CITY OF ALBUQUERQUE

May 7, 2014

Ronald R. Bohannan, PE
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Dream Style, 1460 Renaissance Blvd NE
Request Permanent C.O. - Accepted
Engineer's Stamp dated: 10-25-13 (F16D005K)
Certification dated: 5-6-14

Dear Mr. Bohannan,

Based on the Certification received 5/6/2014, the site is acceptable for release of a Certificate of Occupancy by Hydrology.

Hydrology is asking for an electronic copy, in .pdf format, of this certification for our records. This certification can be e-mailed to: rrael@cabq.gov.

If you have any questions, you can contact me at 924-3986 or Rudy Rael at 924-3977.

Sincerely,

Curtis Cherne, P.E.
Principal Engineer, Planning Dept.
Development and Review Services

RR/CC
C: CO Clerk—Katrina Sigala
email

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

F16D005K

Project Title: Dream Style City Drainage #:

DRB#: 1001118 13-DRB 70545 EPC#: Work Order#:

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

Owner: Union Development Corporation Contact: Jim Trump

Address: 122 Tulane Dr. Albuquerque, NM 87106

Phone#: 505-321-6493 Fax#: 505-268-0449 E-mail: jim@buildingnewmexico.org

Architect: Rick Bennett Architects (RBA) Contact: David McEachern

Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: Contact:

Address:

Phone#: Fax#: E-mail:

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
___ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
X ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
X CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL ___ SO-19 APPROVAL
___ PAVING PERMIT APPROVAL ___ ESC PERMIT APPROVAL
___ WORK ORDER APPROVAL ___ ESC CERT. ACCEPTANCE
___ GRADING CERTIFICATION ___ OTHER (SPECIFY)

RECEIVED
MAY 06 2014
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 04/24/2014 By: Paul Evans

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services

April 25, 2014

Richard Bennett, R.A.
Rick Bennett Architects
1104 Park Ave. SW
Albuquerque, NM 87102

Re: Dreamstyle, 1460 Renaissance
Certificate of Occupancy – Transportation Development
Architect's Stamp dated 8-19-13 (F16-D005K)
Certification dated 04-21-14

Dear Mr. Bennett,

Based upon the information provided in your submittal received 04-22-14, Transportation Development has no objection to the issuance of a Permanent Certificate of Occupancy. This letter serves as a "green tag" from Transportation Development for a Permanent Certificate of Occupancy to be issued by the Building and Safety Division.

Transportation is asking for an electronic copy, in PDF format, of this certification for our records. This PDF file can be e-mailed to rmichel@cabq.gov. If you have any questions, please contact me at (505)924-3630.

Sincerely,

Racquel M. Michel, P.E.
Senior Engineer, Planning Dept.
Development Review Services

c: File
CO Clerk

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

RECEIVED
APR 22 2014
LAND DEVELOPMENT SECTION

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: DreamStyle Building Permit #: _____ City Drainage #: ~~F~~ F16D005K

DRB#: _____ EPC#: _____ Work Order#: _____

Legal Description: _____

City Address: * 1460 Rennassiance

Engineering Firm: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Owner: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

* **Architect:** Rick Bennett Contact: Darby Wiera *

Address: 1104 Park Ave SW

Phone#: (505) 242-1859 Fax#: (505) 242-6630 E-mail: darby@rba81.com

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
____ DRAINAGE PLAN 1st SUBMITTAL
____ DRAINAGE PLAN RESUBMITTAL
____ CONCEPTUAL G & D PLAN
____ GRADING PLAN
____ EROSION & SEDIMENT CONTROL PLAN (ESC)
____ ENGINEER'S CERT (HYDROLOGY)
____ CLOMR/LOMR
____ TRAFFIC CIRCULATION LAYOUT (TCL)
____ ENGINEER'S CERT (TCL)
X ENGINEER'S CERT (DRB SITE PLAN)
____ ENGINEER'S CERT (ESC)
____ SO-19
____ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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____ PRELIMINARY PLAT APPROVAL
____ S. DEV. PLAN FOR SUB'D APPROVAL
____ S. DEV: FOR BLDG. PERMIT APPROVAL
____ SECTOR PLAN APPROVAL
____ FINAL PLAT APPROVAL
X CERTIFICATE OF OCCUPANCY (PERM)
____ CERTIFICATE OF OCCUPANCY (TCL TEMP)
____ FOUNDATION PERMIT APPROVAL
____ BUILDING PERMIT APPROVAL
____ GRADING PERMIT APPROVAL
____ PAVING PERMIT APPROVAL
____ WORK ORDER APPROVAL
____ GRADING CERTIFICATION
____ SO-19 APPROVAL
____ ESC PERMIT APPROVAL
____ ESC CERT. ACCEPTANCE
____ OTHER (SPECIFY)

RECEIVED
APR 22 2014
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ____ Yes ____ No ____ Copy Provided

DATE SUBMITTED: 4/22/14 By: _____

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

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rick bennett
ARCHITECTS

TRAFFIC CERTIFICATION

I, RICK BENNETT, NMPE OR NMRA 1240, OF THE FIRM RBA, INC, HEREBY CERTIFY THAT THIS PROJECT, BUILDING PERMIT NO. 201392199 IS IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 08/04/2013. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY RICK BENNETT OF THE FIRM RBA, INC. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON 04/21/2014 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR CERTIFICATE OF OCCUPANCY.

<LIST EXCEPTIONS, IF ANY>

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE TRAFFIC ASPECTS OF THIS PROJECT. THOSE RELYING ON THE RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

Signature of Engineer or Architect

4/21/14
Date

RECEIVED
APR 22 2014
LAND DEVELOPMENT SECTION

STATE OF NEW MEXICO
RICHARD P. BENNETT
No. 1240
REGISTERED ARCHITECT
4/21/14

1104 Park Avenue SW · Albuquerque, New Mexico 87102 505-242-1859 Fax 505-242-6630

CITY OF ALBUQUERQUE

Planning Department
Transportation Development Services Section

September 16, 2004

Ronald R. Bohannan, P.E.
8509 Jefferson NE
Albuquerque, NM 87113

Re: Certification Submittal for Final Building Certificate of Occupancy for
Sportsmans Warehouse-Tract 4A-1, [F-16 / D5K]
1450 Renaissance Blvd
Engineer's Stamp Dated 09/16/04

Dear Mr. Bohannan:

The TCL / Letter of Certification submitted on September 16, 2004 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

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

twllc@tierrawestllc.com
1-800-245-3102

September 16, 2004

Mr. Nilo Salgado-Fernandez, PE
Development and Building Services
Public Works Department
PO Box 1293
Albuquerque, NM 87103

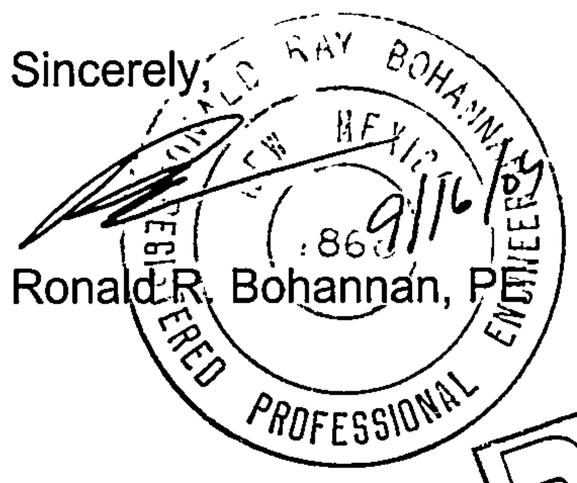
RE: Site Plan Certification for Final Certificate of Occupancy
Tract 4A-1, Sportsmans Warehouse (F16/D5K)
1450 Renaissance Boulevard, NE

Dear Mr. Salgado-Fernandez:

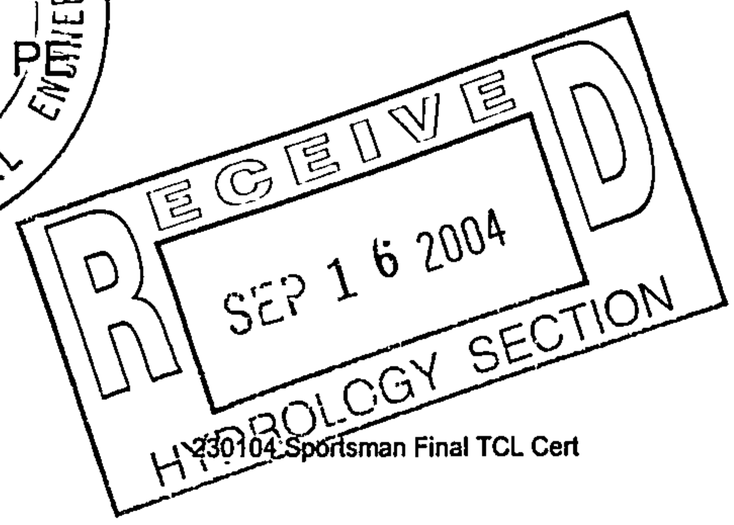
Tierra West, LLC, requests Final Certification of the DRB approved Site Plan for the Sportsmans Warehouse located at Tract 4A-1 North Renaissance Center. Enclosed, please find the information sheet, original Site Plan and the as-built Amended Site Plan. Punch list items for the site are complete. Field verification of the site was completed by our office and is in substantial compliance with the approved plan. Therefore, we are requesting Final Certification of the Site Plan for Final Certificate of Occupancy.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,



Ronald R. Bohannan, PE



Enclosure/s

cc: Mark Strong

JN: 230104
RRB/rw

CITY OF ALBUQUERQUE

September 16, 2004

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

Re: Tract 4A Renaissance Center, 1450 Renaissance Blvd, Certificate of Occupancy

Engineer's Stamp dated 2-05-04 (F16-D5K)

Certification dated 9-16-04

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 9-16-04, the above referenced certification is approved for release of permanent Certificate of Occupancy by Hydrology.

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: Phyllis Villanueva
file

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

December 5, 2013

Ronald R. Bohannan, P.E.
Attn: Paul Evans
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

RE: **Dream Style** File: **F16-D005K**
Renaissance III, Tract 4A2 Correction Plat of Tracts 4A1 & 4A2
Rev. 1 - Grading Plan for Building Permit PE Stamp: **10/25/2013**

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 10-28-2013, the above referenced **REVISED Grading Plan** is approved for Building Permit.

Please ensure that this revised plan is distributed to project personnel for incorporation in the ongoing construction at this site.

Prior to Certificate of Occupancy release, an Engineer's Certification of Grading on this site, in accordance with this revised plan, will be required per the DPM checklist.

If you have questions, please email me at grolson@cabq.gov or phone 505-924-3994.

Sincerely,

12/5/13

Gregory R. Olson, P.E.
Senior Engineer

Orig: Drainage file **F16/D005K**
c.pdf Addressee via Email Ron Bohannan (RRB@TierraWestLLC.com)
Paul Evans (PEvans@TierraWestLLC.com)

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

F16D005K_HYD_approvaLTR-Rev1_2013OCT25

Cherne, Curtis

From: Cherne, Curtis
Sent: Wednesday, October 30, 2013 8:43 AM
To: 'Paul Evans'
Cc: Sims, Timothy E.
Subject: Dreamstyle retaining wall

I haven't reviewed the whole plan, but have reviewed it to see it is acceptable for the retaining wall permit.
Have the Architect put a copy of this plan, stamp date, 10-25-13, in the wall permit set.

