



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

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8/15/14

April 18, 2003

Gregory J. Krenik, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Desert Highlands @ La Cueva Subdivision, Drainage Report
Engineer's Stamp dated 3-14-03 (B19/D20)

Dear Mr. Krenik,

Based upon the information provided in your submittal dated 3-14-03, the above referenced report is approved for Grading Permit and Work Order and Final Plat. This is now the plan that must be certified for Financial Guarantee release.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Planning Dept
Development and Building Services

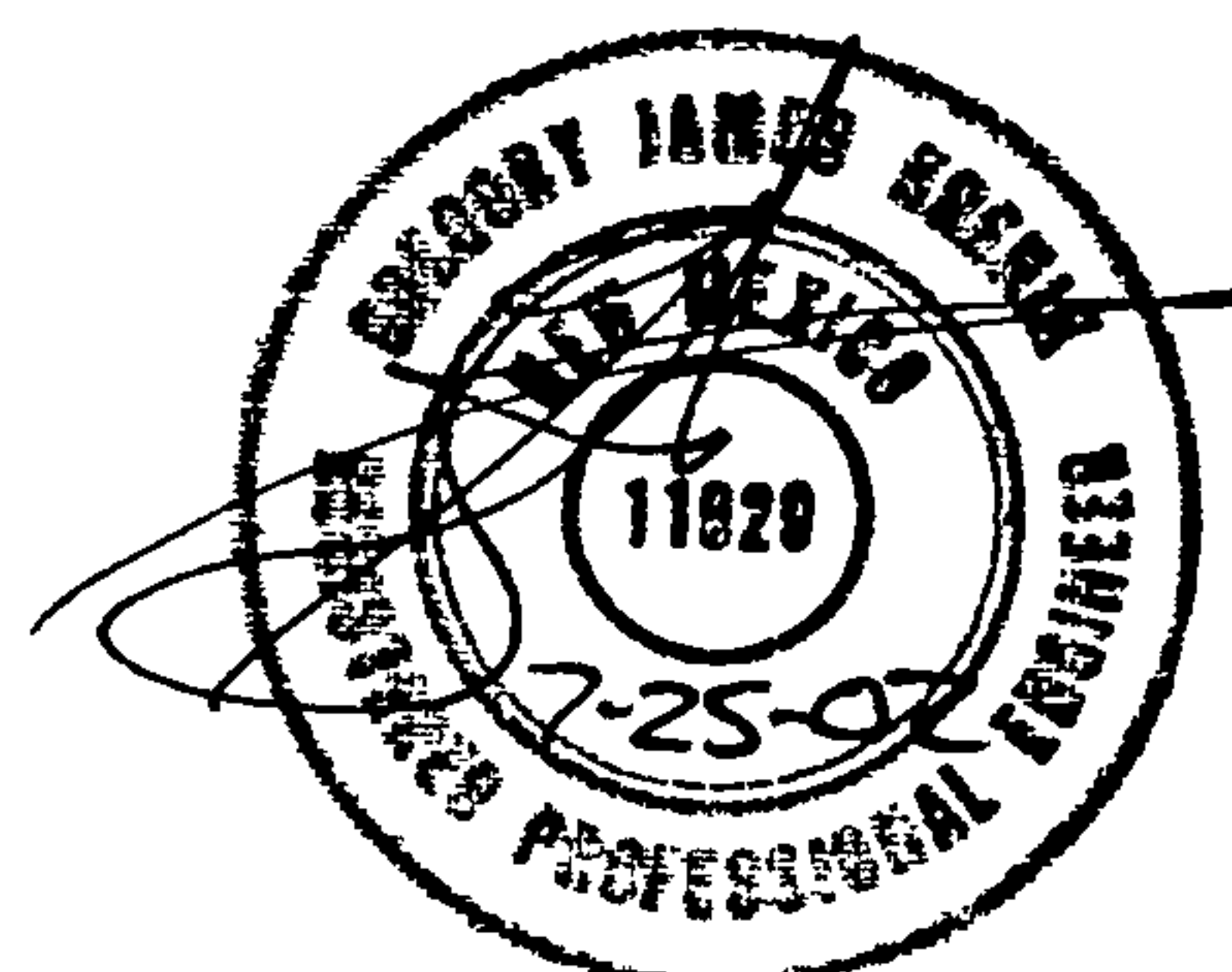
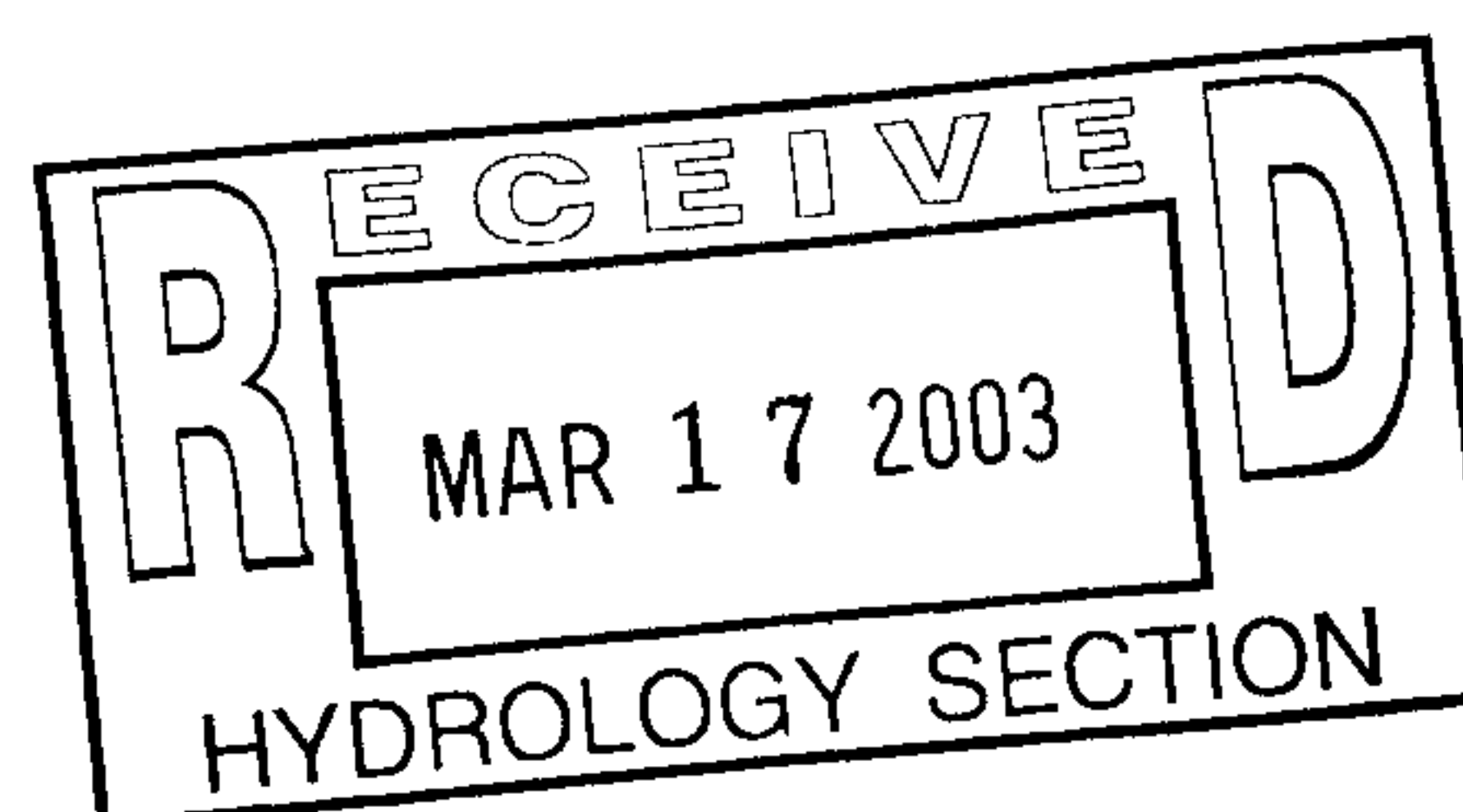
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DRAINAGE REPORT

