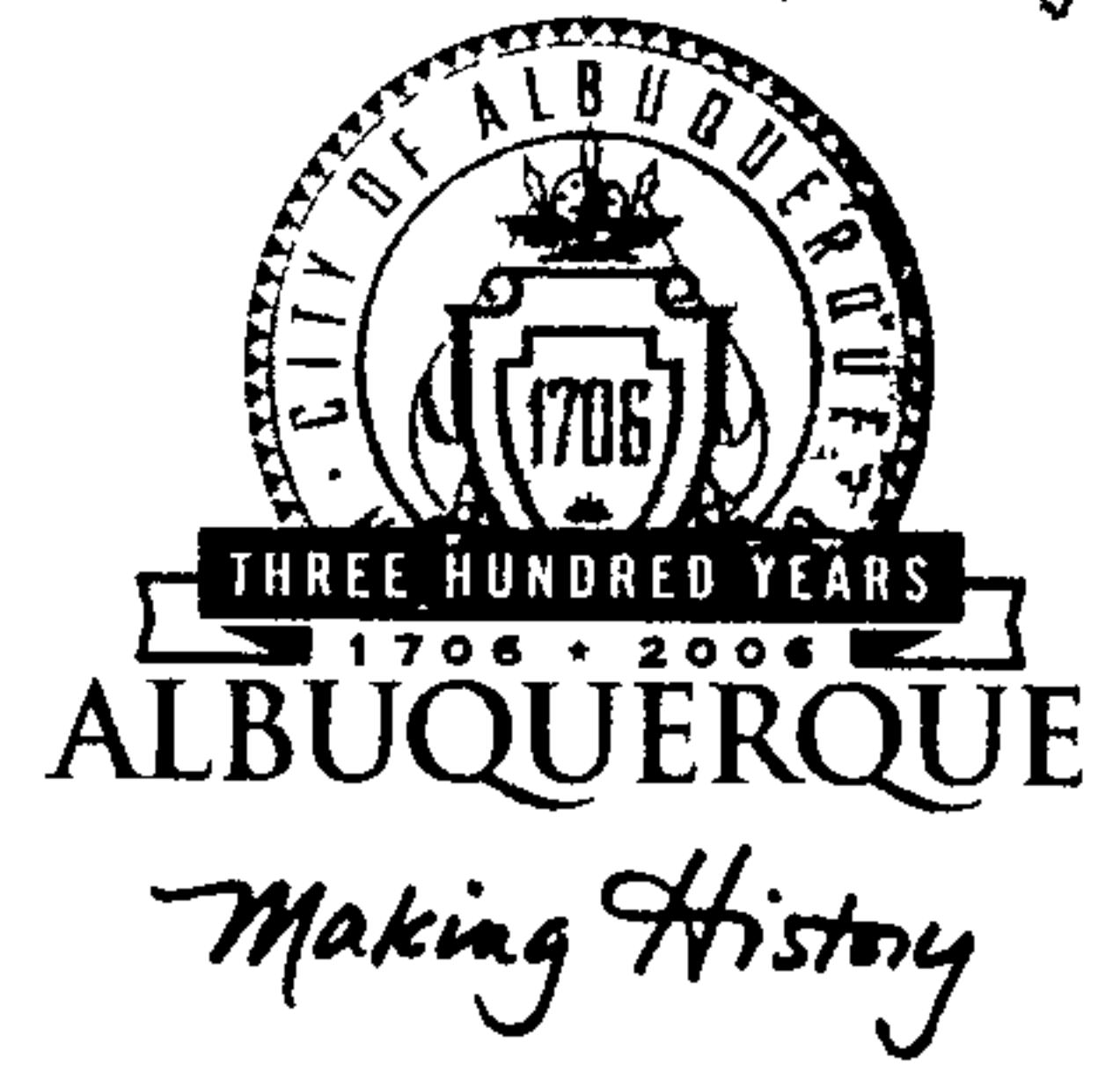


# CITY OF ALBUQUERQUE



## AMENDMENT TO CORRECT PROJECT ADDRESS

July 1, 2005 (**SEPTEMBER 2, 2005**)

Mr. Ronald R. Bohannon, P.E.  
**TIERRA WEST, LLC**  
8509 Jefferson St. NE  
Albuquerque, NM 87113

**Re: ECKERD DRUG PLAZA**

**6001 Coors Blvd. NW (CORRECTED TO 4201 MONTANO DR. NW)**

**Approval of Permanent Certificate of Occupancy (C.O.)**

**Engineer's Stamp dated 10/12/2004 (E-12/D10)**

**Certification dated 06/30/2005**

P.O. Box 1293

Dear Ron:

Albuquerque

Based upon the information provided in your submittal received 07/01/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

New Mexico 87103

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

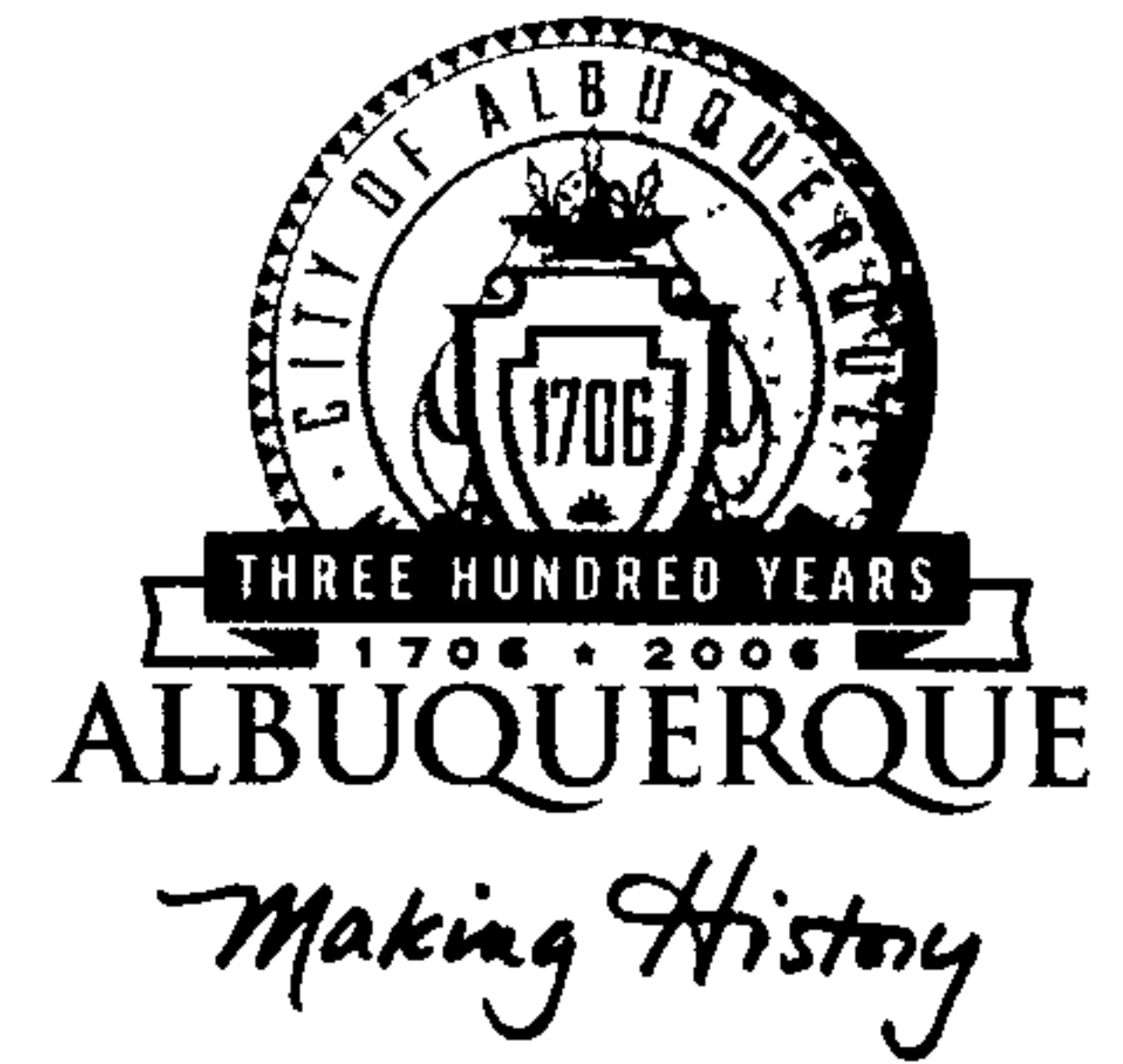
Sincerely,

Arlene V. Portillo  
Plan Checker, Planning Dept. - Hydrology  
Development and Building Services

[www.cabq.gov](http://www.cabq.gov)

C: Phyllis Villanueva  
Sara Lavy  
File

# CITY OF ALBUQUERQUE



July 1, 2005

Mr. Ronald R. Bohannon, P.E.  
**TIERRA WEST, LLC**  
8509 Jefferson St. NE  
Albuquerque, NM 87113

**Re: ECKERD DRUG PLAZA**  
**6001 Coors Blvd. NW**  
**Approval of Permanent Certificate of Occupancy (C.O.)**  
**Engineer's Stamp dated 10/12/2004 (E-12/D10)**  
**Certification dated 06/30/2005**

Dear Ron:

P.O. Box 1293

Based upon the information provided in your submittal received 07/01/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

Albuquerque

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

New Mexico 87103

Sincerely,

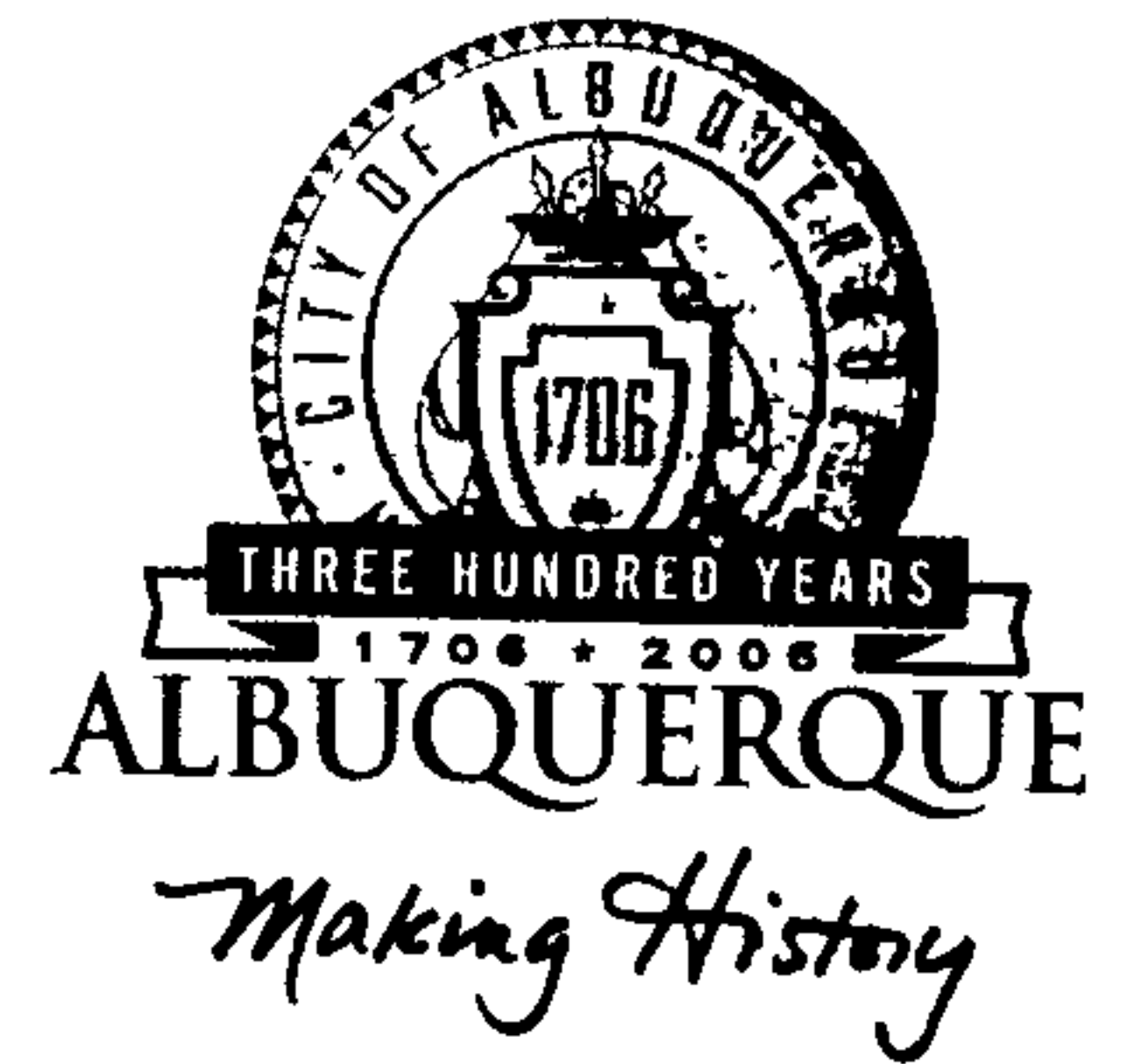
*Arlene V. Portillo*

Arlene V. Portillo  
Plan Checker, Planning Dept. - Hydrology  
Development and Building Services

[www.cabq.gov](http://www.cabq.gov)

C: Phyllis Villanueva  
Sara Lavy  
File

# CITY OF ALBUQUERQUE



November 10, 2004

Ronald Bohannon, P.E.  
Tierra West, LLC  
8509 Jefferson NE  
Albuquerque, NM 87113

**Re: Eckerd's Drug Plaza, NW Corner of Montano and Coors, Grading and  
Drainage Plan  
Engineer's Stamp dated 10-12-04 (E12-D10)**

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 10-15-04, 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. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

The City cannot intervene in a private cross-drainage issue. I suggest your client try to work with the adjacent apartment complex or litigate.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso) or 768-3645 (Bryan Wolfe).

