

County of Bernalillo

State of New Mexico

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2400 BROADWAY, S.E.
ALBUQUERQUE, NEW MEXICO 87102
PUBLIC WORKS (505) 848-1500

January 28, 2000

Gregory J. Krenik, P.E.
Mark Goodwin & Associates, PA
Post Office Box 90606
Albuquerque, New Mexico 87199

RE: *Drainage Report and Conceptual Grading and Drainage Plan for Westland Development Co. (Q9/D2) (PWDN990227) Submitted for Site Development Plan Approval, Building Permit and Grading Permit Approval, Engineer's Stamp Dated 1/13/00.*

Dear Mr. Krenik:

Based on the information provided, the above referenced plan is approved for Site Development plan approval and for release of the Building Permit and the Grading Permit.

As you are aware, pond covenants are required for the proposed ponds on this site. Please provide these to the County.

If you have any questions, or if we may be of further assistance to you, please call me at 924-3982 or contact Brad Catanach at the County.

Sincerely,

A handwritten signature in cursive script, reading "Susan Calongne".

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Lisa Manwill, P.E., Albuquerque Metropolitan Arroyo Flood Control Authority
Brad Catanach, P.E., Bernalillo County Public Works Division
Fred Ambrogio, Westland Development Co.
File

PWDN 990227

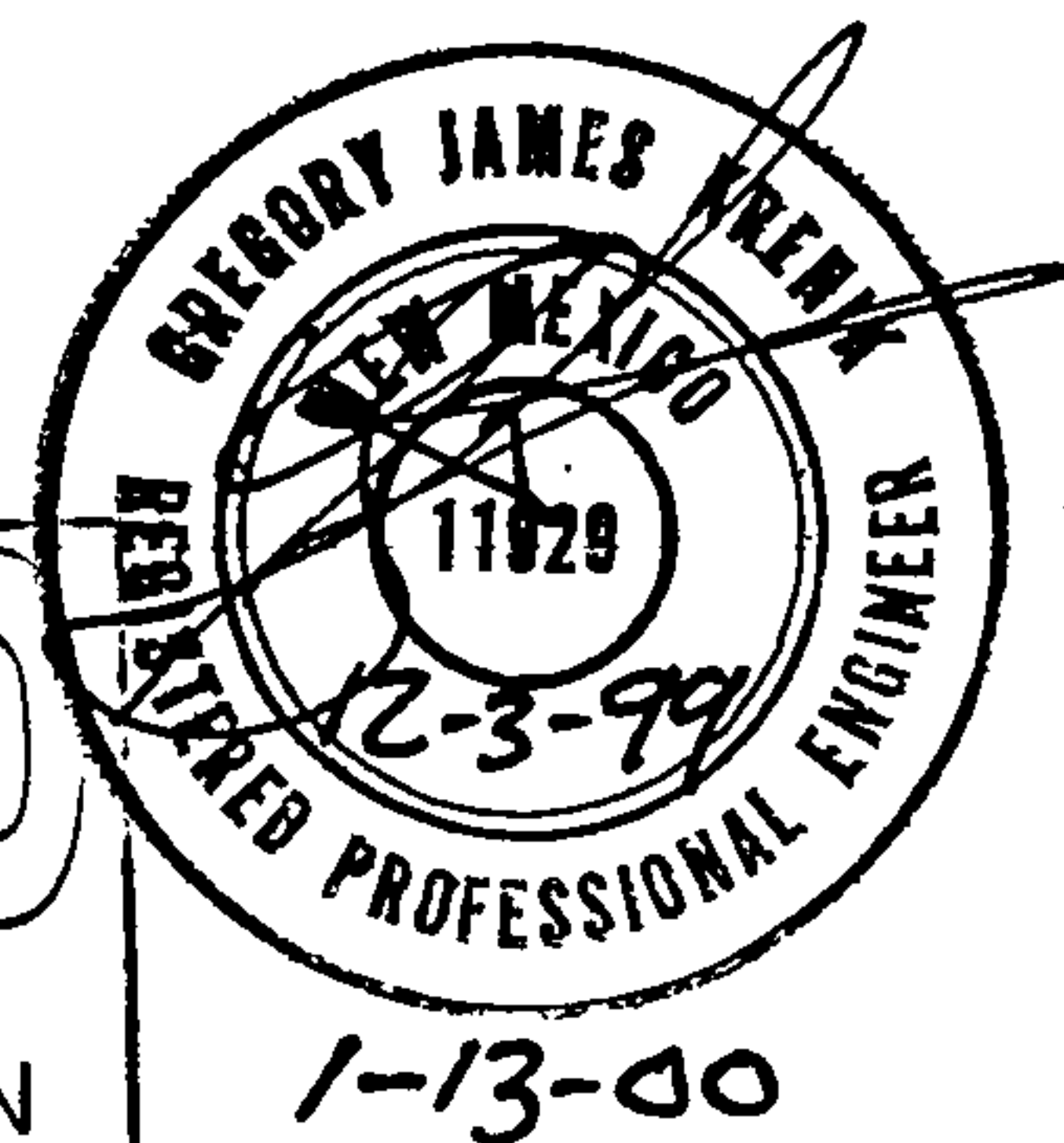
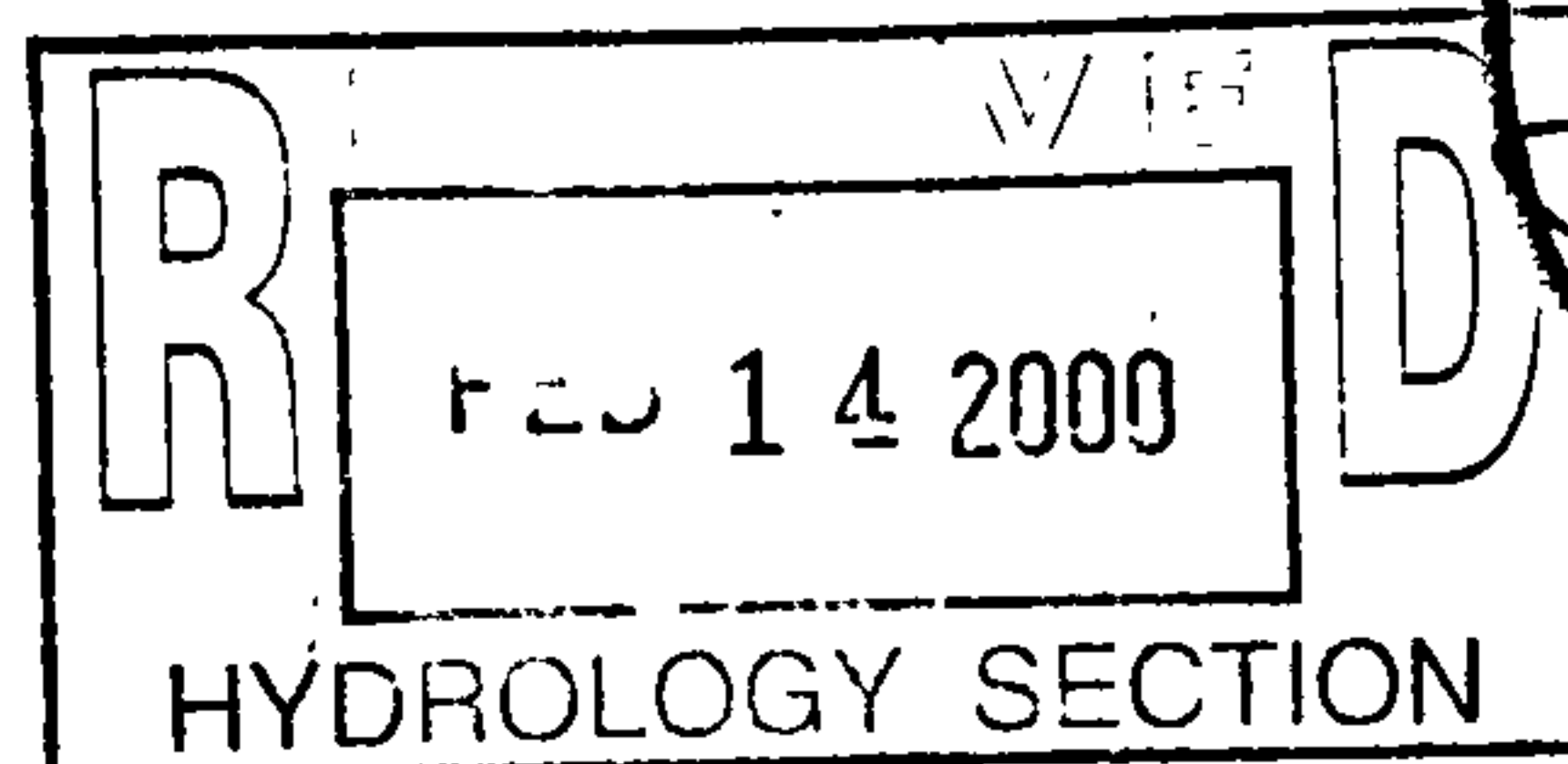


