analysis for off-site flows. They will be intercepted and conveyed via the swales detailed herein.

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 2 OF ___
BY MG DATE 3/21/85
CHECKED _____ DATE _____

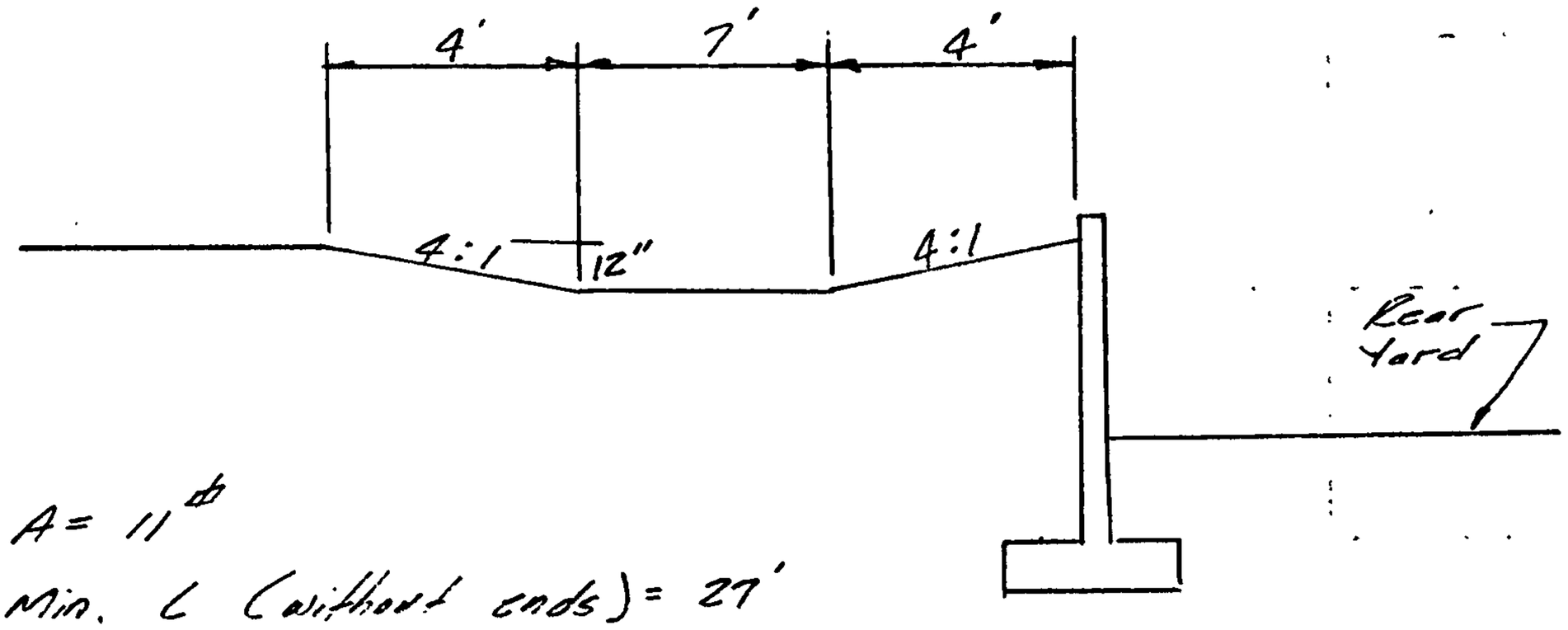
We will now size the four rear yard ponds we propose to use. For the sake of uniformity, we will take the largest Vol. required & make all ponds this size.

$$Area = \frac{105 \times 55}{2} = 0.066\ Ac$$

50% of Area is impervious
Composite CN = 85

SEE Following Page for Q & Vol. calculation:

Vol. = 290 cu. Ft.



A = 11 sq ft
Min. L (without ends) = 27'

Min. Pond = 1' x 15' x 27'

HYDROGRAPH COMPUTATION WORKSHEET

DATE 3/21/89
COMPUTED BY MG
CHECK BY _____

PROJECT Casitas Coronado

LOCATION Interior lots

ANALYSIS POINT # Typical Ponded Lot

(DR. AREA) A = .066 ACRES

T_c 10 MIN

POINT RAINFALL 2.5 IN. FROM PLATE 22.2 D-1

CN = 85 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 1.2 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. ($T_p = T_c$)
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 0.3 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 0.4 CFS

$t(COLUMN) = (t/T_p)$ $\quad t = T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $\quad Q = y(Q_{peak})$

$Vol. = \frac{1}{12}\left(\frac{43,560}{1}\right)(.066)(1.2)$

= 290 cu. Ft.

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1		.03	
3	.2		.10	
4	.3		.190	
5	.4		.310	
6	.5		.470	
7	.6		.660	
8	.7		.820	
9	.8		.930	
10	.9		.990	
11	1.0		1.00	
12	1.1		.990	
13	1.2		.930	
14	1.3		.860	
15	1.4		.780	
16	1.5		.680	
17	1.6		.560	
18	1.7		.460	
19	1.8		.390	
20	1.9		.330	
21	2.0		.280	
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 10 OF ___
BY MG DATE 3/21/89
CHECKED _____ DATE _____

We will now proceed to determine adequacy of Calle Verde & Calle Coronado.

Area draining to ponds = 1.75 Ac.

Area draining to N. Boundary = 1.55 Ac.

Total Onsite Area = 13 Ac.

Area draining to Calle Coronado = 13 - 1.75 - 1.55
= 9.7 Ac.

$L = 1400'$

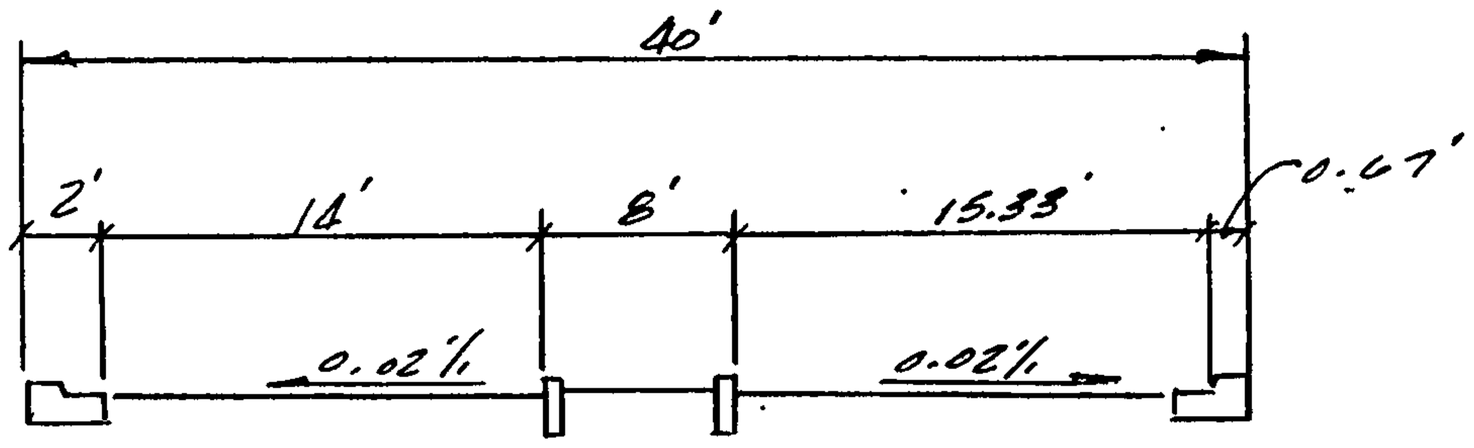
$\Delta H = 5567 - 5540 = 47' \Longrightarrow S = 3.36\%$

$T_c = 0.0078\left(\frac{1400^{.77}}{.0336^{.385}}\right) = 8$ min. Use 10

See Next Page for Runoff Calculation:

Design Q = 53 cfs

n = 0.017 S = 3.36%



HYDROGRAPH COMPUTATION WORKSHEET

DATE 5/21/89
COMPUTED BY MG
CHECK BY

PROJECT Casitas Coronado

LOCATION Total On-Site

ANALYSIS POINT # Calle Coronado

(DR. AREA) A = 9.7 ACRES

T_C 10 MIN

POINT RAINFALL 2.5 IN. FROM PLATE 22.2 D-1

CN = 85 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 1.2 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_C$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 44 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 53 CFS

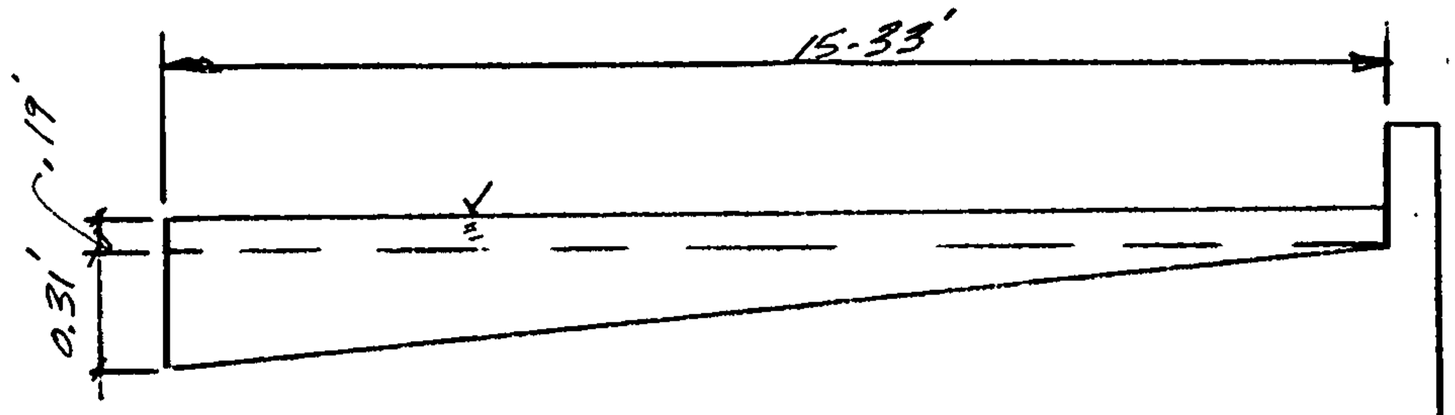
$t(COLUMN) = (t/T_p)$ $t = T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

Vol. = 42,253 CU. FT

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1		.03	
3	.2		.10	
4	.3		.190	
5	.4		.310	
6	.5		.470	
7	.6		.660	
8	.7		.820	
9	.8		.930	
10	.9		.990	
11	1.0		1.00	
12	1.1		.990	
13	1.2		.930	
14	1.3		.860	
15	1.4		.780	
16	1.5		.680	
17	1.6		.560	
18	1.7		.460	
19	1.8		.390	
20	1.9		.330	
21	2.0		.280	
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1



$$A = \tfrac{1}{2}(.31)(15.33) + 0.19(15.33) = 5.29 \text{ ft}^2$$

$$WP = 0.31 + 0.19 + 0.19 + 15.33 = 16.02'$$

$$V = \frac{1.486}{.017}\left(\frac{5.29}{16.02}\right)^{2/3}(.02)^{1/2} = 5.91 \text{ fps}$$

$$Q = AV = 31.24 \text{ cfs} \times 2 = 62 \text{ cfs} > 53 \checkmark$$

⟹ Calle Coronado Can Carry 100 Yr - 6 Hr Storm utilizing NIMSH ETO 6"x24" Type "B" Curb & Gutter.