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: Charles Caruso, DMD Storm Drainage Design  
File



# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 7, 2004

Ronald Bohannon, P.E.  
Tierra West, LLC  
8509 Jefferson NE  
Albuquerque, NM 87113

**Re: Eckerd's Drug Plaza, NW Corner of Montano and Coors, Grading and  
Drainage Plan**

**Engineer's Stamp dated 6-07-04 (Sheet 1) and 5-25-04 (Sheet 2) (E12-D10)**

*Needs  
to  
all have  
same  
date*

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 5-27-04, the above referenced plan is approved Site Development Plan for Building Permit action by the DRB. It is also approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso) or 768-3645 (Bryan Wolfe).

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: Charles Caruso, DMD Storm Drainage Design  
File





# ***City of Albuquerque***

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 17, 2004

Ronald Bohannon, P.E.  
Tierra West, LLC  
8509 Jefferson NE  
Albuquerque, NM 87113

**Re: Eckerd's Drug Plaza, 4201 Montano NW, Grading and Drainage Report  
Engineer's Stamp dated 1-29-04 (E12/D10)**

Dear Mr. Bohannon,

Based upon the information provided in your submittal received 2-03-04, the above referenced report is approved for Site Development Plan for Subdivision and Building Permit action by the DRB. It is also approved for Building Permit. Please attach a copy of this approved report to the construction sets prior to sign-off by Hydrology. Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions regarding this permit please feel free to call the Public Works Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Brian Wolfe).

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

Sincerely,

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

*BLB*

C: Charles Caruso, Public Works Hydrology  
File



# ***City of Albuquerque***

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 19, 2003

Ron Bohannon, PE  
Tierra West LLC  
8509 Jefferson NE  
Albuquerque, NM 87113

**Re: Eckerd Drug Plaza, Coors and Montano Drainage Report  
Engineer's Stamp dated 5-28-03, (E12/D10)**

Dear Mr. Bohannon,

Based upon the information provided in your submittal dated 6-2-03, the above referenced report is approved for Site Development Plan for Subdivision and Building Permit action by the DRB. It is also approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required.

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

C: file



# ***City of Albuquerque***

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 12, 2003

Ron Bohannon, PE  
Tierra West LLC  
8509 Jefferson NE  
Albuquerque, NM 87113

**Re: Eckerd Drug Plaza, Coors and Montano Drainage Report  
Engineer's Stamp dated 4-29-03, (E12/D10)**

Dear Mr. Bohannon,

Based upon the information provided in your submittal dated 4-30-03, the above referenced report is approved for Site Development Plan for Subdivision and Building Permit action by the DRB.

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

C: file

# DRAINAGE REPORT

for

**Eckerd's Drug Plaza**  
**Northwest Corner of Montano/Coors**  
**Albuquerque, New Mexico**  
4201 Montano NW

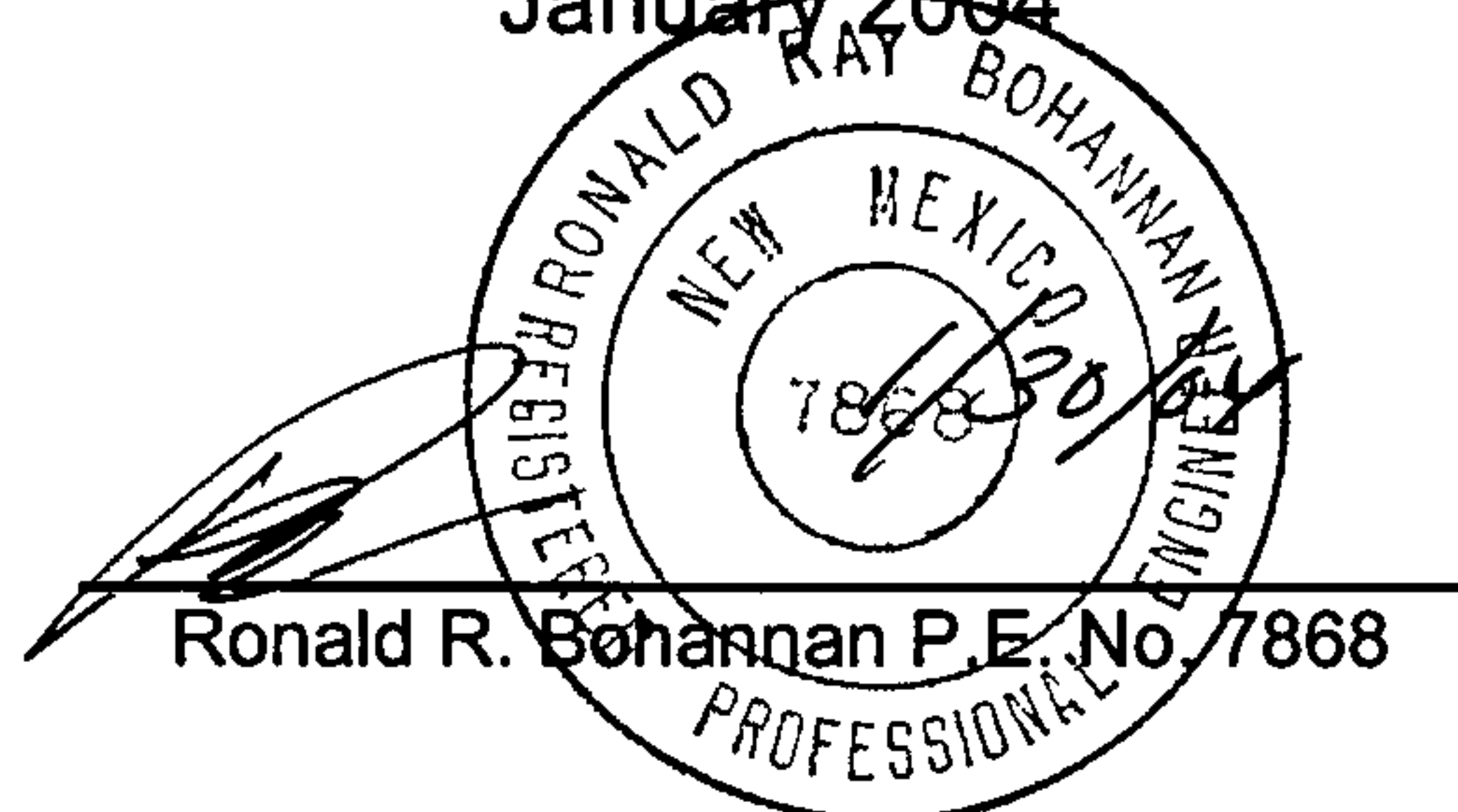
Prepared by

Tierra West, LLC  
8509 Jefferson NE  
Albuquerque, New Mexico 87113

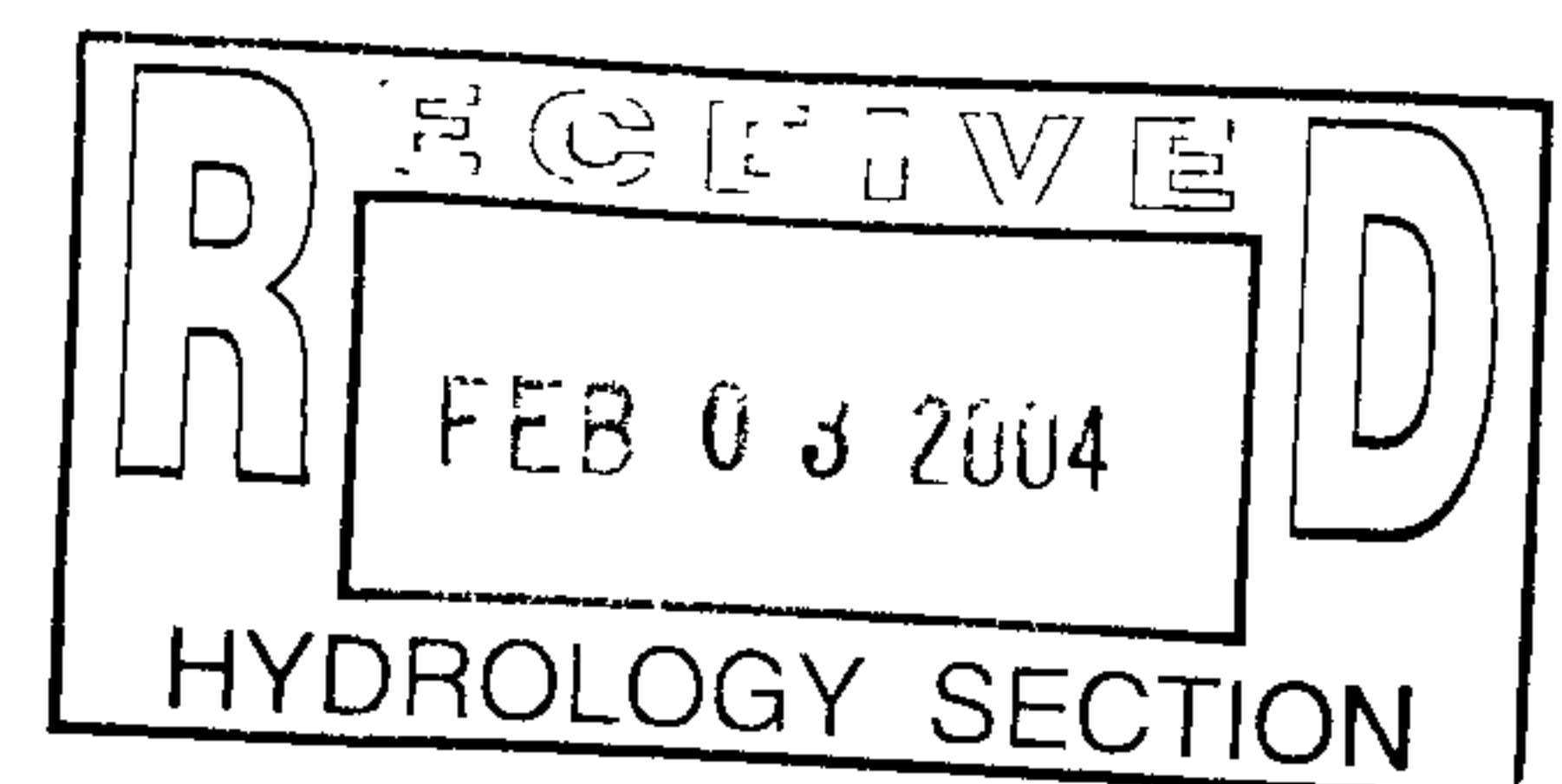
Prepared for

Fortis Advisors, LLC  
West Wood Realty  
7526 East Camelback Road  
Scottsdale, AZ 85251

January 2004



Ronald R. Bohannon P.E. No. 7868





## PURPOSE

The purpose of this report is to provide the drainage management plan for the development of Tracts 27B-B-1, 38-1,38-2,38-3,38-4, Taylor Ranch. This plan will be utilized for the development of the subject 4.7467-acre property, for the use as an Eckerd's Drug store and future undetermined pad sites. This plan is in accordance with the DPM Chapter 22. This report will demonstrate that the proposed improvements do not adversely effect the surrounding properties nor the upstream or downstream facilities.

## INTRODUCTION

The subject of this report, as shown on the Exhibit A vicinity map, is a 4.7467-acre parcel of land located on the Northwest corner of Montano Road and Coors Boulevard. The site is located on Zone Atlas page E-12. The site is currently an undeveloped parcel surrounded by roadways and fully developed land. The legal description of the property is Tracts 27B-B-1, 38-1,38-2,38-3,38-4, Taylor Ranch. As shown on FIRM map 35001C0118D (Appendix A), the site lies within flood zone X.

This site was analyzed previously by Greg Krenik (E12-D010) for the development as a Phillip's 66 Gas station. Portions of this site are also included within two Drainage Master Plans. Tract 27-B-B-1 is part of the La Orilla Drainage Master Plan, prepared by Charles Easterling & Associates. The remaining tracts are part of the North Coors Drainage Plan. The La Orilla Drainage Master Plan assumed free discharge for Tract 27-B-B-1 with 70% impervious area. Discharge for this tract is to drain to the Coors ponds directly north of the site adjacent to Coors Boulevard. The North Coors Drainage Plan assigned a throttled discharge of .46 cfs per acre for Tracts 38-1,38-2, 38-3, 38-4. The Discharge for this tract is programmed to enter an existing inlet located within Montano Boulevard adjacent to this site west of Coors Boulevard. No offsite flows enter the site.

## EXISTING CONDITIONS

The site slopes generally from the west to the east, with general grades between 4-8 %. The site is currently undeveloped. The site straddles two drainage basins. Tract 27-B-B-1 and a portion of tracts 38-1, 38-2, 38-3, 38-4 drain to an existing swale along Coors Boulevard and enter into the Coors ponds. The southerly portion of the site discharges onto Montano Boulevard and is captured by a drop inlet located at the northwest corner of Montano and Coors.