Curtis

From: Paul Evans [mailto:pevans@tierrawestllc.com]
Sent: Tuesday, October 29, 2013 1:34 PM
To: Cherne, Curtis
Subject: Project Follow up - Dreamstyle and Bruckner's

Curtis,

Wanted to follow up with you on two projects:

1. We resubmitted the revised G&D Plan for **Dreamstyle** (at Renaissance Blvd and Culture Dr.) and wanted to see if that has been reviewed and approved. I know the architect is waiting on that for the retaining wall building permit.
2. Can we set up a meeting for **Bruckner's** (on Daytona Rd.) mid-morning tomorrow (Wed. 30th) to discuss the C of O?

Let me know when you get a chance today sometime if possible.

Thanks,

Paul Evans
Engineer Intern, EIT
Tierra West LLC
5571 Midway Park Place, ne
Albuquerque, NM
505.858.3100
www.tierrawestllc.com

PRIVILEGED AND CONFIDENTIAL

The information contained in this electronic mail message is confidential, may be privileged, and is intended only for the use of the individual(s) named above or their designee. If you are not the intended recepient of this message, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. Any unauthorized interception of this message is illegal under the law. If you have received this message in error, please immediately notify me by return message or by telephone and delete the original message from your email system. Thank you.

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Dream Style City Drainage #: F16/D005K

DRB#: 1001118 13-DRB 70545 EPC#: Work Order#:

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

Owner: Union Development Corporation Contact: Jim Trump

Address: 122 Tulane Dr. Albuquerque, NM 87106

Phone#: 505-321-6493 Fax#: 505-268-0449 E-mail: jim@buildingnewmexico.org

Architect: Rick Bennett Architects (RBA) Contact: David McEachern

Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: Contact:

Address:

Phone#: Fax#: E-mail:

Contractor: Jaynes Corp. Contact: Josh Wilmot

Address:

Phone#: Fax#: E-mail: joshw@jaynescorp.com

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
■ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
■ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
OCT 28 2013
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 10/28/2013 By: Ronald R. Bohannan

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

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
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Olson, Greg

From: Olson, Greg
Sent: Friday, December 06, 2013 12:39 PM
To: 'Ron R. Bohannan'; 'PEvans@TierraWestLLC.com'
Cc: Olson, Greg
Subject: F16D005K = Dream Style Revised Grading Plan - approved
Attachments: F16D005K_HYD_approvaLTR-Rev1_2013OCT25.pdf

Ron / Paul,

Attached is my approval letter for the revised Grading Plan for this site.

This plan should be the one used for Certification of Grading for C.O.

Note: *In my review of this plan, I noticed that the detention scheme for the site includes orifice plates in two of the parking lot inlets.*
One of the orifice openings is 1.1" diameter, and the other only 0.7" dia.
Clogging and maintenance of these small openings in the bottom of Type "D" inlets may become burdensome for the owners.

"HAPPY HOLIDAYS !!"
&
Thanks,

Greg Olson, PE
Senior Engineer
Planning - Hydrology
505-924-3994

CITY OF ALBUQUERQUE

September 24, 2013

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

Re: Dream Style, Tract 4A2 Correction Plat of Tracts 4A1 & 4A2
Grading Plan and Drainage Report (F16/D005K)
Engineer's Stamp Date 09-23-2013

Dear Mr. Bohannan,

Based upon the information provided in your submittals received 09-23-13 the above referenced plan is approved for Building Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge for disturbing one acre or more and a Topsoil Disturbance Permit for disturbing ¾ of an acre or more. 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 924-3695.

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development Review Services

C: e-mail

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Dream Style City Drainage #: _____

DRB#: 1001118 13-DRB 70545 EPC#: _____ Work Order#: _____

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

Owner: Union Development Corporation Contact: Jim Trump

Address: 122 Tulane Dr. Albuquerque, NM 87106

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Architect: Rick Bennett Architects (RBA) Contact: David McEachern

Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

Contractor: _____ Contact: _____

Address: _____

Phone#: _____ Fax#: _____ E-mail: _____

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- ___ DRAINAGE PLAN 1st SUBMITTAL
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL G & D PLAN
- X GRADING PLAN
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- ___ ENGINEER'S CERT (TCL)
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- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ GRADING CERTIFICATION
- ___ SO-19 APPROVAL
- ___ ESC PERMIT APPROVAL
- ___ ESC CERT. ACCEPTANCE
- ___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED: P.9. ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: ~~09/16/2013~~ 09/23/2013 By: Ronald R. Bohannan

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

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RECEIVED
SEP 23 2013
LAND DEVELOPMENT SECTION

REVISED DRAINAGE MANAGEMENT PLAN

for

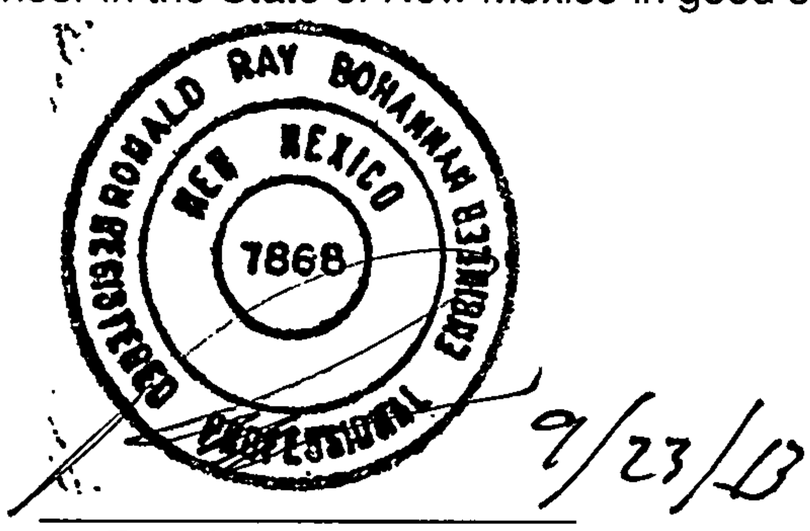
Dream Style
1450 Renaissance Blvd NE
Tract 4A2 Renaissance Center
Albuquerque, New Mexico

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

September 20, 2013

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE # 7868

Job No 2013015

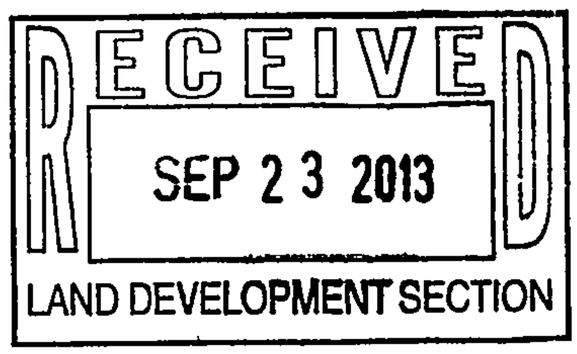


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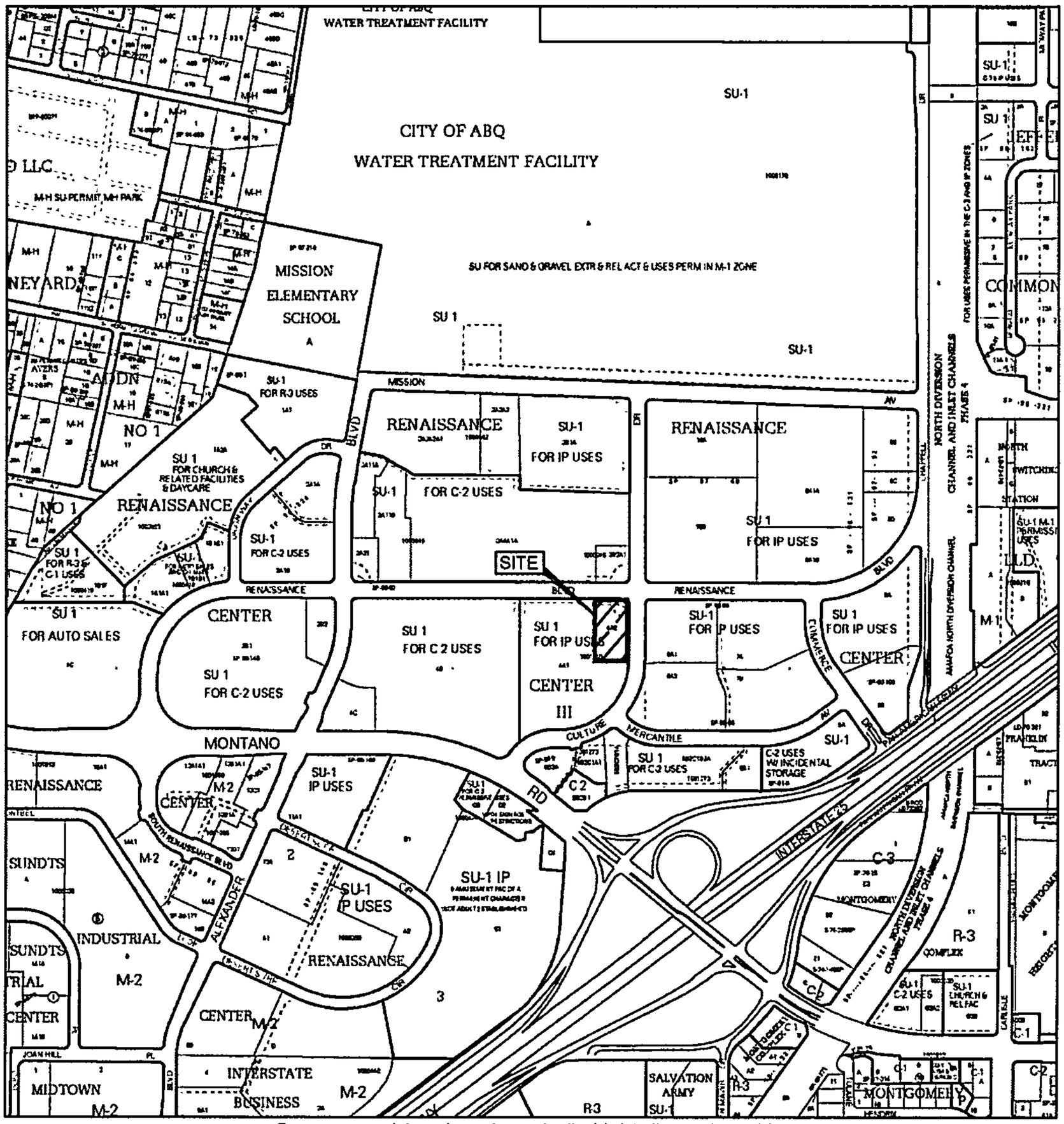
PURPOSE

The purpose of this report is to provide the drainage management plan for the development of Dreamstyle, an outdoor and home improvement retail user. This plan will be utilized for the development of a 14.047 square foot (footprint) two-story structure and associated parking facilities located on the 1.44 acre undeveloped outlot for the Sportsman's Warehouse located at 1460 Renaissance Boulevard NE. This plan is in accordance with the DPM, Chapter 22, Hydrology Section. The purpose of this report is to provide the drainage analysis and management plan for the new site and to act as a detailed record for future use.