Calle Verde has Same Section

D. MARK GOODWIN & ASSOC.
CONSULTING ENGINEERS

JOB Casitas Coronado
SUBJECT Drainage
JOB NO. _____ SHEET 13 OF ____
BY MG DATE 3/22/89
CHECKED _____ DATE _____

We now need to size swale along N. Boundary (within PWM Easement)

D.A. = 1.55 Ac.

$L = 920'$

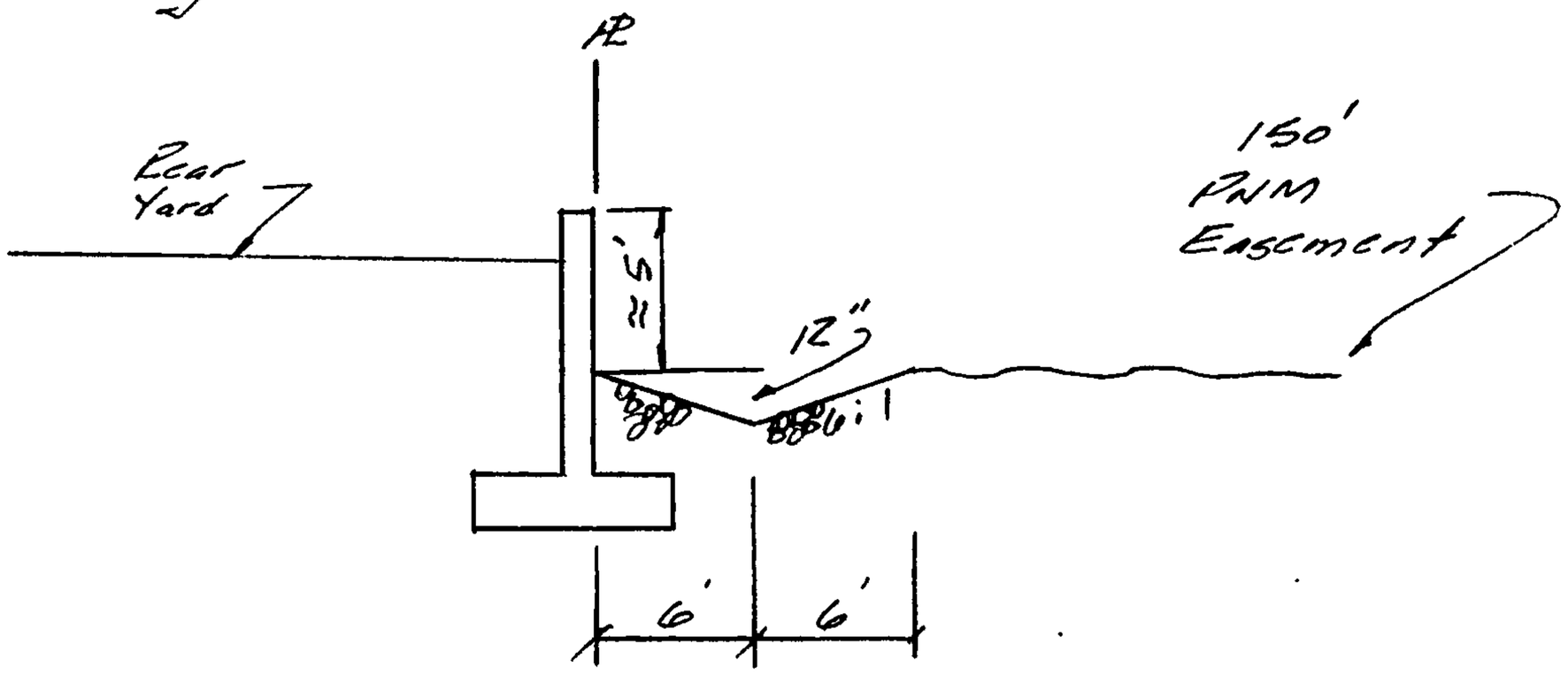
$\Delta H = 81.50 - 59.50 = 22' \longrightarrow S = 2.39\%$

$CN = 85$

$T_c = 0.0078 \left(\frac{920^{.77}}{.0239^{.385}} \right) = 6$ min. USC 10

SEE Next Pg. for Runoff Calculation

Design Q = 8 cfs



From Manning $\longrightarrow$ $Q_{max} = 29$ cfs >> 8 -

$V_{max} = 4.78$ fps -

HYDROGRAPH COMPUTATION WORKSHEET

DATE 3/22/89
COMPUTED BY MG
CHECK BY _____

PROJECT Casitas Coronado

LOCATION N Boundary

ANALYSIS POINT # @ Entrance

(DR. AREA) A = 1.55 ACRES

T_C 10 MIN

POINT RAINFALL 2.5 IN. FROM PLATE 22.2 D-1

CN = 85 FROM PLATES 22.2 C-2, 22.2 C-3

RUNOFF VOLUME R = 1.2 IN. FROM PLATE 22.2 C-4

COMPUTED T_p = 10 MIN. $T_p = T_C$
(Rounded to even minute)

$q_p = \frac{45.4A}{T_p}$ = 7.04 CFS./INCH OF RUNOFF

$(R \times q_p) = Q_{peak}$ = 8 CFS

$t(COLUMN) = (t/T_p)$ $t = T_p(t/T_p)$

$y = \frac{Q}{Q_{peak}}$ $Q = y(Q_{peak})$

Vol. = 6752 cu.Ft.

	(t/T_p)	t (min.)	y	Q (cfs)
1	0	0	0	0
2	.1		.03	
3	.2		.10	
4	.3		.190	
5	.4		.310	
6	.5		.470	
7	.6		.660	
8	.7		.820	
9	.8		.930	
10	.9		.990	
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15	1.4		.780	
16	1.5		.680	
17	1.6		.560	
18	1.7		.460	
19	1.8		.390	
20	1.9		.330	
21	2.0		.280	
22	2.2		.207	
23	2.4		.147	
24	2.6		.107	
25	2.8		.077	
26	3.0		.055	
27	3.2		.040	
28	3.4		.029	
29	3.6		.021	
30	3.8		.015	
31	4.0		.011	
32	4.5		.005	
33	5.0		.000	

PLATE 22.2 F-1

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

M-22/D10

September 6, 1994

Mark Goodwin
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

RE: GRADING CERTIFICATION FOR CASITAS CORONADO (M22-D10)

Dear Mr. Goodwin:

Based on the information provided on your May 25, 1994 submittal, the above referenced site is acceptable for Financial Guarantee release and Engineer Certification.

If I can be of further assistance, please feel free to contact me at 768-2654.

Sincerely,

Carlos Montoya, P.E.
PWD/Hydrology Division

CM/dl/WPHYD/8776

c: LyndaMichelle DeVanti
Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors
P.O BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200

M22/D

July 9, 1992

File with

Mr. Fred Aguirre
Public Works Department
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Casitas Coronado Subdivision
Comments by Mr. Cliff Anderson (AMAFCA)

Dear Mr. Aguirre:

I do not agree with Mr. Anderson's comment concerning the generation of sediment at the proposed crossing structure of Calle Coronado SE at the Hidden Valley Arroyo. Nearly 90 percent of the drainage area for the arroyo, at the point of the crossing, is within the Four Hills residential area, mostly composed of lawns, streets, roofs, golf course, and the like and does not lend much to the sedimentation process. For the remainder of the drainage area (all occurring downstream of Stage Coach Drive SE), more than a third of the remainder of the arroyo is incised into granite, and lends nothing to short-term erosion. Only the bottom 300 lf of the arroyo contributes to the sediment load during storm runoffs.

Where the arroyo crosses Four Hills Drive SE and Stage Coach Drive SE, the flows are carried through 24-inch and 30-inch culverts, respectively. Relatively high frequency flows routinely back up and pond at these two crossings, causing sheet flow over the streets. At these ponding areas, there is no evidence of excessive sediment buildup. We are providing 7 each 30-inch CMP culvert pipes for the Hidden Valley Arroyo, which will cause some small degree of ponding (HW/D=1.4) for the 100-year storm. I suspect that the occurrence of the 100-year storm might generate some requirement for sediment removal at the structure, but nothing of catastrophic proportions.

Please notify me of your opinion in this matter.

D. MARK GOODWIN & ASSOCIATES, PA

Zane M. Goodwin, PE & PS

ZMG:kaw

copy furn:
Ron Bohannon

Fred
I dont agree. There is sufficient sedimentation upstream to cause problems.
Cliff C. Anderson
AMAFCA
2/15/93

To: Fred Aguirre
Public Works - Hydrology Div.
3rd Floor.

D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200

RECEIVED
JUL 13 1992
HYDROLOGY DIV

July 9, 1992

Mr. Fred Aguirre
Public Works Department
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Revised Drainage Plan for Casitas Coronado
Review Comments by Cliff Anderson (AMAFCA)

Dear Mr. Aguirre:

Mr. Anderson has raised some interesting points in his review concerning the existing drop structure downstream of the proposed multiple culvert crossing of the Calle Coronado SE crossing of the Hidden Valley Arroyo. His concerns about potential scour and erosion around the existing drop structure are somewhat bothersome to me. The effort to address this issue is not small, requiring many engineer-hours of hydraulic calculations, and might even require use of the University of New Mexico Hydraulics Modeling Facility. The physical necessity for total excavation of the structure, including downstream appurtenances, just to see what we have, would not be insignificant.