## PROPOSED CONDITIONS

The proposed improvements consist of the construction of a 13,824 square foot Eckerd's Drug Store and its associated parking along with five future pad sites. During the initial development an access road will be constructed from Coors Boulevard through Tract 27-B-B-, as well as an access road through tracts 38-2 and 38-3. Due to the need to construct the access road with the Eckerd's, the future pad grades and lot grading were designed. As previously discussed, Tract 27-B-B-1 is allowed free discharge based upon the La Orilla Master Drainage Plan, provided the land treatments are less than 70% impervious. As shown within Appendix A, this parcel is allowed to discharge 6.29 cfs and is predicted to discharge 4.55 cfs with this development. The remaining tracts are allowed to discharge .46 cfs per acre as prescribed within the North Coors Drainage Plan. Based upon the 4.7467 acre area of Tracts 38-1, 38-2, 38-3, 38-4 the site is allowed to discharge 2.18 cfs to the existing drop inlet within Montano during a 100-year, 6-hour storm event. As shown within Appendix B this site is predicted to generate post development flow of 18.44 cfs. The discharge rate will be throttled by constructing a series of parking lot detention ponds where the discharge is controlled by the construction of orifice plates at the outlet of the inlets located within each pond. Each pond will be connected in parallel with each other to an underground storm drain that will be connected to the previously mentioned drop inlet located in Montano. The drainage basins for each pond are shown on the Basin Layout.

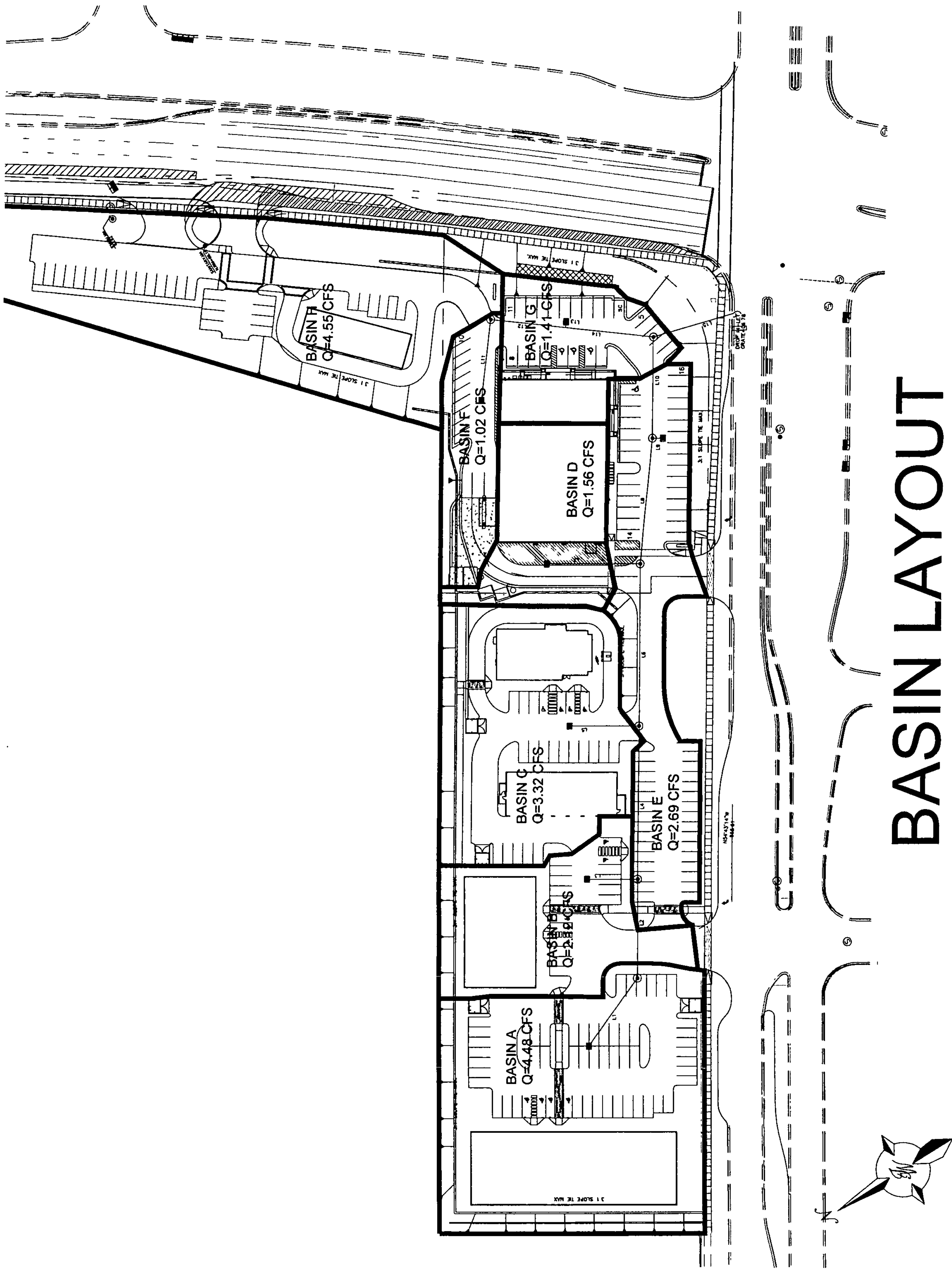
The Grading plan, located in Map Pocket A, delineates the maximum water surface elevation.

The Hydraulic model of this system was performed using AHYMO 97. The outlet rates for each pond was determined using the routing function within AHYMO 97 in conjunction with a Pond Volume/ Water surface/ discharge rate algorithm computed with an Excel Spreadsheet (see Ponding Calculations). As shown in the Hydraulic Model, this site is predicted to discharge 2.08 cfs during a 100-year, 6-hour. The onsite storm drain layout is shown in the Storm Sewer Calculations which also includes the hydraulic analysis of this system. In the event of inlet clogging or an event greater than a 100-year storm, each basin will discharge to the access road and will 'spill' down the roadway within Tract 27B-B-1 and enter the Coors ponds.

## SUMMARY

The proposed improvements are consistent with Development Process Manual. The development of the parcel is consistent with the Developed condition assumptions within both the La Orilla Drainage Plan as well as the North Coors Drainage Plan. Tract 27B-B-1 will discharge 4.55 cfs to the North Coors Ponds, which is less than the 6.29 cfs allowed. Tracts 38-1, 38-2, 38-3, 38-4 will discharge 2.08 cfs to the existing drop inlet in Montano, which is less than the 2.18 cfs allowed. During an emergency situation, an overflow has been provided. Since this site

encompasses more than one acre, a NPDES permit is required prior to any construction activity.



# BASIN LAYOUT



Weighted E Method

Allowable Per Masterplan

												100-Year			10-Year		
Basin	Area (sf)	Area (acres)	Area (sq. miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
A-G	187398.32													2.18			
H	66750.00	1.532	0.0024	0%	0	15%	0.230	15%	0.230	70%	1.073	1.771	0.226	6.29	1.058	0.135	3.98

Developed Basins

												100-Year			10-Year		
Basin	Area (sf)	Area (acres)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
A	52399.23	1.203	0.0019	0%	0.000	18%	0.217	15%	0.180	67%	0.806	1.589	0.159	4.48	1.026	0.103	3.04
B	23583.39	0.541	0.0008	0%	0.000	10%	0.054	15%	0.081	75%	0.406	1.693	0.076	2.12	1.111	0.050	1.47
C	37026.41	0.850	0.0013	0%	0.000	10%	0.085	15%	0.128	75%	0.638	1.693	0.120	3.32	1.111	0.079	2.30
D	17347.63	0.398	0.0006	0%	0.000	10%	0.040	15%	0.060	75%	0.299	1.693	0.056	1.56	1.111	0.037	1.08
E	29928.48	0.687	0.0011	0%	0.000	10%	0.069	15%	0.103	75%	0.515	1.693	0.097	2.69	1.111	0.064	1.86
F	11393.89	0.262	0.0004	0%	0.000	10%	0.026	15%	0.039	75%	0.196	1.693	0.037	1.02	1.111	0.024	0.71
G	15719.29	0.361	0.0006	0%	0.000	10%	0.036	15%	0.054	75%	0.271	1.693	0.051	1.41	1.111	0.033	0.98
H	27034.55	1.532	0.0010	20%	0.306	24%	0.368	15%	0.230	41%	0.628	1.205	0.154	4.55	0.721	0.092	2.83
Total	214432.87	5.834	0.0077		0.306		0.894		0.875		3.758		0.750	21.15		0.482	14.26

Equations:

Weighted E = Ea\*Aa + Eb\*Ab + Ec\*Ac + Ed\*Ad / (Total Area)

Volume = Weighted D \* Total Area

Flow = Qa \* Aa + Qb \* Ab + Qc \* Ac + Qd \* Ad



## Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
1	8	1	0.35	0.167	0.66	0.06	0.17
2	8	1	0.35	0.167	0.66	0.06	0.17
3	8	1	0.35	0.167	0.66	0.36	1.03
4	8	7.1	0.35	0.167	1.75	0.42	1.20
5	8	6.5	0.35	0.167	1.67	0.70	2.01
6	8	6.22	0.35	0.167	1.64	1.12	3.21
7	8	1.29	0.35	0.167	0.75	0.39	1.12
8	12	0.91	0.79	0.250	1.85	1.51	1.92
9	8	1	0.35	0.167	0.66	0.42	1.20
10	12	1	0.79	0.250	1.94	1.93	2.46
11	8	3.93	0.35	0.167	1.30	0.07	0.20
12	8	1	0.35	0.167	0.66	0.07	0.20
13	8	1	0.35	0.167	0.66	0.08	0.23
14	8	1	0.35	0.167	0.66	0.15	0.43
15	18	15.13	1.77	0.375	22.19	2.08	1.18

### Manning's Equation:

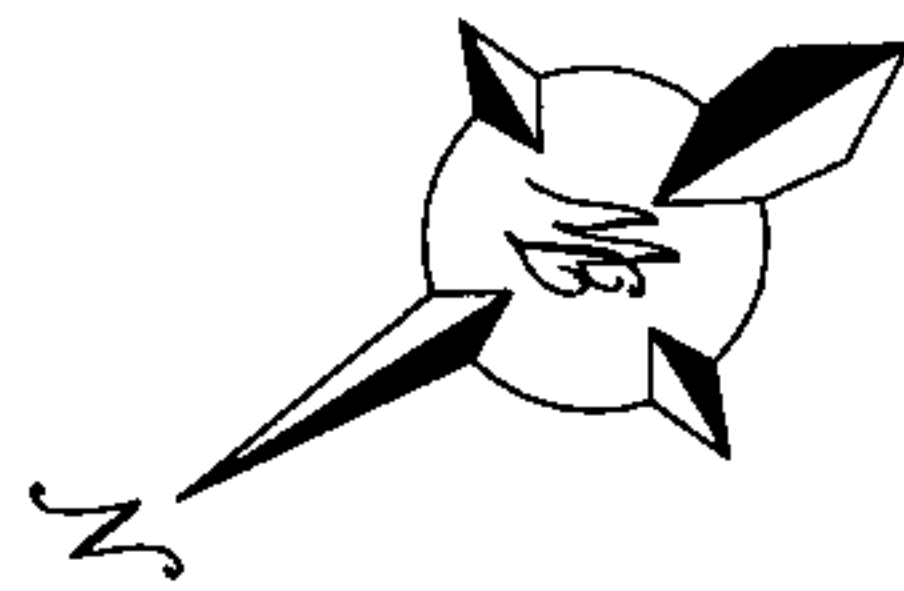
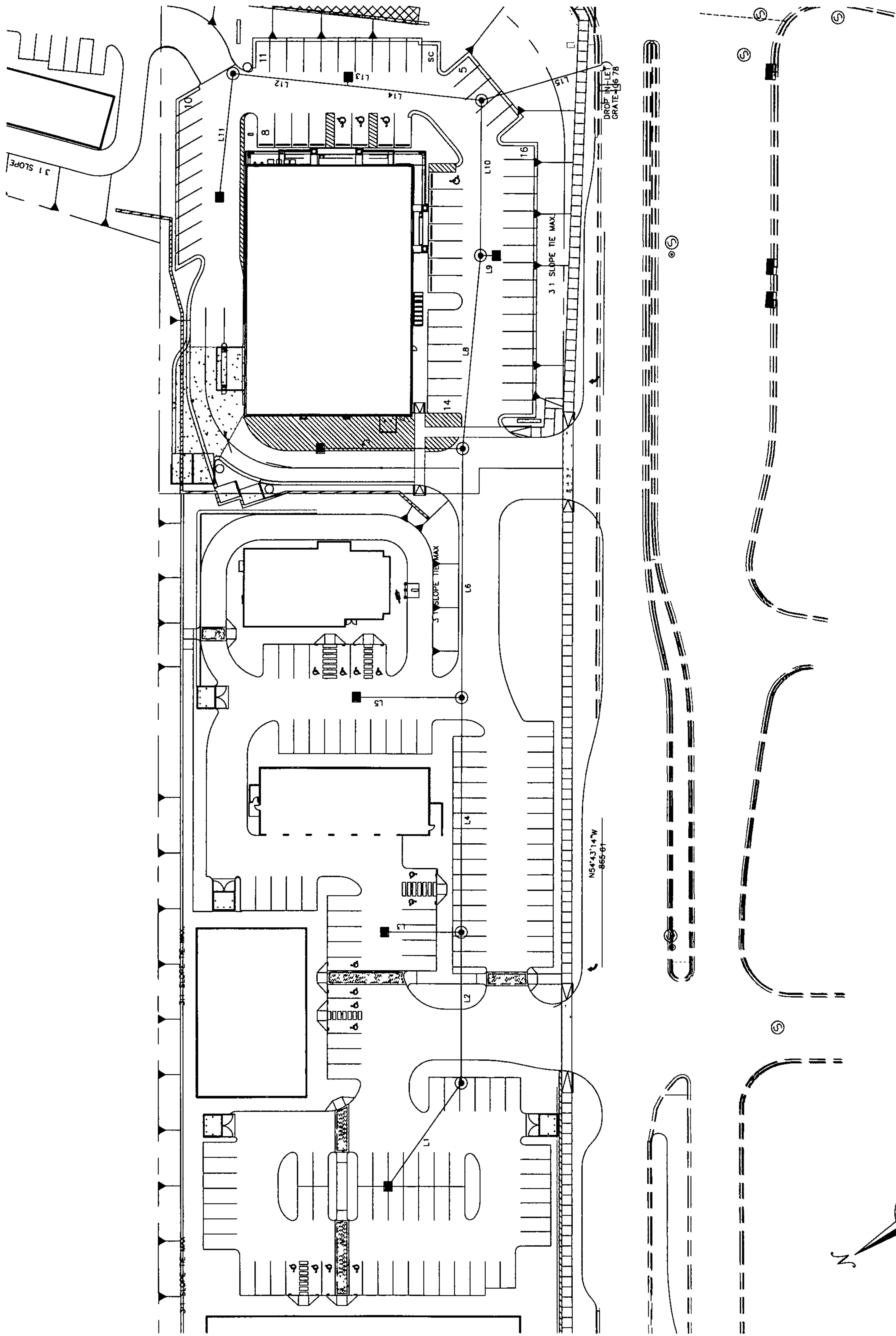
$$Q = 1.49/n * A * R^{(2/3)} * S^{(1/2)}$$

