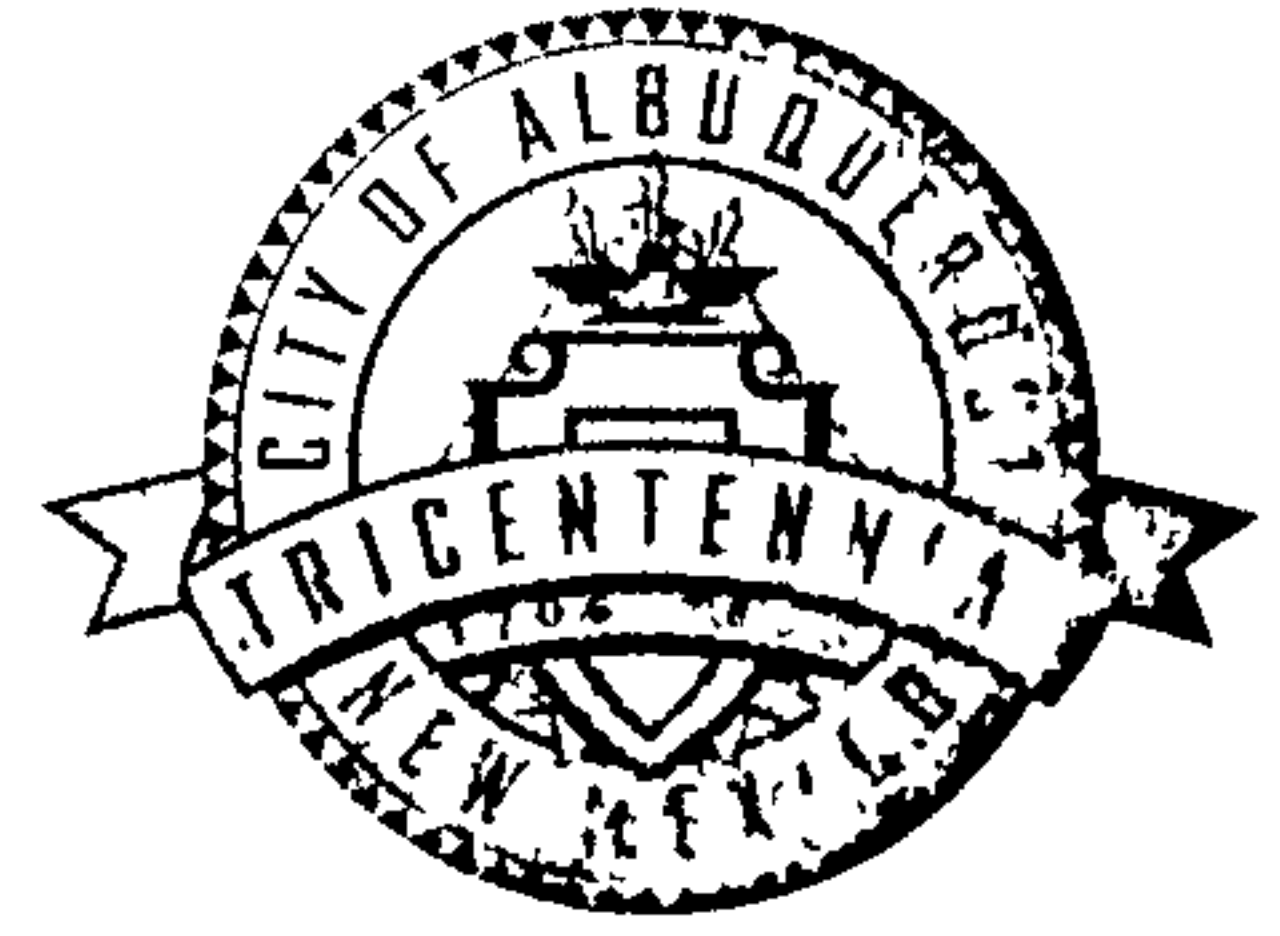


CITY OF ALBUQUERQUE



**Planning Department
Transportation Development Services Section**

June 20, 2007

Shahab Biazar, P.E.,
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: Certification Submittal for Final Building Certificate of Occupancy for
Lot 29, Alameda Business Park, [C-16 / D6II]
8724 Alameda Park Dr.
Engineer's Stamp Dated 06/19/07

Dear Mr. Biazar:

The TCL / Letter of Certification submitted on June 20, 2007 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Sincerely,


Nilo E. Salgado-Fernandez, P.E.
Senior Traffic Engineer
Development and Building Services
Planning Department

c: Engineer
Hydrology file
CO Clerk

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(Rev. 12/05)

PROJECT TITLE: LOT 29, ALAMEDA BUSINESS PARK ZONE ATLAS/DRG. FILE #: C16 / D6II
DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT 29 ALAMEDA BUSINESS PARK

CITY ADDRESS: _____

ENGINEERING FIRM: Advanced Engineering and Consulting, LLC
ADDRESS: 4416 Anaheim Ave., NE
CITY, STATE: Albuquerque, New Mexico

CONTACT: Shahab Biazar
PHONE: (505) 899-5570
ZIP CODE: 87113

OWNER: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

SURVEYOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

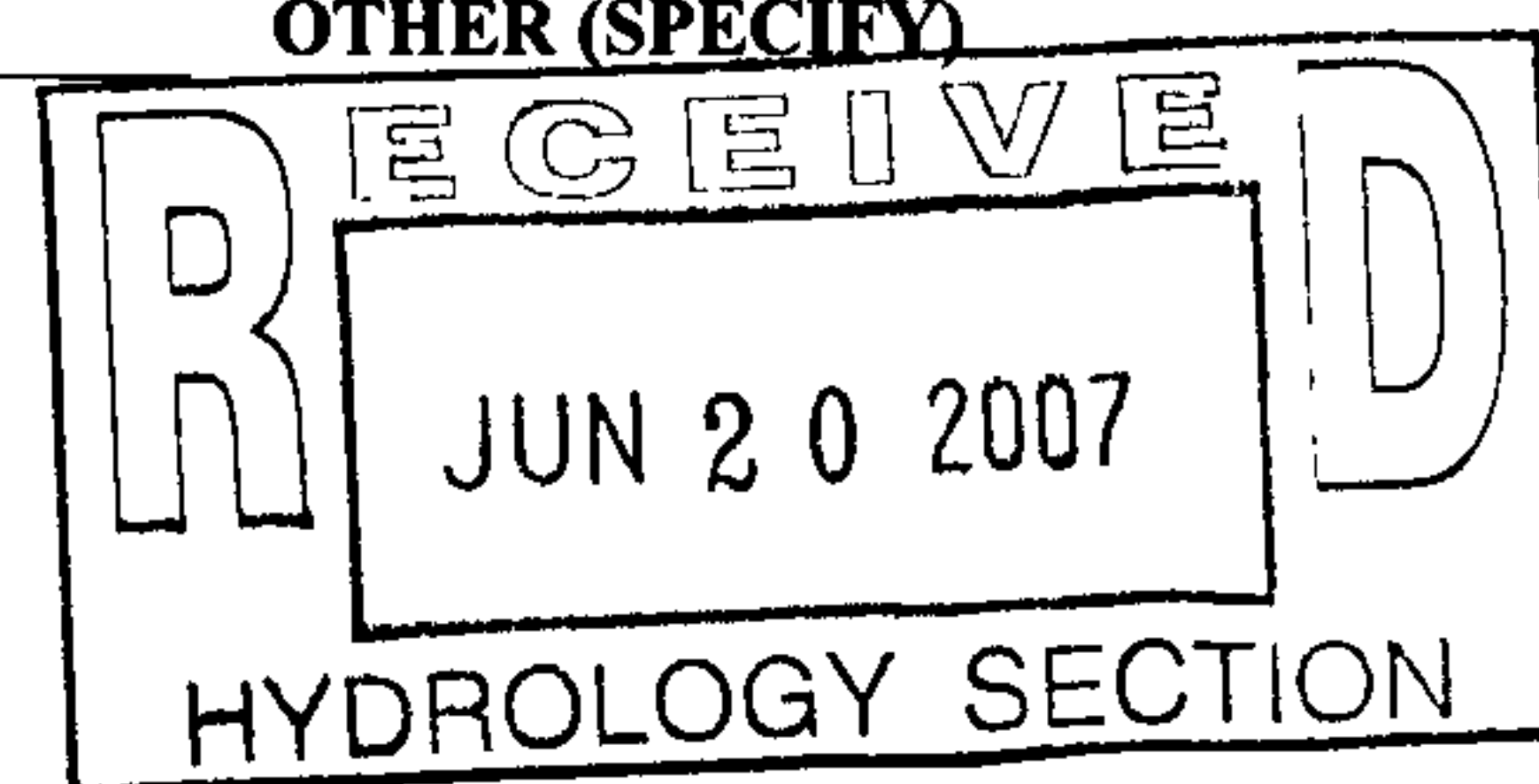
CHECK TYPE OF APPROVAL SOUGHT:

☐ DRAINAGE REPORT
☐ DRAINAGE PLAN 1ST SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR / LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☒ ENGINEER/ARCHITECT CERT (TCL)
☐ ENGINEER/ARCHITECT CERT (DRB S.P.)
☐ ENGINEER/ARCHITECT CERT (AA)
☐ OTHER (SPECIFY) _____

☐ SIA / FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY (PERM.)
☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY) _____

WAS A PRE-DESIGN CONFERENCE ATTENDED:

☐ YES
☒ NO
☐ COPY PROVIDED



DATE SUBMITTED: 06 / 19 / 2007 BY: Shahab Biazar, P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittals may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more.