It is worthy to note that the structure in place does not conform to official "as-built" drawings on file with the City, and interviews with a number of DPW employees would indicate that no one really knows what was built at the drop structure. Apparently, the original structure designed by Meurer, Serafini, and Meurer was later modified extensively by city crews; and no record was made of these modifications. While the circumstances of this modification are understandable, its analysis does not lend itself to routine hydraulic calculations.

I do not believe it to be the responsibility of the developer to make an analysis of the structure since the Casitas Coronado project will not exacerbate whatever problems exist at the drop structure. If the structure will not function properly to pass design flows, it seems to me that the problem properly rests with the City. This is true with or without the Casitas Coronado project.

Please notify me if your interpretation of the above is different than mine.

Sincerely,

D.MARK GOODWIN & ASSOCIATES, PA

Zane M. Goodwin, PE & PS

ZMG:kaw

copy furn:
Ron Bohannon
Cliff Anderson
CCM, Inc.; Attn: Skip Mead

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 13, 1993

Mark Goodwin, P.E.
D. Mark Goodwin & Assoc., PA
P.O. Box 90606
Albuquerque, NM 87199

RE: DRAINAGE REPORT FOR CASITAS CORONADO SUBDIVISION, (M-22/D10), ENGINEER'S STAMP DATED MARCH 31, 1993

Dear Mr. Goodwin:

Based on the information provided on the referenced submittal received April 1, 1993, the plan is acceptable for Final Plat.

Please be advised that prior to the City Engineer signing off on the Final Plat, financial guarantees should be executed with City DRC.

Also, prior to release of financial guarantees by DRC, an Engineer's Certification that the site was built in substantial compliance with the above referenced plan, must be submitted and approved by this office.

If you should have any questions, please do not hesitate to call me at 768-2650.

Cordially,

Gilbert Aldaz, P.E. & P.S.
Civil Engineer/Hydrology

xc: Lynda Michelle DeVanti, DRC
File
wp+1087

RBA

399

8969915

AGREEMENT

THIS AGREEMENT is entered into, effective this 26th day of July, 1989, in consideration of the mutual promises herein contained, by and between Hidden Valley Community Services Association, Inc., a New Mexico Non-Profit Corporation (HVCSA) and A & M, a New Mexico General Partnership, consisting of John Kochis and C. J. Mead, sole General Partners of A & M,

WHEREAS, HVCSA is the owner of the real property consisting of common area and roadways, situated in Bernalillo County, New Mexico, and known as Hidden Valley Subdivision,

WHEREAS, A & M is the owner of the real property, which is located in a generally southerly direction from the lands belonging to HVCSA,

WHEREAS, A & M has been granted access for ingress and egress and reasonable access to the tract or tracts of lands described as Casitas Coronado Subdivision, which easement falls across and upon the lands belonging to HVCSA, which easements are particularly described in that certain grant of easement of roadways, drainage and private and public utilities, a copy of which is attached as Exhibits A and B,

WHEREAS, the parties hereto have now reached an agreement with respect to specifying the exact location and description of such easement of A & M for the placement of utilities to serve A & M's property, for reasonable ingress and egress, and to provide for landscaping maintenance of such easement, and do now desire to set forth specifically the terms of their agreement in writing, and

NOW, THEREFORE, in consideration of the mutual covenants and conditions contained herein, the parties do covenant and agree as follows:

1. A & M hereby releases to HVCSA, including the members of HVCSA, their heirs and assigns, any and all right, title, and interest in and to the existing easement established by the language of the Deed dated February 16, 1976, recorded in volume 977, pages 104 - 106, records of Bernalillo County, as above noted, and agree that the same may be extinguished.

2. HVCSA grants to A & M, its successors and assigns, the following easements for the placement of utilities and for ingress and egress to the lands of A & M, as the same are described and are specifically hereinafter detailed:

> Easement 1 - Roadways, drainage, private and public utilities, as described in Exhibit A, attached.
>
> Easement 2 - Drainage, private and public utilities, as described in Exhibit B, attached.

The easements granted herein are subject to the rights and obligations heretofore granted to John Findlay, Margaret F. Findlay and Berchman H. Savoie, by Agreement dated September 9, 1986, and recorded in volume MS-489A, pages 319 - 326, which easements and the obligations herein assumed shall be pertinent to and will run with the lands belonging to A & M, which are all of those lands contained in Casitas Coronado Subdivision, located in Section 34, T.10N, R4E, NMPM.

3. As further consideration for the release of the existing easement and grant of the easements above described, A & M further agrees as follows:

(a) A & M, at such time as any portion of the paving is done within such Casitas Coronado Subdivision, will cause a one (1) inch paving mat to be placed on the roadway leading westerly from the intersection of the new fifty (50) foot easement described in Exhibit A with the access road through Hidden Valley, extending in a westerly direction for a distance of approximately one thousand three hundred and fifty (1350) feet to the western boundary of Hidden Valley Phase IV, which paving will be twelve (12) feet in width. Such one (1) inch mat shall be placed upon a six (6) inch subgrade which has been compacted ninety five percent (95%) in accordance with ASTM specifications.

(b) A & M shall pave that portion of the roadway easement granted in Exhibit A for the distance from Hidden Valley Drive southwesterly to the entrance to Casitas Coronado, which paving shall be of a quality and character no less adequate than that presently employed by HVCSA on Hidden Valley Drive.

(c) A & M, its successors and assigns, assume and agree to assist in the maintenance of the roadway from Four Hills Road to the intersection between Hidden Valley Drive and the entrance to Casitas Coronado Subdivision, and will participate in such maintenance with HVCSA on a formula of shared cost and labor, upon a ratio determined by computing the total number of home owners in Casitas Coronado Subdivision, as they bear to the total

number of home owners in Hidden Valley, as computed on the 1st day of each year. This ratio shall continue throughout the calendar year and shall apply to all maintenance, repair, replacement expenses and costs of such roadway.

(d) A & M, its successors and assigns shall deliver to HVCSA, prior to commencement of the improvement upon the easement herein granted in Exhibit A, or upon property belonging to HVCSA, a financial guaranty in an amount determined by the construction costs of the contractor performing the work, which guaranty shall be in the form of a bond or a letter of credit, and shall be limited only to those improvements to be done on such easement or lands belonging to HVCSA.

(e) A & M shall landscape the easement described in Exhibit A, and a twenty (20) foot strip on each side of the easement, as it relates to the final landscaping plan. Upon failure of A & M or its successors to maintain such landscaping, Hidden Valley may do such maintenance and shall have the option to recover such expense from A & M or its successors.

(f) A & M, its successors and assigns, shall submit all plans for landscaping of the area involving properties belonging to HVCSA or of the easement described in (e), supra, for comments and approval within thirty (30) days prior to commencement of such landscaping.

4. The parties agree that the repair, maintenance and upkeep of the private ingress and egress easement herein conveyed, as described in Exhibit A, once such road is constructed as herein provided and the lands which are the subject of such private easement, shall be the responsibility of

A & M, its successors and assigns.

5. The parties further agree that there shall be no parking permitted upon such private easement.

6. In development of lands belonging to or under the control of A & M, A & M agrees to install an adequate surface water drainage system conforming to generally accepted engineering standards.

7. The parties agree that should any party not perform any obligation incumbent upon that party, then, after reasonable notice and demand thereof having been given, and upon failure of the defaulting party to cure, the party effected by such failure may, at its option, perform such obligation and thereafter seek and obtain reimbursement from such party defaulting upon the said obligation. The parties agree that any controversy arising under the terms of this agreement shall be settled by arbitration and in furtherance thereof any party or its assigns or grantees may petition the presiding judge of the District Court for Bernalillo County, New Mexico, for the appointment of a single arbitrator, whose judgment shall be binding upon the parties to such arbitration, and upon petition to the District Court such award shall become a final judgment with respect to that controversy in accordance with the Arbitration Laws of the State of New Mexico, provided, however, that the parties to such arbitration shall not thereby have waived any rights under the laws of the State of New Mexico with regard to arbitration or appeals therefrom. In any such action the prevailing party shall recover its costs of

arbitration, including reasonable attorney fees. In any action where the parties have waived, by consent or otherwise, recourse arbitration in accordance with this paragraph 7 the Laws of the State of New Mexico shall govern the interpretation of the terms of this Agreement.

8. A & M covenants and agrees that it will cause to be established a non-profit corporation similar to that of HVCSA, consisting only of members who are owners of lots in Casitas Coronado Subdivision and does further agree to assign to it all of the rights, duties and obligations granted or assumed by it in this Agreement, so that after all of such lots have been sold by A & M, such homeowners corporation shall have assumed by resolution all of the duties, obligations and responsibilities herein set forth and assumed by A & M. Upon proper establishment of such homeowners association and the adoption of a resolution assuming all of such duties and responsibilities herein imposed or assumed, A & M shall be released from any further liability or responsibility under this Agreement.

9. This Agreement constitutes the entire agreement between the parties herein and merges herein all prior agreements and understandings of the parties hereto regarding the matters herein addressed. This Agreement may not be modified or terminated, in whole or in part, except by the written consent of the parties hereto, their successors or assigns, duly executed and acknowledged.

10. For purpose of such notice as may be required herein and for any other purpose of this Agreement such notice and communication shall be effected by placing such in the United

States Mail, postage pre-paid, addressed to the party as follows:

Hidden Valley Community Services Association, Inc.
605 Green Valley Drive, SE
Albuquerque, New Mexico 87123

A & M
8019 Edith, NE
Albuquerque, New Mexico 87113

Any change of the addresses listed above, which Notice or other communication shall be effective, shall be the responsibility of the party whose address has so changed. In the absence of any such written notice of change, correspondence addressed to the party at the address as given, as provided herein, shall be effective for the purpose of this Agreement.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at Albuquerque, New Mexico this 26th day of July, 1989.

HIDDEN VALLEY COMMUNITY
SERVICES ASSOCIATION, INC.