INTRODUCTION

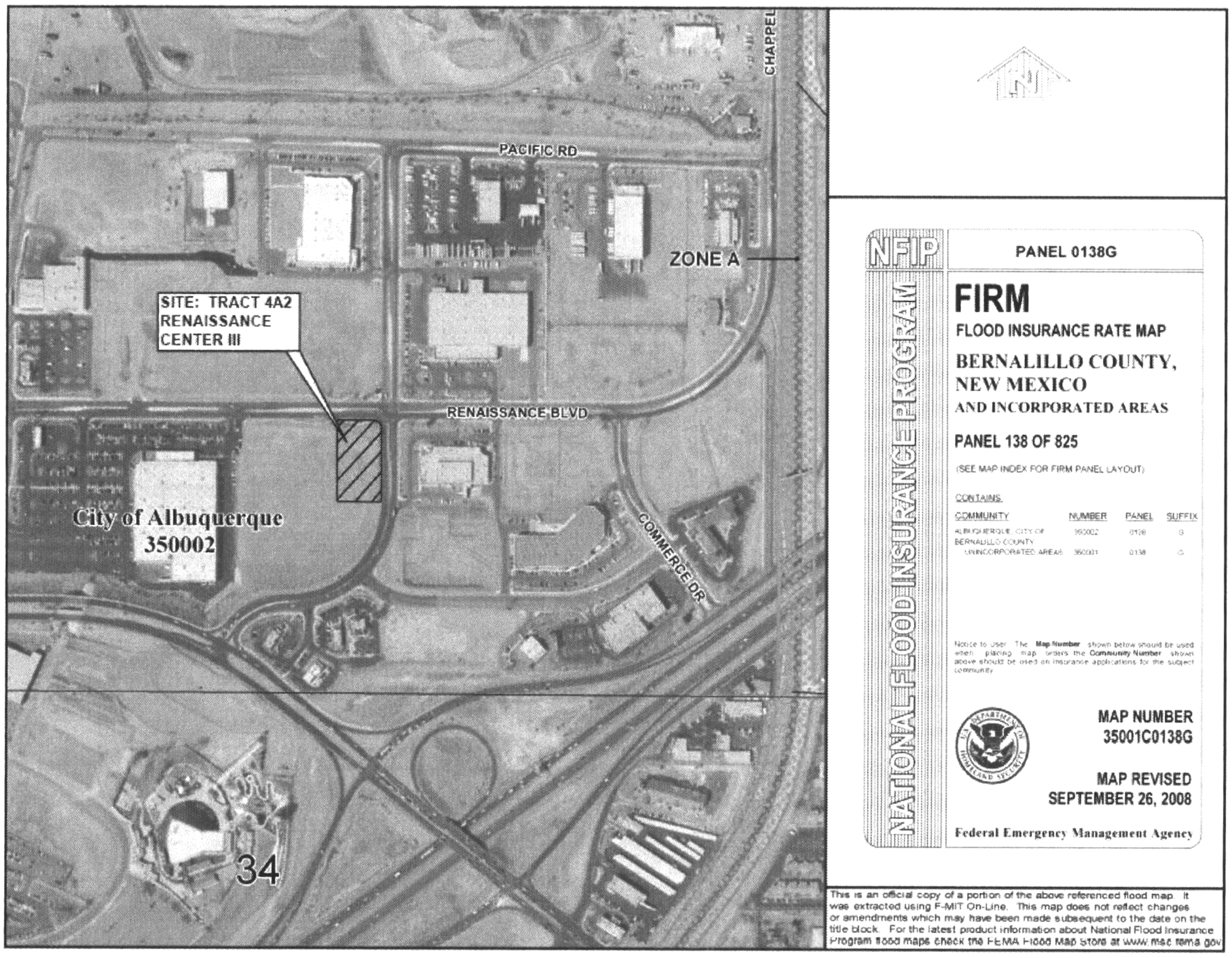
The subject of this report, as shown on *Exhibit A – Vicinity Map*, is a 1.44-acre-parcel of land located at the southwest corner of Renaissance Boulevard and Culture Drive NE. The site appears on zone atlas page F-16-Z. As shown on *Exhibit B – FIRMap 35001C0138G*, the subject property is outside mapped flood zones. A previous drainage report (Report) for the improvements to the overall Sportsman's property (of which this property was a part) was prepared by Tierra West, LLC in February 2004. The Report designed surface drainage, parking lot ponds, and an onsite private storm drain system to accommodate the 100 year, 6 hour storm. The proposed development has been designed to convey flow in the manner consistent with the assumptions of the referenced report.

Exhibit A – Vicinity Map



For more current information and more details visit: http://www.cabq.gov/gis

Exhibit B – FIRMap 35001C0138G



NFIP

PANEL 0138G

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO
AND INCORPORATED AREAS

PANEL 138 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	350002	0138	G
BERNALILLO COUNTY, UNINCORPORATED AREAS	350001	0138	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
35001C0138G

MAP REVISED
SEPTEMBER 26, 2008

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

EXISTING CONDITIONS

The 1.4 acre site was rough graded during mass grading for the center but is vacant and undeveloped with little vegetation and bare ground. There is an existing retaining wall adjacent to a portion of the east property line and adjacent to the existing access drive at the south end of the site. The existing retaining wall has heights ranging from approximately 2 ft to 10 ft. A portion of the north end of the site drains directly to Renaissance Blvd. The majority of the site drains to the rough graded shallow pond at the southeast corner of the lot. Finally, a portion of

the site which makes up half of the access drive off of Culture Drive drains into the main parking area of Sportsman's Warehouse which is then conveyed to parking lot grated inlets and ultimately to the existing 54" storm drain in Renaissance Boulevard which conveys storm water to the Renaissance Detention Pond (west of Bob Turner Ford). Although the site is lower than adjacent public right of way; no offsite flows are directed to the site.

An excerpt from the report by Tierra West, LLC, dated February 2004 titled: Modified Drainage Report for Tract 4A, Renaissance Center (Report), is included for reference in Appendix B. The referenced Report designates the site's northeasterly corner as *Basin 6, Basin 7, Basin 8, and portions of Basin 1.* As stated above, a portion of the subject site contributes runoff to the main parking lot of Sportsman's Warehouse by design. The runoff from this area is intercepted by catch basins with orifice plates limiting the flow out of the system to 0.1 cfs/ac. A hydrology map and calculations for the existing conditions are included in Appendix A of this report.

PROPOSED CONDITIONS

A two-story building with associated parking is proposed for this tract. Proposed grading will adhere to the overall design for the site within the original drainage Report for Sportsman's Warehouse and direct surface flows to onsite grated inlets with restricted discharge via orifice plates. New landscaping will be installed in the parking lot islands and around the building. A hydrology map and calculations for the proposed condition is included in Appendix A of the complete report. The existing retaining wall will remain with an extension to the north end of the site per the plans.

The buildings' finish floor elevation was set at 5048.00 (NAVD 88) which exceeds the height of the adjacent 100-year water elevation of the proposed parking lot ponds for the West Parking Lot Pond (Emergency Overflow = 5046.45) and South Parking Lot Pond (Emergency Overflow = 5046.80) and is also above the maximum water surface elevation for any of the on-

site ponds for Sportsman's Warehouse (Pond 5 WSE = 5046.17). (Note: Elevations for the 2003 drainage report have been adjusted for the datum difference of +2.67 ft.)

An additional private area drain system to collect drainage around the building foundations and to collect nuisance drainage from landscape areas around the building is incorporated into the plans. A continuous landscape swale will be graded on the east and north portions around the building to allow for positive overflow around the building such that the building would not be flooded in the event all area inlets were 100% clogged. The maximum water surface elevation for this area is 5046.16, as the emergency overflow is the curb cut at the far northwest corner of the parking lot as shown on the plans.

The allowable discharge for the subject site is 0.144 cfs based on the discharge allowance of 0.1 cfs/ac in the Master Drainage Plan for the Renaissance Center. As designed, this drainage management plan will restrict the 100 yr, 6 hr flow to 0.143 cfs by implementing orifice plates at the grated inlet outlet pipes. [For further details regarding the drainage management plan, refer to the Revised Drainage Management Plan for Sportsman's Warehouse, June 2013, as well as the full drainage report for Dreamstyle by Tierra West, LLC]

SUMMARY AND RECOMMENDATIONS

Per the Sportsman's Warehouse (Tract 4A) drainage report, all required drainage infrastructure was sized to accommodate the developed condition of this tract. The proposed improvements will accommodate the proposed development and not adversely impact the historic drainage patterns. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. It is recommended this development be approved for grading and Site Plan for Building Permit.