CITY OF ALBUQUERQUE



June 20, 2007

Shahab Biazar, P.E.
Advanced Engineering
4416 Anaheim Ave. NE
Albuquerque, NM 87113

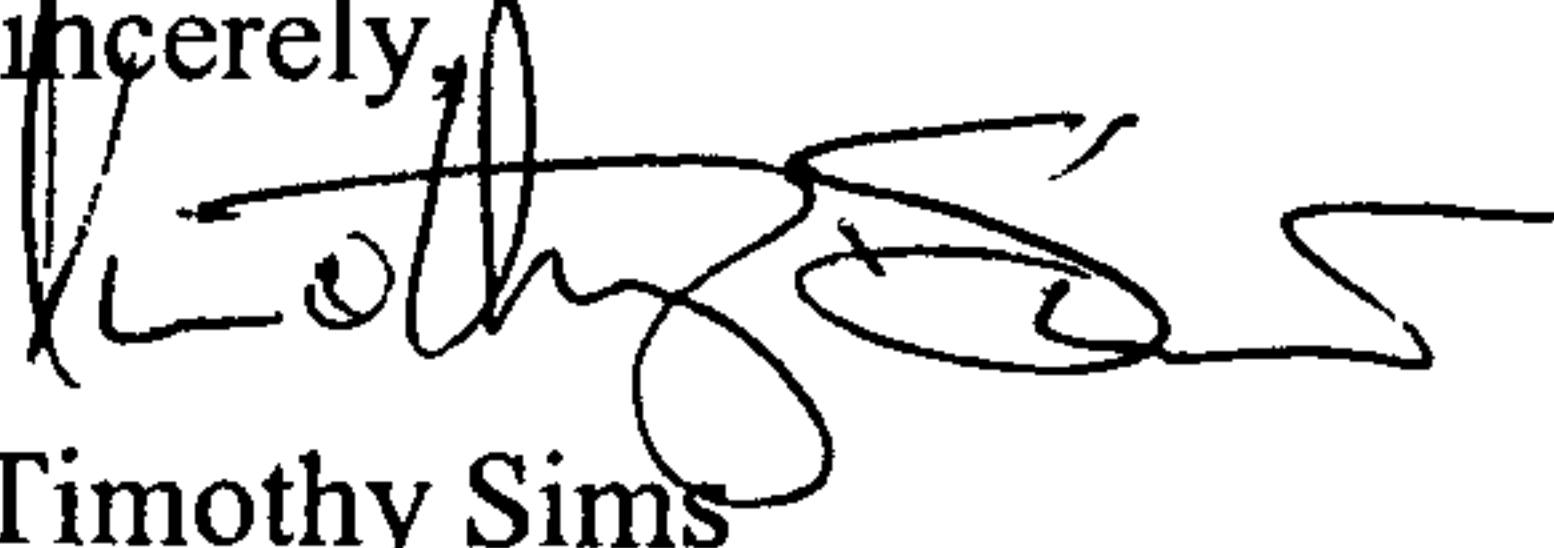
**Re: Alameda Business Park-lot 29, 8724 Alameda Park Dr,
Approval of Permanent Certificate of Occupancy (C.O.)
Engineer's Stamp dated 10/24/05 (C16/D006II)
Certification dated 6/19/07**

Based upon the information provided in your submittal received 6/20/07, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

P.O. Box 1293

If you have any questions, you can contact me at 924-3982.

Albuquerque

Sincerely,


Timothy Sims
Plan Checker-Hydrology, Planning Dept.
Development and Building Services

New Mexico 87103

www.cabq.gov

C: Katrina Sigala
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(Rev. 12/05)

PROJECT TITLE: LOT 29, ALAMEDA BUSINESS PARK ZONE ATLAS/DRG. FILE #: C16 / D6II
DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: LOT 29 ALAMEDA BUSINESS PARK
CITY ADDRESS: _____

ENGINEERING FIRM: Advanced Engineering and Consulting, LLC CONTACT: Shahab Biazar
ADDRESS: 4416 Anaheim Ave., NE PHONE: (505) 899-5570
CITY, STATE: Albuquerque, New Mexico ZIP CODE: 87113

OWNER: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____
ADDRESS: _____ PHONE: _____
CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

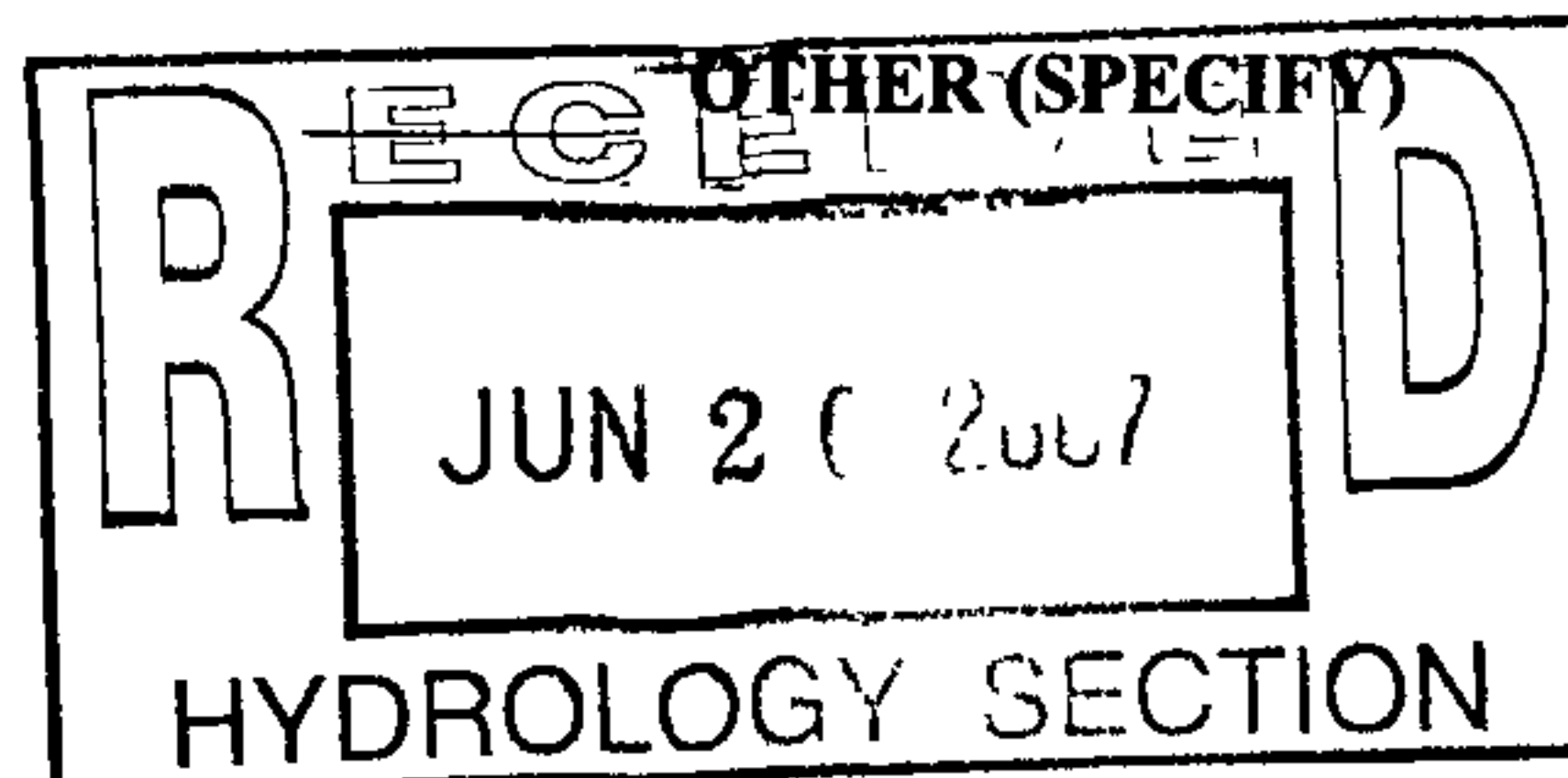
CHECK TYPE OF APPROVAL SOUGHT:

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☐ DRAINAGE PLAN 1ST SUBMITTAL
☐ DRAINAGE PLAN RESUBMITTAL
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
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☐ CLOMR / LOMR
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☐ OTHER (SPECIFY) _____

☐ SIA / FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
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☐ SECTOR PLAN APPROVAL
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☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☒ CERTIFICATE OF OCCUPANCY (PERM.)
☐ CERTIFICATE OF OCCUPANCY (TEMP.)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL

WAS A PRE-DESIGN CONFERENCE ATTENDED:

☐ YES
☒ NO
☐ COPY PROVIDED

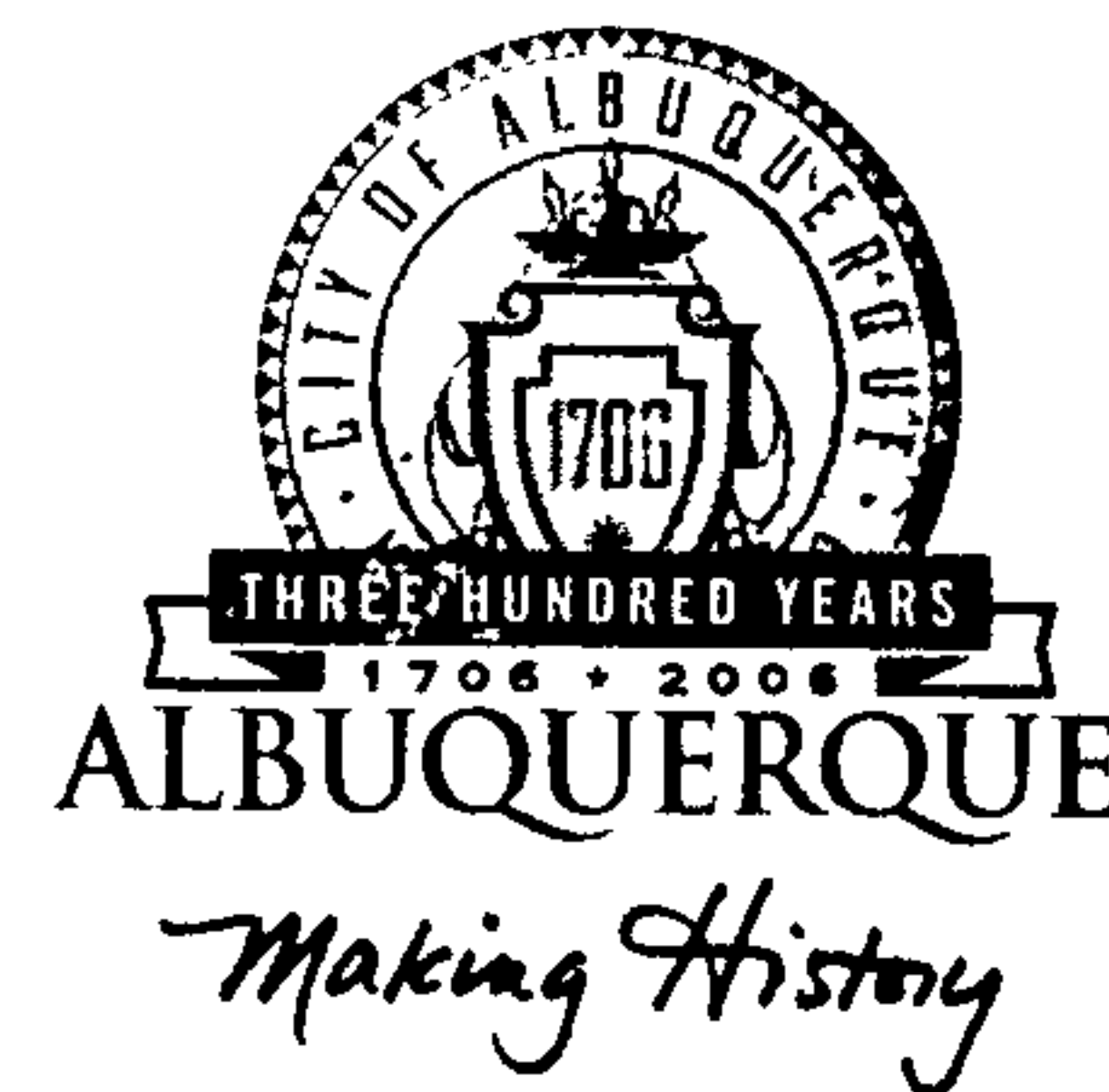


DATE SUBMITTED: 06 / 19 / 2007 BY: Shahab Biazar, P.E.

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3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more.

CITY OF ALBUQUERQUE



February 3, 2006

Shahab Biazar PE
Advanced Engineering and Consulting
4416 Anaheim Ave NE
Albuquerque, NM 87113

**Re: Alameda Business Park, Lot 29 Grading and Drainage Plan
Engineer's Stamp dated 10-24-05 (C16/D6II)**

Dear Mr. Biazar,

P.O. Box 1293

Based upon the information provided in your submittal dated 10-25-05 and Corp of Engineers approval of your wall calculations dated 10-17-05, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Albuquerque

Also, prior to Certificate of Occupancy release, Engineer Certification of the grading plan per the DPM checklist and written acceptance of the wall in the easement by AMAFCA will be required.

New Mexico 87103

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

www.cabq.gov

Sincerely,

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

C: Lynn Mazur, AMAFCA
file

From: "Lynn Mazur" <lmazur@amafca.org>
Subject: **FW: Alameda Business Park, Lot 29**
Date: February 2, 2006 3:25:58 PM MST
To: <timhelmick@comcast.net>
Reply-To: <lmazur@amafca.org>

As requested.

AMAFCA

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer
phone: 884-2215
fax: 884-0214

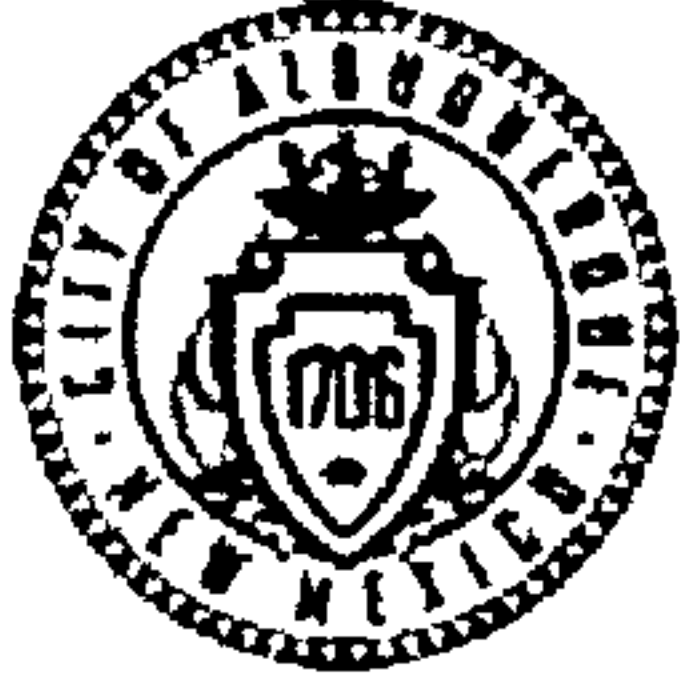
From: Lynn Mazur [mailto:lmazur@amafca.org]
Sent: Thursday, February 02, 2006 2:27 PM
To: Brad Bingham (bbingham@cabq.gov)
Cc: Shahab Biazar (aecllc@aol.com)
Subject: Alameda Business Park, Lot 29

Re: Alameda Business Park, Lot 29, ZAP C-16
Engineer: Advanced Engineering
Owner: Helmick

I have received the required approval from the U.S. Army Corps of Engineers for construction within the AMAFCA slope easement adjacent to the North Diversion Channel. AMAFCA approves release of building permit. The retaining wall within the easement will be constructed per the calculations dated October 17, 2005, and AMAFCA will inspect prior to release of Certificate of Occupancy.

AMAFCA

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer
phone: 884-2215
fax: 884-0214



"Lynn Mazur"
<lmazur@amafca.org>

01/30/2006 03:39 PM

Please respond to
<lmazur@amafca.org>

To "Shahab Biazar" <aecllc@aol.com>

cc "Brad Bingham" <bbringham@cabq.gov>, "Jerry Lovato"
<jlovato@amafca.org>

bcc

Subject Lot 29, Alameda Business Park

Re: Lot 29, Alameda Business Park, ZAP C-16

I am sending this correspondence in response to our conversation on Friday, January 27, and your voice mail message on Monday, January 30. Due to the expense of the previously designed retaining wall, you requested a variance in the 3-foot saturation assumption in the wall calculations with additional weep holes. AMAFCA will not allow this variance. The North Diversion Channel is the major flood control facility serving this area of town, and we cannot allow a lesser design standard in order to save a developer money. An option for the owner is to stay out of the 80-foot AMAFCA slope easement and allow the existing slope to remain. We will be happy to meet with you and your client to discuss this matter further.

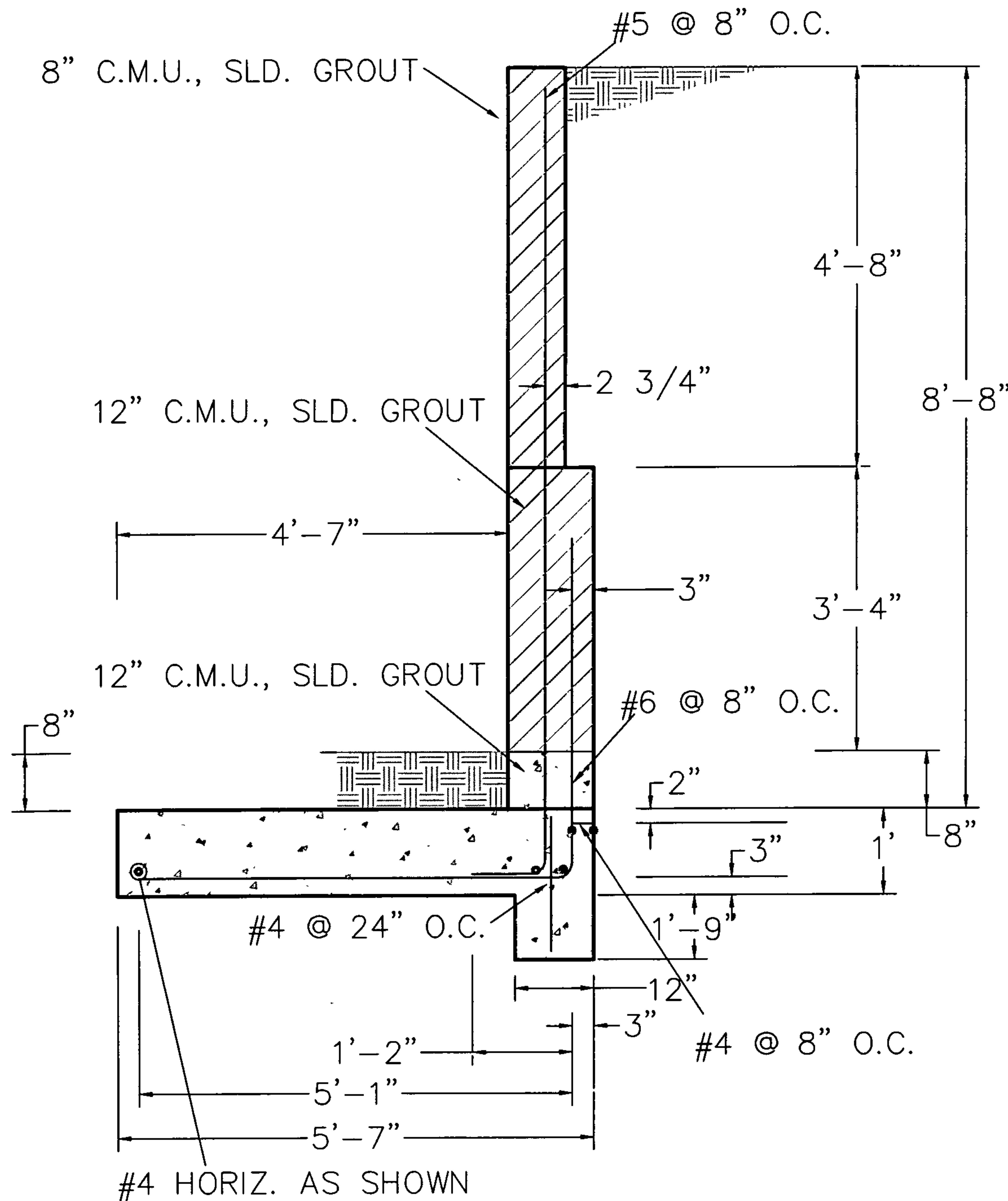
AMAFCA does not approve release of building permit until we receive concurrence from the Corps of Engineers. I supplied you a copy of the Special Warranty Deed, Document No. 08892147, which states:

"All plans of proposed construction within the area hereby granted are subject to review and written approval by the U.S. Army Corps of Engineers and by (AMAFCA) ..., prior to commencement of any construction."