David Boone
By: DAVID BOONE, President

A & M

By: C. J. MEAD, General Partner

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

BEFORE ME, a Notary Public for the State of New Mexico, personally appeared David Boone, President of Hidden Valley Community Services Association, a New Mexico Non-Profit Corporation, and C. J. Mead, General Partner of A & M, a New Mexico General Partnership, who did execute the foregoing Agreement and did acknowledge the same to be their own free act and deed, and pursuant to authority granted.

Done at Albuquerque, New Mexico this 26th day of July, 1989.

My Commission Expires:

3/31/91

Frank K. Dwyer
NOTARY PUBLIC

GRANT OF EASEMENT

FOR

PRIVATE ROADWAY, DRAINAGE, PRIVATE AND PUBLIC UTILITIES

THIS INDENTURE made and executed this 26th day of July, 1989, by and between HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC., a a New Mexico Non-Profit Corporation in the County of Bernalillo and State of New Mexico, hereinafter called the Grantors, and A & M a a New Mexico General Partnership, hereinafter called Grantee.

WITNESSETH, that for good and valuable consideration, the receipt of which is hereby acknowledged, the Grantors have this day bargained and sold and by these presents do sell, convey and deliver unto the Grantee, a permanent easement as right-of-way including the permanent right to enter upon the real estate hereinafter described at any time it may see fit and construct, maintain and repair a road, drainage improvements, and private and public utilities across, through, and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said road, drainage improvements and utilities.

The land affected by the grant of this easement and right-of-way is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows:

A certain parcel of land located in Bernalillo County, New Mexico, being within Section 27, Township 10 North, Range 4 East of the NMPM. Being a portion of "HIDDEN VALLEY SOUTH", as filed in the Office of the County Clerk of Bernalillo County, New Mexico on March 26, 1986 in Book C-29, Page 200. The parcel being described lies within areas designated as PRIVATE INGRESS - EGRESS EASEMENT, 150' PNM easement, Drainage R.O.W., or Open Space. The parcel being described is a strip of land 50 feet in width (having a 50' radius fillet at the Northeast corner) and is described by metes and bounds as follows:

Beginning at the Southeast corner of the parcel (from whence the corner common to Sections 26, 27, 34, and 35, Township 10 North, Range 4 East of the NMPM bears S 89 03' 04" E, 462.94 feet; THE BEARINGS USED HEREON ARE NEW MEXICO STATE PLACE COORDINATE SYSTEM GRID AND ARE ROTATED 0 DEG 11' 06" CLOCKWISE FROM THE RECORD PLAT REFERENCED ABOVE);

thence N 89 03' 04" W, 59.97' to a point;
thence N 34 27' 36" E, 160.13' to a point of curvature;
thence 104.80 feet along a curve concave to the Southeast (Radius = 325.00', Delta = 18 28' 30", Chord = N 43 41' 51" E 104.34') to a point of tangency;
thence N 52 56' 06" E, 83.84' to the Northwest corner'
thence S 37 03' 54" E; 78.64' along the Southerly line of HIDDEN VALLEY DRIVE to a point of curvature;

EXHIBIT No. A

thence 17.81 feet along the Southerly line of HIDDEN VALLEY DRIVE being a curve concave to the Northeast (Radius = 250.00', Delta = 04 04' 56", Chord = S 39 06' 22" E, 17.81') to the Northeast corner;
thence 74.98 feet along a curve concave to the South (Radius 50.00', Delta = 85 55' 04", Chord = N 84 06' 22" W 68.15') to a point of tangency;
thence S 52 56' 06" W, 34.60' to a point of curvature;
thence 88.67 feet along a curve concave to the Southeast (Radius 275.00', Delta = 18 28' 30", Chord = S 43 41' 51" W 88.29') to a point of tangency;
thence S 34 27' 36" W, 127.03' to the Southeast corner and point of beginning containing 0.38366 acres (16,712.4 square feet) more or less.

TO HAVE AND TO HOLD the said right and easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use as a right-of-way for aforesaid road, drainage improvements, and utilities.

The Grantors do hereby convenant with Grantee that they are lawfully seized and possessed of the real estate above described and that they have a good and lawful right to convey it or any part thereof, that it is free from all encumbrances except those of record and taxes due and owing the Treasurer of Bernalillo County and that they will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

As a part of the consideration for this grant, the Grantors do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless for any and all liability that may arise as a result of the construction and use of easement for the purposes set forth.

IN WITNESS WHEREOF, the parties have set their hands and seals this 26th day of July, 1989.

David Boone, President

DAVID BOONE, President
Hidden Valley Community Services Association, Inc.

C. J. MEAD, General Parnter
A & M, a New Mexico General Partnership

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

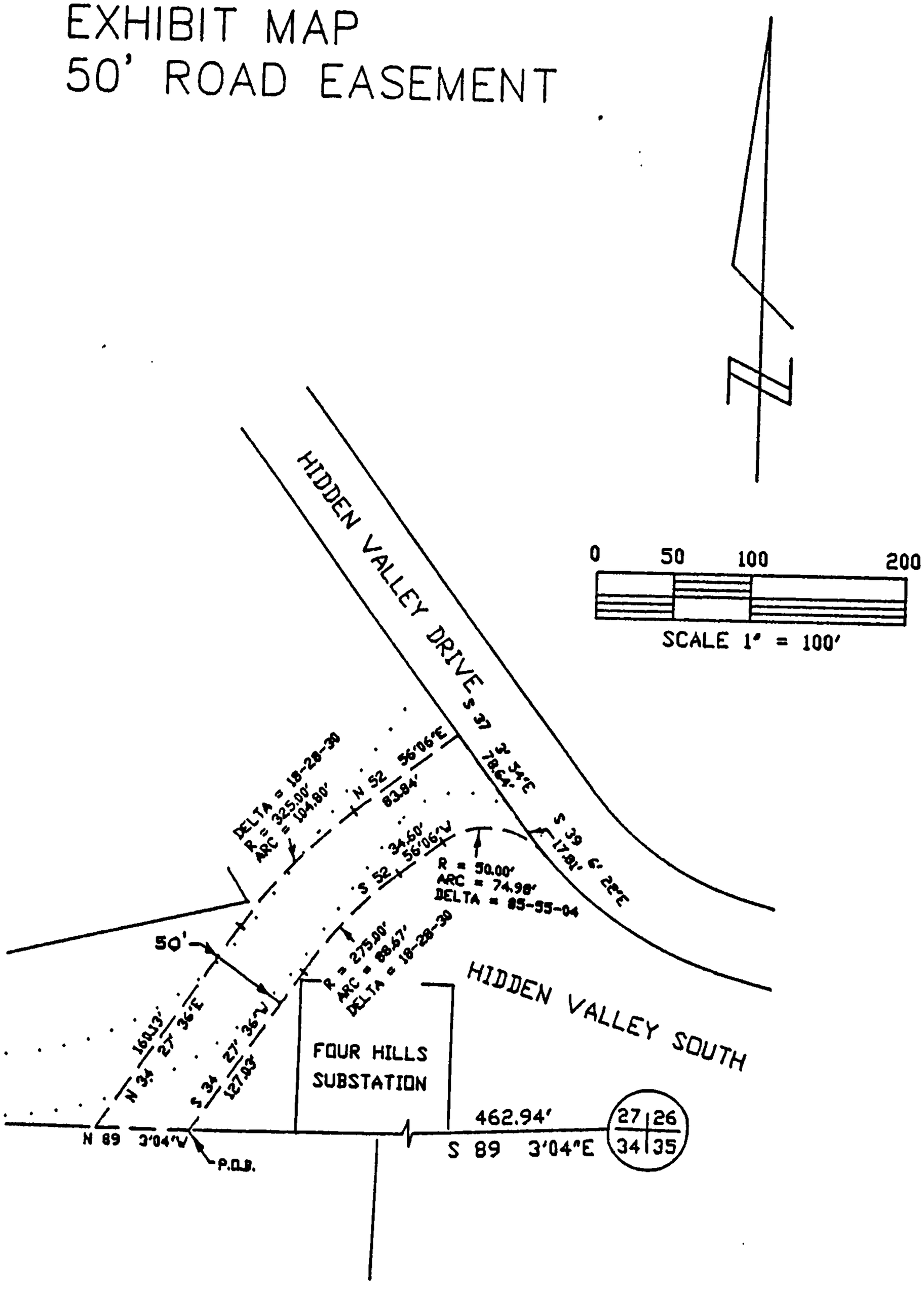
The foregoing instrument was acknowledged before me on this

DAVID BOONE and C. J. MEAD

Notary Public

My Commission Expires:
10-29-91

EXHIBIT MAP
50' ROAD EASEMENT



GRANT OF EASEMENT

FOR

DRAINAGE, PRIVATE AND PUBLIC UTILITIES

THIS INDENTURE made and executed this 26th day of July, 1989, by and between HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC., a New Mexico Non-Profit Corporation in the County of Bernalillo and State of New Mexico, hereinafter called the Grantors, and A & M a New Mexico General Partnership, hereinafter called Grantee.

WITNESSETH, that for good and valuable consideration, the receipt of which is hereby acknowledged, the Grantors have this day bargained and sold and by these presents do sell, convey and deliver unto the Grantee, a permanent easement as right-of-way including the permanent right to enter upon the real estate hereinafter described at any time it may see fit and construct, maintain and repair drainage improvements and private and public utilities across, through, and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said drainage improvements and utilities.

The land affected by the grant of this easement and right-of-way is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows:

A certain tract of land lcoated in Bernalillo County, New Mexico, being within Section 27, Township 10 North, Range 4 East of the NMPM. Being a portion of "HIDDEN VALLEY SOUTH", as filed in the Office of the County Clerk of Bernalillo County, New Mexico on March 26, 1986 in Book C-29, Page 200. The parcel being described lies within the PRIVATE INGRESS - EGRESS EASEMENT, or within the 150' PNM easement. Being further described by metes and bounds as follows:

Beginning at the Southeast corner of the parcel (from whence the corner common to Sections 26, 27, 34, and 35, Township 10 North, Range 4 East of the NMPM bears S 88° 29' 50" E, 517.10 feet; THE BEARINGS USED HEREON ARE NEW MEXICO STATE PLANE COORDINATE SYSTEM GRID AND ARE ROTATED 0 DEG 11' 06" CLOCKWISE FROM THE RECORD PLAT REFERENCED ABOVE);

thence N 89° 03' 04" W, 1338.12 feet to the Southwest corner;
thence N 12° 30' 04" W, 30.85 feet to the Northwest corner;
thence S 89° 03' 04" E, 1341.18 feet to a point;
thence N 34° 27' 36" E, 131.67 feet to a point;
thence N 76° 46' 56" E, 29.70 feet to the Northeast corner;
thence S 34° 27' 36" W, 176.37 feet to the Southeast corner and point of beginning containing 0.9934 acres (43,274.3 square feet) more or less.