for

Desert Highlands at La Cueva



9-16-02
1-17-03
3-14-03



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

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

PROJECT DESERT HIGHLANDS @ GCREA
SUBJECT DRAINAGE CALCS
BY GSK DATE 7-23-02
CHECKED _____ DATE _____
SHEET 1 OF _____

REVISED 9-16-02

- THE PROJECT AREA IS 2,0122 AC
- THE SITE IS NOT IN A 100 YEAR FLOOD ZONE.
- THE SITE IS ADJACENT TO EXISTING DEVELOPED 1 ACRE LOTS.
- THE MAJORITY OF THE DRAINAGE WILL FLOW TO THE NORTH AND ACROSS LOT 4 IN A 20' PUBLIC DRAINAGE EASEMENT TO THE EL CAMINO ARROYO.
- BACKYARD PONDS WILL BE REQUIRED ON THE 3 WEST LOTS TO MINIMIZE THE EFFECT ON THE ADJACENT LOTS. MINIMIZATION OF RETAINING WALLS IS REQUIRED.
- FLOWS IN MODESTO AVE. WILL CONTINUE TO THE WEST TO WYOMING WITHIN THE MODESTO RIGHT OF WAY.
- THE SITE SLOPES FROM SE TO NW AT 6%.
- THE PROJECT IS LOCATED JUST EAST OF WYOMING ON THE NORTH SIDE OF MODESTO.
- RUNOFF INTO THE EL CAMINO ARROYO IS THE CURRENT SITUATION AS IT WILL BE AS A DEVELOPED SITE.
- THIS AREA WAS INCLUDED IN THE DESERT RIDGE TRAILS REPORT PREPARED BY MARK GOODWIN & ASSOC. AND ALSO THE CLMR THEY DID.

AREA OF MODESTO = 0.2282 AC ADJACENT TO SITE

AREA OF INTERIOR ROW = 0.3174 AC

6 PADS AT 5,373 $\times$ EACH = 32,238 = 0.7461 AC TYPE "D"
6 DRIVEWAYS AT 400 $\times$ EACH = 2,400 = 0.0551 AC TYPE "D"

TYPE "B" OF INTERIOR ROW = 2325 = 0.0534 AC

TYPE "D" OF INTERIOR ROW = 0.2640 AC

AREA OF SITE W/O AREA OF MODESTO = 1.7840 AC

TOTAL TYPE "D" OF SITE = 1.0592 AC = 59.37%

TYPE "B" = 0.7248 AC = 40.63%

FROM AH4MO OUTPUT SHEETS 7-9

Q = 6.79 CFS

V = 0.2304 AC-FT



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PROJECT DESERT HIGHLANDS @ LA CUEVA
SUBJECT DRAINAGE CALCS
BY SSK DATE 2-23-02
CHECKED _____ DATE _____
SHEET 2 OF _____

REVISED 9-16-02

- WE NEED TO SUBTRACT BACKYARD AREA TO BE PONDED

$$75' \times 30' = 2250 \text{ sq ft} = 0.0517 \text{ AC}$$

100% TYPE "B"

FROM AH4MO OUTPUT SHEETS 10-12

$$Q = 0.16 \text{ CFS / LOT}$$

$$V = 0.0046 \text{ AC-FT} = 200.38 \text{ CF / LOT}$$

- POND NEEDS TO BE TWICE THIS SIZE FOR RETENTION

$$V = 400.75 \text{ CF / LOT}$$

ELEV	AREA (SF)	VOLUME (CF)
0	40 x 10 = 400	0.0
1	43 x 13 = 559	479.5 > 400.75 CF OK

- SUBTRACT POND Q'S FROM TOTAL FLOW

$$Q = 6.79 - 3(0.16)$$

= 6.31 CFS WILL FLOW NORTH ACROSS LOT 4
INTO THE EL CAMINO ARROYO THROUGH
A 20' PUBLIC DRAINAGE EASEMENT

GO TO SHEET 3 FIRST
①

② FIND Q TAKEN BY INLETS ON MONESTO
USE DBL A ON EACH SIDE

FROM NOMO SHEET 5

$$Q_{\text{inlet}} = 5.9 \text{ CFS}$$

$$Q_{\text{past inlets}} = 2(7.8 - 5.9) \\ = 3.80 \text{ CFS}$$

THIS WILL ADD TO THE SUMP ON WYOMING
AT GLENDALE.