Jerry Lovato will contact the Corps of Engineers to see where they are in their review.

AMAFCA

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer
phone: 884-2215
fax: 884-0214



GENERAL NOTES:

1. ALL CONCRETE IS TO BE 3000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE $\pm 2.0\%$.
3. BACK FILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. TRUSS TYPE DUR-O-WALL EVERY OTHER COURSE.
6. DOWELS SHALL BE AT LEAST EQUAL IN SIZE AND SPACING TO Y-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. JOINT REINFORCEMENT CONSISTING OF 9GA. LONGITUDINAL WIRE AND 3/16" CROSS RODS SHALL BE PROVIDED AT 8" CENTERS VERTICALLY.
8. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.
9. ALTERNATIVE TO WEEP HOLES, PROVIDE OPEN JOINT IN FIRST COURSE.

**RETAINING WALL DETAIL
FOR
LOT 29, ALAMEDA BUSINESS PARK**



**IF THIS DESIGN IS USED 30 DAYS AFTER
THE STAMPED DATE FOR PERMITTING, IT IS NOT VALID**

To specify your own
special title block here,
use the "Settings" screen
and enter your title block
information.

Title : EX-2
Job # :
Description....

Dsgnr: HB

Page: _____
Date: SEP 2, 2001

This Wall in File: C:\1-WORK\200519-Alameda-Busi-Helmick

Retain Pro 6.1d, 5-April-2004, (c)1989-2004
Registration #: RP-1133315

Cantilevered Retaining Wall Design Calculation Trace Listing

- 1 **Beginning of Trace**
- 2 Setting ACI Load Factors: DL Fact = 1.2000, LL Fact = 1.6000, ST Fact = 1.000
- 3 Noted that EFP Method being used
- 4 Back-solving internal friction angle from density and EFP, angle = 43.820 deg
- 5 Actual Heel Width (past back of stem) = 0.000 ft
- 6 Soil Height for Stability (wall+footing+cslope) = 9.5000 ft
- 7 **Calculating Overturning Values**
- 8 Active Pressure (water, too long to show details) = 1,762.19, Moment = 4,831.46 ft-#
- 9 Arm = 2.7417 ft, Moment = 4,831.46 ft-#
- 10 Active Pressure @ Toe: $(8.0000 + 12.000)^2 * 30.000 / 2.0 = 41.667$ lbs
- 11 Arm = $(8.0000 + 12.000) / 3 / 12 = 0.556$ ft, Moment = 23.148 ft-#
- 12 Toe Active Pressure Used To Resist Sliding, so ADD Soil over toe = 41.667 lbs to Total Overturning Loads
- 13 **Calculating Resisting Moments**
- 14 Soil Wt Over Heel = $0.000 * 8.5000 * 165.000 = 0.000$ lbs
- 15 Arm = $4.4167 - 0.000 / 2.0 = 4.4167$ ft, Moment = $0.000 * 4.4167 = 0.000$ ft-#
- 16 Soil Wt Over Toe = $3.4167 * 0.667 * 165.000 = 375.833$ lbs
- 17 Arm = $3.4167 / 2.0 = 1.7083$ ft, Moment = $375.833 * 1.7083 = 642.049$ ft-#
- 18 Top Stem Weight = 351.000 lbs, Arm = $(3.4167 + 0.667 / 2.0) = 3.7500$ ft
- 19 2nd Top Stem Weight = 412.920 lbs, Arm = $(3.4167 + 1.000 / 2.0) = 3.9167$ ft
- 20 3rd Top Stem Weight = 100.500 lbs, Arm = $(3.4167 + 1.000 / 2.0) = 3.9167$ ft
- 21 Stem Avg. Arm = 46.188 ft, Total Moment = 39,926 ft-#
- 22 Earth @ Top Stem Setback, Weight = $(1.000 - 0.667) * 165.000 * (8.5000 - 4.0000) = 247.500$ lbs, Arm = 4.2500 ft
- 23 Avg. Arm = 4.2500 ft, Moment = 1,051.88 ft-#
- 24 Footing Weight = $4.4167 * 12.000 * 150.000 = 662.500$ lbs, Arm = $4.4167 / 2.0 = 2.2083$ ft, Moment = 1,463.02 ft-#
- 25 Key Weight = $1.7500 * 1.000 * 150.000 = 662.500$ lbs, Arm = $3.4167 + 1.000 / 2.0 = 3.9167$ ft, Moment = 1,028.13 ft-#
- 26 Total Resis. Wt = 2,412.75 lbs, Moment = 7,512.21 ft-#
- 27 **Calculated Stem Forces for Preliminary Checks**
- 28 **Cantilevered Stem Calculations**
- 29 Top Stem Section: Shear = 303.750 lbs, Moment = 455.625 ft-#
- 30 2nd Top Stem Section: Shear = 1,058.22 lbs, Moment = 2,507.88 ft-#
- 31 3rd Top Stem Section: Shear = 2,090.93 lbs, Moment = 5,278.22 ft-#
- 32 **Calculating Actual Shear Stress**
- 33 Top Masonry Stem, $f_m = f'_m * LDF = 1,500.00 * 1.3300 = 1,995.00$ psi
- 34 No inspection so $f_m = f'_m / 2 = 997.500$ psi
- 35 'd' to rebar = $j d = 0.905 * 3.7500$ in
- 36 Shear Area = 41.076 in² (from internal table)
- 37 Unit Shear Stress = $303.750 / 41.076 = 7.3948$ psi
- 38 2nd Top Masonry Stem, $f_m = f'_m * LDF = 1,500.00 * 1.000 = 1,500.00$ psi
- 39 No inspection so $f_m = f'_m / 2 = 750.000$ psi
- 40 'd' to rebar = $j d = 0.895 * 9.0000$ in
- 41 Shear Area = 97.169 in² (from internal table)
- 42 Unit Shear Stress = $1,058.22 / 97.169 = 10.890$ psi
- 43 Concrete Unit Shear Stress = $2,090.93 / 10.188 / 12.0 = 17.104$ psi
- 44 **Determine Allowable Moments**
- 45 Top Masonry Stem Capacity = 7,186.31 in-#
- 46 2nd Top Masonry Stem Capacity = 33,773 in-#
- 47 3rd Top Concrete Stem Capacity = 238,586 in-#
- 48 Top Masonry Stem Shear Capacity = $1.3300 * f_{min}(\sqrt{1,500.00}, 50.0) = 51.511$ psi
- 49 No Special Inspection, so reduce 1/2; Capacity = 25.755 psi
- 50 2nd Top Masonry Stem Shear Capacity = $1.000 * f_{min}(\sqrt{1,500.00}, 50.0) = 38.730$ psi
- 51 No Special Inspection, so reduce 1/2; Capacity = 19.365 psi
- 52 3rd Top Concrete Stem Shear Capacity = $0.85 * 2.0 * \sqrt{2,000.00} = 76.026$ psi
- 53 **Calculate Bar Lap Lengths**
- 54 Top Stem, Embed into Masonry ABOVE = 24.000 in
- 55 Top Stem, Embed into Masonry BELOW = 24.000 in
- 56 2nd Top Stem, Embed into Masonry ABOVE = 23.607 in
- 57 2nd Top Stem, Embed into Concrete BELOW = 34.883 in
- 58 3rd Top Stem, Hooked Embed into Concrete Footing BELOW = 6.0000 in
- 59 3rd Top Stem, Embed into Concrete ABOVE = 43.603 in
- 60 **Calculating Soil Pressure**
- 61 Toe Bar Depth = $12.000 - 3.0000 - 0.5 = 8.5000$ in, Heel Bar Depth = $12.000 - 2.0000 - 0.5 = 9.5000$ in
- 62 Service Load Soil Pressures.....
- 63 $P = 2,412.75$ lbs, Ecc = 13.052 in, Toe Pressure = 119.608 psf, Heel Pressure = 0.000 psf
- 64 **Calculating Factored Load Shear in Footing=**

W/ 3' of
Water Table

To specify your own
special title block here,
use the "Settings" screen
and enter your title block
information.

Title : EX-2
Job # :
Description....