APPENDIX A

Hydrologic and Hydraulic Analysis

EXHIBIT A
EXISTING DRAINAGE BASINS

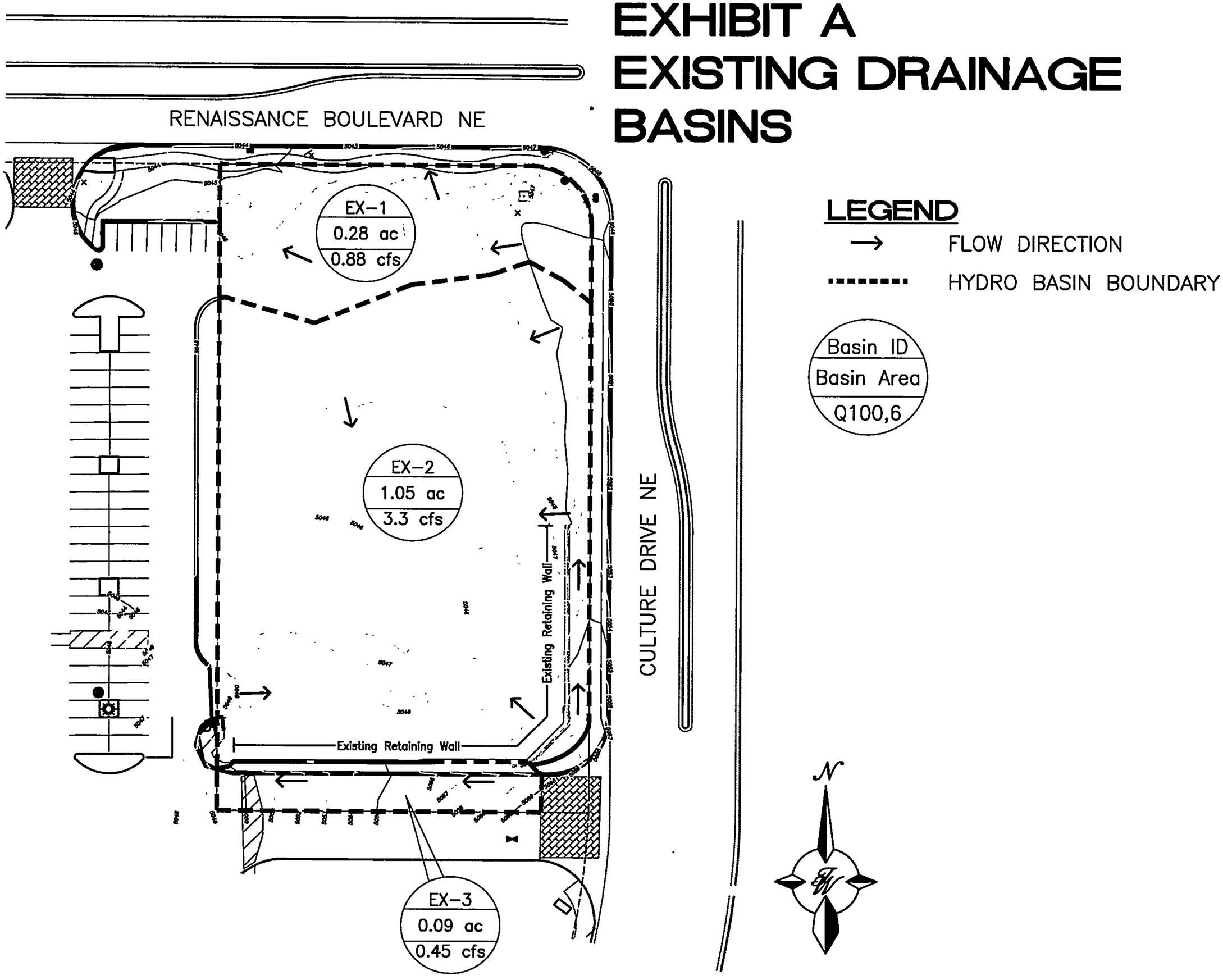
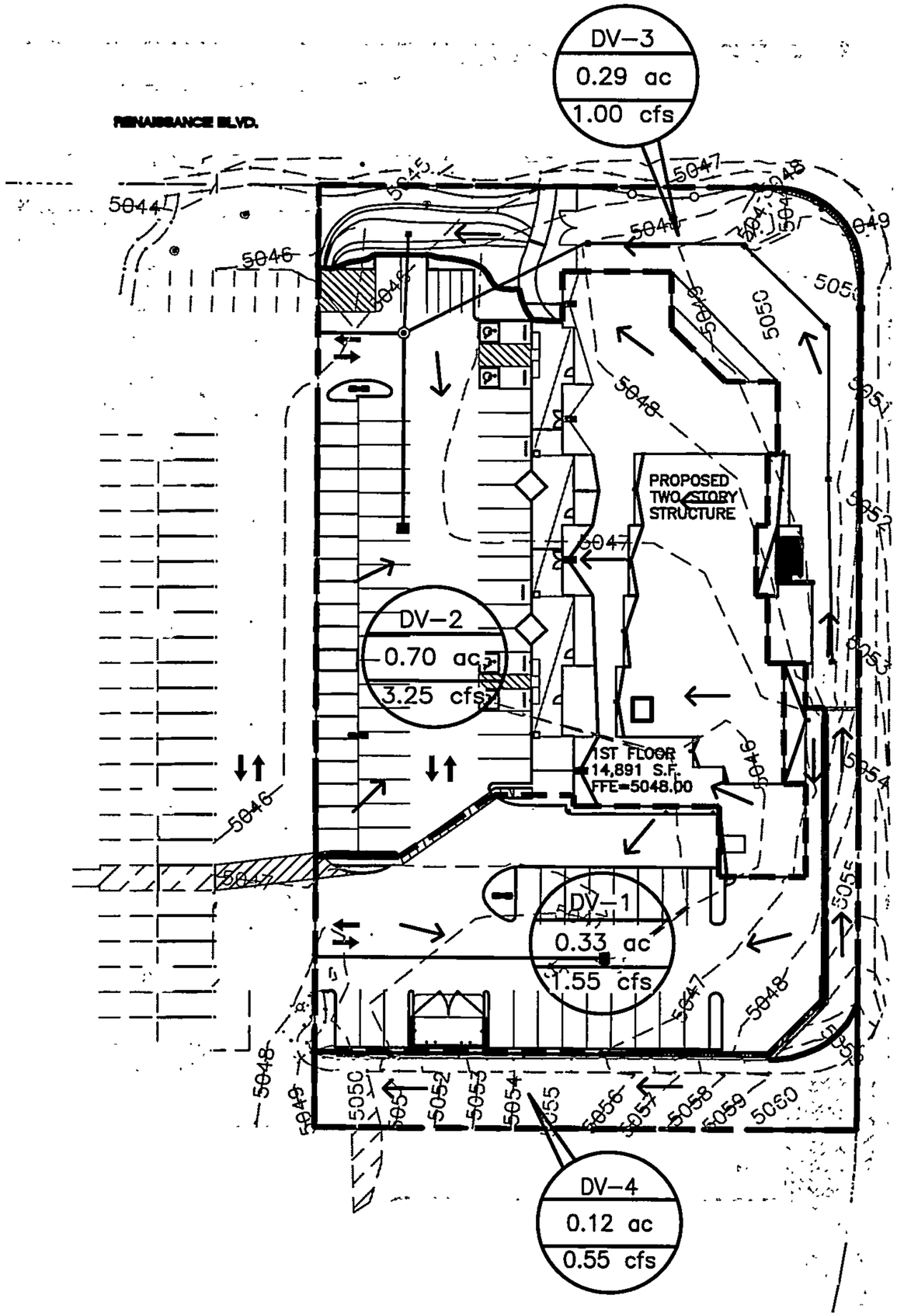


EXHIBIT B
DEVELOPED
DRAINAGE BASINS



LEGEND

→ FLOW DIRECTION

– – – HYDRO BASIN BOUNDARY

Basin ID
Basin Area
Q100,6

N

Z:\2013\2013015 Sun Rooms Plus, Tract 4, Renaissance Center\dwg\Exhibits\2013015 Developed H

DPM Weighted E Method

Precipitation Zone 2

Renaissance Center, Albuquerque NM

DreamStyle @ Renaissance Blvd. and Culture Dr. NE

TWLLC/PRE **15-May-13** **Revised 21-Aug-2013, 20-Sept-2013**

Existing Conditions

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
Ex-1	12,238.04	0.281	0.00044	0%	0	0%	0.000	97%	0.272518	3%	0.008	1.160	0.027	0.90	0.545	0.013	0.49
Ex-2	45,756.22	1.050	0.00164	0%	0	0%	0.000	100%	1.050418	0%	0.000	1.130	0.099	3.30	0.520	0.046	1.80
Ex-3	5,141.89	0.118	0.00018	0%	0	0%	0.000	0%	0	100%	0.118	2.120	0.021	0.55	1.340	0.013	0.37
Total	**63,136.15**	**1.449**	**0.00226**										**0.147**	**4.75**		**0.071**	**2.66**

Notes:

Under the existing conditions, Basin EX-1 conveys runoff directly to Renaissance Blvd., Basin EX-2 coveys runoff to the retention pond at the south end of the site, and Basin EX-3 conveys runoff to the main parking area of Sportsman's Warehouse (which was accounted for in the approved drainage report for Sportsman's) and enters the restricted discharge storm drain system for Sportsman's Warehouse. As shown in the Weighted-E table above, the 100 year - 6 hour event produces a peak discharge total of 4.75 cfs.

Developed Conditions

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
Dv-1	14,504.50	0.333	0.00052	0%	0	0%	0.000	3%	0.009989	97%	0.323	2.090	0.058	1.55	1.315	0.036	1.03
Dv-2	30,446.19	0.699	0.00109	0%	0	0%	0.000	2%	0.011183	98%	0.685	2.096	0.122	3.25	1.322	0.077	2.17
Dv-3	12,876.63	0.296	0.00046	0%	0	0%	0.000	87%	0.257178	13%	0.038	1.259	0.031	0.99	0.627	0.015	0.56
Dv-4	5,141.89	0.118	0.00018	0%	0	0%	0.000	0%	0	100%	0.118	2.120	0.021	0.55	1.340	0.013	0.37
Total	**62,969.21**	**1.446**	**0.00226**										**0.232**	**6.35**		**0.142**	**4.13**

Notes:

Under the proposed developed condition, Basin DV-1 will produce a 100 yr, 6hr discharge rate of 1.55 cfs and generate 0.058 ac-ft of volumetric runoff. Runoff from Basin Dv-1 will be conveyed to a shallow parking lot pond (South Parking Lot Pond). The discharge will be restricted by an orifice plate installed inside the storm drain inlet. The allowable discharge rate of 0.1 cfs/ac will control, therefore Basin Dv-1 will discharge 0.033 cfs and have a maximum ponding depth of 1.25 feet (WSE = 5046.80). Similarly, Basin Dv-2 will produce 3.25 cfs under the design storm and generate 0.122 ac-ft of volumetric runoff. The runoff from Basin Dv-2 will be conveyed to a shallow parking lot pond (West Parking Lot Pond) and discharge 0.069 cfs through the orifice plate installed in the storm drain manhole in the west parking area with a maximum ponding depth of 1.5 feet (WSE = 5046.45).

Additionally, Basin Dv-3 will convey runoff to a series of area drains inlets located around the east and north portions of the building via a continuous drainage swale. The six (6) 18" by 18" area drains will handle the peak discharge of approximately 1.0 cfs and the flow produced by Basin Dv-3 will be restricted by the onsite storm drain system for Sportsman's Warehouse (which has been accounted for in the report for Sportsman's). This area drain system and drainage management plan maintains positive flow around the building as shown in the attached grading and drainage plan. Even in the extreme event that all landscaped area drains were 100% clogged, positive drainage would be maintained and flows would continue around the north side of the building, toward the landscape pond/berm and emergency overflow at the far northwest corner of the parking lot, with a maximum water surface elevation of 5046.16.

Equations:

Weighted E = $E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d$

South Parking Lot Pond
Volume Calculations

A_b - Bottom Of The Pond Surface Area
A_t - Top Of The Pond Surface Area
D - Water Depth
D_t - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = $A_b * D + 0.5 * C * D^2$

$C = (A_t - A_b) / D_t$

A_b =	6.80	ft^2
A_t =	5,011.53	ft^2
D_t =	1.25	ft
C =	4003.78	

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
5041.55	0	0	0.0000	Bottom of drop inlet
5042.05	0.5	0.0001	0.0052	
5042.55	1.0	0.0002	0.0105	
5043.05	1.5	0.0002	0.0139	
5043.55	2.0	0.0003	0.0166	
5044.05	2.5	0.0004	0.0189	
5044.55	3.0	0.0005	0.0210	
5045.05	3.5	0.0005	0.0229	
5045.11	3.6	0.0006	0.0231	
5045.55	4.0	0.0006	0.0246	Top of grate
5046.05	4.5	0.0408	0.0263	
5046.55	5.0	0.0955	0.0278	
5046.80	5.3	0.1315	0.0285	Emergency overflow

Orifice Equation

$Q = CA(2gH)^{1/2}$

C =	0.6
Diameter (in)	0.7
Area (ft^2)=	0.003
g =	32.2
H (ft) =	Depth of water above center of orifice
Q (cfs)=	Flow

Notes:
A_b based on interior dimensions of a single type D inlet (see COA Std. Dwg. #2206)
Outlet pipe is 8" (0.667 ft) diameter pipe
Ponding depth above grate = 1.25 ft

West Parking Lot Pond
Volume Calculations

A_b - Bottom Of The Pond Surface Area
A_t - Top Of The Pond Surface Area
D - Water Depth
D_t - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = $A_b * D + 0.5 * C * D^2$

$C = (A_t - A_b) / D_t$

A_b =	6.80	ft^2	
A_t =	6,142.12	ft^2	6142.12
D_t =	1.50	ft	
C =	4090.21		

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
5040.96	0	0	0.0000	Bottom of drop inlet
5041.46	0.5	0.0001	0.0129	
5041.96	1.0	0.0002	0.0259	
5042.46	1.5	0.0002	0.0343	
5042.96	2.0	0.0003	0.0410	
5043.46	2.5	0.0004	0.0468	
5043.96	3.0	0.0005	0.0519	
5044.46	3.5	0.0005	0.0565	
5044.96	4.0	0.0006	0.0608	Top of grate
5045.46	4.5	0.0118	0.0649	
5045.96	5.0	0.0471	0.0686	
5046.46	5.50	0.1059	0.0722	Emergency overflow

Orifice Equation

$Q = CA(2gH)^{1/2}$

C =	0.6
Diameter (in)	1.1
Area (ft^2)=	0.007
g =	32.2
H (ft) =	Depth of water above center of orifice
Q (cfs)=	Flow

Notes:
A_b based on interior dimensions of a single type D inlet (see COA Std. Dwg. #2206)
Outlet pipe is 8" (0.667 ft) diameter pipe
Ponding depth above grate = 1.50 ft

APPENDIX B

Reference Report: *Drainage Report for Tract 4A (Sportsman's Warehouse)*

MODIFIED DRAINAGE REPORT

for

Tract 4A,Renaissance Center
Albuquerque, New Mexico
Sportsman Warehouse

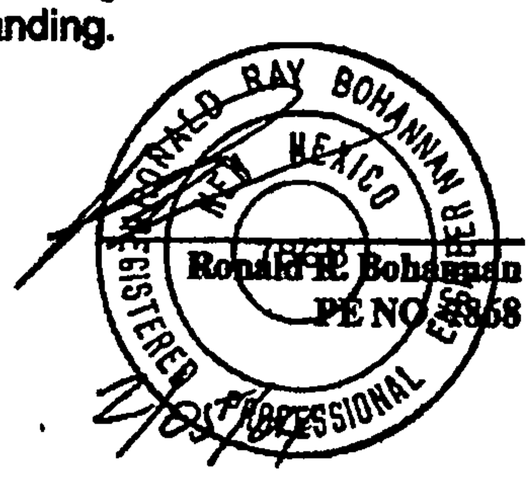
Prepared by

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

Prepared for
GA Architects
3032 South 1030 West
Salt Lake City, Utah 84119

February 2004

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE NO. 8868

Job No 230104

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Appendix

Site Hydrology ..... A

Map Pocket
Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to prove the development of the subject 8.56-acre property, for the use as a retail/distribution building, is in accordance with the DPM Chapter 22. This report will propose a drainage management plan and demonstrate that the proposed improvements do not adversely effect the surrounding properties, nor the upstream or downstream facilities. This is to modify the approved plan to allow a Sportsman Warehouse to be constructed.