TO HAVE AND TO HOLD the said right and easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use as a right-of-way for aforesaid utilities.

EXHIBIT No. B

The Grantors do hereby convenant with Grantee that they are lawfully seized and possessed of the real estate above described and that they have a good and lawful right to convey it or any part thereof, that it is free from all encumbrances except those of record and taxes due and owing the Treasurer of Bernalillo County and that they will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

As a part of the consideration for this grant, the Grantors do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless for any and all liability that may arise as a result of the construction and use of easement for the purposes set forth.

IN WITNESS WHEREOF, the parties have set their hands and seals this 26th day of July, 1989.

David Boone President

DAVID BOONE, President
HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC.

C. J. MEAD, General Partner
A & M, a New Mexico General Partnership

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 26th day of July, 1989, by David Boone and C. J. Mead.

Notary Public

My Commission Expires:

10-29-91

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

89 AUG 11 AM 10:47

MS78A 399-411

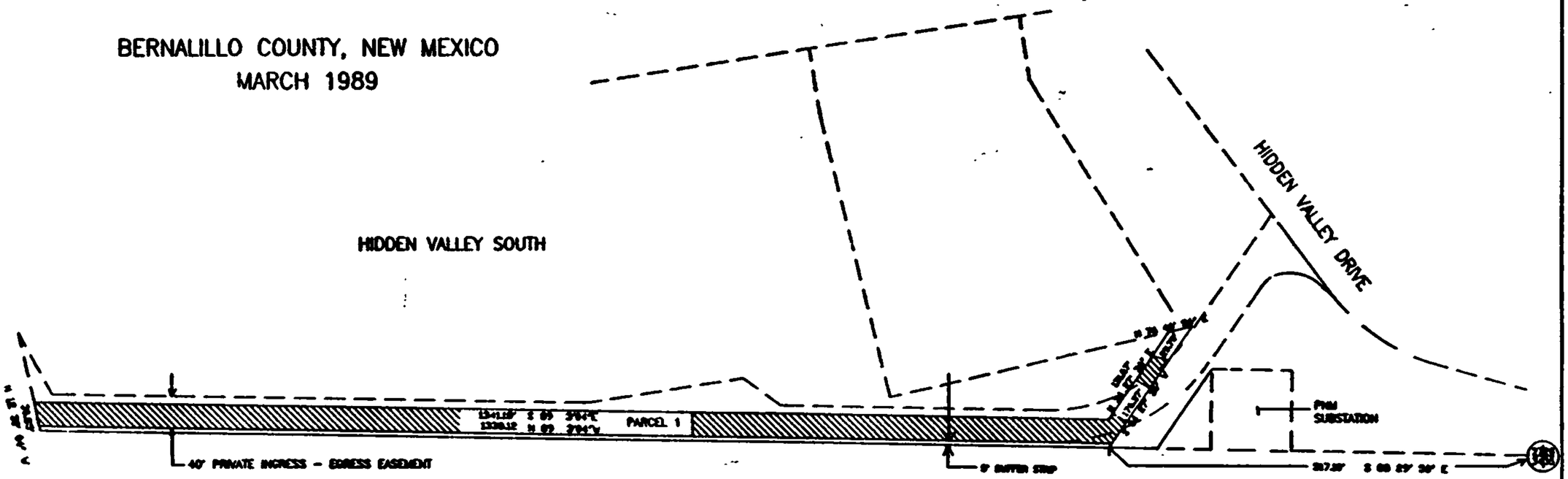
GLADYS M. DAVIS
COUNTY CLERK & RECORDER

P. NELSON

EXHIBIT MAP SHOWING

EASEMENTS TO SERVE CASITAS CORONADO SUBDIVISION

BERNALILLO COUNTY, NEW MEXICO
MARCH 1989



CASITAS CORONADO SUBDIVISION

DL HD 04/28/89 A89076	LYNN ENGINEERING & SURVEYING, INC. 22 CHUCKLE LANE LOS LUNAS, NEW MEXICO 87031 (505) 865-3548

411

D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200

November 15, 1993

Mr. Fred Aguirre
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87199

Re: Casitas Coronado Subdivision; File N-22/D-10

Dear Mr. Aguirre:

As a Registered Professional Engineer in the State of New Mexico (No. 8948), I hereby certify that the following drainage improvements have been made at the referenced project:

1. A temporary diversion berm has been placed such that all runoff generated on-site will be directed to the Hidden Valley Arroyo.

2. All of the underground storm drain is in place such that the off-site flows from Stagecoach Road are now collected and conveyed directly to the Hidden Valley Arroyo in lieu of flowing overland through this project.

3. The existing ponding area adjacent to Ranch Road has been cleaned and re-shaped.

4. The outlet from the existing ponding area cited in 3 has been cleaned and is now functioning.

I further certify that downstream properties are now protected and flood-proofed against flows generated by this site. Subsequent to the improvements cited herein, a substantial rainstorm occurred the evening of 11/11/93, and the system performed as expected.

This letter also serves to commit the Owner, Mr. C.J. Mead, to be responsible for the up-keep and maintenance of said improvements until such time as the project is accepted by the City of Albuquerque.

Please contact our office if you have any further concerns.

Sincerely,

MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin, P.E.

DMG:smr

NOV 15 1993

R. WARD HUNNICUTT, CHAIRMAN
PAT D. HIGDON, VICE-CHAIRMAN
REX FUNK, SECRETARY-TREASURER
DANIEL W. COOK, DIRECTOR
RONALD D. BROWN, DIRECTOR

LARRY A. BLAIR
EXECUTIVE ENGINEER

Alb rque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N E · ALBUQUERQUE, N M 87107
TELEPHONE (505) 884-2215

June 22, 1989

Fred Aguirre, Hydrologist
Public Works Department
City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103

RECEIVED
JUN 2 ? 1989
HYDROLOGY SECTION

RE: Drainage Report for Casitas Coronado
(DRB-89-113, S-89-11, SU-89-23, CP-89-1, AX-89-1, 2-89-6, Zone Atlas M-22) M22/D10

Dear Fred:

Thank you for providing AMAFCA with a copy of the drainage report for Casitas Coronado Subdivision and for touring the project area with me. Based on our review of the drainage report and the site visit, we have the following comments:

A. This plan appears to call for the diversion of flow to the Hidden Valley Channel which does not currently reach the channel. It appears that approximately 16.9 acres of drainage is being diverted. Therefore, a joint AMAFCA and City concurrence is required for this plan.

B. AMAFCA maintains the Hidden Valley Channel north of Hidden Valley Drive and the City of Albuquerque maintains 450 feet of channel south of Hidden Valley Drive. Both of these sections are earth lined. The City maintained portion appears to be experiencing some severe bank erosion under existing conditions. It appears doubtful that the Hidden Valley Channel can safely carry free discharge from Casitas Coronado Subdivision without substantial improvements downstream, including improvements in the AMAFCA maintained section. We do not object to the use of the Hidden Valley Channel as an outlet for this subdivision, provided that an analysis of the channel shows that the flows can be safely carried under current design criteria. The drainage report provided to us does not contain such an analysis.

C. We are concerned about the rundown structure located near Station 4+00 of the Hidden Valley Channel, and downstream of the proposed entrance road to Casitas Coronado Subdivision. It appears that the western edge of the rundown structure has washed out recently. The rundown is now concrete lined and the

gabion energy dissipators are no longer in place. It would appear that there are existing problems with the structure which could be aggravated by the introduction of additional flows. It would also appear to be appropriate to check the structural stability of the rundown to determine if the traffic volume for the entrance road would damage the structure or cause a local road failure.

D. 100-year flood water from the drainage basin upstream of the Hidden Valley Channel crosses over the proposed access road to Casitas Coronado. There are no culverts to carry flows under the road. Is an all weather crossing required at this site?

A similar dip section crossing occurs at Hidden Valley Drive on the Hidden Valley Channel. Will the additional flows generated by Casitas Coronado Subdivision create additional access problems and hazards for Hidden Valley Subdivision?

E. It appears that additional platting or easements north of Casitas Coronado will be required for the proposed entrance road and drainage to the Hidden Valley Channel. We note that the ingress-egress easement shown on the plat filed in Volume C29 Folio 200, in the vicinity of the proposed entrance road, appears to have been created to only benefit the property north of Casitas Coronado.

F. The drainage report proposes earth lined swales with 2:1 side slopes and 4 fps velocities. This does not appear to be consistent with DPM criteria or SCS earth channel design criteria. Section A of the Grading Plan (Sheet 2) shows a "1:1" slope. Is this acceptable per DPM and Uniform Building Code standards? If rock lining is to be used to stabilize channels, the channels should be designed in accordance with AMAFCA's "Design Guide for Riprap Lined Flood Control Channels." Granular filter bedding should be included with the riprap. Channel freeboard should follow DPM criteria.

I anticipate that the City of Albuquerque will have additional comments concerning the hydrology procedures used in the drainage report and on specific site drainage issues.

Sincerely,

Clifford E. Anderson, PE & LS
Drainage Engineer

cc: Mark Goodwin, Mark Goodwin & Associates
Ronald Bohannan, Tierra West Development Mgmt. Services
Thomas Krupiak, 8019 Edith NE Albuquerque, NM 87113

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

June 22, 1989

RECEIVED
JUN 26 1989
HYDROLOGY SECTION

Mr. Stewart Reeder
Public Works Department
Hydrology Section
CITY OF ALBUQUERQUE
PO Box 1293
Albuquerque, NM 87103

Re: Casitas Coronado Subdivision: Project No. 3812
M22/D10

Dear Mr. Reeder:

Per your telephone comments to us and DRB comments, we have revised the Grading Plan, and offer the following revisions to the Drainage Report for the referenced project.

1. The peak rates of runoff utilized in swale sizing and capacity verifications were recalculated utilizing the Rational Method as requested. These calculations are attached for your review. You will note that the drainage swales and street typical sections as originally proposed are adequate to carry these flows.