MARK GOODWIN

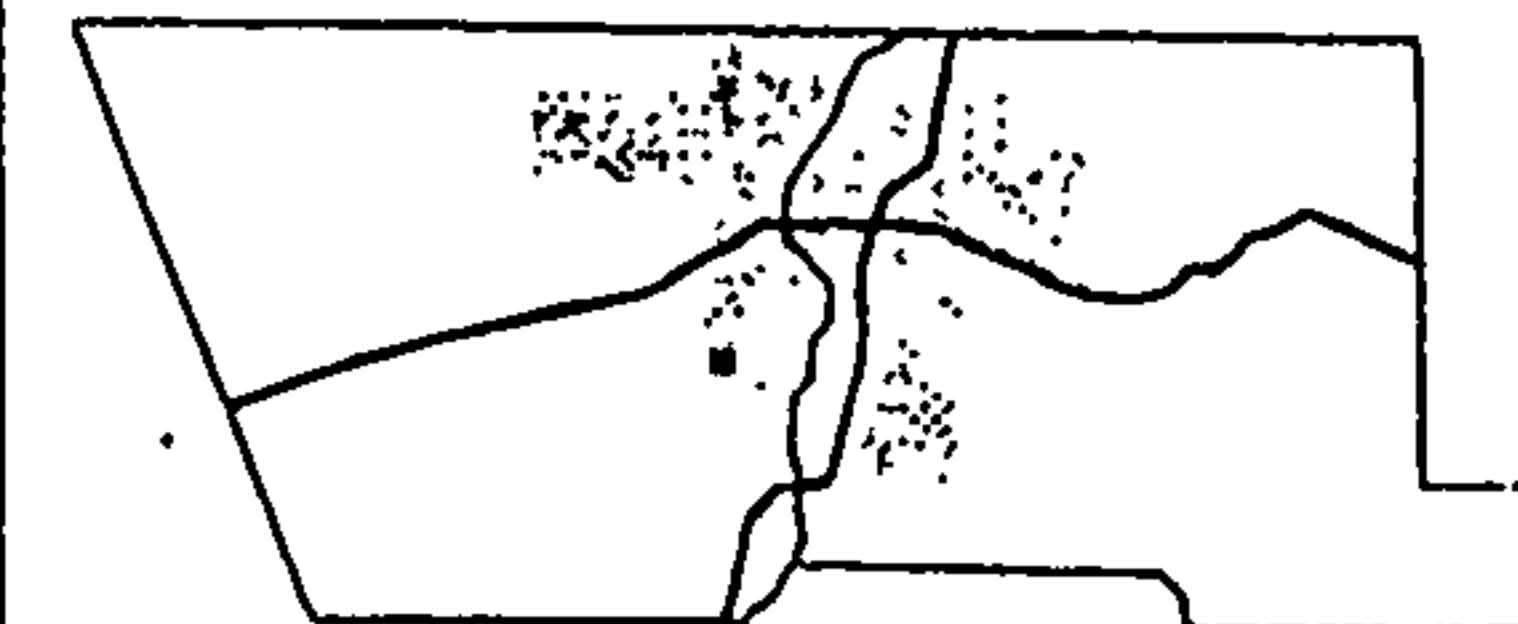
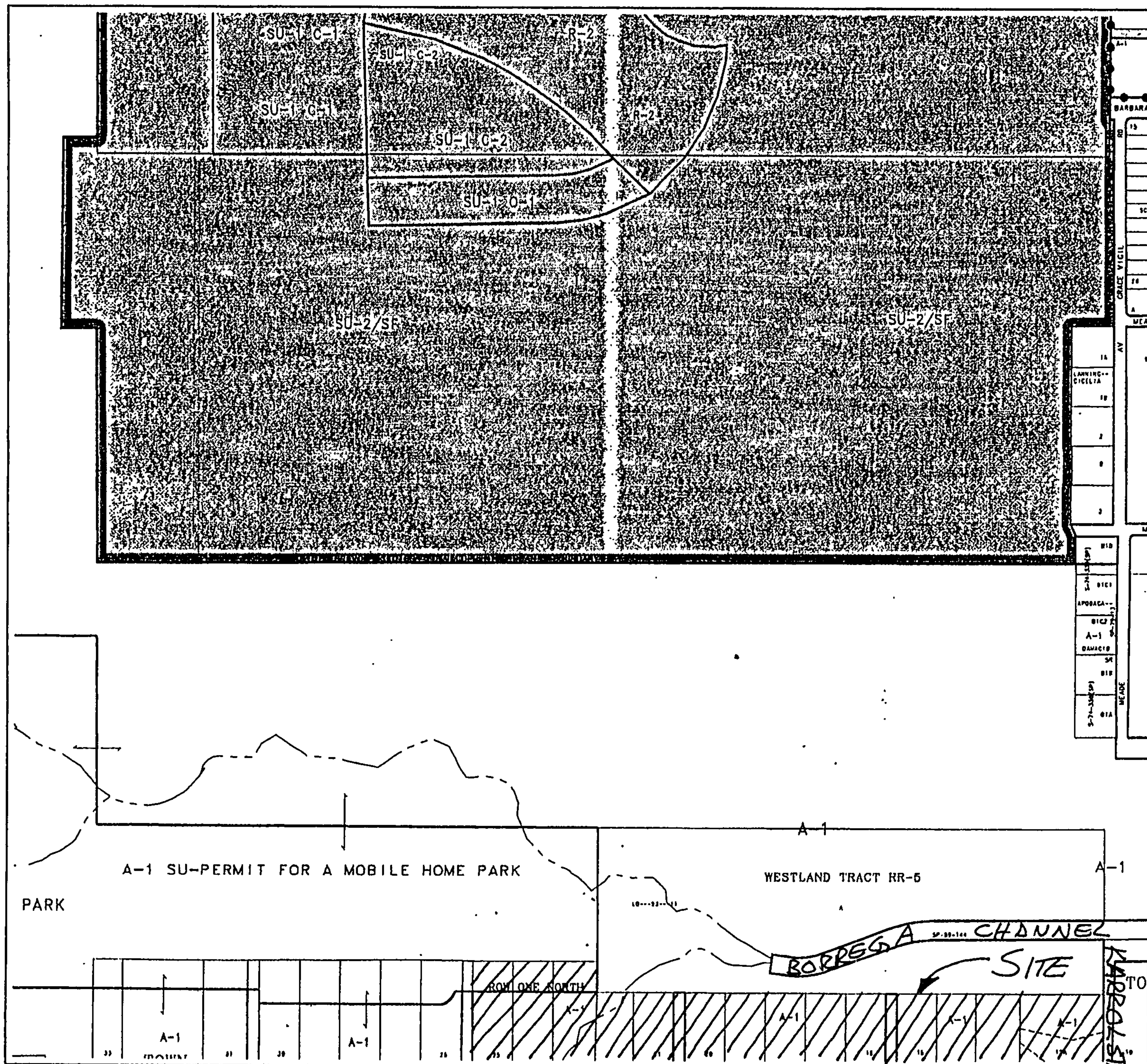
& ASSOCIATES
CONSULTING ENGINEERS