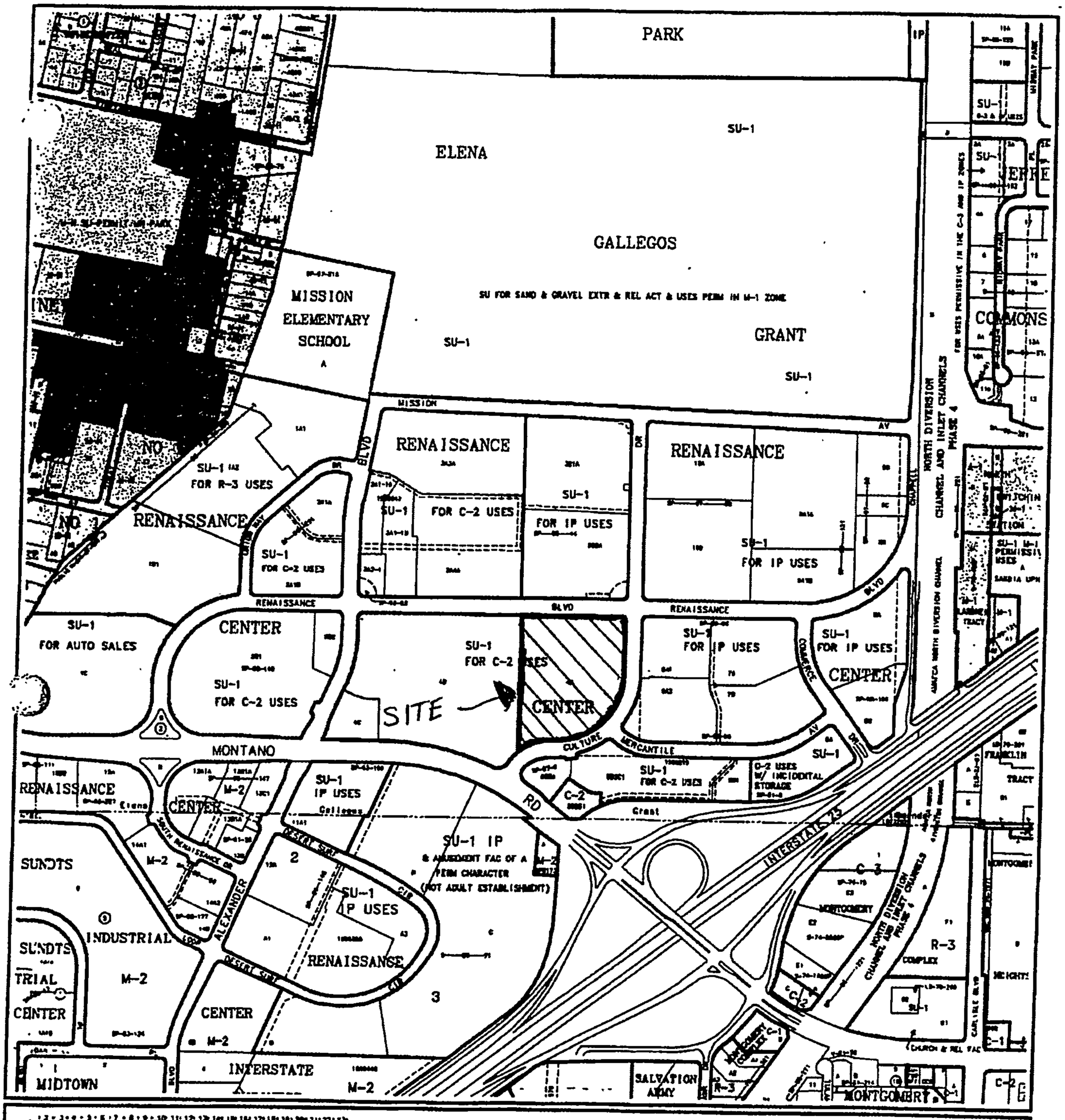
INTRODUCTION

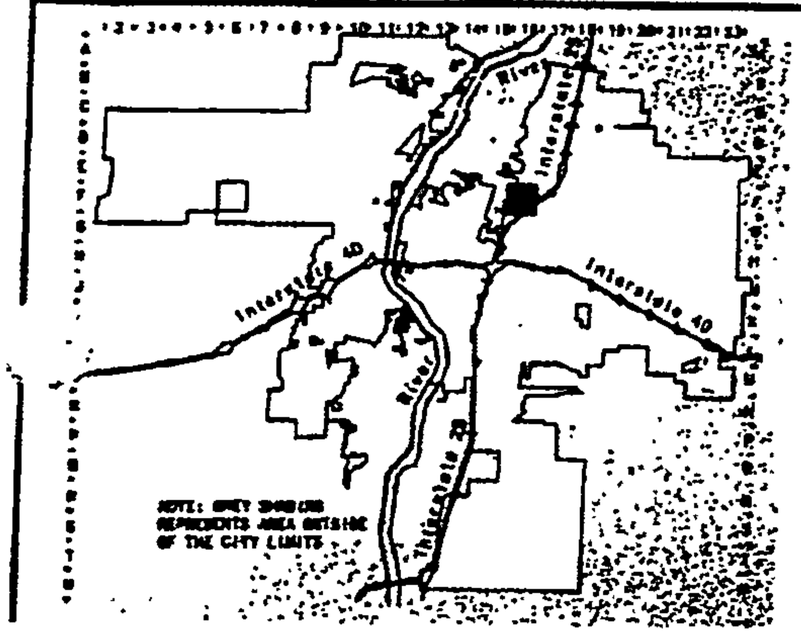
The subject of this report, which is highlighted on the Exhibit A vicinity map, is an 8.56 acre parcel of land located on the southwest corner of Renaissance Boulevard and Culture Boulevard. The site is located on Zone Atlas page F-16. The site currently exists as a rough graded parcel within the Renaissance Center. The legal description of the property is Lot 4A of North Renaissance Center. As shown on FEMA map 35001C0138D, the site lies within flood zone X.

This site was analyzed within the Drainage Report and grading plan for the entire Renaissance Center. The Master Storm Drain Management Plan for the Renaissance Center allows for .1 cfs peak discharge per developed acre. Based upon the approved Drainage Management Plan design criteria, this site is allowed to discharge .848 cfs in developed conditions. Since our improvements are consistent with developed condition assumptions within the Renaissance Center's Master Drainage Plan the site should be allowed to discharge the proposed peak discharge rate of .83 CFS into the existing storm drain system.

EXISTING CONDITIONS

The site slopes from South to Northwest, with the majority of the sites' grades between 3-4%. The southeast portion of the site consists of a 3:1 slope. The site was rough graded with the





CITY OF Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

EXHIBIT A

4

GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

F-16-Z

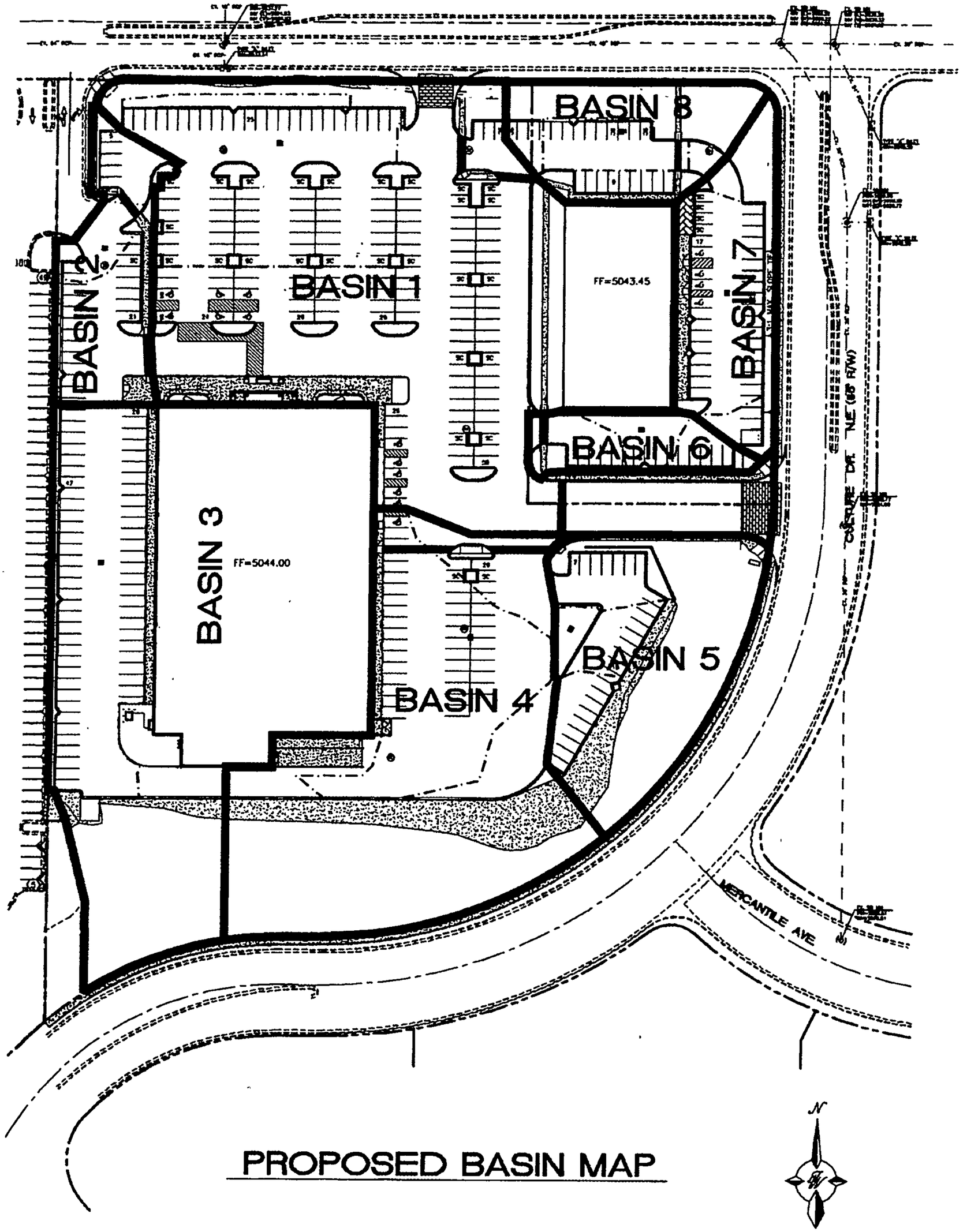
Map Amended through July 28, 2000

construction of the Renaissance Center, though native vegetation covers the entire site. During the development of tract 4-B to the west (Costco) a small desiltation pond was constructed at the north west corner of the site. As shown in Appendix A, the site currently generates a peak runoff rate of 18.0 CFS. The storm runoff currently overflows the desiltation pond and enters the Renaissance Boulevard Right-of-Way. Due to the completion of the roadways adjacent to the site on the north, south and east site and Costco on the West, no offsite flow enter the site.