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PROJECT DESERT HIGHWAYS @ LA CUEVA
SUBJECT DRAINAGE CALCS
BY GSK DATE 7-23-02
CHECKED _____ DATE _____
SHEET 3 OF _____
REVISED 9-16-02

- ① • FIND FLOW IN MODESTO FROM BARSTON TO WYOMING
FOR TOTAL BUILDOUT.

$$A = 3.58 \text{ AC}$$

$$\text{TYPE "B"} = 27\%$$

$$\text{TYPE "D"} = 73\%$$

FROM AHYMO OUTPUT SHEETS 13-15

$$Q = 15.60 \text{ CFS} \quad Q_{1/2} = 7.8 \text{ CFS} \quad S = 2.09\% \quad n = 0.017$$

$$\text{Find } d = 0.39$$

$$WP = 15.64$$

$$A = 2.41$$

$$V_{1/2} = 3.55 \text{ F/S}$$

$$Q_{1/2} = 8.56 \text{ CFS} > 7.8 \text{ CFS OK}$$

$$d + V^2/2g = 0.59 < 0.85 \text{ OK}$$

GO TO SHEET 2 ②

- FIND OFFSITE DRAINAGE BASIN THAT ENTERS SITE

PART OF LOTS 25, 26 & 27, BLK 12, UNIT 3, TRACT 1, NAA
DRAINS TO OUR SITE

LOT 25 + 26 DRAIN OVERLAND BUT LOT 27 COLLECTS
ALL THIS WATER AND DISCHARGES THROUGH A PIPE
ONTO OUR PROPERTY AT A CONCENTRATED LOCATION

$$\text{OFFSITE BASIN} = 1.1744 \text{ AC}$$

$$\text{PADS} = 3960 \text{ SF} + 2073 \text{ SF} = 6033 \text{ SF}$$

$$\text{DRIVES} = 5701 \text{ SF} + 850 \text{ SF} = 6551 \text{ SF}$$

$$\text{SDWKS} = 142 \text{ SF} + 167 \text{ SF} = 309 \text{ SF}$$

$$12,893 \text{ SF} = 0.2960 \text{ AC TYPE "D"} \\ = 25.20\%$$

$$\text{TYPE "A"} = 74.80\% = 0.8784 \text{ AC}$$

FROM AHYMO OUTPUT SHEETS 16-18

$$Q = 3.07 \text{ CFS}$$

THIS FLOW IS TO BE ROUTED AROUND THE
SITE TO THE NORTH AND DISCHARGE ONTO LOTS

- TOTAL Q ALLOWED

$$A = 1.7840 + 1.1744 - [3(0.0517)] \text{ BACKYARDS} \\ = 2.8033 \text{ AC}$$

$$0.2960 \text{ AC TYPE "D"} 10.56\%$$

$$2.8033 - 0.2960 = 2.5073 \text{ AC TYPE "A"} 89.44\%$$

FROM AHYMO OUTPUT SHEETS 19-21

$$Q = 5.97 \text{ CFS}$$



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PROJECT DESERT HIGHLANDS @ LA CUEVA
SUBJECT DRAINAGE CALCS
BY GJK DATE 8-26-02
CHECKED _____ DATE _____
SHEET 4 OF _____