dmg

DRAINAGE REPORT
FOR
WESTLAND FARMS



1-13-00



LEGAL DESCRIPTION

T8N

R2E

SEC 8

UNIFORM PROPERTY CODE

1-009-053

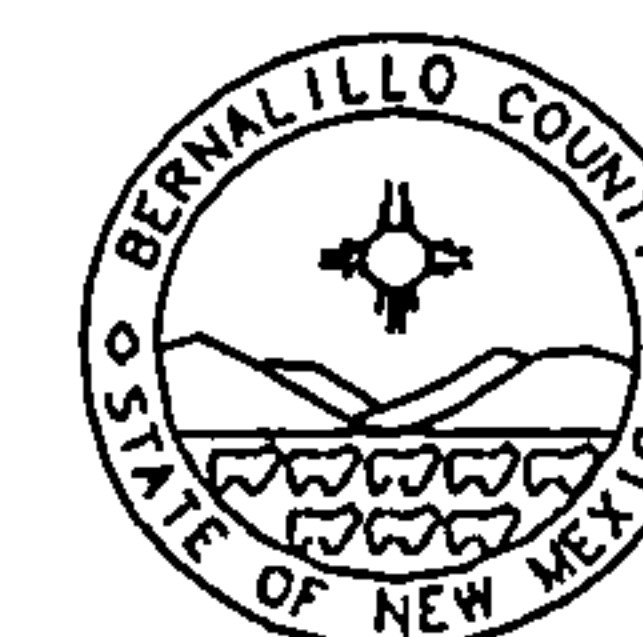


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SCALE IN FEET

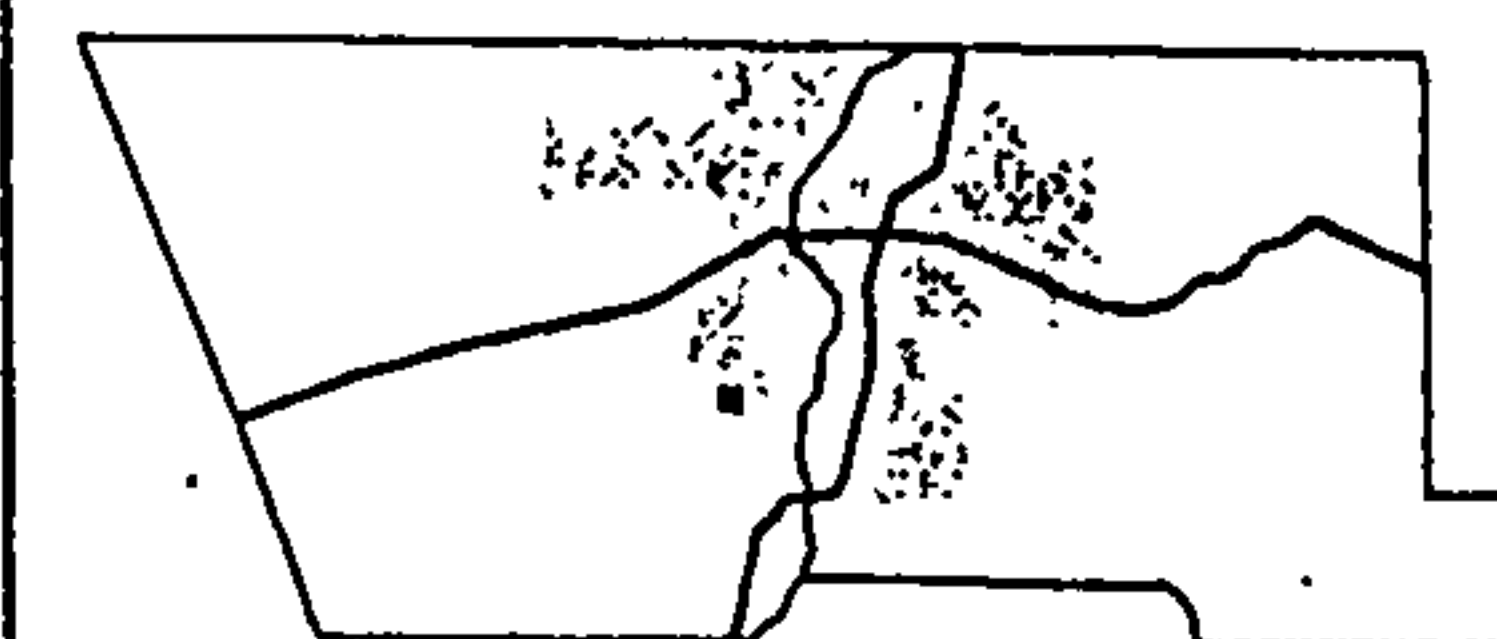
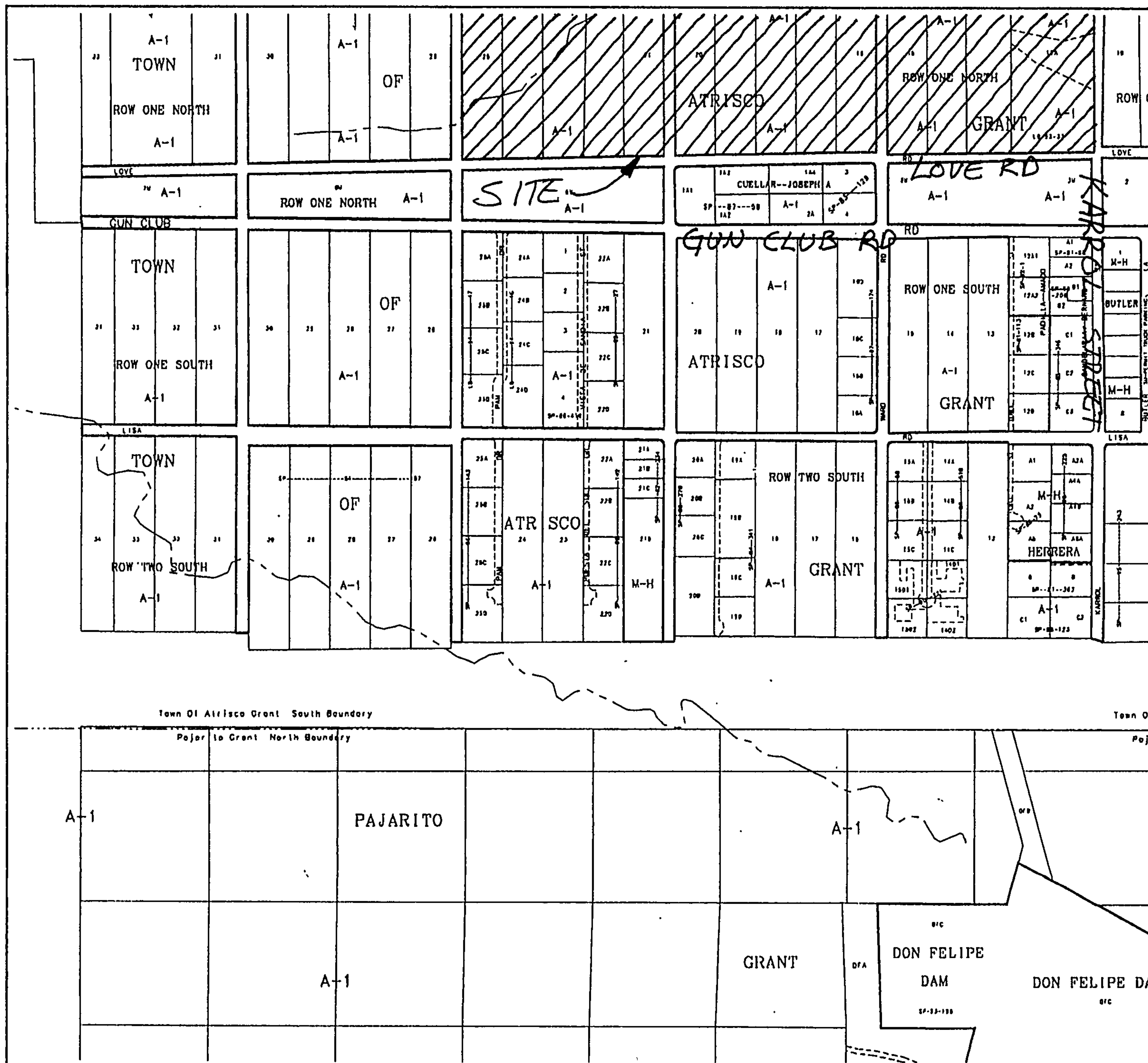
Map amended through March 1999



INFORMATION TECHNOLOGY
GIS SECTION

This information is for reference only. Bernalillo County assumes no liability for errors associated with the use of these data. Users are solely responsible for confirming data accuracy when necessary. Source data are from Bernalillo County and the City of Albuquerque.