PROPOSED CONDITIONS

The proposed improvements consist of two retail / Distribution buildings and the associated parking lots and delivery areas. As shown in Exhibit B, the site consists of 8 drainage basins. As shown in Appendix A, the developed runoff rates for each basin was determined using AHYMO. The site discharge will be controlled by creating 8 individual ponds located on the site. Each pond will drain to a single grated type 'D' inlet. Orifice plates constructed at the outlet of each inlet will control the discharge rate of each inlet and pond. The Grading Plan includes a table of orifice plate sizes for each inlet. The onsite storm drain system will be connected to the back of an existing inlet located adjacent to the site in Renaissance Boulevard. This connection can be accomplished through the SO-19 process.

The storm drain system was modeled using the routing command within AHYMO. The pond volumes and discharge rate calculations as well as the input and output AHYMO files are located in Appendix A. Based upon the model the entire site will have a peak discharge of .82 CFS to the existing storm drain system in Renaissance, which is less than the allowed rate of .86 CFS. In the event of inlet clogging or a storm event greater than the predicted 100-year, 6-hour design storm, the site will overflow directly to Renaissance through both driveways into Renaissance Boulevard.



PROPOSED BASIN MAP

```
          *****Warning*****A value for the Time to Peak was not previously
computed; use Tp=0.133333 hrs.

          TIME TO PEAK (hrs)=    .1333

          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   15.141     CFS    UNIT VOLUME =     .9986        B =
526.28       P60 = 2.0100
          AREA =       .003836 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =   1.1553     CFS    UNIT VOLUME =     .9881        B =
324.91       P60 = 2.0100
          AREA =       .000474 SQ MI     IA =     .50000 INCHES     INF =    1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD            ID=1 CODE=1

                                                PARTIAL HYDROGRAPH    100.10

          RUNOFF VOLUME =      1.96828 INCHES      =          .4524 ACRE-FEET
          PEAK DISCHARGE RATE =       12.24 CFS  AT    1.500 HOURS    BASIN AREA =
.0043 SQ. MI.



     *
     * BASIN 2
     *
     COMPUTE NM HYD       ID=2 HYD NO=100.2 AREA=0.00054 SQ MI
                          PER A=0 PER B=12.00 PER C=0.00 PER D=88.00
                          TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                               A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   1.8757     CFS    UNIT VOLUME =     .9932        B =
526.28       P60 = 2.0100
          AREA =       .000475 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330
```

```
          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =    .15791     CFS    UNIT VOLUME =     .9153        B =
324.91       P60 = 2.0100
          AREA =       .000065 SQ MI     IA =     .50000 INCHES     INF =   1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD             ID=2 CODE=1

                                                PARTIAL HYDROGRAPH    100.20

          RUNOFF VOLUME =      1.95491 INCHES      =          .0563 ACRE-FEET
          PEAK DISCHARGE RATE =        1.54 CFS  AT    1.500 HOURS    BASIN AREA =
.0005 SQ. MI.


     *
     *BASIN 3
     *
     COMPUTE NM HYD        ID=3 HYD NO=100.3 AREA=0.00331 SQ MI
                           PER A=0 PER B=0.00 PER C=18.00 PER D=82.00
                           TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                                A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    10.713     CFS    UNIT VOLUME =     .9982        B =
526.28       P60 = 2.0100
          AREA =       .002714 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .107473HR     TP =    .133333HR     K/TP RATIO =    .806046
SHAPE CONSTANT, N =  4.440701
          UNIT PEAK =    1.7139     CFS    UNIT VOLUME =     .9929        B =
383.55       P60 = 2.0100
          AREA =       .000596 SQ MI     IA =     .35000 INCHES     INF =     .83000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD             ID=3 CODE=1

                                                PARTIAL HYDROGRAPH    100.30
```

```
          RUNOFF VOLUME =     1.93762 INCHES      =          .3421 ACRE-FEET
          PEAK DISCHARGE RATE =       9.38 CFS  AT    1.500 HOURS    BASIN AREA =
.0033 SQ. MI.
```

```
     *
     *BASIN 4
     *
     COMPUTE NM HYD       ID=4 HYD NO=100.4 AREA=0.00232 SQ MI
                          PER A=0 PER B=0.00 PER C=32.00 PER D=68.00
                          TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                               A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    6.2269     CFS    UNIT VOLUME =     .9976        B =
526.28       P60 = 2.0100
          AREA =       .001578 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330
```

```
          K =    .107473HR     TP =    .133333HR     K/TP RATIO =    .806046
SHAPE CONSTANT, N =  4.440701
          UNIT PEAK =    2.1356     CFS    UNIT VOLUME =     .9943        B =
383.55       P60 = 2.0100
          AREA =       .000742 SQ MI     IA =     .35000 INCHES     INF =     .83000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD            ID=4 CODE=1

                                        PARTIAL HYDROGRAPH    100.40


          RUNOFF VOLUME =     1.79938 INCHES      =          .2226 ACRE-FEET
          PEAK DISCHARGE RATE =       6.26 CFS  AT    1.500 HOURS    BASIN AREA =
.0023 SQ. MI.
```

```
     *
     *BASIN 5
     *
     COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.00109 SQ MI
                          PER A=0 PER B=17.00 PER C=40.00 PER D=43.00
                          TP=0 HR MASS RAINFALL=-1
```

TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.8500 CFS UNIT VOLUME = .9932 B = 526.28 P60 = 2.0100
AREA = .000469 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .114824HR TP = .133333HR K/TP RATIO = .861180
SHAPE CONSTANT, N = 4.128735
UNIT PEAK = 1.6946 CFS UNIT VOLUME = .9923 B = 363.66 P60 = 2.0100
AREA = .000621 SQ MI IA = .39474 INCHES INF = .95526 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 100.50

RUNOFF VOLUME = 1.48481 INCHES = .0863 ACRE-FEET
PEAK DISCHARGE RATE = 2.57 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

*
*BASIN 6
*
COMPUTE NM HYD ID=6 HYD NO=100.6 AREA=0.00028 SQ MI
PER A=0 PER B=22.00 PER C=0.00 PER D=78.00
TP=0 HR MASS RAINFALL=-1
TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .86204 CFS UNIT VOLUME = .9862 B = 526.28 P60 = 2.0100
AREA = .000218 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

```
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =    .15011     CFS    UNIT VOLUME =     .9079        B =
324.91       P60 = 2.0100
          AREA =       .000062 SQ MI     IA =     .50000 INCHES     INF =    1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD            ID=6 CODE=1

                                                PARTIAL HYDROGRAPH    100.60


          RUNOFF VOLUME =      1.82119 INCHES      =          .0272 ACRE-FEET
          PEAK DISCHARGE RATE =          .76 CFS  AT    1.500 HOURS    BASIN AREA =
.0003 SQ. MI.



     *
     *BASIN 7
     *
     COMPUTE NM HYD       ID=7 HYD NO=100.7 AREA=0.00067 SQ MI
                          PER A=0 PER B=24.00 PER C=0.00 PER D=76.00
                          TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                               A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    2.0099     CFS    UNIT VOLUME =     .9932        B =
526.28       P60 = 2.0100
          AREA =       .000509 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =    .39184     CFS    UNIT VOLUME =     .9666        B =
324.91       P60 = 2.0100
          AREA =       .000161 SQ MI     IA =     .50000 INCHES     INF =    1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD            ID=7 CODE=1
```

PARTIAL HYDROGRAPH 100.70

RUNOFF VOLUME = 1.79445 INCHES = .0641 ACRE-FEET
PEAK DISCHARGE RATE = 1.78 CFS AT 1.500 HOURS BASIN AREA = .0007 SQ. MI.

*
*BASIN 8
*
COMPUTE NM HYD ID=8 HYD NO=100.8 AREA=0.00058 SQ MI
PER A=0 PER B=48.00 PER C=0.00 PER D=52.00
TP=0 HR MASS RAINFALL=-1
TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.1904 CFS UNIT VOLUME = .9897 B = 526.28 P60 = 2.0100
AREA = .000302 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132120HR TP = .133333HR K/TP RATIO = .990905
SHAPE CONSTANT, N = 3.563129
UNIT PEAK = .67841 CFS UNIT VOLUME = .9800 B = 324.91 P60 = 2.0100
AREA = .000278 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 100.80

RUNOFF VOLUME = 1.47353 INCHES = .0456 ACRE-FEET
PEAK DISCHARGE RATE = 1.33 CFS AT 1.500 HOURS BASIN AREA = .0006 SQ. MI.

*
* POND 1

*

ROUTE RESERVOIR ID=9 HYD NO=201.00 INFLOW ID=1 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5035.50
0.0131	0.0006	5039.50
0.0138	0.0328	5039.93
0.0144	0.1291	5040.35
0.0150	0.2897	5040.78
0.0156	0.5144	5041.20

* * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5035.50	.000	.00
.80	.00	5035.50	.000	.00
1.60	8.47	5040.58	.217	.01
2.40	.51	5041.02	.418	.02
3.20	.10	5041.05	.432	.02
4.00	.07	5041.05	.436	.02
4.80	.07	5041.06	.439	.02
5.60	.07	5041.07	.443	.02
6.40	.01	5041.07	.446	.02
7.20	.00	5041.07	.445	.02
8.00	.00	5041.07	.444	.02
8.80	.00	5041.07	.443	.02
9.60	.00	5041.06	.442	.02
10.40	.00	5041.06	.441	.02
11.20	.00	5041.06	.440	.02
12.00	.00	5041.06	.439	.02
12.80	.00	5041.06	.438	.02
13.60	.00	5041.05	.437	.02
14.40	.00	5041.05	.436	.02
15.20	.00	5041.05	.435	.02
16.00	.00	5041.05	.434	.02
16.80	.00	5041.05	.433	.02
17.60	.00	5041.05	.432	.02
18.40	.00	5041.04	.431	.02
19.20	.00	5041.04	.430	.02

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 6.23
MAXIMUM WATER SURFACE ELEVATION = 5041.072
MAXIMUM STORAGE = .4458 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = .10370 INCHES = .0238 ACRE-FEET
PEAK DISCHARGE RATE = .02 CFS AT 6.233 HOURS BASIN AREA = .0043 SQ. MI.