2. As agreed to at the DRB, the rear yard ponds will be allowed, but encompassed within drainage easements. The revised plat reflects these easements. In addition, downstream emergency outlets in the form of wall openings will be provided as shown on the detail sheet of this submittal.

NO

This should resolve the concerns that you voiced to us. In addition, the following items have been detailed further, or will be included in the plan set for DRC approval based upon comments from other departments with the City:

1. An all weather crossing will be constructed where Calle Coronado crosses the Hidden Valley channel as dictated by Traffic. The crossing will pass a design Q = 350 cfs as calculated by MSM in their design of the channel. We propose to pass the design flow rate via seven 30" CMP beneath the driving surface. This structure will be detailed to the satisfaction of the DRC.

2. A rip-rap channel will be placed adjacent to lot 75 to replace an existing channel at this location. We feel that the original intent was to provide for a controlled overflow from Stagecoach Road, but we cannot find any record of this. We feel that it is prudent to replace it in kind.

3. We have added more detail concerning rip-rap linings and discharge points for added clarity.

We feel that all concerns and details have now been addressed. We request final approval of this plan at your earliest convenience and Rough Grading approval.

We appreciate your efforts concerning this project, and if you have further questions, please call us.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

Enclosures

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 21307, ALBUQUERQUE, NM 87154
(505) 265-0905

RECEIVED
JUN 30 1989
HYDROLOGY SECTION

FILE
M-22/D10

RECEIVED
JUL 03 1989
HYDROLOGY SECTION

July 3, 1989

Mr. Clifford Anderson
ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY
2600 Prospect NE
Albuquerque, NM 87107

Re: Casitas Coronado Subdivision: DRB 89-113

Dear Mr. Anderson:

Thank you for meeting with Mr. Stewart Reeder of the City of Albuquerque and me concerning the referenced project. As you are aware, the meeting was held in order to resolve the concerns raised in your letter of June 22, 1989. As discussed at this meeting, we offer the following comments and/or solutions:

1. We agree that joint concurrence by AMAFCA and the City is required. We will therefore resolve any questions from either Agency.

2. Our hydraulic analysis indicates that the capacity of the Hidden Valley channel is on the order of 1,800 cfs depending on the slope of the reach in question. Review of several Drainage Reports on file with the City indicates peak rates of runoff of 350 cfs for the City owned portion, and 474 cfs for the AMAFCA owned section. The Casitas Coronado Subdivision will increase the peak rate by 34 cfs upon completion. This is a 10% increase for the City owned section and a 7% increase for the AMAFCA section. We feel very strongly that this increase does not warrant substantial improvements to the existing channel, and should certainly justify direct discharge from this project. The 34 cfs increase will not have an adverse impact on the channel, nor should it require an increase in the maintenance effort.

3. As we discussed in our meeting, minor channel and structure repair is appropriate in the City owned portion. We have already detailed this. We do not feel that any action should be taken in AMAFCA's portion, nor do we feel that the Hidden Valley Home Owners Association would be too pleased. We do agree that ultimately an all weather crossing needs to be placed on Hidden Valley Drive, but it is not appropriate to burden our client with this in light of the small contributory flows from his development. This structure should be the responsibility of Hidden Valley, or placed in a Special Assessment District.

4. An all weather crossing will be placed upstream of the existing drop structure in an easement granted by the Home Owners Association. This crossing will improve the current situation in that it will confine the runoff to the drop. Furthermore, due to the subdivision grading scheme, we will be reducing the flows upstream of the crossing. The crossing structure is designed for a peak flow = 350 cfs as determined in a previous report and on file at the City.

5. We agree that the small swales need to be designed according to AMAFCA and DPM standards. We request that these be approved prior to the Work Order release at the DRC level and your concurrence.

This project goes back before the DRB on July 11, 1989 and as such, we would greatly appreciate your concurrence with this discussion so that we may gain Preliminary Plat approval at that time. We feel that all of your concerns have been addressed to your satisfaction, however should you have other questions or comments, please contact me.

Sincerely,

D. MARK GOODWIN AND ASSOCIATES, P.A.

Mark Goodwin

Mark Goodwin, P.E.

DMG/mbs

xc: Stewart Reeder, COA
Ron Bohannan, Tierra West

8989378

342

FIRST AMENDMENT TO
RESTRICTIVE COVENANTS
FOR CASITAS CORONADO SUBDIVISION

RECEIVED
OCT 16 1989
HYDROLOGY SECTION

WHEREAS, A & M PARTNERSHIP, is the owner of that certain subdivision known as CASITAS CORONADO SUBDIVISION, located in the County of Bernalillo, State of New Mexico, according to that certain plat recorded in Book No. C-38 at Page No. 171 of the records of the County Clerk of Bernalillo County, New Mexico, and bearing the recording date of March 21, 1989; and

WHEREAS, said owners, pursuant to a general plan for the mutual benefit, protection and enjoyment of all the property owners in CASITAS CORONADO SUBDIVISION and for the mutual benefit, protection and enjoyment of prospective purchasers of lots in said subdivision, desire to place thereon certain restrictive covenants as to the use and occupancy of all of the lots in said subdivision, and shall be included in full or by reference in all deeds or real estate contracts thereto:

NOW THEREFORE, said owner does hereby impose the following restrictive covenants to run with the land:

1. LAND USE AND BUILDING TYPE:

No building or structure of any kind shall be erected, placed, altered, or permitted to remain on any lot except a detached single family dwelling including a private two car (minimum) garage, which shall be used as a private residence only. The permitted dwelling to be located on the conveyed premises shall be in the style or form or appearance approved by the Architectural Control Committee and must be of the same architectural style.

2. FLOOR AREA:

No dwelling shall be more than one story except on certain designated lots, which may require splits to be constructed in the dwelling, for grading purposes. For such designated lots, the south elevation shall be no more than one story. In all dwellings, the floor area of the main structure, exclusive of terraces, porches and garages, shall not be less than 1,400 square feet.

3. BUILDING LOCATION:

Placement: No building shall be located on any lot nearer than 20 feet to the front lot line, nor nearer than 5 feet to any side lot line or 15 feet to any rear lot line. For the purpose of this covenant, eaves, steps and open porches shall not be considered as part of a building.

4. ARCHITECTURAL CONTROL COMMITTEE:

An Architectural Control Committee (hereinafter called Committee) is hereby established, consisting of Thomas W. Krupiak, Thomas W. Krupiak, Jr. and Daniel S. Krupiak. A majority of the Committee may designate a representative to act for it. Each initial member shall serve for a term of three (3) years and shall not be removed during such initial term, except for just cause. In the event of death or resignation of any member of the Committee, the remaining members shall have full authority to designate a successor. Neither the members of the Committee, nor its designated representative, shall be entitled to any compensation for services performed pursuant to this covenant. The covenants, agreements, and restrictions established herein, may be waived, terminated, or modified through a duly recorded written instrument executed by the Committee. At anytime, the then owners of a majority of the lots shall have the power, through a duly recorded, written instrument, to change the membership of the Committee, or to withdraw from the Committee, or to restore to it any of its powers and duties.

5. COMMITTEE DIRECTIVES:

From time to time, the Committee shall issue directives which shall govern such items including but not limited to the exterior appearance of each structure, (i.e., color and roof treatment), landscaping and wall requirements, etc. Such directive shall be issued with the intent and purpose to insure a quality and homogeneous subdivision for the mutual benefit, protection and enjoyment of purchasers of lots in said subdivision. Those

directives in effect at the time the developed lots are sold shall be made a condition of such sale. The Committee shall provide a designated member of the Four Hills Homeowners Association a copy of each directive governing the referenced items until 20 homes have been sold and the Casitas Coronado Homeowners Association has been established. The Committee shall prepare and deliver to the Four Hills Homeowners Association a landscape plan for the 20' buffer strip. Comments and/or approval shall be delivered to the Committee within 15 calendar days from the date such landscape plan is received by the Four Hills Homeowners Association.

6. COMMITTEE APPROVAL:

No structure of any kind shall be erected, placed or altered on any lot until the construction plans and specifications and a plan showing the location of the structure have been approved by the Committee as to compliance with these covenants, style, harmony of external design with existing structures, and as to location with respect to topography and finish grade elevation. The Committee's approval or disapproval, as required in these covenants, shall be in writing. In the event that the Committee, or its designated representative, fails to approve or disapprove, within thirty (30) days after the plans and specifications have been submitted to it, or in any event, if no suit to enjoin the construction has been commenced prior to the completion thereof, approval will not be required, and the related covenant shall be deemed to have been fully complied with.

7. PROHIBITION AGAINST FURTHER SUBDIVISION:

No lot may be subdivided, nor may a portion of any residential lot be sold, except to adjacent property holders for the purpose of increasing the size of an adjacent lot.

8. EASEMENTS:

Easements for installation and maintenance of utilities and drainage facilities are

reserved. Such easements are shown on and dedicated by recorded plat.

9. SIGHT TRIANGLE AT INTERSECTIONS:

No fence, wall, hedge or shrub which obstructs sight lines at elevations between three and six feet above the roadways shall be placed or permitted to remain on any corner lot within the triangular area formed by the street property lines and a line connecting them at points twenty-five feet (25') from the intersection of the street property lines extended. No tree shall be permitted to remain within such distance of such intersections unless the foliage line is maintained at sufficient height to prevent obstruction of sight lines.

10. PROHIBITED RESIDENTIAL STRUCTURES:

No structure of a temporary character and no mobile home, trailer, basement, tent, shack, garage, barn or other outbuilding shall be used on any lot at any time as a residence, either temporarily or permanently. All construction shall be completed within twelve (12) months from date of commencement.

11. PARKING:

No parking shall be permitted on subdivision streets in those areas directly opposite each median.

12. DRAINAGE RESTRICTION:

The grades established for lots with rear yard ponds, are for control of storm water run-off and are controlled by the City of Albuquerque. Rear yard ponds may not be altered, filled or volumes changed for any reason. Further, reasonable care must be taken in planting landscaping and installing irrigation systems for watering landscaping to avoid damage to downstream properties.

13. LIVESTOCK AND POULTRY:

No animals, livestock, or poultry of any kind shall be raised, bred or kept on any lot, except for the following:

(1) No more than two dogs, cats or other household pets may be kept;
(2) All household pets shall be kept in a humane and sanitary manner, in such a manner as not to be nuisance or offensive to neighboring lots, and none shall be kept, bred or maintained for commercial purposes.