P-9-Z



LEGAL DESCRIPTION

T8N

R2E

SEC 16

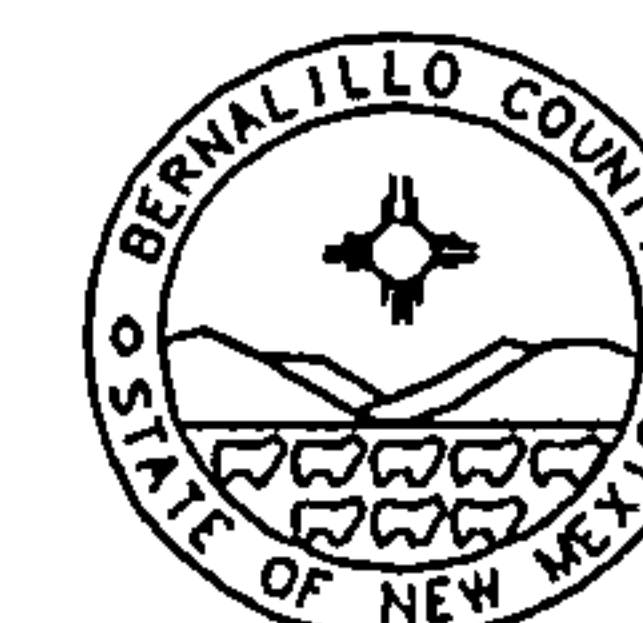
UNIFORM PROPERTY CODE

1-009-052



SCALE IN FEET

Map amended through March 1999



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Q-9-Z



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

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

PROJECT WESTLAND FARMS
SUBJECT DRAINAGE CALCS
BY GSK DATE 12-1-99
CHECKED _____ DATE _____
SHEET 1 OF _____

REVISED 1-13-00

- THIS SITE IS JUST SOUTH OF THE PROPOSED BORRERA DAM AND WEST OF KARROL STREET SW.
- THIS SITE IS PART OF THE AMOLE-HUBBELL DRAINAGE MANAGEMENT PLAN PREPARED BY LEEDS HILL-HERKENHOFF, INC., JULY 22, 1999
- LAND USES ARE PROPOSED AS PASTURE, GARDENS, GREENHOUSES, RESIDENTIAL AND COMMERCIAL.
- THE CORNUCOPIA SITE WILL BE PART OF THIS REPORT.
- AS PART OF THE AMOLE-HUBBELL REPORT WE WILL DESIGN A STORM DRAIN THAT IS TO DRAIN THE GUN CLUB BASIN TO OUR WEST. PER THE REPORT, DESIGN $Q = 230$ CFS. THIS IS FULLY DEVELOPED FLOW.

TOTAL SITE = 63.39 AC.

CORNUCOPIA SITE = 8.06 AC

HUD RESIDENTIAL = 9.34 AC

WESTLAND FARMS = 45.99 AC

• CORNUCOPIA SITE

$$\begin{array}{rcl}
 1.60 \text{ AC} & = \text{TYPE "D"} & = 19.86\% - 36.95\% \\
 2.73 \text{ AC} & = \text{TYPE "B"} & = 33.87\% - 63.05\% \\
 \hline
 3.73 \text{ AC} & = \text{TYPE "B"} & = 46.27\% - 100.00\% \\
 8.06 & \text{TYPE "A"} & 100.00
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{POND \#1} \\ \text{POND \#2} \end{array}$$

$P_1 = 1.93 \text{ in}$
 $P_6 = 2.25 \text{ in}$
 $P_{24} = 2.68 \text{ in}$

SIZE RETENTION PONDS FOR

1) TYPE "D" + "B"

2) DIFFERENCE BETWEEN TYPE "A" + TYPE "B"

FROM AHYMO OUTPUT SHEETS 7-15

$$\begin{array}{lll}
 Q_{p1} = 14.19 \text{ CFS} & V = 0.5315 \text{ AC-FT} & V_{100-10d} = 0.7208 \text{ AC-FT} \\
 Q_{p2a} = 6.98 \text{ CFS} & V = 0.2065 \text{ AC-FT} & V_{100-10d} = 0.2065 \text{ AC-FT} \\
 Q_{p2b} = 9.44 \text{ CFS} & V = 0.2772 \text{ AC-FT} & V_{100-10d} = 0.2772 \text{ AC-FT} \\
 V_{100-10d} = V_6 + A_D \left(\frac{P_{10d} - P_6}{12} \right) & P_{10d} = 3.67 \text{ in} &
 \end{array}$$



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PROJECT WESTWOOD FARMS

SUBJECT DRAINAGE CALLS

BY GJK DATE 12-1-99

CHECKED _____ DATE _____

REVISED 1-13-00 SHEET 2 OF _____

- POND #1 needs to contain $0.7208 \text{ AC-FT} = 31,398 \text{ CF}$
 - THE RUNOFF WILL BE SPLIT INTO TWO PONDS WITH EACH TAKING 50% OF THE RUNOFF

V FOR EACH POND = 15,699 CF

POND #1A (ALONG LOVE ROAD)

POND #1B (ALONG KADROL ST.)