*

* POND 2
*
ROUTE RESERVOIR ID=10 HYD NO=202.00 INFLOW ID=2 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5035.00
0.4653	0.0006	5039.00
0.4764	0.0019	5039.19
0.4873	0.0055	5039.38
0.4979	0.0116	5039.56
0.5083	0.0201	5039.75

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5035.00	.000	.00
.80	.00	5035.00	.000	.00
1.60	1.07	5039.64	.015	.50
2.40	.05	5039.42	.007	.49
3.20	.01	5035.11	.000	.01
4.00	.01	5035.07	.000	.01
4.80	.01	5035.07	.000	.01
5.60	.01	5035.08	.000	.01

PEAK DISCHARGE = .507 CFS - PEAK OCCURS AT HOUR 1.83
MAXIMUM WATER SURFACE ELEVATION = 5039.722
MAXIMUM STORAGE = .0189 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=10 CODE=1

PARTIAL HYDROGRAPH 202.00

RUNOFF VOLUME = 1.95440 INCHES = .0563 ACRE-FEET
PEAK DISCHARGE RATE = .51 CFS AT 1.833 HOURS BASIN AREA = .0005 SQ. MI.

*

* POND 3
*
ROUTE RESERVOIR ID=11 HYD NO=203.00 INFLOW ID=3 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.00
0.0131	0.0006	5042.00
0.0137	0.0222	5042.36
0.0142	0.0870	5042.71
0.0147	0.1948	5043.07
0.0153	0.3457	5043.42

```
* * * * * * * * * * * * * * * * * *

  TIME        INFLOW      ELEV        VOLUME      OUTFLOW
  (HRS)       (CFS)       (FEET)      (AC-FT)     (CFS)

    .00         .00     5038.00         .000         .00
    .80         .00     5038.00         .000         .00
   1.60        6.51     5042.97         .165         .01
   2.40         .38     5043.35         .317         .02
   3.20         .07     5043.38         .327         .02
   4.00         .05     5043.38         .330         .02
   4.80         .05     5043.39         .332         .02
   5.60         .05     5043.39         .334         .02
   6.40         .00     5043.40         .335         .02
   7.20         .00     5043.39         .335         .02
   8.00         .00     5043.39         .334         .02
   8.80         .00     5043.39         .333         .02
   9.60         .00     5043.39         .332         .02
  10.40         .00     5043.38         .331         .02
  11.20         .00     5043.38         .330         .02
  12.00         .00     5043.38         .328         .02
  12.80         .00     5043.38         .327         .02
  13.60         .00     5043.38         .326         .02
  14.40         .00     5043.37         .325         .02
  15.20         .00     5043.37         .324         .02
  16.00         .00     5043.37         .323         .02
  16.80         .00     5043.37         .322         .02
  17.60         .00     5043.36         .321         .02
  18.40         .00     5043.36         .320         .02
  19.20         .00     5043.36         .319         .02
 PEAK DISCHARGE =          .015 CFS - PEAK OCCURS AT HOUR     6.20
 MAXIMUM WATER SURFACE ELEVATION =      5043.396
 MAXIMUM STORAGE =          .3356 AC-FT      INCREMENTAL TIME=
.033330HRS

     PRINT HYD           ID=11 CODE=1

                                          PARTIAL HYDROGRAPH   203.00


        RUNOFF VOLUME =       .13355 INCHES      =          .0236 ACRE-FEET
        PEAK DISCHARGE RATE =          .02 CFS  AT    6.199 HOURS   BASIN AREA =
.0033 SQ. MI.

*
* POND 4
*
ROUTE RESERVOIR     ID=12 HYD NO=204.00 INFLOW ID=4 CODE=24
                    OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                        0.0000             0.0000          5038.00
                        0.0131             0.0006          5042.00
                        0.0137             0.0223          5042.36
                        0.0142             0.0872          5042.71
                        0.0147             0.1953          5043.07
```

0.0153 0.3466 5043.42

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5038.00	.000	.00
.80	.00	5038.00	.000	.00
1.60	4.39	5042.78	.108	.01
2.40	.25	5043.10	.207	.01
3.20	.04	5043.11	.213	.01
4.00	.03	5043.11	.214	.01
4.80	.03	5043.12	.215	.01
5.60	.03	5043.12	.216	.01
6.40	.00	5043.12	.216	.01
7.20	.00	5043.12	.215	.01
8.00	.00	5043.11	.214	.01
8.80	.00	5043.11	.213	.01
9.60	.00	5043.11	.212	.01
10.40	.00	5043.11	.211	.01
11.20	.00	5043.10	.210	.01
12.00	.00	5043.10	.210	.01
12.80	.00	5043.10	.209	.01
13.60	.00	5043.10	.208	.01
14.40	.00	5043.10	.207	.01
15.20	.00	5043.09	.206	.01
16.00	.00	5043.09	.205	.01
16.80	.00	5043.09	.204	.01
17.60	.00	5043.09	.203	.01
18.40	.00	5043.08	.202	.01
19.20	.00	5043.08	.201	.01

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 6.17
MAXIMUM WATER SURFACE ELEVATION = 5043.119
MAXIMUM STORAGE = .2165 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 204.00

RUNOFF VOLUME = .18468 INCHES = .0229 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 6.166 HOURS BASIN AREA = .0023 SQ. MI.

*

* POND 5
*

ROUTE RESERVOIR ID=13 HYD NO=205.00 INFLOW ID=5 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.00
0.0815	0.0006	5042.00

0.0853	0.0053	5042.38
0.0889	0.0194	5042.75
0.0924	0.0429	5043.13
0.0958	0.0754	5043.50

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5038.00	.000	.00
.80	.00	5038.00	.000	.00
1.60	1.86	5043.09	.040	.09
2.40	.09	5043.47	.073	.10
3.20	.01	5043.43	.069	.10
4.00	.01	5043.36	.063	.09
4.80	.01	5043.30	.058	.09
5.60	.01	5043.23	.052	.09
6.40	.00	5043.17	.046	.09
7.20	.00	5043.09	.040	.09
8.00	.00	5042.99	.034	.09
8.80	.00	5042.89	.028	.09
9.60	.00	5042.80	.022	.09
10.40	.00	5042.67	.016	.09
11.20	.00	5042.52	.011	.09
12.00	.00	5042.35	.005	.09
12.80	.00	5038.62	.000	.01

PEAK DISCHARGE = .096 CFS - PEAK OCCURS AT HOUR 2.37
MAXIMUM WATER SURFACE ELEVATION = 5043.474
MAXIMUM STORAGE = .0731 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 205.00

RUNOFF VOLUME = 1.48456 INCHES = .0863 ACRE-FEET
PEAK DISCHARGE RATE = .10 CFS AT 2.366 HOURS BASIN AREA = .0011 SQ. MI.

*

* POND 6
*

ROUTE RESERVOIR ID=14 HYD NO=206.00 INFLOW ID=6 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.25
0.1594	0.0006	5042.25
0.1619	0.0014	5042.38
0.1644	0.0039	5042.50
0.1668	0.0079	5042.63
0.1692	0.0135	5042.75

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5038.25	.000	.00
.80	.00	5038.25	.000	.00
1.60	.54	5042.66	.009	.17
2.40	.02	5042.68	.010	.17
3.20	.01	5039.84	.000	.06
4.00	.00	5038.35	.000	.00

PEAK DISCHARGE = .169 CFS - PEAK OCCURS AT HOUR 2.00
MAXIMUM WATER SURFACE ELEVATION = 5042.746
MAXIMUM STORAGE = .0133 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 206.00

RUNOFF VOLUME = 1.82034 INCHES = .0272 ACRE-FEET
PEAK DISCHARGE RATE = .17 CFS AT 2.000 HOURS BASIN AREA = .0003 SQ. MI.

*
* POND 7
*
ROUTE RESERVOIR ID=15 HYD NO=207.00 INFLOW ID=7 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5037.75
0.0131	0.0006	5041.75
0.0135	0.0077	5042.00
0.0139	0.0289	5042.25
0.0143	0.0642	5042.50
0.0147	0.1136	5042.75

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5037.75	.000	.00
.80	.00	5037.75	.000	.00
1.60	1.25	5042.26	.031	.01
2.40	.06	5042.46	.059	.01
3.20	.01	5042.47	.059	.01
4.00	.01	5042.46	.059	.01
4.80	.01	5042.46	.059	.01
5.60	.01	5042.46	.059	.01
6.40	.00	5042.46	.058	.01
7.20	.00	5042.45	.057	.01

8.00	.00	5042.44	.056	.01
8.80	.00	5042.44	.055	.01
9.60	.00	5042.43	.054	.01
10.40	.00	5042.42	.053	.01
11.20	.00	5042.42	.052	.01
12.00	.00	5042.41	.051	.01
12.80	.00	5042.40	.051	.01
13.60	.00	5042.40	.050	.01
14.40	.00	5042.39	.049	.01
15.20	.00	5042.38	.048	.01
16.00	.00	5042.38	.047	.01
16.80	.00	5042.37	.046	.01
17.60	.00	5042.36	.045	.01
18.40	.00	5042.36	.044	.01
19.20	.00	5042.35	.043	.01

PEAK DISCHARGE = .014 CFS - PEAK OCCURS AT HOUR 3.10
MAXIMUM WATER SURFACE ELEVATION = 5042.466
MAXIMUM STORAGE = .0595 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 207.00

RUNOFF VOLUME = .61339 INCHES = .0219 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 3.100 HOURS BASIN AREA = .0007 SQ. MI.

*

* POND 8
*

ROUTE RESERVOIR ID=16 HYD NO=208.00 INFLOW ID=8 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5037.50
0.0131	0.0006	5041.50
0.0135	0.0037	5041.75
0.0139	0.0130	5042.00
0.0143	0.0285	5042.25
0.0147	0.0501	5042.50

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5037.50	.000	.00
.80	.00	5037.50	.000	.00
1.60	.96	5042.15	.022	.01
2.40	.05	5042.40	.042	.01
3.20	.01	5042.40	.042	.01
4.00	.01	5042.40	.041	.01
4.80	.01	5042.39	.041	.01

5.60	.01	5042.38	.040	.01
6.40	.00	5042.38	.039	.01
7.20	.00	5042.37	.038	.01
8.00	.00	5042.35	.038	.01
8.80	.00	5042.34	.037	.01
9.60	.00	5042.33	.036	.01
10.40	.00	5042.32	.035	.01
11.20	.00	5042.31	.034	.01
12.00	.00	5042.30	.033	.01
12.80	.00	5042.29	.032	.01
13.60	.00	5042.28	.031	.01
14.40	.00	5042.27	.030	.01
15.20	.00	5042.26	.029	.01
16.00	.00	5042.24	.028	.01
16.80	.00	5042.23	.027	.01
17.60	.00	5042.21	.026	.01
18.40	.00	5042.20	.025	.01
19.20	.00	5042.18	.024	.01

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 2.73
MAXIMUM WATER SURFACE ELEVATION = 5042.407
MAXIMUM STORAGE = .0420 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 208.00

RUNOFF VOLUME = .71921 INCHES = .0222 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 2.733 HOURS BASIN AREA = .0006 SQ. MI.