A = Area

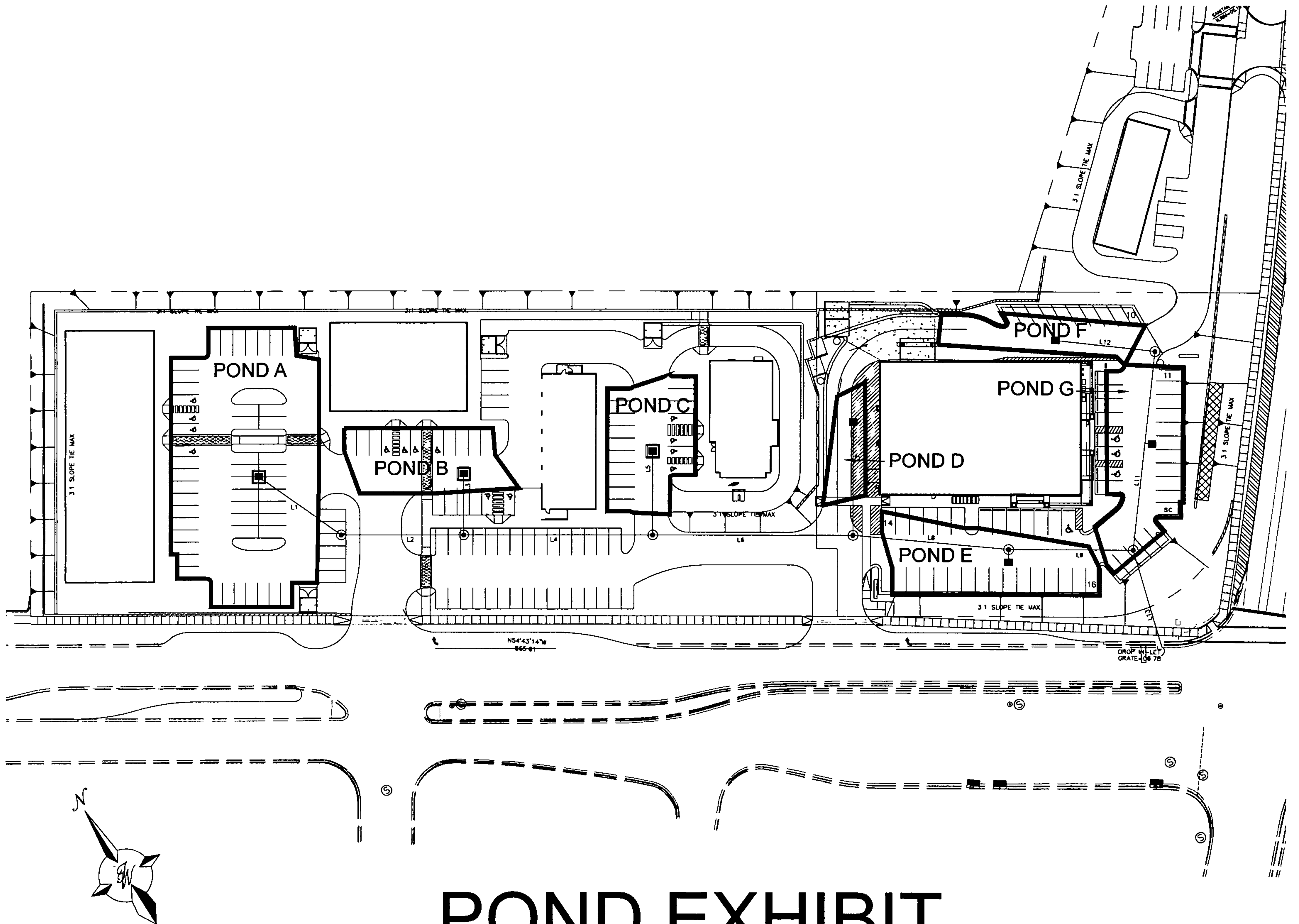
R = D/4

S = Slope

n = 0.024



# STORM DRAIN EXHIBIT



POND EXHIBIT

Pond Summary

	Pond A	Pond B	Pond C	Pond D	Pond E	Pond F	Pond G
Top of Pond Elev.	40.25	39.08	32.5	24.31	23.61	23.56	23.56
Bottom of Pond Elev.	39	38.08	31.5	23.32	22.67	22.67	22.61
Maximum Depth of Pond	1.25	1	1	0.99	0.94	0.89	0.95
Flow (cfs)	0.06	0.36	0.7	0.39	0.42	0.07	0.08
Water Surface Elevation	39.88	38.89	32.42	24.28	23.5	23.45	23.3
Orifice Plate Size	1"	2.5"	3.5"	2.25"	2.25"	1"	1"

4

# ***VOLUME CALCULATIONS***

## *BASIN A*

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 20,062.67$$

$$\text{Dt} = 1.25$$

$$\text{C} = 16044.70$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
35	0	0	0.0000
39.00	4	0.0006	0.0522
39.20	4.2	0.0080	0.0536
39.40	4.4	0.0302	0.0548
39.60	4.6	0.0670	0.0561
39.80	4.8	0.1186	0.0573
40.00	5	0.1849	0.0585
40.25	5.25	0.2886	0.0599

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 1$$

$$\text{Area (ft}^2\text{)} = 0.00545415$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$



# ***VOLUME CALCULATIONS***

## ***BASIN B***

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 5,220.37$$

$$\text{Dt} = 1.00$$

$$\text{C} = 5213.57$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
34.08	0	0	0.0000
38.08	4	0.0006	0.3240
38.28	4.2	0.0030	0.3322
38.48	4.4	0.0103	0.3402
38.68	4.6	0.0223	0.3480
38.88	4.8	0.0390	0.3557
39.08	5	0.0606	0.3632

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 2.5$$

$$\text{Area (ft}^2\text{)} = 0.03408846$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$

# ***VOLUME CALCULATIONS***

## *BASIN C*

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 5,625.95$$

$$\text{Dt} = 1.00$$

$$\text{C} = 5619.15$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
27.5	0	0	0.0000
31.50	4	0.0006	0.6316
31.70	4.2	0.0032	0.6478
31.90	4.4	0.0110	0.6635
32.10	4.6	0.0239	0.6790
32.30	4.8	0.0420	0.6940
32.50	5	0.0653	0.7088

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 3.5$$

$$\text{Area (ft}^2\text{)} = 0.06681339$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$

# ***VOLUME CALCULATIONS***

## ***BASIN D***

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 2,035.62$$

$$\text{Dt} = 0.99$$

$$\text{C} = 2049.31$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
15.55	0	0	0.0000
23.32	7.77	0.0012	0.3684
23.52	7.97	0.0022	0.3731
23.72	8.17	0.0050	0.3778
23.92	8.37	0.0098	0.3825
24.12	8.57	0.0164	0.3871
24.31	8.76	0.0244	0.3914

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 2.25$$

$$\text{Area (ft}^2\text{)} = 0.0276$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$

# ***VOLUME CALCULATIONS***

## *BASIN E*

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 7,151.62$$

$$\text{Dt} = 1.00$$

$$\text{C} = 7144.82$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
13.46	0	0	0.0000
22.67	9.21	0.0014	0.4014
22.87	9.41	0.0047	0.4058
23.07	9.61	0.0146	0.4101
23.27	9.81	0.0311	0.4144
23.47	10.01	0.0540	0.4187
23.61	10.15	0.0740	0.4216

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 2.25$$

$$\text{Area (ft}^2\text{)} = 0.02761165$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$

# ***VOLUME CALCULATIONS***

## ***BASIN F***

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 3,405.30$$

$$\text{Dt} = 0.89$$

$$\text{C} = 3818.54$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
16.75	0	0	0.0000
22.67	5.92	0.0009	0.0637
22.87	6.12	0.0027	0.0647
23.07	6.32	0.0080	0.0658
23.27	6.52	0.0168	0.0668
23.47	6.72	0.0291	0.0679
23.56	6.81	0.0358	0.0683

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 1$$

$$\text{Area (ft}^2\text{)} = 0.00545415$$

$$g = 32.2$$

$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$



# ***VOLUME CALCULATIONS***

## *BASIN G*

Ab - Bottom Of The Pond Surface Area

At - Top Of The Pond Surface Area

D - Water Depth

Dt - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = \text{Ab} * \text{D} + 0.5 * \text{C} * \text{D}^2$$

$$\text{C} = (\text{At} - \text{Ab}) / \text{Dt}$$

$$\text{Ab} = 6.80$$

$$\text{At} = 7,189.96$$

$$\text{Dt} = 0.95$$

$$\text{C} = 7561.22$$

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
13.5	0	0	0.0000
22.61	9.11	0.0014	0.0791
22.81	9.31	0.0049	0.0800
23.01	9.51	0.0154	0.0808
23.21	9.71	0.0328	0.0817
23.41	9.91	0.0571	0.0825
23.56	10.06	0.0799	0.0831

### Orifice Equation

$$Q = \text{CA} \text{ SQRT}(2gH)$$

$$\text{C} = 0.6$$

$$\text{Diameter (in)} = 1$$

$$\text{Area (ft}^2\text{)} = 0.00545415$$

$$g = 32.2$$

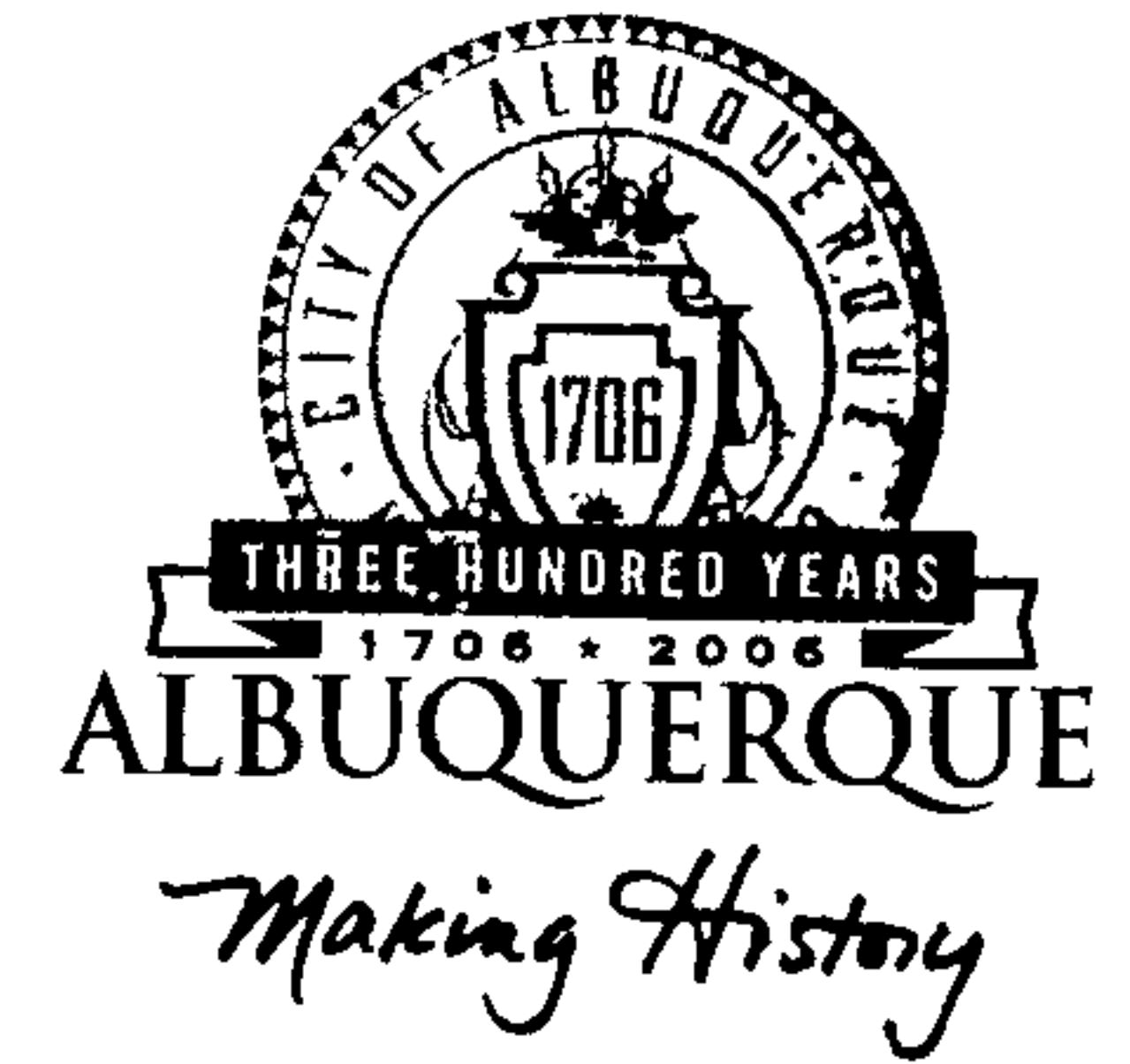
$$\text{H (Ft)} = \text{Depth of water above center of orifice}$$