Dsgnr: HB

Page: _____
Date: SEP 2,2001

This Wall in File: C:\1-WORK\200519-Alameda-Busi-Helmick

Retain Pro 6.1d, 5-April-2004, (c)1989-2004
Registration # : RP-1133315

Cantilevered Retaining Wall Design Calculation Trace Listing

65 $P = 2,598.30 \text{ lbs}$, $Ecc = 13.052 \text{ in}$, Toe Pressure = 119.608 psf, Heel Pressure = 0.000 psf
66 Shear @ Toe = $(15.058 - 1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 32.500) / (12.0 * 8.5000) = 15.058 \text{ psi}$
67 Shear Distances from Edge; Toe = 41.000 in, Heel = 0.000 in
68 Toe Upward Moment = 6,014.56 ft-#
69 Toe Downward Moment = $1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 41.000^2 / 2.0 = 1,821.08 \text{ ft-#}$
70 Moment @ Toe, Upward = 72,175 ft-#, Downward = $1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 41.000^2 / 2.0 = 4,193.$
71 Soil Height for Passive Pressure = 21.000 + 12.000 + 8.0000 = 41.000 in
72 Sliding Resistance due to Friction = $2,412.75 * 0.400 = 965.101 \text{ lbs}$
73 Friction Resistance adjusted for Specified '%' = $1.000 * 965.101 = 965.101 \text{ lbs}$
74 Sliding Passive Pressure = $(41.000 - 8.0000) * 2.0833 * (41.000 - 8.0000) / 2.0$
75 $+ (8.0000 * 2.0833 * (41.000 - 8.0000)) = 1,684.38 \text{ lbs}$
76 Passive Resistance adjusted for Specified '%' = $1.000 * 965.101 = 1,684.38 \text{ lbs}$
77 Sliding Factor of Safety = $(1,684.38 + 965.101) / 1,720.52 = 1.5399 \text{ lbs}$
78 **Calculating Footing Rebar Requirements**
79 RHo:Balanced = $0.850 * 2,000.00 / 60,000 * 0.850 * (87000.0 / (87000.0 + 60,000)) = 0.014$
80 R_u : Toe = $ABS(50,322 / 12.0 / 8.5000^2 / 0.9) = 64.490 \text{ psi}$
81 Required Steel % = 0.001%
82 Required Steel Area = 0.015 in²
83 Key : Required Steel % = 0.000%
84 Required Steel Area = 0.016 in²
85 **Calculated Stem Forces for Fincal Checks**
86 **Cantilevered Stem Calculations**
87 Top Stem Section: Shear = 303.750 lbs, Moment = 455.625 ft-#
88 2nd Top Stem Section: Shear = 1,058.22 lbs, Moment = 2,507.88 ft-#
89 3rd Top Stem Section: Shear = 2,090.93 lbs, Moment = 5,278.22 ft-#
90 Calculating Actual Shear Stress
91 Top Masonry Stem, $f_m = f'_m * LDF = 1,500.00 * 1.3300 = 1,995.00 \text{ psi}$
92 No inspection so $f_m = f'_m / 2 = 997.500 \text{ psi}$
93 'd' to rebar = $jd = 0.905 * 3.7500 \text{ in}$
94 Shear Area = 41.076 in² (from internal table)
95 Unit Shear Stress = $303.750 / 41.076 = 7.3948 \text{ psi}$
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97 No inspection so $f_m = f'_m / 2 = 750.000 \text{ psi}$
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101 Concrete Unit Shear Stress = $2,090.93 / 10.188 / 12.0 = 17.104 \text{ psi}$
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special title block here,
use the "Settings" screen
and enter your title block
information.

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Job # :
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Page: _____
Date: SEP 2,2001

This Wall in File: C:\2005-JOBS\200519-Helmick-Alameda-B

Retain Pro 6.1d, 5-April-2004, (c)1989-2004
Registration # : RP-1133315

Cantilevered Retaining Wall Design Calculation Trace Listing

1. Beginning of Trace

2 Setting ACI Load Factors: DL Fact = 1.2000, LL Fact = 1.6000, ST Fact = 1.000

3 Noted that EFP Method being used

4 Back-solving internal friction angle from density and EFP, angle = 43.820 deg

5 Actual Heel Width (past back of stem) = 0.000 ft

6 Soil Height for Stability (wall+footing+cslope) = 9.5000 ft

7 Calculating Overturning Values

8 Arm = 3.1667 ft, Moment = 4,286.88 ft-#

9 Active Pressure @ Toe: $(8.0000 + 12.000)^2 \cdot 30.000 / 2.0 = 41.667$ lbs

10 Arm = $(8.0000 + 12.000) / 3 / 12 = 0.556$ ft, Moment = 23.148 ft-#

11 Toe Active Pressure Used To Resist Sliding, so ADD Soil over toe = 41.667 lbs to Total Overturning Loads

12 Calculating Resisting Moments

13 Soil Wt Over Heel = $0.000 \cdot 8.5000 \cdot 165.000 = 0.000$ lbs

14 Arm = $4.4167 - 0.000 / 2.0 = 4.4167$ ft, Moment = $0.000 \cdot 4.4167 = 0.000$ ft-#

15 Soil Wt Over Toe = $3.4167 \cdot 0.667 \cdot 165.000 = 375.833$ lbs

16 Arm = $3.4167 / 2.0 = 1.7083$ ft, Moment = $375.833 \cdot 1.7083 = 642.049$ ft-#

17 Top Stem Weight = 351.000 lbs, Arm = $(3.4167 + 0.667 / 2.0) = 3.7500$ ft

18 2nd Top Stem Weight = 412.920 lbs, Arm = $(3.4167 + 1.000 / 2.0) = 3.9167$ ft

19 3rd Top Stem Weight = 100.500 lbs, Arm = $(3.4167 + 1.000 / 2.0) = 3.9167$ ft

20 Stem Avg. Arm = 46.188 ft, Total Moment = 39,926 ft-#

21 Earth @ Top Stem Setback, Weight = $(1.000 - 0.667) \cdot 165.000 \cdot (8.5000 - 4.0000) = 247.500$ lbs, Arm = 4.2500 ft

22 Avg. Arm = 4.2500 ft, Moment = 1,051.88 ft-#

23 Footing Weight = $4.4167 \cdot 12.000 \cdot 150.000 = 662.500$ lbs, Arm = $4.4167 / 2.0 = 2.2083$ ft, Moment = 1,463.02 ft-#

24 Key Weight = $1.7500 \cdot 1.000 \cdot 150.000 = 662.500$ lbs, Arm = $3.4167 + 1.000 / 2.0 = 3.9167$ ft, Moment = 1,028.13 ft-#

25 Total Resis. Wt = 2,412.75 lbs, Moment = 7,512.21 ft-#

26 Calculated Stem Forces for Preliminary Checks

27 Cantilevered Stem Calculations

28 Top Stem Section: Shear = 303.750 lbs, Moment = 455.625 ft-#

29 2nd Top Stem Section: Shear = 919.634 lbs, Moment = 2,400.24 ft-#

30 3rd Top Stem Section: Shear = 1,723.33 lbs, Moment = 4,910.63 ft-#

31 Calculating Actual Shear Stress

32 Top Masonry Stem, $f_m = f_m \cdot LDF = 1,500.00 \cdot 1.3300 = 1,995.00$ psi

33 No inspection so $f_m = f_m / 2 = 997.500$ psi

34 'd' to rebar = $j d = 0.905 \cdot 3.7500$ in

35 Shear Area = 41.076 in² (from internal table)

36 Unit Shear Stress = $303.750 / 41.076 = 7.3948$ psi

37 2nd Top Masonry Stem, $f_m = f_m \cdot LDF = 1,500.00 \cdot 1.000 = 1,500.00$ psi

38 No inspection so $f_m = f_m / 2 = 750.000$ psi

39 'd' to rebar = $j d = 0.895 \cdot 9.0000$ in

40 Shear Area = 97.169 in² (from internal table)

41 Unit Shear Stress = $919.634 / 97.169 = 9.4642$ psi

42 Concrete Unit Shear Stress = $1,723.33 / 10.188 / 12.0 = 14.097$ psi

43 Determine Allowable Moments

44 Top Masonry Stem Capacity = 7,186.31 in-#

45 2nd Top Masonry Stem Capacity = 33,773 in-#

46 3rd Top Concrete Stem Capacity = 238,586 in-#

47 Top Masonry Stem Shear Capacity = $1.3300 \cdot f_{min}(\sqrt{1,500.00}, 50.0) = 51.511$ psi

48 No Special Inspection, so reduce 1/2; Capacity = 25.755 psi

49 2nd Top Masonry Stem Shear Capacity = $1.000 \cdot f_{min}(\sqrt{1,500.00}, 50.0) = 38.730$ psi

50 No Special Inspection, so reduce 1/2; Capacity = 19.365 psi

51 3rd Top Concrete Stem Shear Capacity = $0.85 \cdot 2.0 \cdot \sqrt{2,000.00} = 76.026$ psi

52 Calculate Bar Lap Lengths

53 Top Stem, Embed into Masonry ABOVE = 24.000 in

54 Top Stem, Embed into Masonry BELOW = 24.000 in

55 2nd Top Stem, Embed into Masonry ABOVE = 23.607 in

56 2nd Top Stem, Embed into Concrete BELOW = 34.883 in

57 3rd Top Stem, Hooked Embed into Concrete Footing BELOW = 6.0000 in

58 3rd Top Stem, Embed into Concrete ABOVE = 43.603 in

59 Calculating Soil Pressure

60 Toe Bar Depth = $12.000 - 3.0000 - 0.5 = 8.5000$ in, Heel Bar Depth = $12.000 - 2.0000 - 0.5 = 9.5000$ in

61 Service Load Soil Pressures.....

62 $P = 2,412.75$ lbs, Ecc = 10.343 in, Toe Pressure = 99.557 psf, Heel Pressure = 0.000 psf

63 Calculating Factored Load Shear in Footing=

64 $P = 2,598.30$ lbs, Ecc = 10.343 in, Toe Pressure = 99.557 psf, Heel Pressure = 0.000 psf

*w/o
water
table*

To specify your own
special title block here,
use the "Settings" screen
and enter your title block
information.

Title : **EX-2**
Job # :
Description....