14. GRAPHICS, LIGHTING AND MAIL BOXES:

No billboards or advertising signs will be permitted on any lot or on any building other than a name plate of the occupant of any residence upon which his professional title may also be added, and provided no such sign or name plate shall exceed a size of one square foot. Such signs must be of a uniform shape as designated by the Architectural Committee. Provided, however, that permission is hereby granted for the erection and maintenance of not more than one sign on each lot during the course of the construction of a new single-family dwelling and upon its completion, during the course of its initial sale, which sign shall not exceed five square feet. All exterior lights must be so located as not to be directed toward surrounding properties or public rights-of-way.
All mail boxes and mail box standards shall be of uniform shape and design as designated by the Architectural Committee.

15. NUISANCES:

No noxious or offensive activity of any kind shall be carried on upon any lot, nor shall anything be done thereon which may be, or may become, an annoyance or nuisance to the neighborhood. It shall be the responsibility of owners of lots, vacant or otherwise, to keep said lots and all easement areas encompassed within the exterior boundaries of said lots, clear of trash, rubbish, noxious or offensive materials.

16. DESTRUCTION BY FIRE OR OTHER CASUALTY:

In the event that a structure is destroyed, wholly or partially by fire or any other casualty, said structure shall be properly rebuilt or repaired to conform to these restrictive covenants or, all the remaining structures, including the foundations and all debris, shall be removed from the lots.

17. COMMERCIAL ACTIVITY:

The aforesaid real property and the whole thereof, shall be used solely for single family dwelling purposes, and no business or commercial activity of any nature shall be conducted thereon, except that so-called "home occupations" shall be permitted if such activity is inoffensive to the owners of the neighboring lots.

18. MOTORCYCLES:

The Owner of each lot covenants and agrees that motorcycles, motorbikes and vehicles of a similar type, shall be permitted only on dedicated streets.

19. TELEVISION AND RADIO ANTENNAS:

No radio, television or transmission towers or aerials shall be erected, placed or permitted upon any part of said property except this restriction shall not prohibit home-type television antennas attached to the roof of a residence which antenna does not exceed ten feet (10') in height. No satellite dish shall be permitted.

20. RIGHTS AND DUTIES OF GRANTOR:

Any and all of the right, title, interest and estate given to or reserved by the Grantor herein or on the plat of Casitas Coronado Subdivision may be transferred or assigned to any person, firm or corporation by appropriate instrument in writing duly executed by the Grantor and recorded in the office of the County Clerk of Bernalillo County, New Mexico, and wherever the Grantor is hereby referred to, such reference shall be deemed to include its successors and assigns.

21. TERM OF COVENANTS:

These covenants are perpetual and are to run with the land and shall be binding on all parties and all persons claiming under them from the date these covenants are recorded unless an instrument signed by a majority of the then lot owners of the lots has been recorded, agreeing to terminate or amend said covenants in whole or in part. A purchaser

under a real estate contract shall be considered an owner for purposes of these Restrictive Covenants.

22. TITLE OTHER THAN BY PURCHASE OR GIFT:

Should any mortgage or deed of trust be foreclosed on the property herein conveyed, then the title so acquired and the person or persons who thereupon and thereafter become the owner(s) of such property, shall be subject to and be bound by all the restrictions established herein.

23. HOMEOWNERS ASSOCIATION:

The owner of each lot shall own one membership in the Casitas Coronado Homeowners Association, which Association shall be established and maintained to acquire ownership of and maintain the roads, easements and common area belonging to the Association. All dues and assessments adopted, pursuant to the rules and by-laws, by such Association shall be paid by such owner on a monthly basis and upon failure to pay such dues and assessments, such unpaid dues and assessments shall become a lien upon the lot belonging to such owner.

24. ENFORCEMENT:

Enforcement shall be by proceeding at law or in equity against any person or persons violating or attempting to violate any covenant either to restrain violation or to recover damages, or both. Grantor, the Committee, or the owner of any lot shall have the right to bring an action to enforce or prevent violation of these covenants and to recover reasonable attorney's fees and costs in connection therewith.

25. SEVERABILITY:

Invalidation of any one of these covenants by judgment or court order shall in no wise affect any of the other provisions which shall remain in full force and effect.

26. SUCCESSORS IN INTEREST:

This agreement shall be binding upon the owner, his successors and assigns whether referred to in this agreement as Grantor, owner, or Architectural Committee.

IN WITNESS WHEREOF, the Partnership has set its seal this 12th day of October, 1989.

A & M PARTNERSHIP

By: _____
C. J. Mead
Managing Partner

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

The foregoing instrument was acknowledged before me this 12th day of October, 1989, by C. J. Mead, Managing Partner of A & M Partnership, a New Mexico General Partnership, for and on behalf of said partnership.

_____
Notary Public

My Commission Expires:

October 4, 1993

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD
89 OCT 16 PM 12: 07
BK 760-A PG 342-349
GLADYS M. DAVIS
CO. CLERK & RECORDER
DEPUTY

SANDIA TITLE COMPANY

8969916

GRANT OF EASEMENT

FOR

RECEIVED
AUG 23 1989
HYDROLOGY SECTION

412

PRIVATE ROADWAY, DRAINAGE, PRIVATE AND PUBLIC UTILITIES

THIS INDENTURE made and executed this 26th day of July, 1989, by and between HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC., a a New Mexico Non-Profit Corporation in the County of Bernalillo and State of New Mexico, hereinafter called the Grantors, and A & M a a New Mexico General Partnership, hereinafter called Grantee.

WITNESSETH, that for good and valuable consideration, the receipt of which is hereby acknowledged, the Grantors have this day bargained and sold and by these presents do sell, convey and deliver unto the Grantee, a permanent easement as right-of-way including the permanent right to enter upon the real estate hereinafter described at any time it may see fit and construct, maintain and repair a road, drainage improvements, and private and public utilities across, through, and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said road, drainage improvements and utilities.

The land affected by the grant of this easement and right-of-way is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows:

A certain parcel of land located in Bernalillo County, New Mexico, being within Section 27, Township 10 North, Range 4 East of the NMPM. Being a portion of "HIDDEN VALLEY SOUTH", as filed in the Office of the County Clerk of Bernalillo County, New Mexico on March 26, 1986 in Book C-29, Page 200. The parcel being described lies within areas designated as PRIVATE INGRESS - EGRESS EASEMENT, 150' PNM easement, Drainage R.O.W., or Open Space. The parcel being described is a strip of land 50 feet in width (having a 50' radius fillet at the Northeast corner) and is described by metes and bounds as follows:

Beginning at the Southeast corner of the parcel (from whence the corner common to Sections 26, 27, 34, and 35, Township 10 North, Range 4 East of the NMPM bears S 89 03' 04" E, 462.94 feet; THE BEARINGS USED HEREON ARE NEW MEXICO STATE PLACE COORDINATE SYSTEM GRID AND ARE ROTATED 0 DEG 11' 06" CLOCKWISE FROM THE RECORD PLAT REFERENCED ABOVE);

thence N 89 03' 04" W, 59.97' to a point;
thence N 34 27' 36" E, 160.13' to a point of curvature;
thence 104.80 feet along a curve concave to the Southeast (Radius = 325.00', Delta = 18 28' 30", Chord = N 43 41' 51" E 104.34') to a point of tangency;
thence N 52 56' 06" E, 83.84' to the Northwest corner'
thence S 37 03' 54" E; 78.64' along the Southerly line of HIDDEN VALLEY DRIVE to a point of curvature;

thence 17.81 feet along the Southerly line of HIDDEN VALLEY DRIVE being a curve concave to the Northeast (Radius = 250.00', Delta = 04 04' 56", Chord = S 39 06' 22" E, 17.81') to the Northeast corner;
thence 74.98 feet along a curve concave to the South (Radius 50.00', Delta = 85 55' 04", Chord = N 84 06' 22" W 68.15') to a point of tangency;
thence S 52 56' 06" W, 34.60' to a point of curvature;
thence 88.67 feet along a curve concave to the Southeast (Radius 275.00', Delta = 18 28' 30", Chord = S 43 41' 51" W 88.29') to a point of tangency;
thence S 34 27' 36" W, 127.03' to the Southeast corner and point of beginning containing 0.38366 acres (16,712.4 square feet) more or less.

TO HAVE AND TO HOLD the said right and easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use as a right-of-way for aforesaid road, drainage improvements, and utilities.

The Grantors do hereby convenant with Grantee that they are lawfully seized and possessed of the real estate above described and that they have a good and lawful right to convey it or any part thereof, that it is free from all encumbrances except those of record and taxes due and owing the Treasurer of Bernalillo County and that they will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

As a part of the consideration for this grant, the Grantors do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless for any and all liability that may arise as a result of the construction and use of easement for the purposes set forth.

IN WITNESS WHEREOF, the parties have set their hands and seals this 26th day of July, 1989.

David Boone, President

DAVID BOONE, President
Hidden Valley Community Services Association, Inc.

C. J. MEAD, General Parnter
A & M, a New Mexico General Partnership

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 26th day of July, 1989, by DAVID BOONE and C. J. MEAD.