$$\text{Q (CFS)} = \text{Flow}$$

RUN DATE (MON/DAY/YR) =01/23/2004  
USER NO.= AHYMO-I-9702a0100011K-SH

		FROM	TO		PEAK	RUNOFF		TIME TO	CFS	PAGE =	1
COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.660
COMPUTE NM HYD	100.10	-	1	.00190	4.48	.192	1.89066	1.500	3.682	PER IMP=	67.00
COMPUTE NM HYD	100.20	-	2	.00080	1.99	.087	2.03237	1.500	3.877	PER IMP=	75.00
COMPUTE NM HYD	100.30	-	3	.00130	3.22	.141	2.03237	1.500	3.868	PER IMP=	75.00
COMPUTE NM HYD	100.40	-	4	.00060	1.49	.065	2.03237	1.500	3.890	PER IMP=	75.00
COMPUTE NM HYD	100.50	-	5	.00110	2.73	.119	2.03237	1.500	3.871	PER IMP=	75.00
COMPUTE NM HYD	100.60	-	6	.00040	1.00	.043	2.03237	1.500	3.906	PER IMP=	75.00
COMPUTE NM HYD	100.70	-	7	.00060	1.49	.065	2.03237	1.500	3.890	PER IMP=	75.00
COMPUTE NM HYD	100.80	-	8	.00100	1.87	.073	1.37481	1.500	2.919	PER IMP=	41.00
ROUTE RESERVOIR	501.00	1	9	.00190	.06	.135	1.33662	2.800	.048	AC-FT=	.146
ROUTE RESERVOIR	501.01	2	10	.00080	.36	.087	2.03202	2.050	.695	AC-FT=	.039
ROUTE RESERVOIR	501.02	3	11	.00130	.70	.141	2.04038	2.000	.845	AC-FT=	.056
ROUTE RESERVOIR	501.03	4	12	.00060	.39	.065	2.03192	1.900	1.017	AC-FT=	.023
ROUTE RESERVOIR	501.04	5	13	.00110	.42	.119	2.03208	2.100	.596	AC-FT=	.059
ROUTE RESERVOIR	501.05	6	14	.00040	.07	.043	2.03177	2.200	.265	AC-FT=	.028
ROUTE RESERVOIR	501.06	7	15	.00060	.08	.065	2.03192	2.300	.214	AC-FT=	.043
ADD HYD	SD4	9&10	16	.00270	.41	.222	1.54265	2.100	.239		
ADD HYD	SD6	16&11	17	.00400	1.12	.364	1.70440	2.050	.436		
ADD HYD	SD8	17&12	18	.00460	1.51	.429	1.74710	2.000	.512		
ADD HYD	SD9	18&13	19	.00570	1.93	.548	1.80208	2.050	.528		
ADD HYD	SD11	14&15	20	.00100	.15	.108	2.03126	2.250	.234		
ADD HYD	SD13	20&19	21	.00670	2.08	.656	1.83629	2.050	.484		
FINISH											

# CITY OF ALBUQUERQUE



February 3, 2006

Mr. Ronald R. Bohannon, PE  
**TIERRA WEST, LLC**  
8509 Jefferson St. NE  
Albuquerque, NM 87113

**Re: ECKERD'S PLAZA – PAD D - AUTOZONE**  
**4301 Montano Road NW**  
**Approval of Permanent Certificate of Occupancy (C.O.)**  
**Engineer's Stamp dated 10/12/2004 (E-12/D10)**  
**Certification dated 02/02/2006**

Dear Ron:

P.O. Box 1293

Based upon the information provided in your submittal received 02/03/2006, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

Albuquerque

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

New Mexico 87103

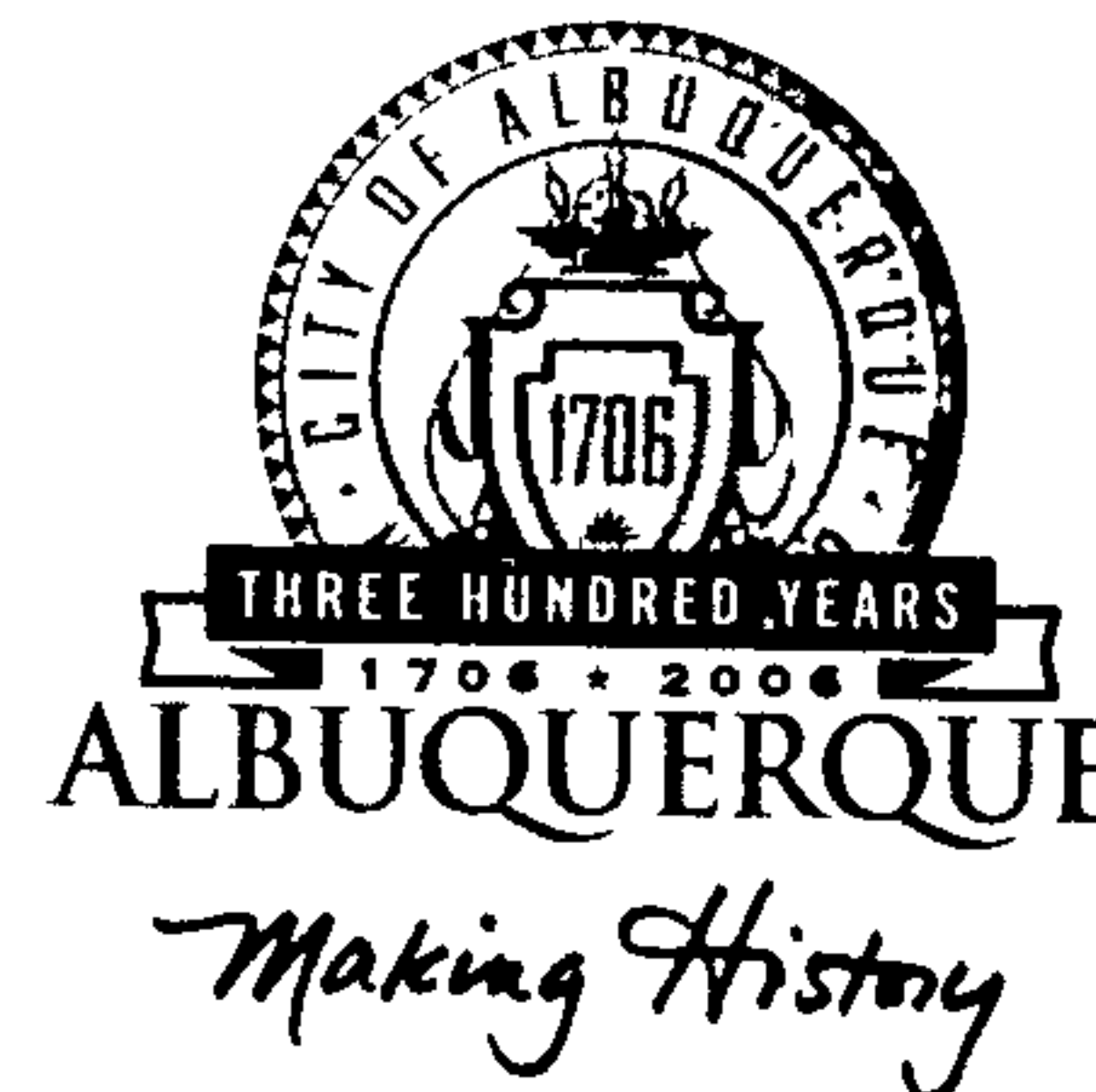
Sincerely,

Arlene V. Portillo  
Plan Checker, Planning Dept. - Hydrology  
Development and Building Services

[www.cabq.gov](http://www.cabq.gov)

C: CO Clerk  
File

# CITY OF ALBUQUERQUE



July 28, 2005

Ron Bohannon, PE  
**TIERRA WEST, LLC**  
8509 Jefferson St. NE  
Albuquerque, NM 87113

**Re: ECKERD'S DRUG PLAZA, PAD A**  
**4411 Montano Road NW**  
**Approval of Permanent Certificate of Occupancy (C.O.)**  
**Engineer's Stamp dated 10/12/2004 (E-12/D10)**  
**Certification dated 07/28/2005**

Dear Ron:

P.O. Box 1293

Based upon the information provided in your submittal received 07/28/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

Albuquerque

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

New Mexico 87103

Sincerely,

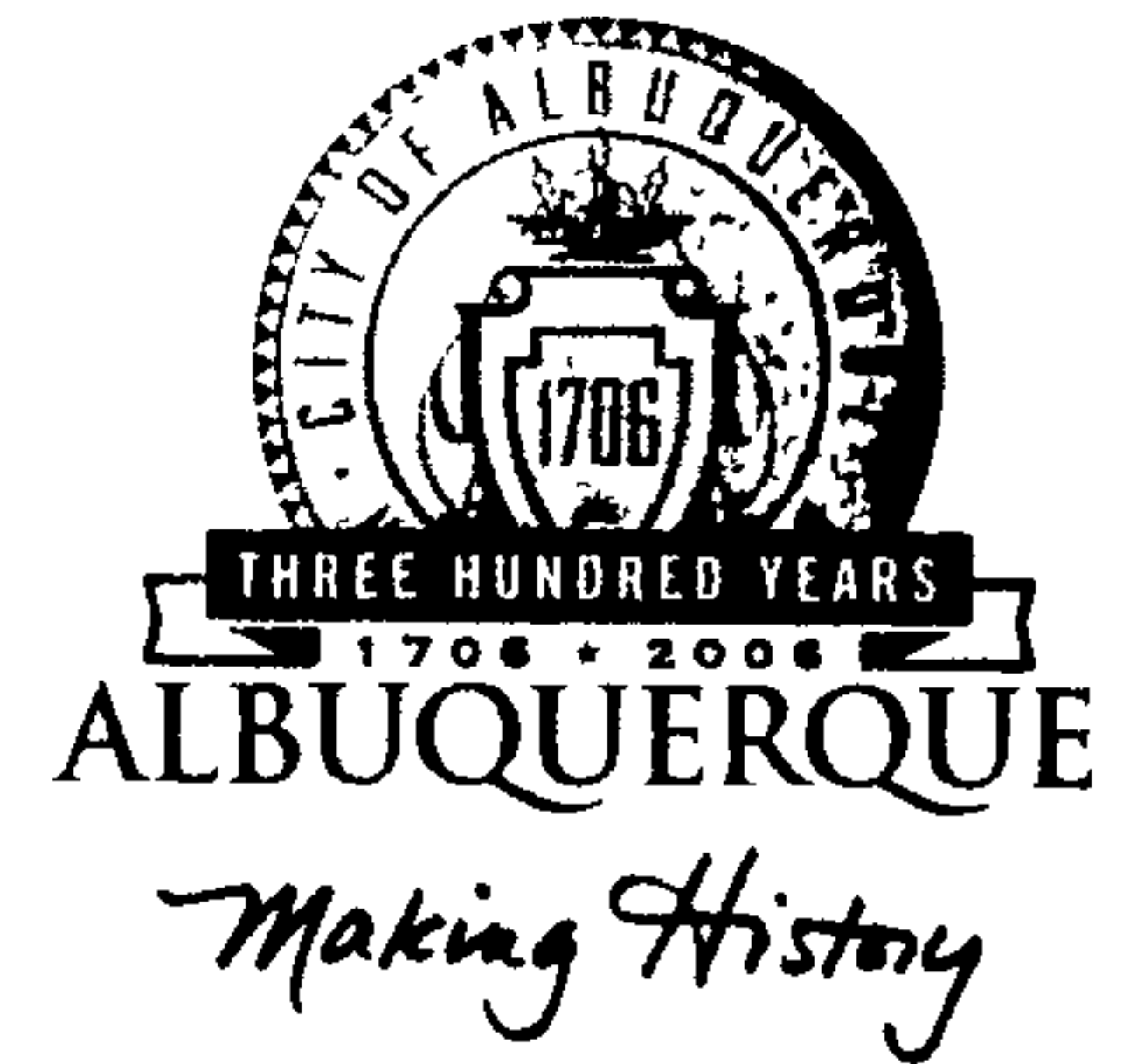
*Arlene V. Portillo*  
Arlene V. Portillo

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

[www.cabq.gov](http://www.cabq.gov)

C: Phyllis Villanueva  
File

# CITY OF ALBUQUERQUE



July 1, 2005

Mr. Ronald R. Bohannon, P.E.  
**TIERRA WEST, LLC**  
8509 Jefferson St. NE  
Albuquerque, NM 87113

**Re: ECKERD DRUG PLAZA (PAD C, JUST BRAKES)**  
**4311 Montano Blvd. NW**  
**Approval of Permanent Certificate of Occupancy (C.O.)**  
**Engineer's Stamp dated 10/12/2004 (E-12/D10)**  
**Certification dated 06/30/2005**

Dear Ron:

P.O. Box 1293

Based upon the information provided in your submittal received 07/01/2005, the above referenced certification is approved for release of Permanent Certificate of Occupancy by Hydrology.