REVISED 9-16-02
REVISED 3-14-03

SIZE DETENTION POND ON LOT 4

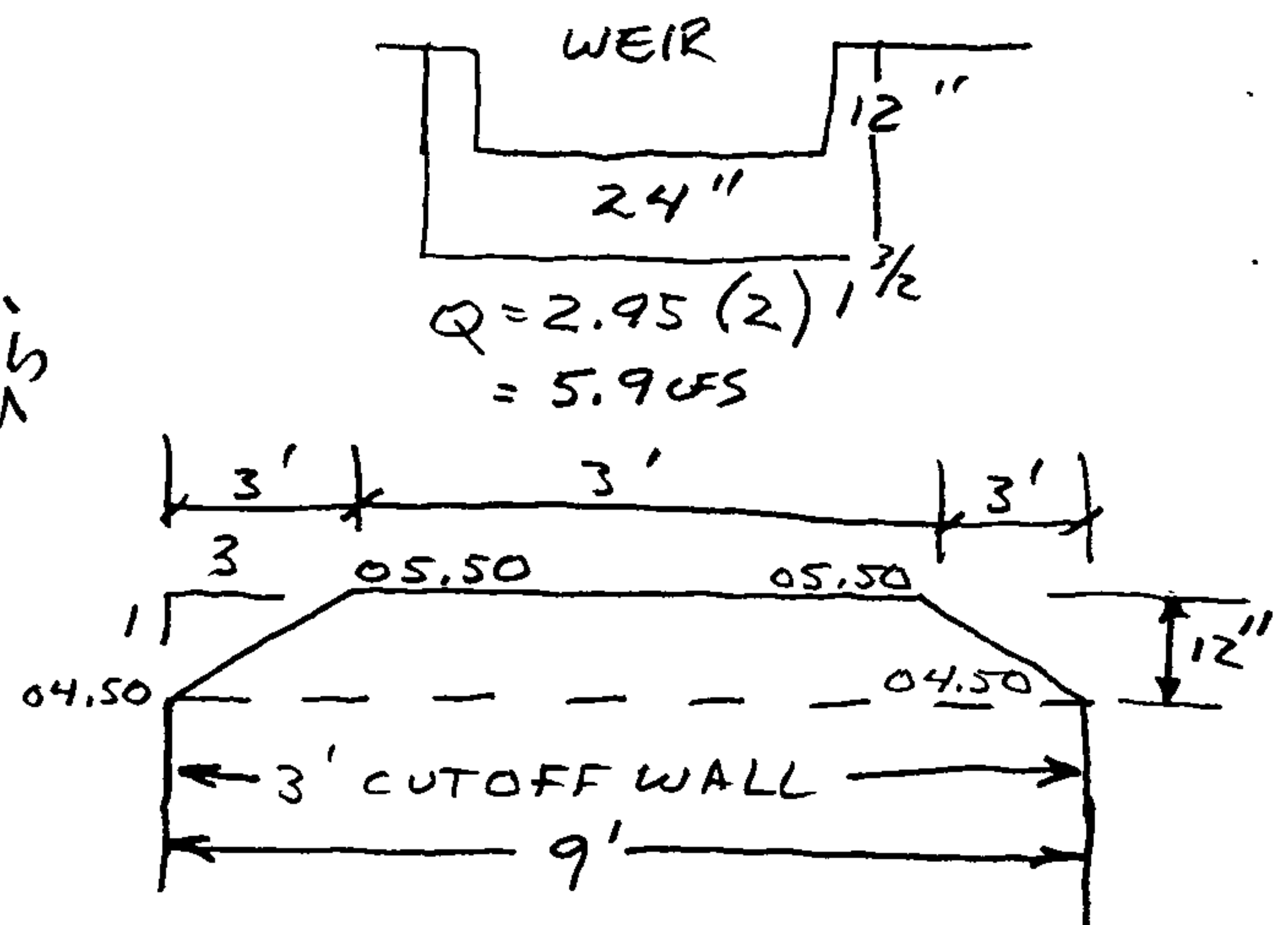
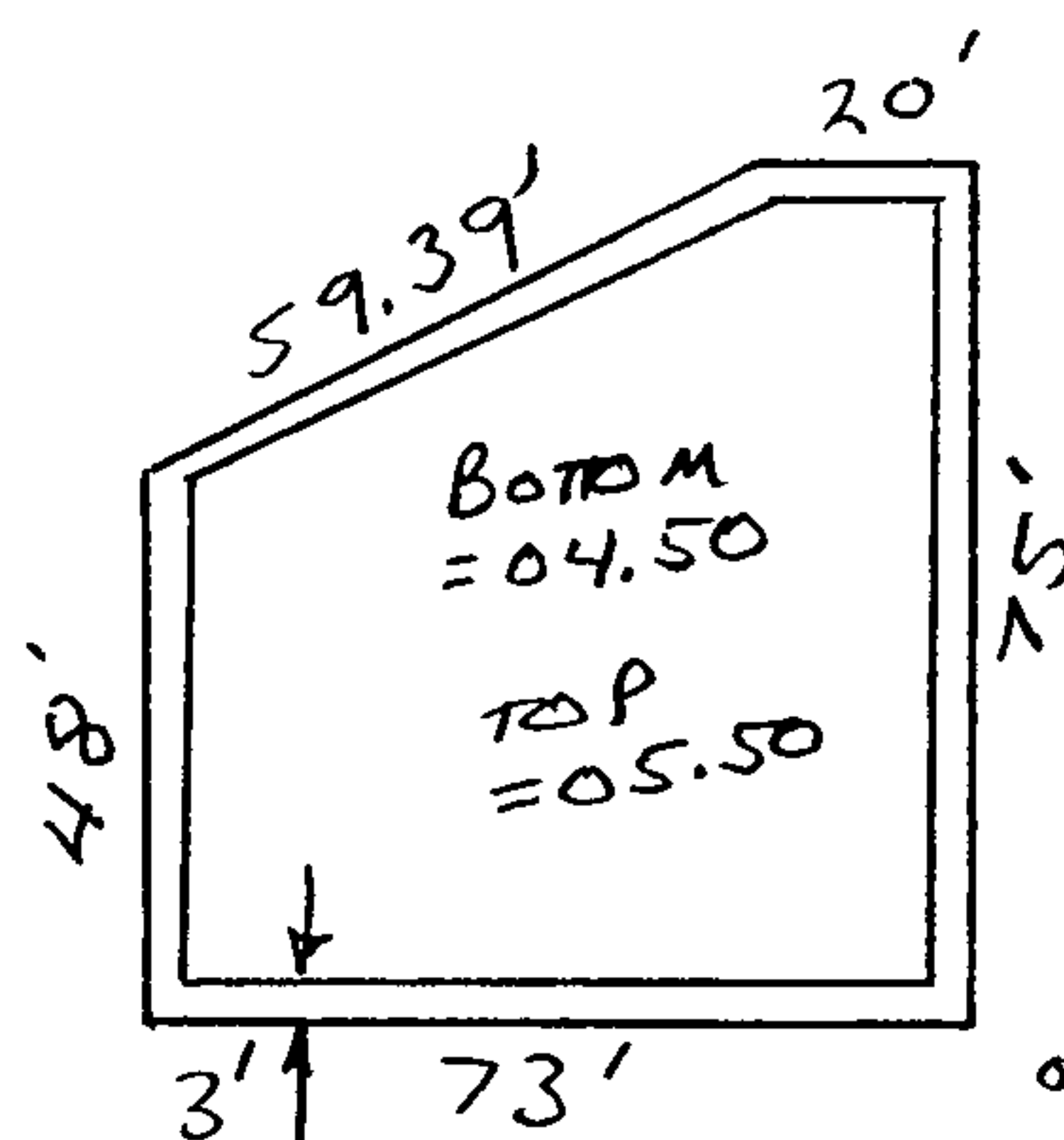
$$A = 2.8033 \text{ AC}$$