Dsgnr: **HB**

Page: _____
Date: **SEP 2,2001**

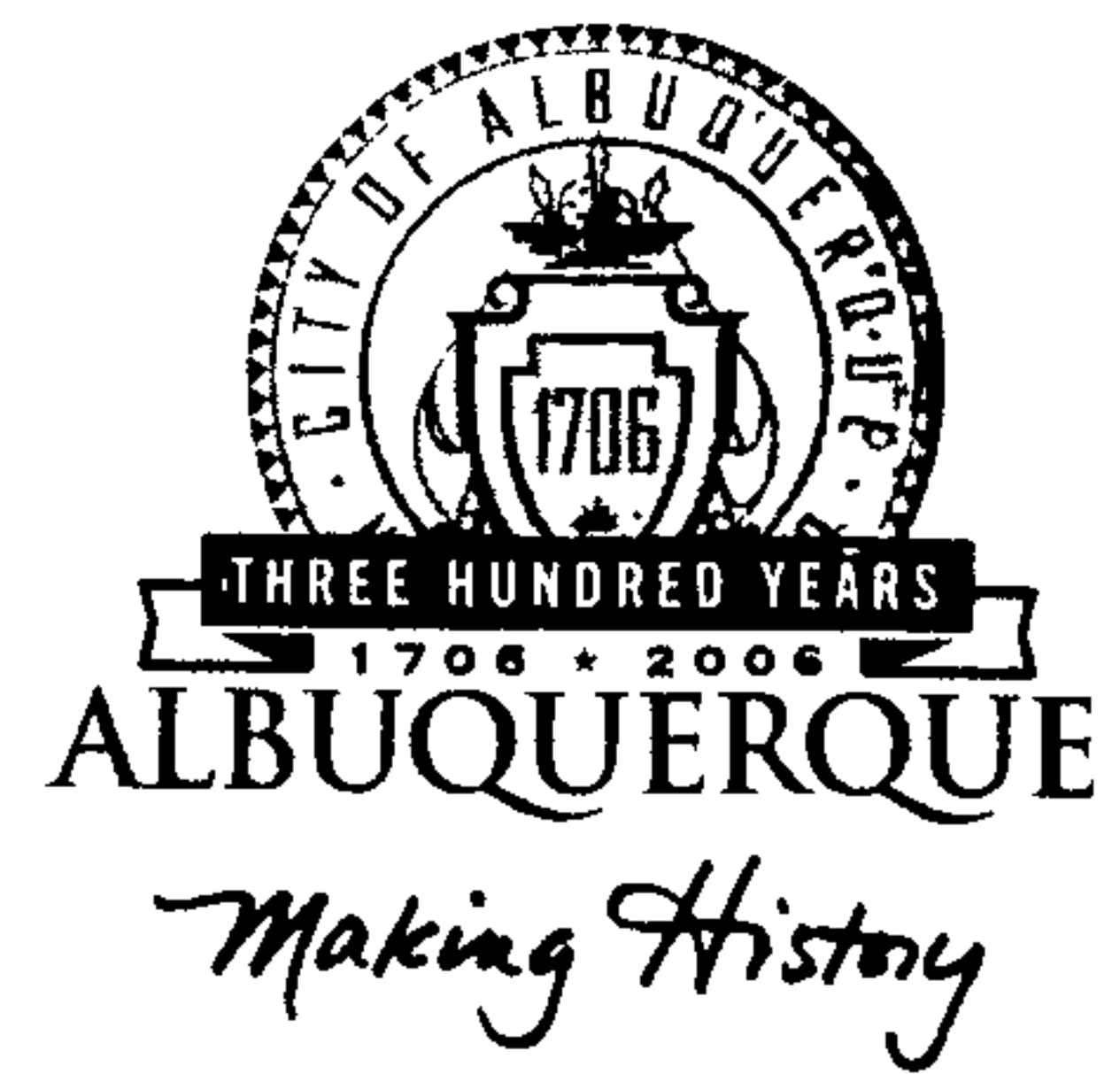
This Wall in File: C:\2005-JOBS\200519-Helmick-Alameda-B

Retain Pro 6.1d, 5-April-2004, (c)1989-2004
Registration # : RP-1133315

Cantilevered Retaining Wall Design Calculation Trace Listing

65 Shear @ Toe = $(13.256 - 1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 32.500) / (12.0 * 8.5000) = 13.256$ psi
66 Shear Distances from Edge; Toe = 41.000 in, Heel = 0.000 in
67 Toe Upward Moment = 5,392.03 ft-#
68 Toe Downward Moment = $1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 41.000^2 / 2.0 = 1,821.08$ ft-#
69 Moment @ Toe, Upward = 64,704 ft-#, Downward = $1.2000 * (12.000 * 1.0417 + 8.0000 * 1.1458 + 0.000) * 41.000^2 / 2.0 = 3,570.$
70 Soil Height for Passive Pressure = 21.000 + 12.000 + 8.0000 = 41.000 in
71 Sliding Resistance due to Friction = $2,412.75 * 0.400 = 965.101$ lbs
72 Friction Resistance adjusted for Specified '%' = $1.000 * 965.101 = 965.101$ lbs
73 Sliding Passive Pressure = $(41.000 - 8.0000) * 2.0833 * (41.000 - 8.0000) / 2.0$
74 + $(8.0000 * 2.0833 * (41.000 - 8.0000)) = 1,684.38$ lbs
75 Passive Resistance adjusted for Specified '%' = $1.000 * 965.101 = 1,684.38$ lbs
76 Sliding Factor of Safety = $(1,684.38 + 965.101) / 1,312.08 = 2.0193$ lbs
77 **Calculating Footing Rebar Requirements**
78 RHo:Balanced = $0.850 * 2,000.00 / 60,000 * 0.850 * (87000.0 / (87000.0 + 60,000)) = 0.014$
79 Ru : Toe = $ABS(42,851 / 12.0 / 8.5000^2 / 0.9) = 54.917$ psi
80 Required Steel % = 0.001%
81 Required Steel Area = 0.015 in²
82 Key : Required Steel % = 0.000%
83 Required Steel Area = 0.016 in²
84 **Calculated Stem Forces for Fincal Checks**
85 **Cantilevered Stem Calculations**
86 Top Stem Section: Shear = 303.750 lbs, Moment = 455.625 ft-#
87 2nd Top Stem Section: Shear = 919.634 lbs, Moment = 2,400.24 ft-#
88 3rd Top Stem Section: Shear = 1,723.33 lbs, Moment = 4,910.63 ft-#
89 Calculating Actual Shear Stress
90 Top Masonry Stem, fm = fm * LDF = $1,500.00 * 1.3300 = 1,995.00$ psi
91 No inspection so fm = fm/2 = 997.500 psi
92 'd' to rebar = jd = $0.905 * 3.7500$ in
93 Shear Area = 41.076 in² (from internal table)
94 Unit Shear Stress = $303.750 / 41.076 = 7.3948$ psi
95 2nd Top Masonry Stem, fm = fm * LDF = $1,500.00 * 1.000 = 1,500.00$ psi
96 No inspection so fm = fm/2 = 750.000 psi
97 'd' to rebar = jd = $0.895 * 9.0000$ in
98 Shear Area = 97.169 in² (from internal table)
99 Unit Shear Stress = $919.634 / 97.169 = 9.4642$ psi
100 Concrete Unit Shear Stress = $1,723.33 / 10.188 / 12.0 = 14.097$ psi
101 Determine Allowable Moments
102 Top Masonry Stem Capacity = 7,186.31 in-#
103 2nd Top Masonry Stem Capacity = 33,773 in-#
104 3rd Top Concrete Stem Capacity = 238,586 in-#
105 Top Masonry Stem Shear Capacity = $1.3300 * fmin(sqrt(1,500.00), 50.0) = 51.511$ psi
106 No Special Inspection, so reduce 1/2; Capacity = 25.755 psi
107 2nd Top Masonry Stem Shear Capacity = $1.000 * fmin(sqrt(1,500.00), 50.0) = 38.730$ psi
108 No Special Inspection, so reduce 1/2; Capacity = 19.365 psi
109 3rd Top Concrete Stem Shear Capacity = $0.85 * 2.0 * sqrt(2,000.00) = 76.026$ psi
110 **Calculate Bar Lap Lengths**
111 Top Stem, Embed into Masonry ABOVE = 24.000 in
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114 2nd Top Stem, Embed into Concrete BELOW = 34.883 in
115 3rd Top Stem, Hooked Embed into Concrete Footing BELOW = 6.0000 in
116 3rd Top Stem, Embed into Concrete ABOVE = 43.603 in

CITY OF ALBUQUERQUE



July 8, 2005

Shahab Biazar PE
Advanced Engineering and Consulting
4416 Anaheim Ave NE
Albuquerque, NM 87113

Re: Lot 29, Alameda Business Park Grading and Drainage Plan
Engineer's Stamp dated 6-8-05 (C16/D6II)

Dear Mr. Biazar,

Based upon the information provided in your submittal dated 6-14-05, the above referenced plan is approved for Site Plan for Building Permit action by the DRB. Prior to Building Permit approval, please provide concurrence from AMAFCA that you can build a retaining wall in the slope of the North Diversion Channel.

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

Sincerely,

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

C: Lynn Mazur, AMAFCA
file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Lot 29, Alameda Business Park

ZONE ATLAS/DRG. FILE #:

C16 / D6 II

DRB #:

EPC #:

WORK ORDER #:

LEGAL DESCRIPTION:

Lot 29, Alameda Business Park

CITY ADDRESS:

ENGINEERING FIRM:

Advanced Engineering and Consulting, LLC

ADDRESS: 4416 Anaheim Ave., NE

CITY, STATE: Albuquerque, New Mexico

CONTACT:

Shahab Biazar

PHONE:

(505) 899-5570

ZIP CODE:

87113

OWNER:

ADDRESS:

CITY, STATE:

CONTACT:

PHONE:

ZIP CODE:

ARCHITECT:

ADDRESS:

CITY, STATE:

CONTACT:

PHONE:

ZIP CODE:

SURVEYOR:

ADDRESS:

CITY, STATE:

CONTACT:

PHONE:

ZIP CODE:

CONTRACTOR:

ADDRESS:

CITY, STATE:

CONTACT:

PHONE:

ZIP CODE:

CHECK TYPE OF SUBMITTAL:

X

DRAINAGE REPORT

DRAINAGE PLAN 1ST SUBMITTAL, REQUIRES TCL OR EQUAL

CONCEPTUAL GRADING & DRAINAGE PLAN

GRADING PLAN

EROSION CONTROL PLAN

ENGINEER'S CERTIFICATION (HYDROLOGY)

CLOMR / LOMR

TRAFFIC CIRCULATION LAYOUT (TCL)

ENGINEER'S CERTIFICATION (TCL)

ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)

OTHER

CHECK TYPE OF APPROVAL SOUGHT:

SIA / FINANCIAL GUARANTEE RELEASE

PRELIMINARY PLAT APPROVAL

S. DEV. PLAN FOR SUB'D. APPROVAL

X

S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

SECTOR PLAN APPROVAL

FINAL PLAT APPROVAL

FOUNDATION PERMIT APPROVAL

X

BUILDING PERMIT APPROVAL

CERTIFICATE OF OCCUPANCY (PERM.)