Albuquerque

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

New Mexico 87103

Sincerely,

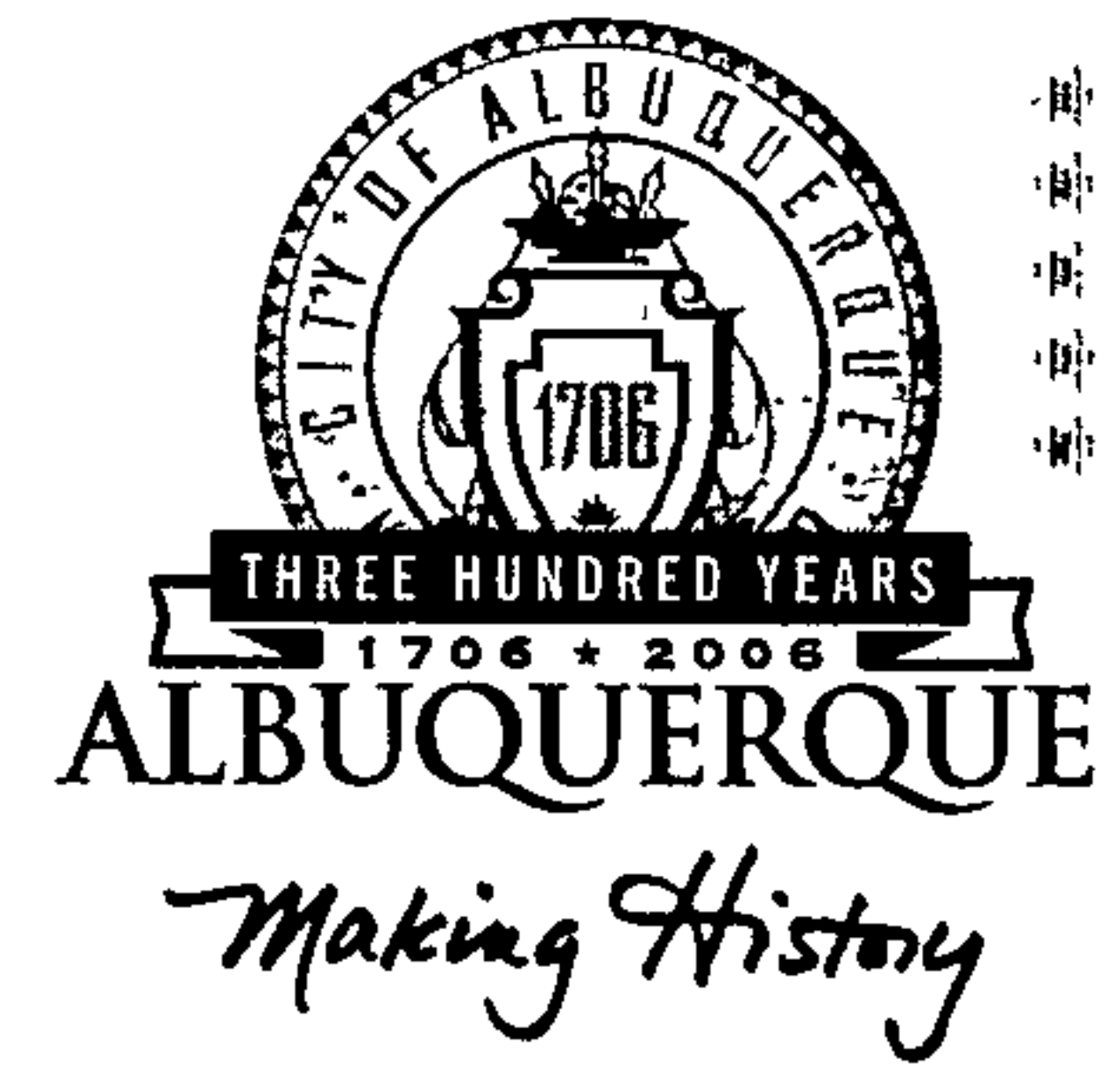
Arlene V. Portillo  
Plan Checker, Planning Dept. - Hydrology  
Development and Building Services

[www.cabq.gov](http://www.cabq.gov)

C: Phyllis Villanueva  
Sara Lavy  
File



# CITY OF ALBUQUERQUE



*Planning Department*  
*Transportation Development Services Section*

December 8, 2005

George Rainhart, RA  
**GEORGE RAINHART ARCHITECT &  
ASSOCIATES, PC**  
2328 San Pedro Drive NE, Suite 2B  
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for  
**ECKERD DRUG PLAZA, PAD D, AUTOZONE**, [E-12 / D10]  
4301 Montano Road NW  
Architect's Stamp Dated 12/07/2005

P.O. Box 1293

Dear Mr. Rainhart:

Albuquerque

The TCL / Letter of Certification submitted on December 7, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

New Mexico 87103

Sincerely,

[www.cabq.gov](http://www.cabq.gov)

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

c: Engineer  
Hydrology file  
CO Clerk

Nilo Salgado-Fernandez P.E  
City of Albuquerque  
Planning department  
600 2<sup>nd</sup> St. N.W  
Albuquerque N.M 87102

Re: SITEPLAN APPROVAL FOR CERT. OF OCCUPANCY ( FINAL )  
PROJECT# AUTOZONE / 4301 MONTANO N.W

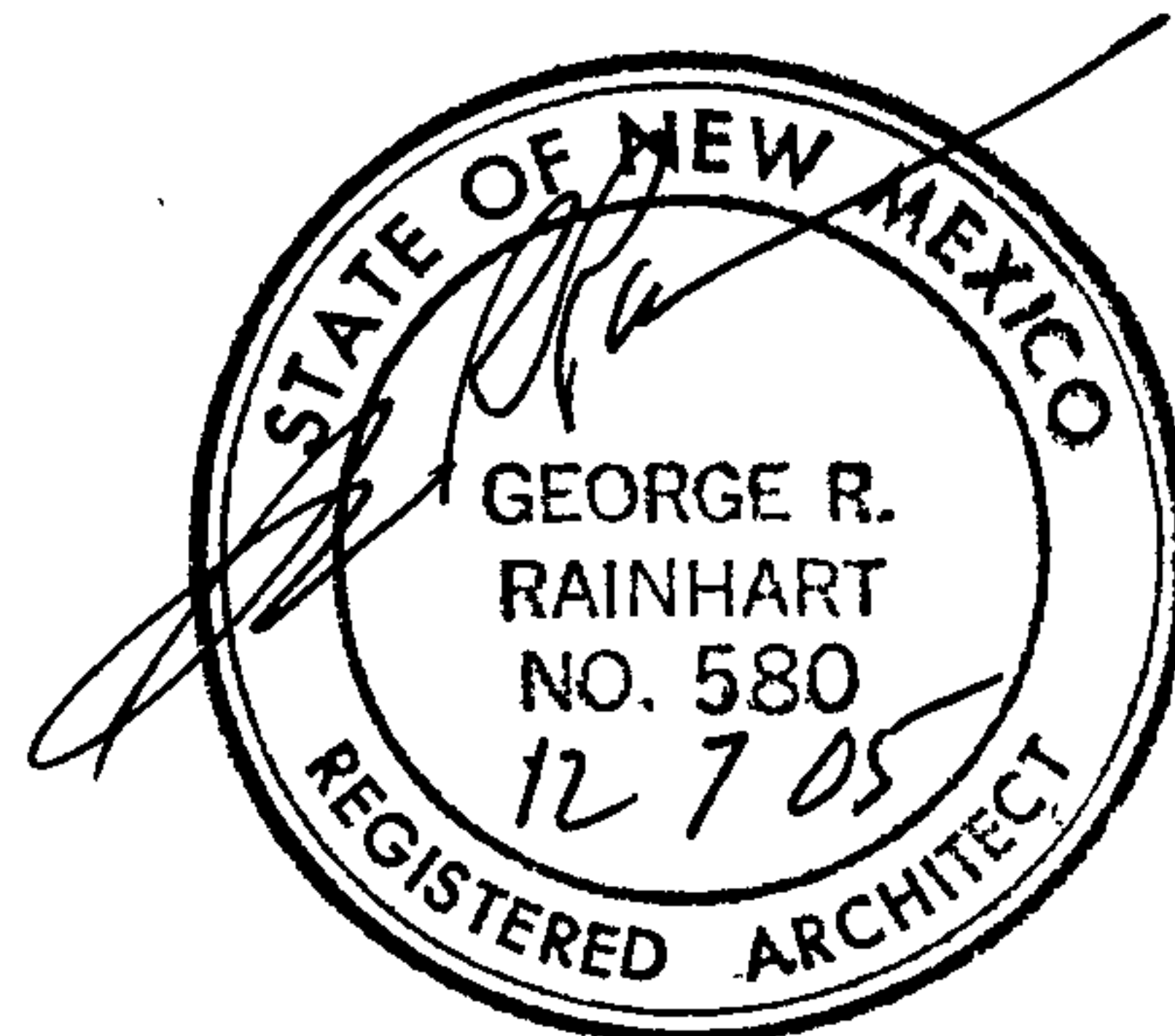
Nilo:

I George Rainhart R.A of George Rainhart Architects and Associates hereby certify that this project is in substantial compliance with, and in accordance with the design intent of the approved plan dated 12-29-03. The record information edited onto the original design document has been obtained by Stephen Dunbar R.A of George Rainhart Architects and Associates. I further certify that Stephen Dunbar R.A has personally visited the project site on 12-1-05 and has determined by visual inspection that the survey data provided is representative of actual site conditions and it true and correct to the best of my knowledge and belief. This certification is submitted in support of a request permanent certification of occupancy.

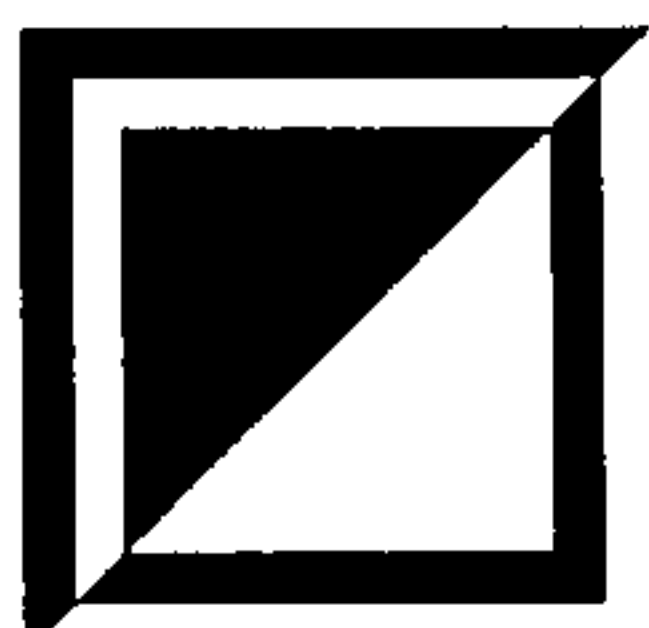
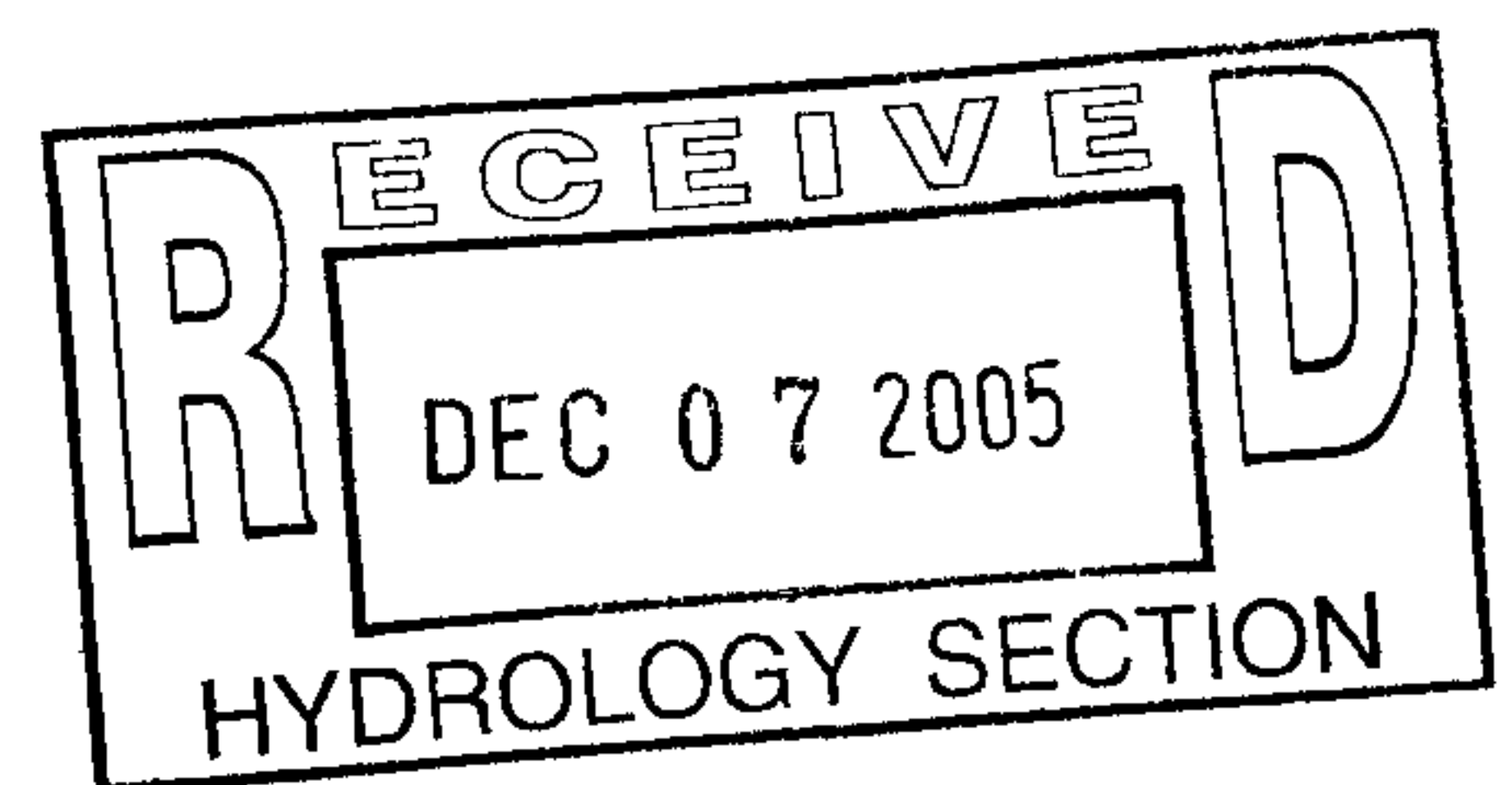
Sincerely