$$\text{TYPE "D"} = 1.0592 + 0.2960 \\ = 1.3552 \text{ AC} \quad 48.34 \%$$

$$\text{TYPE "B"} = 0.7248 - (3(0.0517)) = 0.5697 \text{ AC} \quad 20.32 \%$$

$$\text{TYPE "A"} = 0.8784 \quad 31.34 \%$$

ELEV	AREA (SF)	VOLUME (AC-FT)	DISCHARGE
4.5	3968	0	0
5.5	4760	0.100	5.90



FROM A44MO OUTPUT SHEETS 22-24

PEAK DISCHARGE = 5.87 CFS < 5.97 CFS OK
MAXIMUM WATER SURFACE = 5405.495

• SIZE FUTURE INLET

$$\text{TOTAL } Q = 9.8 \text{ CFS}$$

$$P = 17$$

USE SGL A, DBL THROAT

$$Q/P = 3H^{3/2} \quad H = 0.33' < 0.67 \text{ OK}$$

$$2 \times 9.8 \quad H = 0.53' < 0.67 \text{ OK}$$

• FROM N44MO SHEET 6 18" RCP @ 3.0% CARRIES 18 CFS



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January 26, 2004

Gregory Krenik, P.E.
Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

**Re: Desert Highlands at La Cueva, SIA/Financial Guarantee Release
Engineer's Stamp dated 3-14-03 (B19/D20)
Certification dated 1-22-04**

Dear Mr. Krenik,

Based upon the information provided in your submittal received 1-22-04, the above referenced certification is approved for release of SIA and Financial Guarantee.

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: Arlene Portillo, COA# 702781 /
file