ELEV	AREA(SF)	VOLUME(CF)
78	6268	0
79	9184	7,726
80	12260	18,448

WATER SURFACE = 79.74

ELEV	AREA(SF)	VOLUME(CF)
77	3502	0
78	8146	5,824
79	14248	17,021

WATER SURFACE = 78.88

- POND #2 NEEDS TO CONTAIN $0.2772 - 0.2065 = 0.0707 \text{ AC-FT} = 3,080 \text{ CF}$

ELEV	AREA(SF)	VOLUME(CF)
81.5	9,013	0
82.0	12,970	5496

WATER SURFACE = 81.78

- SIZE FUTURE STORMDRAIN THAT CROSSES THE SITE FROM LOVE ROAD TO THE BORREGA DAM.

FROM AMOLE-HUBBELL REPORT $Q = 230 \text{ CFS}$

OUTFALL ELEVATION = 85.00

RIM IN LOVE ROAD = 99.50

LENGTH = $406 + 406 + 348 = 1,160'$

TRY 0.6% SLOPE

$$1160 \times 0.006 = 6.96'$$

- INVERT AT LOVE ROAD = $85.00 + 6.96 = 91.96$

- DEPTH OF MANHOLE = $99.50 - 91.96 = 7.54'$

- FROM NOMO SHEET 5

66" RCP AT 0.6% CARRIES 230 CFS

- FIND COVER ON PIPE IN LOVE ROAD

$$66" + 6.5" = 72.5" = 6.042'$$

$$7.54 - 6.04 = 1.5' = 18"$$



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PROJECT WESTWIND FARMS

SUBJECT DRAINAGE CALCS

BY GJK DATE 12-1-99

CHECKED _____ DATE _____

SHEET 3 OF _____

REVISED 1-13-00

• WESTWIND FARMS SITE

4.0 ACRES TYPE "D" 8.70%
41.99 ACRES TYPE "B" 91.30%
45.99

FROM AHYMO OUTPUT Q=124.61 CFS
SHEETS 16-18 U=3.942 AC-FT

- THIS SITE IS MAINLY PASTURE, GARDENS & GREEN HOUSES.
RUNOFF IN THESE AREAS WILL BE RETAINED

- THE ONLY AREA OF INTENSE RUNOFF IS AT THE
BARBARA PAGE GROUP HOME PARKING AREA

SOME OF THIS RUNOFF IS TO BE COLLECTED IN THE
ORCHARD AREA IN THE CENTER OF THE
PARKING LOT. ALL OTHER RUNOFF IN THIS
AREA WILL DRAIN TO THE NW CORNER TO
A CULVERT AND BAR DITCH THAT DISCHARGES
TO THE BORRICA CHANNEL AT KARROL STREET.

• HUD RESIDENTIAL SITE (FUTURE)

A= 9.34 ACRES

20 PADS AT 2100 SF = 0.9642 AC
20 DRIVES AT 400 SF = 0.1837 AC
1400 LF X 32' WIDE ROAD = 1.0285 AC

2.1764 AC TYPE "D" = 23.30%

7.1636 AC TYPE "B" = 76.70%

FROM AHYMO OUTPUT SHEETS 19-21

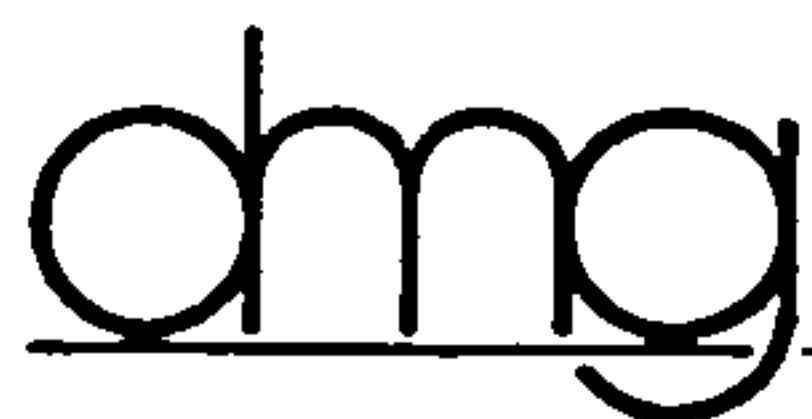
Q=28.02 CFS U=0.9793 AC-FT

THIS RUNOFF WILL BE COLLECTED INTO AN ONSITE
STORM DRAIN AND DISCHARGED TO THE 66" STORM DRAIN.