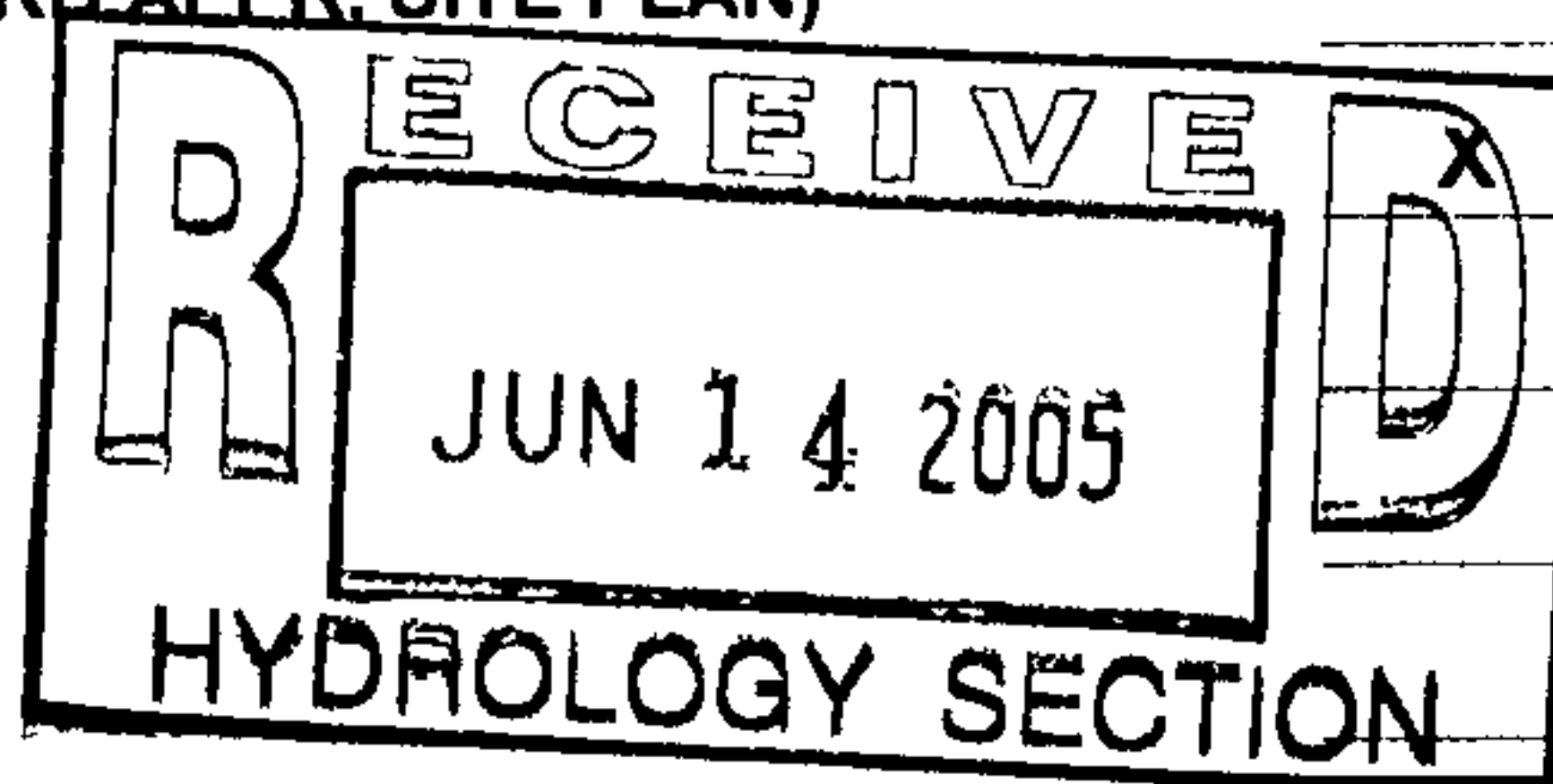
CERTIFICATE OF OCCUPANCY (TEMP.)

GRADING PERMIT APPROVAL

PAVING PERMIT APPROVAL

WORK ORDER APPROVAL

OTHER (SPECIFY)



WAS A PRE-DESIGN CONFERENCE ATTENDED:

YES

X

NO

COPY PROVIDED

DATE SUBMITTED:

06 / 14 / 2005

BY:

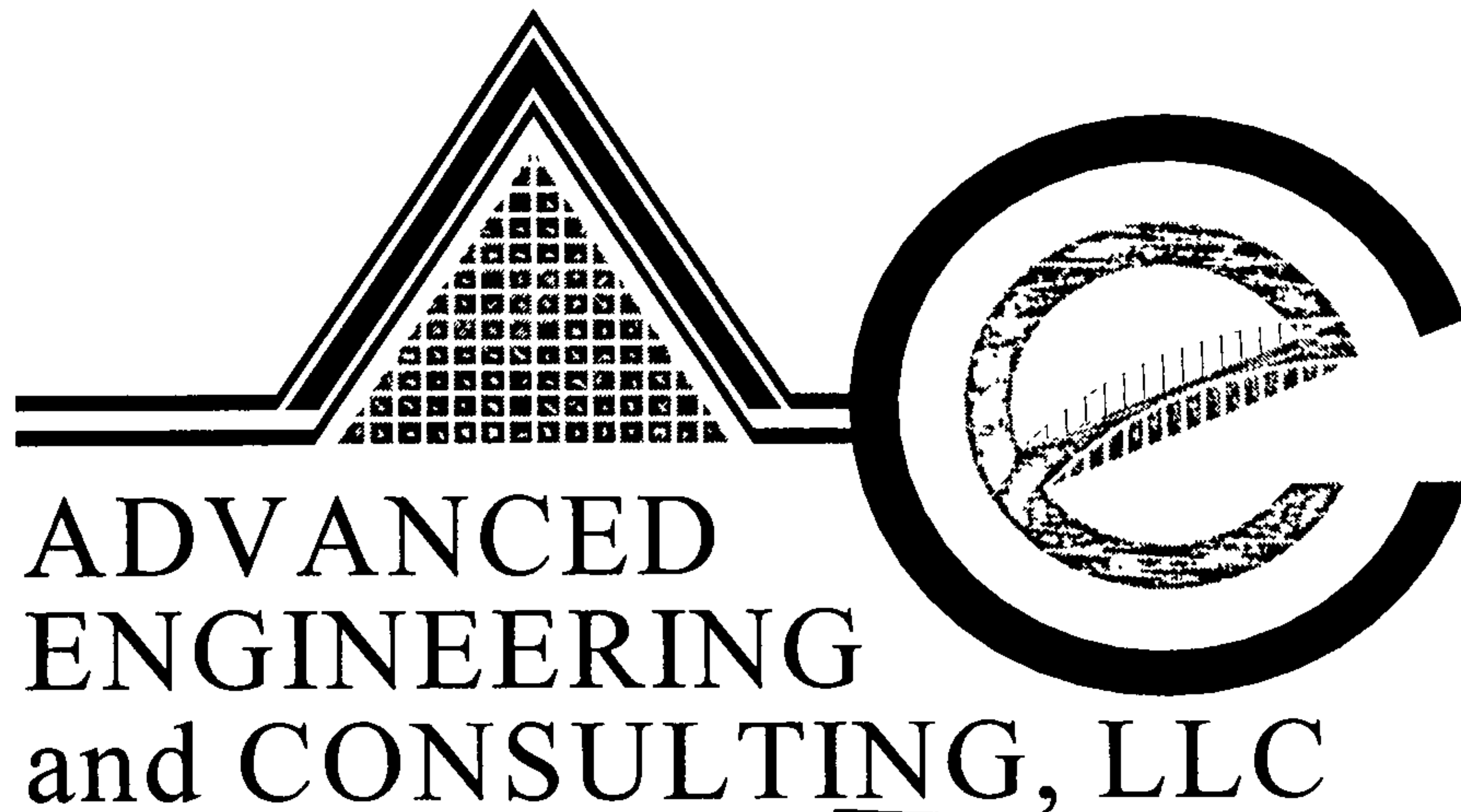
Shahab Biazar, P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of submittals may be required based on the following:

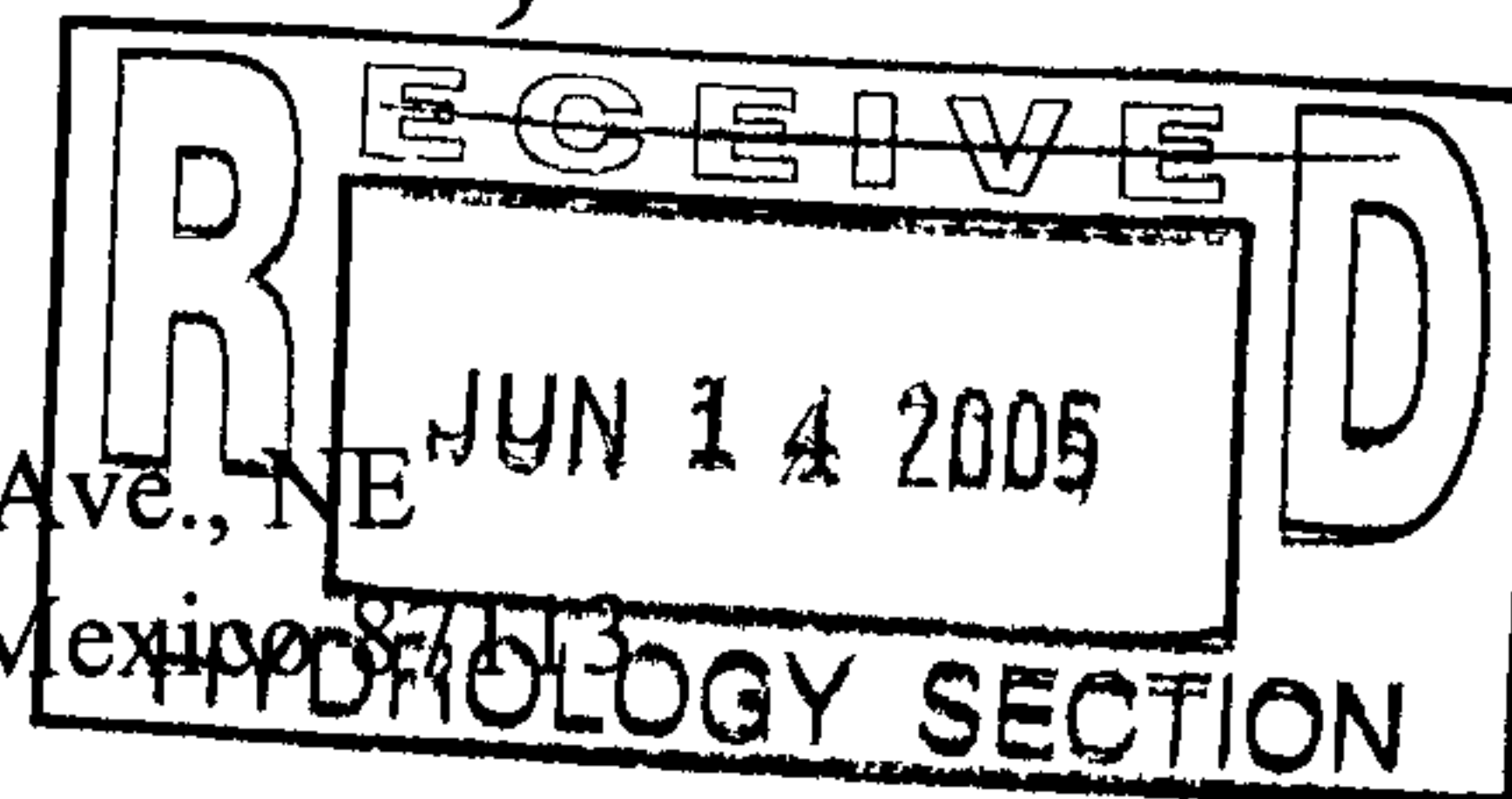
1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5)
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or containing five (5) acres or more

DRAINAGE REPORT
FOR
LOT 29
ALAMEDA BUSINESS PARK

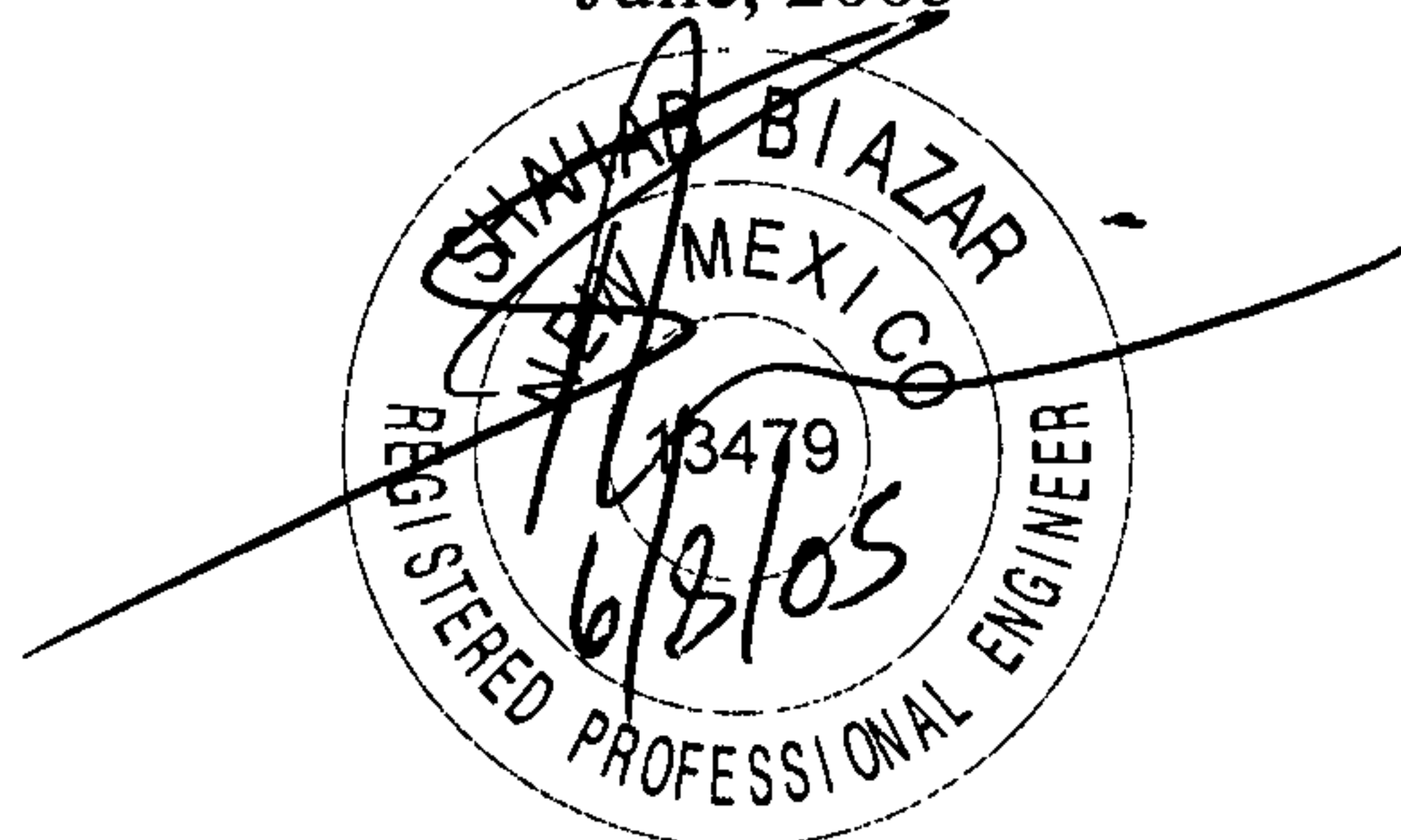
Prepared by:



4416 Anaheim Ave., NE
Albuquerque, New Mexico 87113



June, 2005



Shahab Biazar
PE NO. 13479

Location

Lot 29, Alameda Business Park, is located at southeast corner of Alameda Boulevard and Alameda Park Dr. See attached Vicinity Map C-16-Z for the location of the site.

Purpose

The owners are proposing to place new buildings on this Tract. Therefore, we are requesting Site Plan, Site Plan for Building permit, Building permit, and grading permit approval.

Existing Drainage Conditions

The site falls within Master Drainage Plan for the Alameda Business Park (City Drainage number C-16/D6). A copy of this Overall Basin Map is included with this submittal. The site under the existing conditions (100-year, 6-hour storm) generates 3.07 cfs. The runoff drains east to west to Alameda Park Dr. and then to the storm sewer system located downstream. Minor offsite runoff enters the site from the north and the east. The site does not fall within a 100-year floodplain.

Proposed Conditions and On-Site Drainage Management Plan

The drainage patterns on site will remain the same. The runoff on site, under a developed runoff of 8.54 cfs will continue to drain west to Alameda Park Dr. and to the existing storm sewer inlets downstream.

Calculations

City of Albuquerque, Development Process Manuel, Section 22.2, Hydrology Section was used for runoff calculations. See this report for Summary Table for runoff results. See also this report for AHYMO input and output files for runoff and ponding calculations.

RUNOFF CALCULATIONS

The site is @ Zone 2

DEPTH (INCHES) @ 100-YEAR STORM

$$P_{60} = 2.01 \text{ inches}$$

$$P_{360} = 2.35 \text{ inches}$$

$$P_{1440} = 2.75 \text{ inches}$$

DEPTH (INCHES) @ 10-YEAR STORM

$$\begin{aligned} P_{60} &= 2.01 \times 0.667 \\ &= 1.34 \text{ inches} \end{aligned}$$

$$P_{360} = 1.57$$

$$P_{1440} = 1.83$$

See the summary output from AHYMO calculations.

Also see the following summary tables.

RUNOFF CALCULATION RESULTS

BASIN	AREA (SF)	AREA (AC)	AREA (MI²)
ON-SITE	85673.50	1.9668	0.003073

EXISTING

BASIN	Q-100 CFS	Q-10 CFS
ON-SITE	3.07	0.73

PROPOSED

BASIN	Q-100 CFS	Q-10 CFS
ON-SITE	8.54	5.47

Ronald D. Brown, Chair
Daniel F. Lyon, Vice Chair
Tim Eichenberg, Secretary-Treasurer
Janet Saiers, Asst. Secretary-Treasurer
Danny Hernandez, Director

John P. Kelly, P.E.
Executive Engineer



Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214

44
44
44
44

June 29, 2005

File
C16/D6II

Mr. Shahab Biazar, P.E.
Advanced Engineering & Consulting
4416 Anaheim Ave. NE
Albuquerque, NM 87113

Re: Grading & Drainage for Lot 29, Alameda Business Park, ZAP C-16
Engineer's Stamp Dated June 8, 2005

Dear Mr. Biazar:

I reviewed the referenced plan with John Kelly, AMAFCA Executive Engineer, with regard to grading in the AMAFCA slope easement adjacent to the North Diversion Channel. This easement is subject to conditions of the Special Warranty Deed (see attached), and the plan will be sent to the Corps of Engineers (COE) for review.

Following are conditions of approval for building permit:

1. The area between the edge of channel and retaining wall will be graded with a 30-foot roadway/trail section with a fence at the property line. We understand there is already a fence there, but it was constructed improperly within the AMAFCA easement. AMAFCA requires a parallel fence that will be inside the property. See the attached drawing.
2. A cobble-lined swale will be constructed between the property line and back of wall. This swale cannot drain to the property to the south. It should outfall to the Lot 29 parking lot.

If you have any questions, please call me at 884-2215.

Sincerely,
AMAFCA

Lynn M. Mazur, P.E.
Development Review Engineer

Cc: Brad Bingham, City Hydrology