George Rainhart AIA

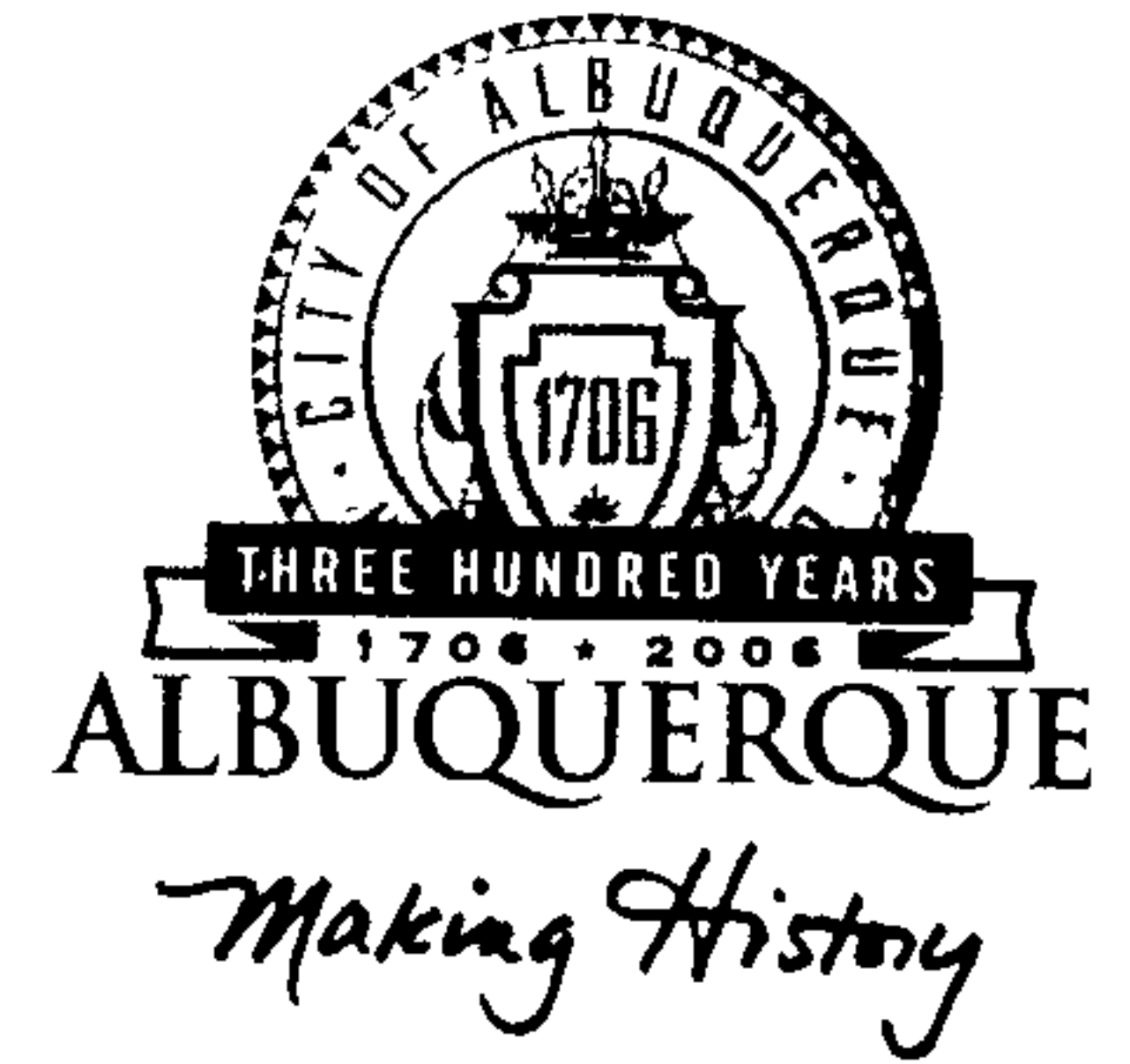


**George Rainhart, Architect and Associates P.C**



GEORGE RAINHART, ARCHITECT & ASSOCIATES P.C.  
2325 SAN PEDRO NE SUITE 2-B ■ ALBUQUERQUE, NEW MEXICO 87110  
PHONE: 505-884-9110 ■ FAX: 505-837-9877 ■ Email: graa@gra-arch.com

# CITY OF ALBUQUERQUE



**Planning Department  
Transportation Development Services Section**

June 22, 2005

George Rainhart, Registered Architect  
2325 San Pedro NE, Ste 2-B  
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for  
Pad A Montano Shops, [E-12 / D10]  
Northwest Corner Coors Blvd and Montano Road NW  
Architect's Stamp Dated 06/13/05

Dear Mr. Rainhart:

P.O. Box 1293

The TCL / Letter of Certification submitted on June 13, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Albuquerque

Sincerely,

New Mexico 87103

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

[www.cabq.gov](http://www.cabq.gov)

c: Engineer  
Hydrology file  
CO Clerk

Nilo Salgado-Fernandez P.E  
City of Albuquerque  
Planning department  
600 2<sup>nd</sup> St. N.W  
Albuquerque N.M 87102

Re: SITEPLAN APPROVAL FOR CERT. OF OCCUPANCY(FINAL)  
PROJECT# 100635 COORS AND MONTANO SHOPS

*Pa J A*

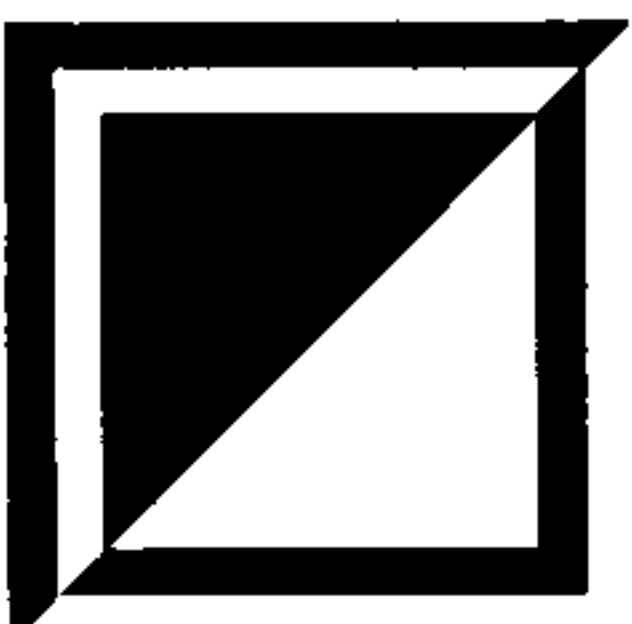
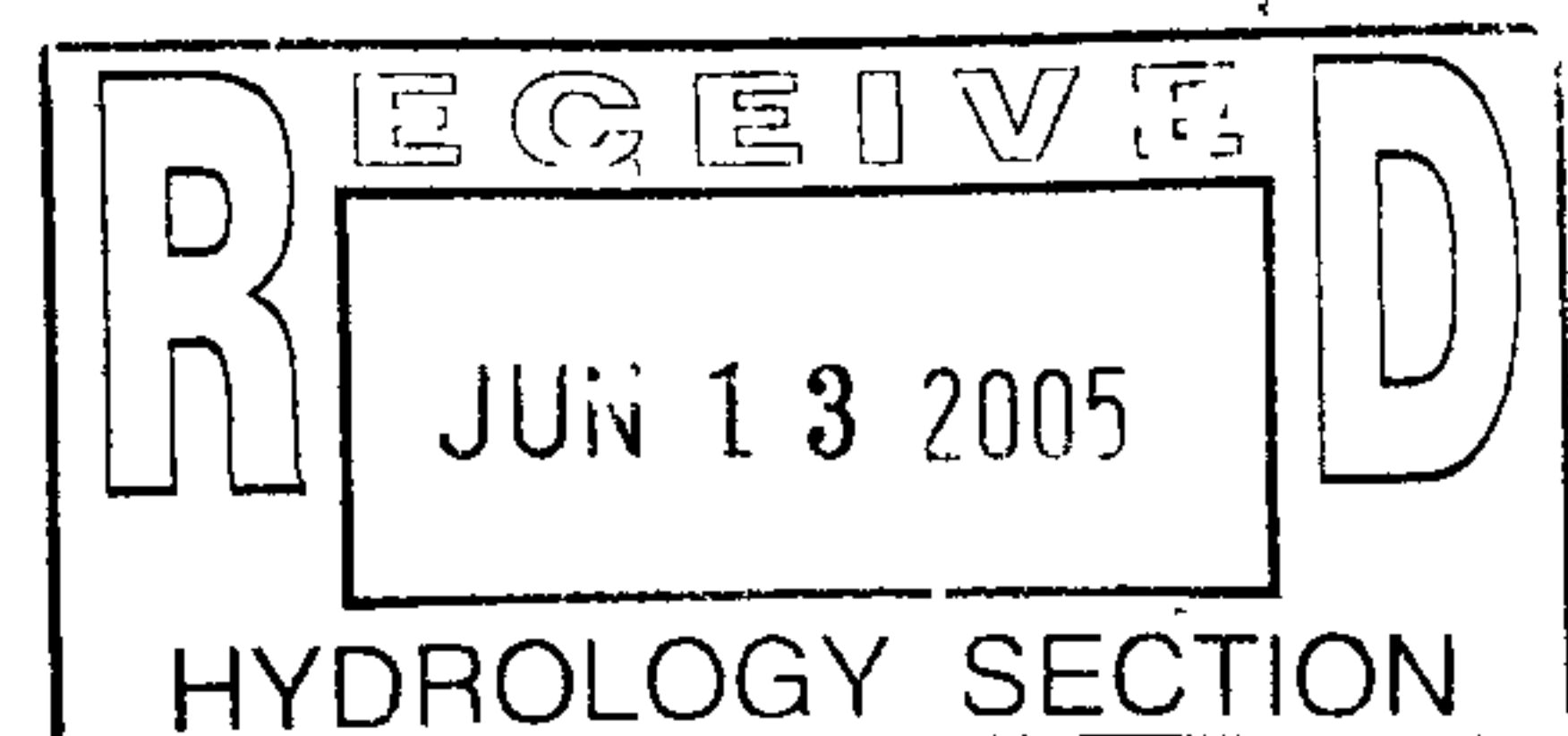
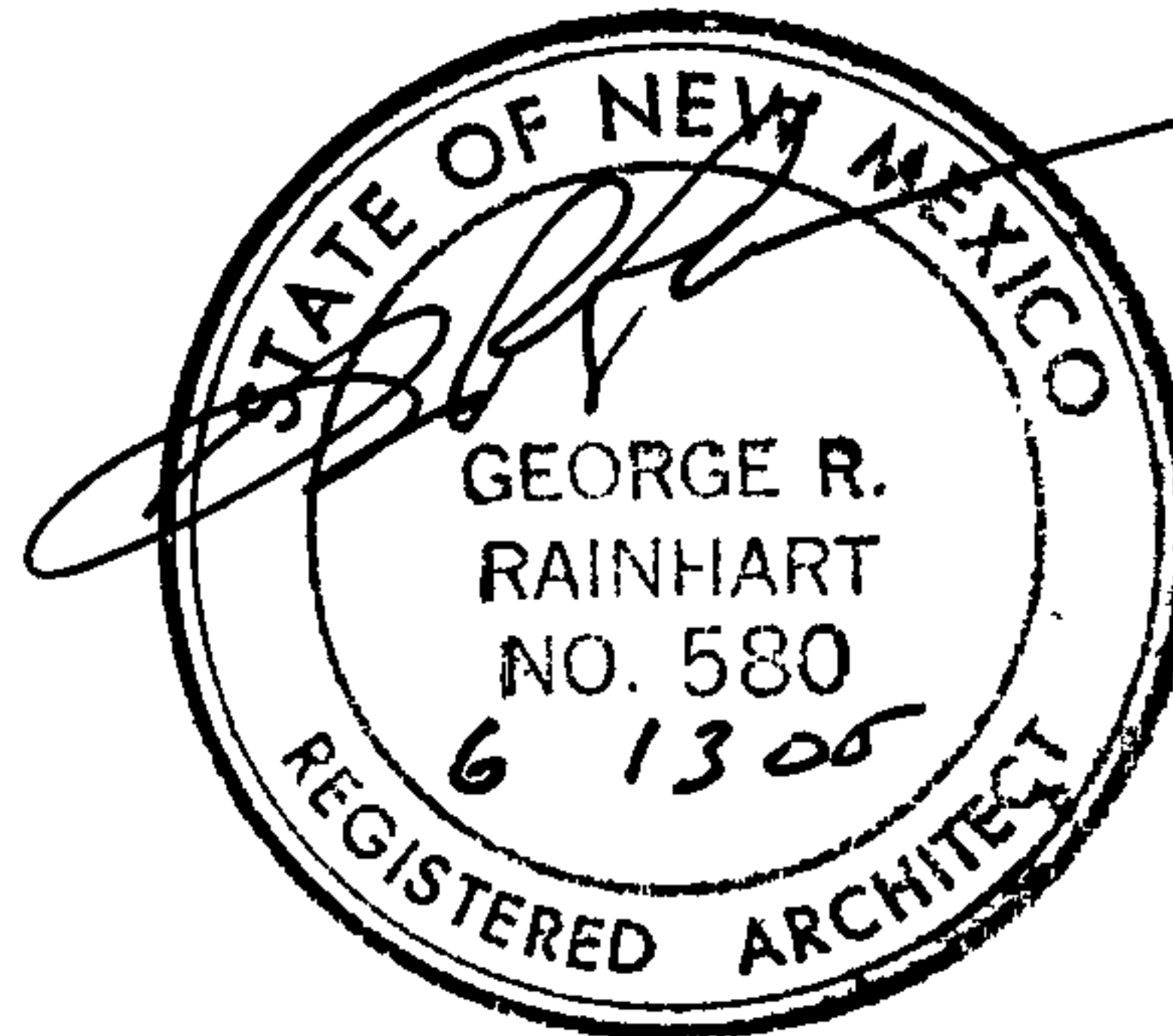
Nilo:

The above referenced project is constructed within substantial compliance of the standards set forth on the approved Development Review Plan dated 12-29-03

Sincerely

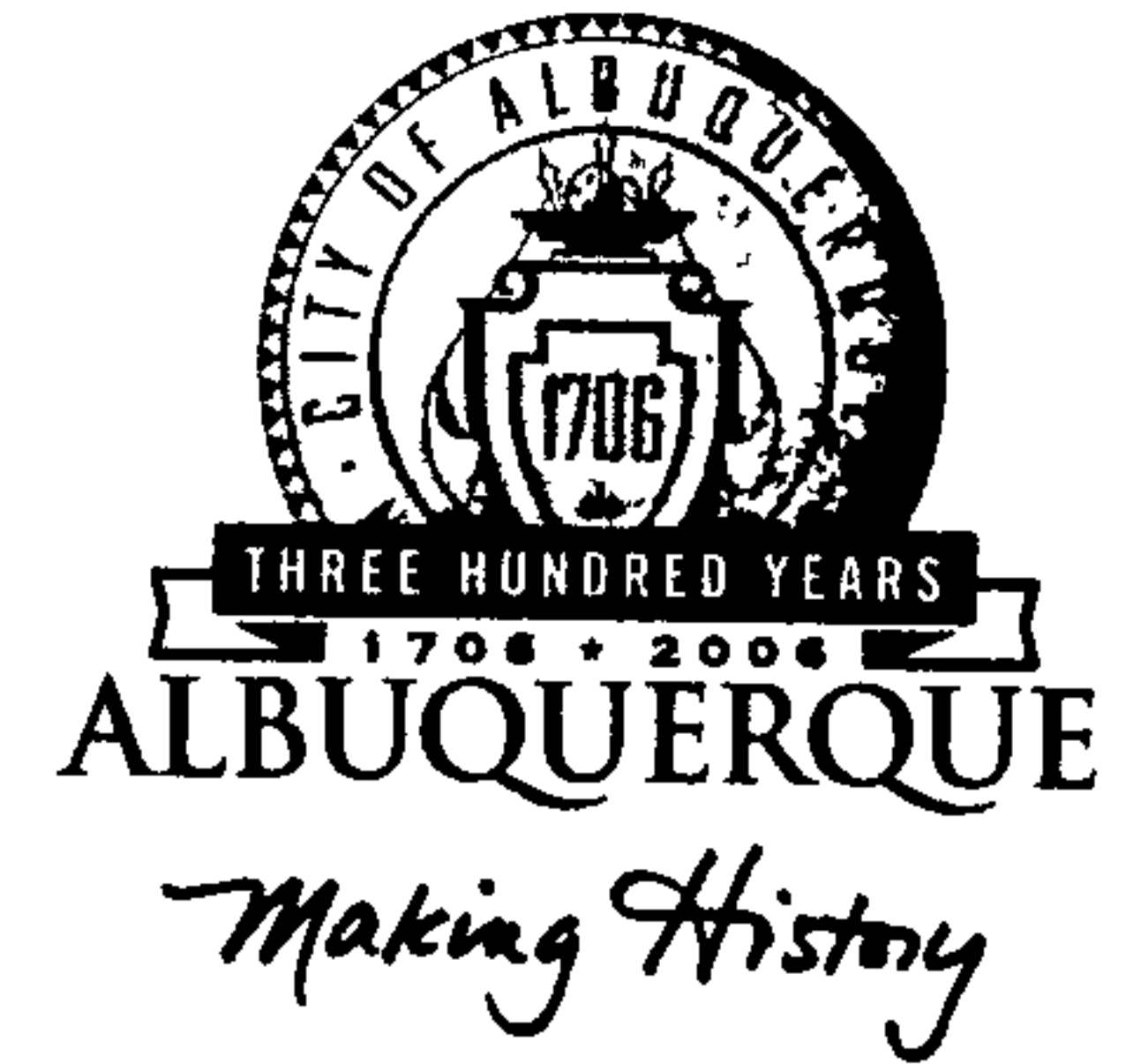
  
George Rainhart AIA

**George Rainhart, Architect and Associates P.C**



GEORGE RAINHART, ARCHITECT & ASSOCIATES P.C.  
2325 SAN PEDRO NE SUITE 2-B ■ ALBUQUERQUE, NEW MEXICO 87110  
PHONE: 505-884-9110 ■ FAX: 505-837-9877 ■ Email: graa@gra-arch.com

# CITY OF ALBUQUERQUE



**Planning Department  
Transportation Development Services Section**

April 14, 2005

George Rainhart, Registered Architect  
2325 San Pedro NE, Ste. 2-B  
Albuquerque, NM 87110

Re: Certification Submittal for Final Building Certificate of Occupancy for  
Just Brakes, [E-12 / D10]  
4311 Montano NW  
Architect's Stamp Dated 04/14/05

PAD C

Dear Mr. Rainhart:

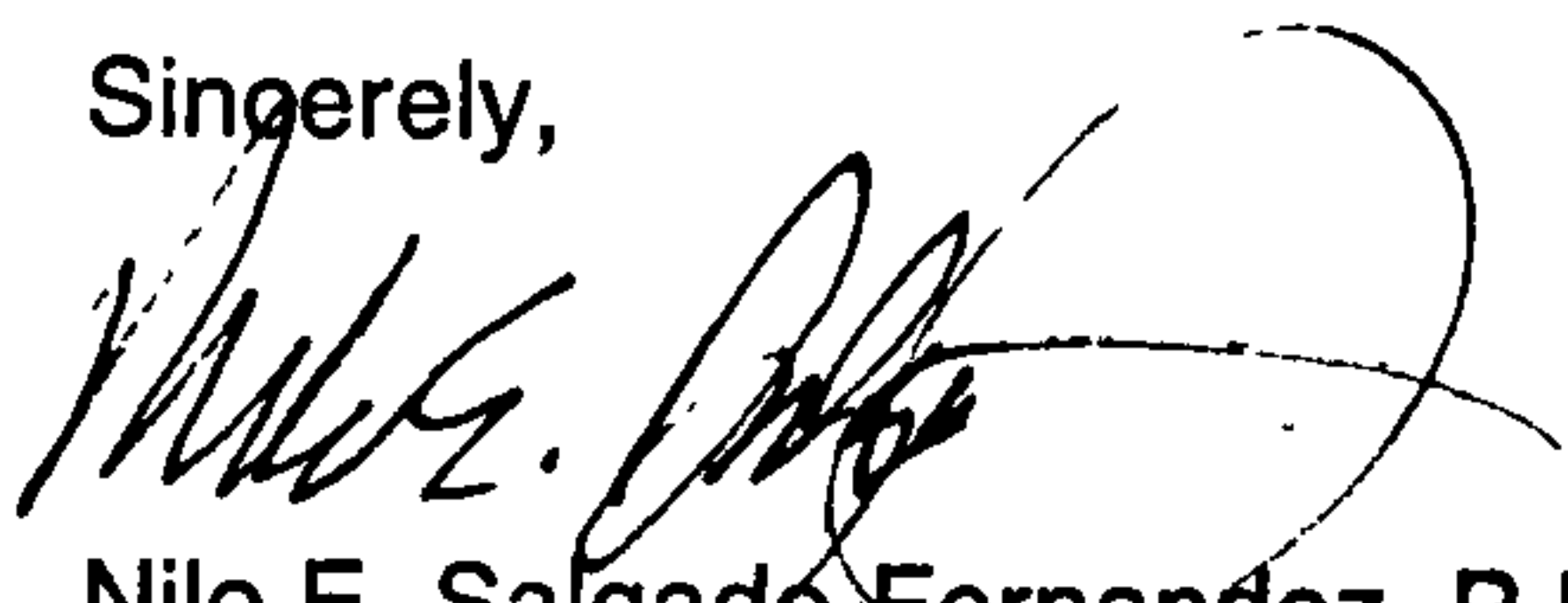
P.O. Box 1293

The TCL / Letter of Certification submitted on April 14, 2005 is sufficient for acceptance by this office for final Certificate of Occupancy (C.O.). Notification has been made to the Building and Safety Section.

Albuquerque

Sincerely,

New Mexico 87103

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

[www.cabq.gov](http://www.cabq.gov)

c: Engineer  
Hydrology file  
CO Clerk



Nilo Salgado-Fernandez P.E  
City of Albuquerque  
Planning department  
600 2<sup>nd</sup> St. N.W  
Albuquerque N.M 87102

Re: SITEPLAN APPROVAL FOR CERT. OF OCCUPANCY(FINAL)  
PROJECT# 100635 JUST BRAKES

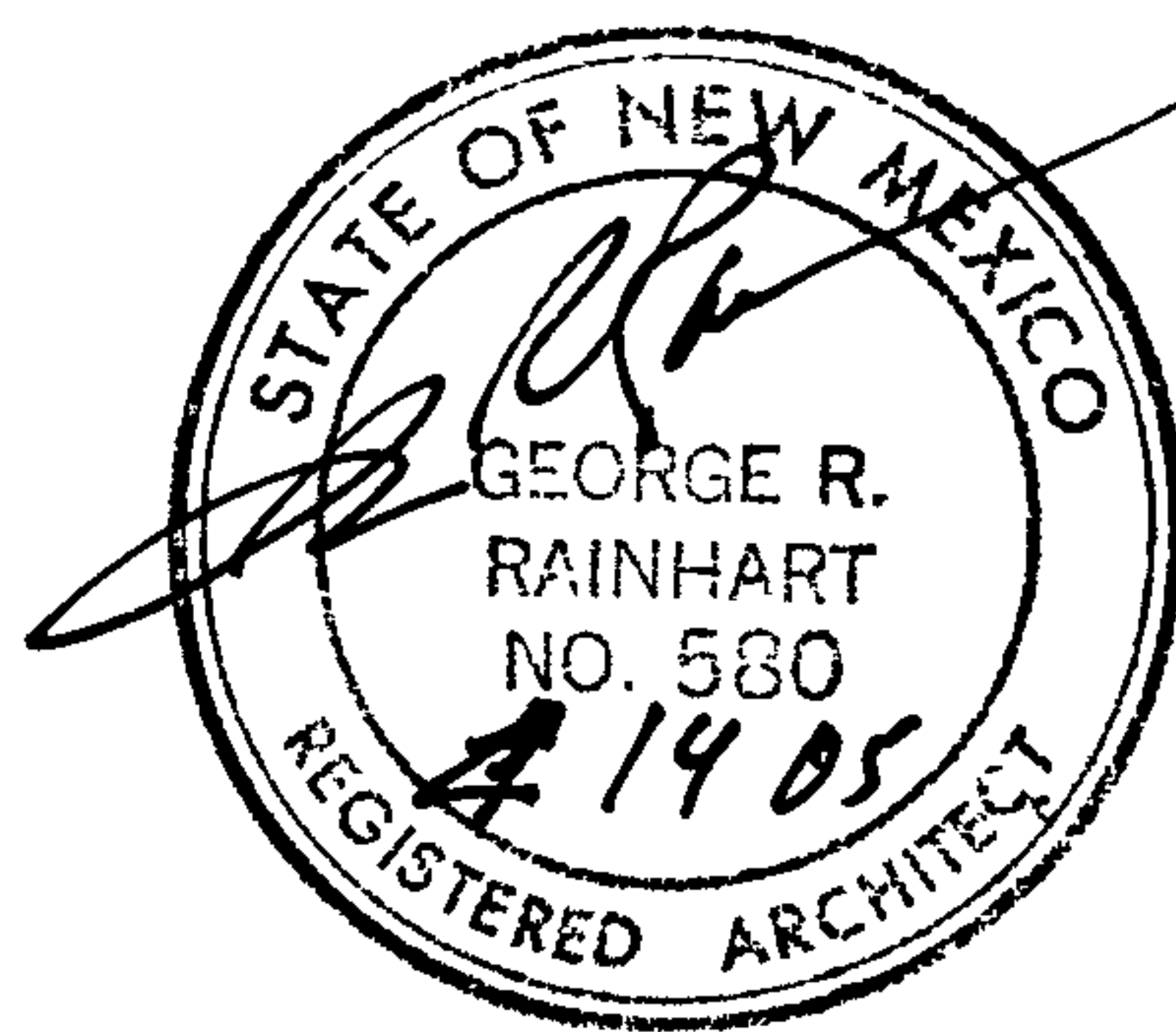
Nilo:

The above referenced project is constructed within substantial compliance of the standards set forth on the approved Development Review Plan dated 12-29-03

Sincerely



George Rainhart AIA



**George Rainhart, Architect and Associates P.C**