• SIZE STORM DRAIN

24" RCP AT 4.0% CARRIES 40 CFS

SEE NOMO SHEET 6



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PROJECT WESTLAND FARMS

SUBJECT DRAINAGE CALCS

BY GJK DATE 1-13-00

CHECKED _____ DATE _____

SHEET 4 OF _____

- SIZE DITCH FROM BARBARA PAGE HOME TO AMFCA CULVERT.

- THE BARBARA PAGE HOME SITE CONSISTS OF 8.0 AC ON THE 45.99 AC WESTLAND FARMS SITE,

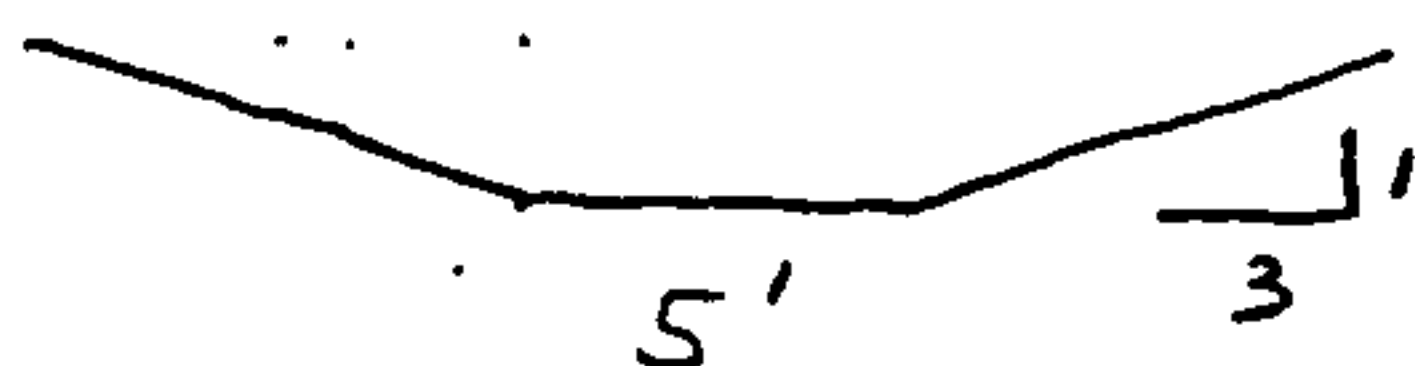
TYPE B = 76.40 %

TYPE D = 23.60 %

FROM AHYMO OUTPUT SHEETS 22-24

$Q = 24.05$ CFS

Ditch



$S = 0.33 \%$

$n = 0.03$

$d = 1.17$

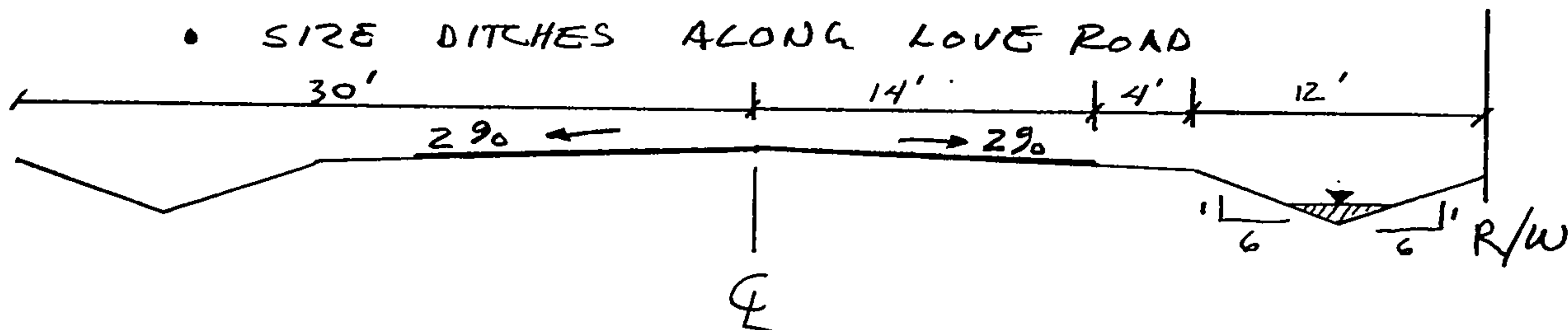
$WP = 12.40$

$A = 9.96$

$V = 2.47$ F/S

$Q = 24.61$ CFS ≈ 24.05 CFS OK

- SIZE DITCHES ALONG LOVE ROAD



- AREA OF ROW FROM UNSER TO KARROK

$3,285.28 \times 60 = 4.5252$ AC

40% B 60% D

FROM AHYMO OUTPUT SHEETS

$Q = 16.93$ CFS

Q per SWALE = 8.465 CFS

$S = 2.0\%$ $n = 0.03$

$d = 0.65$

$WP = 7.8$

$A = 2.535$

$V = 3.31$ F/S

$Q = 8.39$ CFS ≈ 8.465 CFS OK