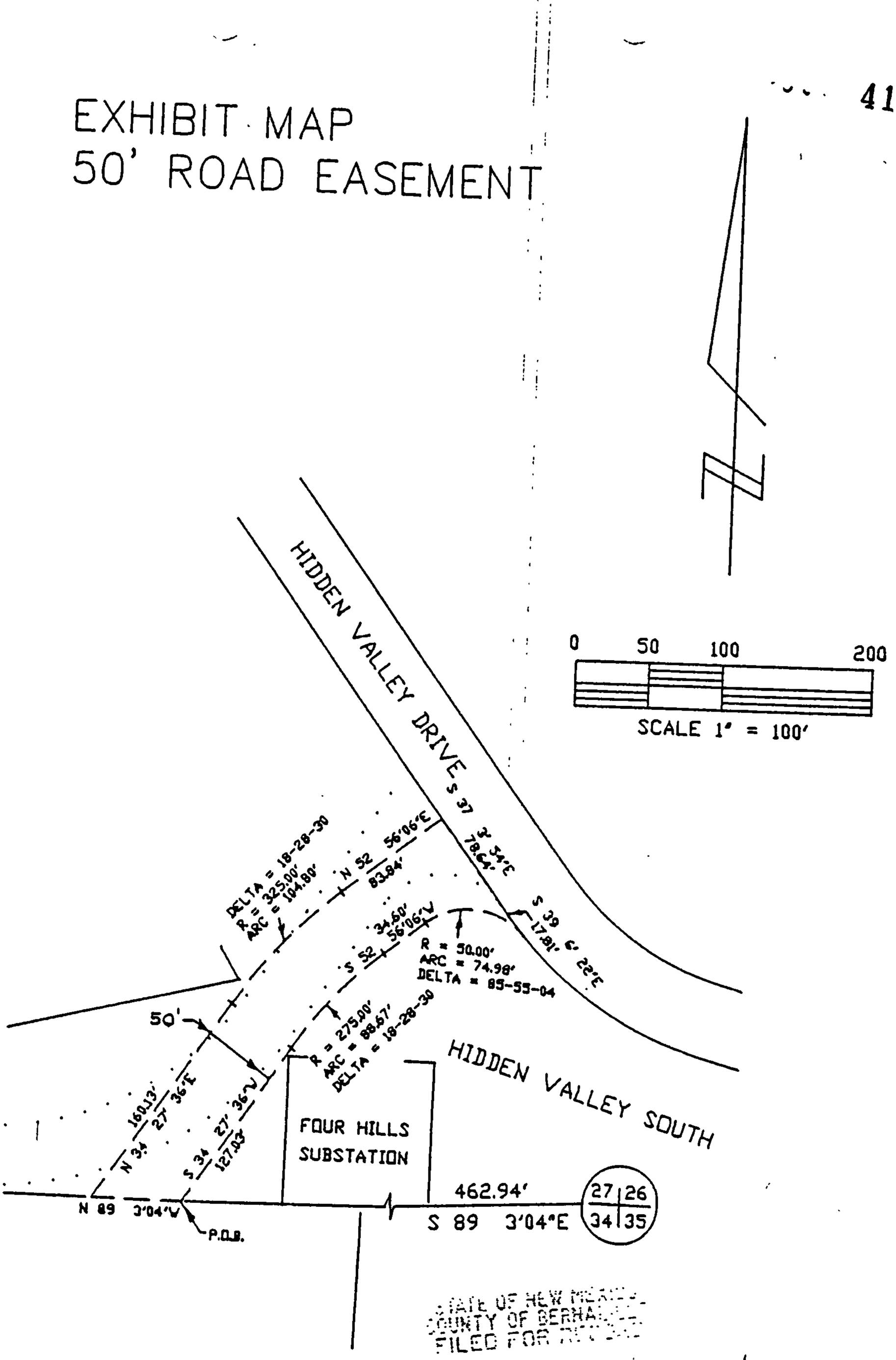
Notary Public

My Commission Expires:

10-29-91

414

EXHIBIT MAP
50' ROAD EASEMENT



STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

89 AUG 11 AM 10:47

BK MS 778 PG 412-414

GLADYS M. DAVIS
CO. CLERK & RECORDER

P. Neka

4

SANDIA TITLE COMPANY

RECEIVED
AUG 23 1989
HYDROLOGY SECTION

8969917

415

GRANT OF EASEMENT

FOR

DRAINAGE, PRIVATE AND PUBLIC UTILITIES

THIS INDENTURE made and executed this 26th day of July, 1989, by and between HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC., a New Mexico Non-Profit Corporation in the County of Bernalillo and State of New Mexico, hereinafter called the Grantors, and A & M a New Mexico General Partnership, hereinafter called Grantee.

WITNESSETH, that for good and valuable consideration, the receipt of which is hereby acknowledged, the Grantors have this day bargained and sold and by these presents do sell, convey and deliver unto the Grantee, a permanent easement as right-of-way including the permanent right to enter upon the real estate hereinafter described at any time it may see fit and construct, maintain and repair drainage improvements and private and public utilities across, through, and under the lands hereinafter described and the further right to remove trees, bushes, undergrowth and obstructions interfering with the location, construction and maintenance of said drainage improvements and utilities.

The land affected by the grant of this easement and right-of-way is located in the County of Bernalillo and State of New Mexico and is more particularly described as follows:

A certain tract of land lcoated in Bernalillo County, New Mexico, being within Section 27, Township 10 North, Range 4 East of the NMPM. Being a portion of "HIDDEN VALLEY SOUTH", as filed in the Office of the County Clerk of Bernalillo County, New Mexico on March 26, 1986 in Book C-29, Page 200. The parcel being described lies within the PRIVATE INGRESS - EGRESS EASEMENT, or within the 150' PNM easement. Being further described by metes and bounds as follows:

Beginning at the Southeast corner of the parcel (from whence the corner common to Sections 26, 27, 34, and 35, Township 10 North, Range 4 East of the NMPM bears S 88° 29' 50" E, 317.10 feet; THE BEARINGS USED HEREON ARE NEW MEXICO STATE PLANE COORDINATE SYSTEM GRID AND ARE ROTATED 0 DEG 11' 06" CLOCKWISE FROM THE RECORD PLAT REFERENCED ABOVE);

thence N 89° 03' 04" W, 1338.12 feet to the Southwest corner;
thence N 12° 30' 04" W, 30.85 feet to the Northwest corner;
thence S 89° 03' 04" E, 1341.18 feet to a point;
thence N 34° 27' 36" E, 131.67 feet to a point;
thence N 76° 46' 56" E, 29.70 feet to the Northeast corner;
thence S 34° 27' 36" W, 176.37 feet to the Southeast corner and point of beginning containing 0.9934 acres (43,274.3 square feet) more or less.

TO HAVE AND TO HOLD the said right and easement for the uses and purposes aforesaid, unto Grantee its successors and assigns for so long as said easement shall not be abandoned for use as a right-of-way for aforesaid utilities.

The Grantors do hereby convenant with Grantee that they are lawfully seized and possessed of the real estate above described and that they have a good and lawful right to convey it or any part thereof, that it is free from all encumbrances except those of record and taxes due and owing the Treasurer of Bernalillo County and that they will forever warrant and defend the title thereto against the lawful claims of all persons whomsoever.

As a part of the consideration for this grant, the Grantors do hereby release any and all claims for damages for whatsoever cause incidental to the exercise of the rights herein granted provided, however, that the Grantee agrees to save Grantors harmless for any and all liability that may arise as a result of the construction and use of easement for the purposes set forth.

IN WITNESS WHEREOF, the parties have set their hands and seals this 26th day of July, 1989.

David Boone President

DAVID BOONE, President
HIDDEN VALLEY COMMUNITY SERVICES ASSOCIATION, INC.

C. J. MEAD, General Partner
A & M, a New Mexico General Partnership

STATE OF NEW MEXICO)
) SS
COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me on this 26th day of July, 1989, by David Boone and C. J. Mead.

Notary Public

My Commission Expires:

10-29-91

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
FILED FOR RECORD

89 AUG 11 AM 10:47

BK M5778A PG 415-417

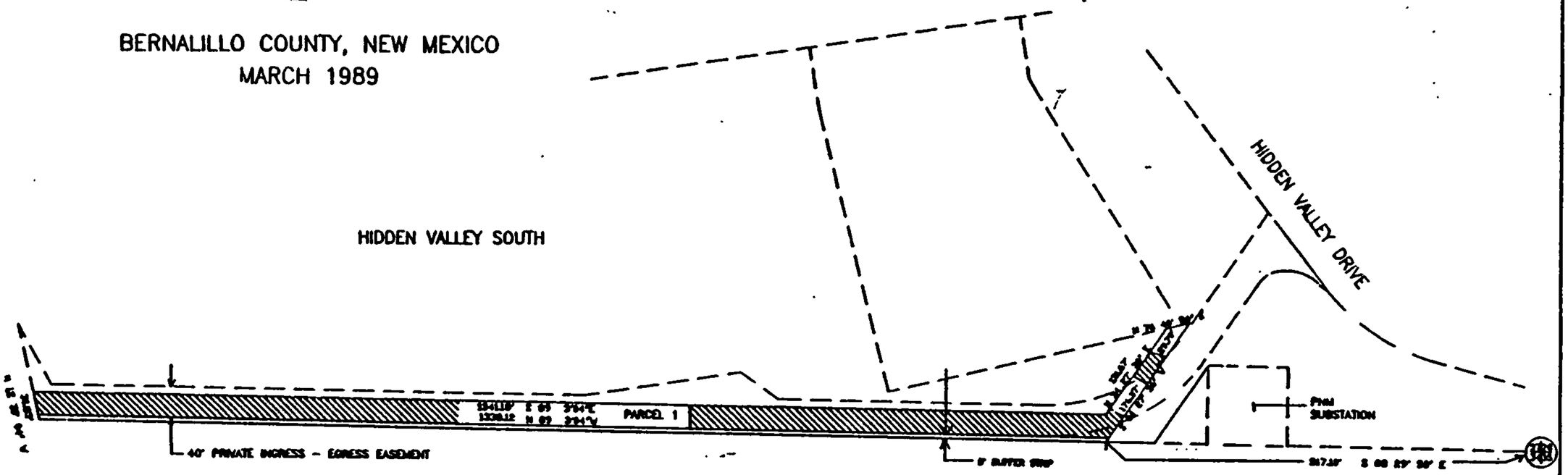
GLADYS M. DAVIS
CO. CLERK & RECORDER

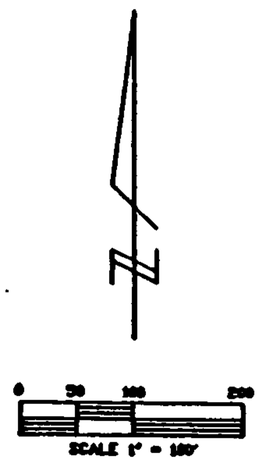
P. Nels
DEPUTY

EXHIBIT MAP SHOWING

EASEMENTS TO SERVE CASITAS CORONADO SUBDIVISION

BERNALILLO COUNTY, NEW MEXICO
MARCH 1989





CASITAS CORONADO SUBDIVISION

DL MD 04/28/89 A89078	LYNN ENGINEERING & SURVEYING, INC. 22 CHUCKOLE LANE LOS LUNAS, NEW MEXICO 87031 (505) 865-3548