*

*

*ADD PONDS 1 THRU 8

*

ADD HYD ID=20 HYD NO=301.00 ID=11 ID=10
ADD HYD ID=21 HYD NO=302.00 ID=13 ID=12
ADD HYD ID=22 HYD NO=303.00 ID=14 ID=21
ADD HYD ID=23 HYD NO=304.00 ID=15 ID=16
ADD HYD ID=24 HYD NO=305.00 ID=22 ID=23
ADD HYD ID=25 HYD NO=306.00 ID=9 ID=24
ADD HYD ID=26 HYD NO=307.00 ID=24 ID=20

PRINT HYD ID=26 CODE=1

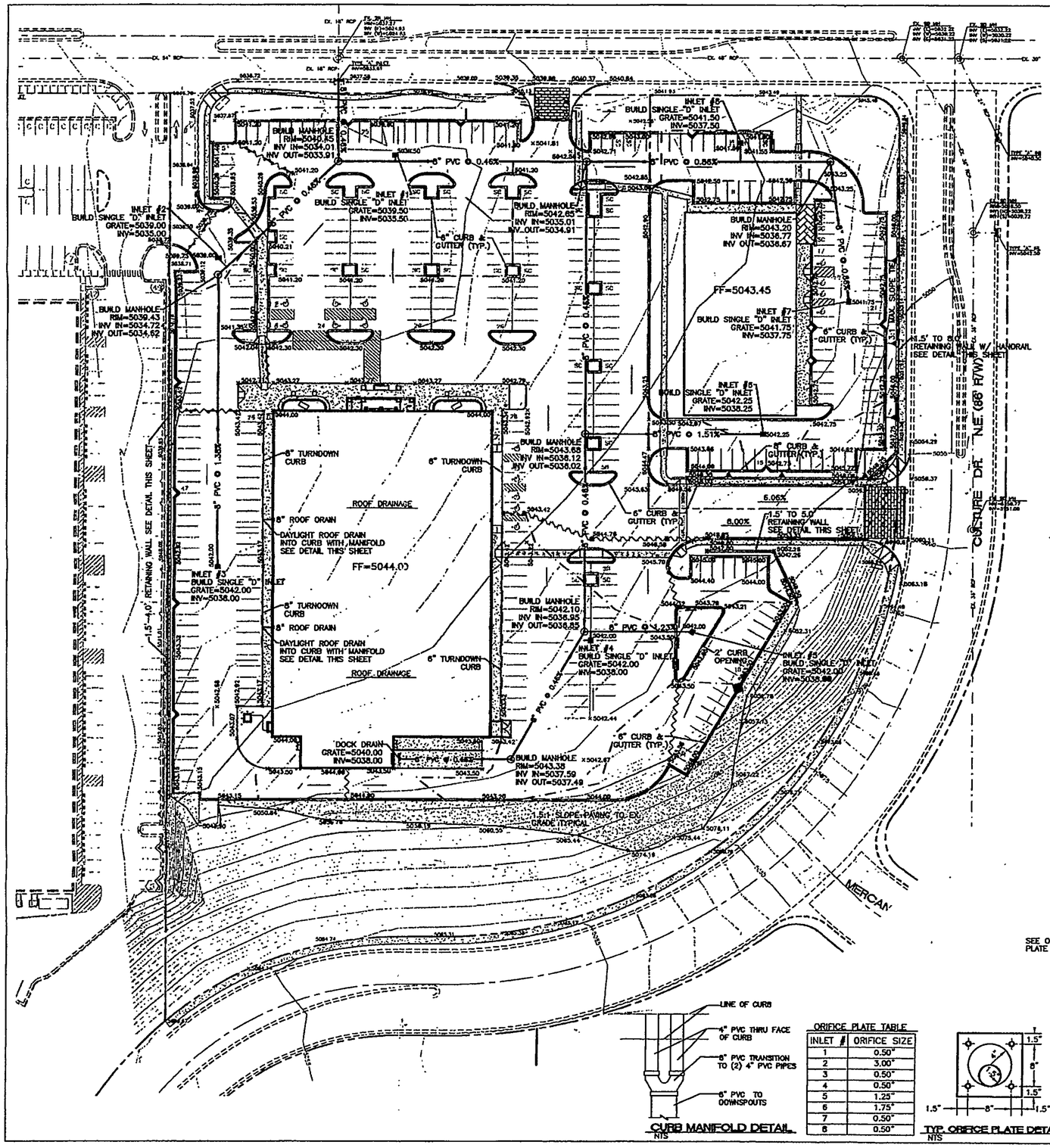
HYDROGRAPH FROM AREA 307.00

RUNOFF VOLUME = .55536 INCHES = .2604 ACRE-FEET
PEAK DISCHARGE RATE = .83 CFS AT 1.933 HOURS BASIN AREA = .0088 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 11:41:10

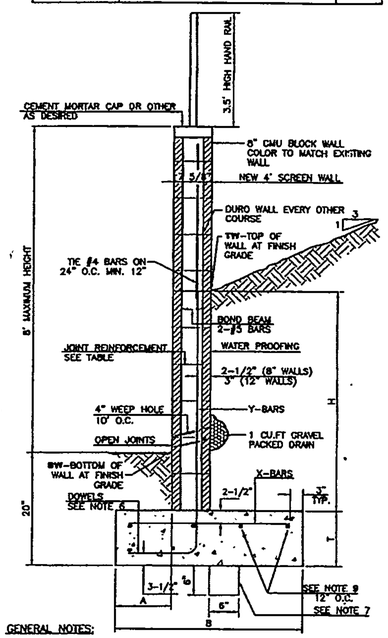
MAP POCKET



NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

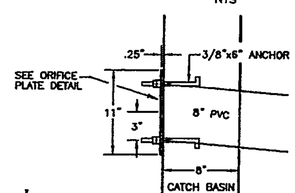
APPROVAL	NAME	DATE
INSPECTOR		



GENERAL NOTES:

1. ALL CONCRETE IS TO BE 4000 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 ± 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 V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
8. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.
9. #3 BARS TO BE USED ON WALLS LESS THAN 2'-8" IN HEIGHT. #4 BARS TO BE USED ON WALLS GREATER THAN OR EQUAL TO 2'-8" X BARS TO BE USED ON WALLS EXCEEDING 2'-8".
10. BOND BEAM, 1-#4 BARS FOR WALLS UNDER 3'-4", 2-#4 BARS FOR WALLS UNDER 5'-4", 2-#5 BARS FOR WALLS OVER 5'-4".

RETAINING WALL DETAIL
NTS



TO BE INSTALLED @ THE OUTFLOW OF ALL CATCH BASINS (SEE TABLE FOR SIZES)

DETAIL A

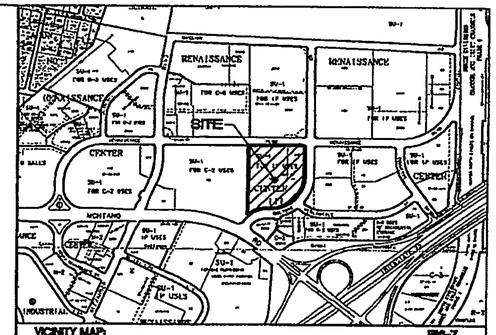
CURB MANIFOLD DETAIL
NTS

ORIFICE PLATE TABLE	
INLET #	ORIFICE SIZE
1	0.50"
2	3.00"
3	0.50"
4	0.50"
5	1.25"
6	1.75"
7	0.50"
8	0.50"

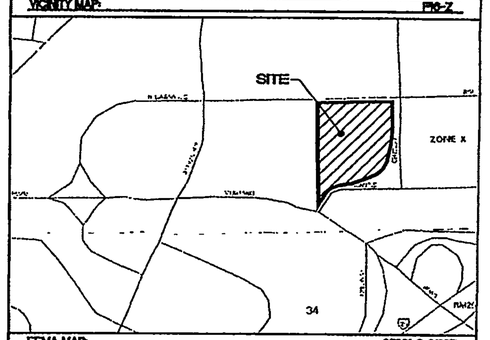
TYP. ORIFICE PLATE DETAIL
NTS



GRAPHIC SCALE
40 20 0 20 40
SCALE: 1"=40'



VICINITY MAP: Pg-Z



FEMA MAP: 35001C 0536D

LEGAL DESCRIPTION:
TRACT 4A NORTH RENAISSANCE CENTER

NOTES:
1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.

8 INCH REINFORCED CONCRETE MASONRY WALL

H	X	A	B	T	Y-BARS	X-BARS
ft.-in.	ft.-in.	in.	ft.-in.	in.		
2'-0"	1'-1"	8"	2'-4"	8"	#3 @32" O.C.	
3'-0"	1'-9"	8"	2'-4"	8"	#4 @32" O.C.	
3'-8"	2'-3"	8"	2'-4"	8"	#3 @32" O.C.	#3 @27" O.C.
4'-0"	2'-5"	8"	2'-4"	8"	#4 @32" O.C.	#3 @27" O.C.
4'-8"	2'-10"	12"	2'-4"	10"	#5 @32" O.C.	#3 @27" O.C.
5'-4"	3'-3"	14"	3'-8"	10"	#4 @16" O.C.	#4 @30" O.C.
6'-0"	3'-9"	16"	4'-2"	12"	#5 @24" O.C.	#5 @25" O.C.

12 INCH REINFORCED CONCRETE MASONRY WALL

H	X	A	B	T	Y-BARS	X-BARS
ft.-in.	ft.-in.	in.	ft.-in.	in.		
5'-4"	4'-8"	14"	3'-8"	10"	#4 @24" O.C.	#3 @25" O.C.
6'-0"	5'-4"	15"	4'-2"	12"	#4 @16" O.C.	#4 @30" O.C.
6'-8"	5'-9"	16"	4'-5"	12"	#5 @24" O.C.	#4 @22" O.C.
7'-4"	6'-8"	18"	4'-10"	12"	#5 @16" O.C.	#5 @26" O.C.
7'-4"	6'-8"	20"	5'-4"	12"	#7 @24" O.C.	#5 @21" O.C.
8'-0"	7'-4"	20"	5'-8"	12"	#7 @16" O.C.	#5 @21" O.C.

LEGEND

- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- PROPOSED PERIMETER WALL
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- LOT LINES

ENGINEER'S SEAL

RONALD R. BOHANNAN P.E. #7868

TRACT 4A NORTH RENAISSANCE CENTER

GRADING AND DRAINAGE PLAN

TIERRA WEST, LLC
8509 JEFFERSON NE
ALBUQUERQUE, NEW MEXICO 87113
(505)858-3100

DRAWN BY: JDN
DATE: 02/04/04
231040MA-11-05-03
SHEET # 3
JOB # 230104

VW COOKIL
Incoming
Drainage
cc: Jim Tray
Dee McCa
Tak

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 22, 2001

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

Attn: David Soule, P.E.

RE: TRACT 4-A , NORTH RENAISSANCE CENTER (F16-D5K). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT, GRADING PERMIT, AND SO#19 PERMIT APPROVALS. ENGINEER'S STAMP DATED JUNE 1, 2001.

Dear Mr. Bohannon:

Based on the information provided on your June 13, 2001 submittal, the above referenced project is approved for Building Permit, Grading Permit, and SO#19 Permit. Note that Building Permit covers Grading and Foundation. ** Please furnish a second copy of Sh#3 for SO#19 Process.**

Please attach a copy of this approved plan to the contruction sets prior to sign-off by Hydrology.

A separate permit is required for construction within the City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Pam Lujan
Terri Martin
File

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

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 4, 2001

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

Re: Tract 4A North Renaissance Center, Drainage Report
Engineer's Stamp dated 3-5-01 (F16/D5K)

Dear Mr. Bohannan,

Based upon the information provided in your submittal dated 3-9-01, the above referenced site is approved for Site Development Plan for Subdivision, Site Development Plan for Building Permit and Grading Permit. Prior to Building Permit approval, please address the following comments.

- Connecting inlet to inlet will affect the functioning of the ponds to work as they are modeled. I think it would be better to have a manifold type system and model each subbasin, after reservoir-routing, to add to this manifold.

- Please specify any slope treatment between your site and the Costco site.

- Please add top-of-wall (TW) and bottom-of-wall (BW) symbols to applicable elevations.

- Please add a note about a handrail on your retaining wall along Century. A retaining wall that high next to a public sidewalk raises concerns. Please review your plan to see if there is a better solution for that area.

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

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

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

APPENDIX C

Site Photo's

Site Photos – Taken 5/14/2013



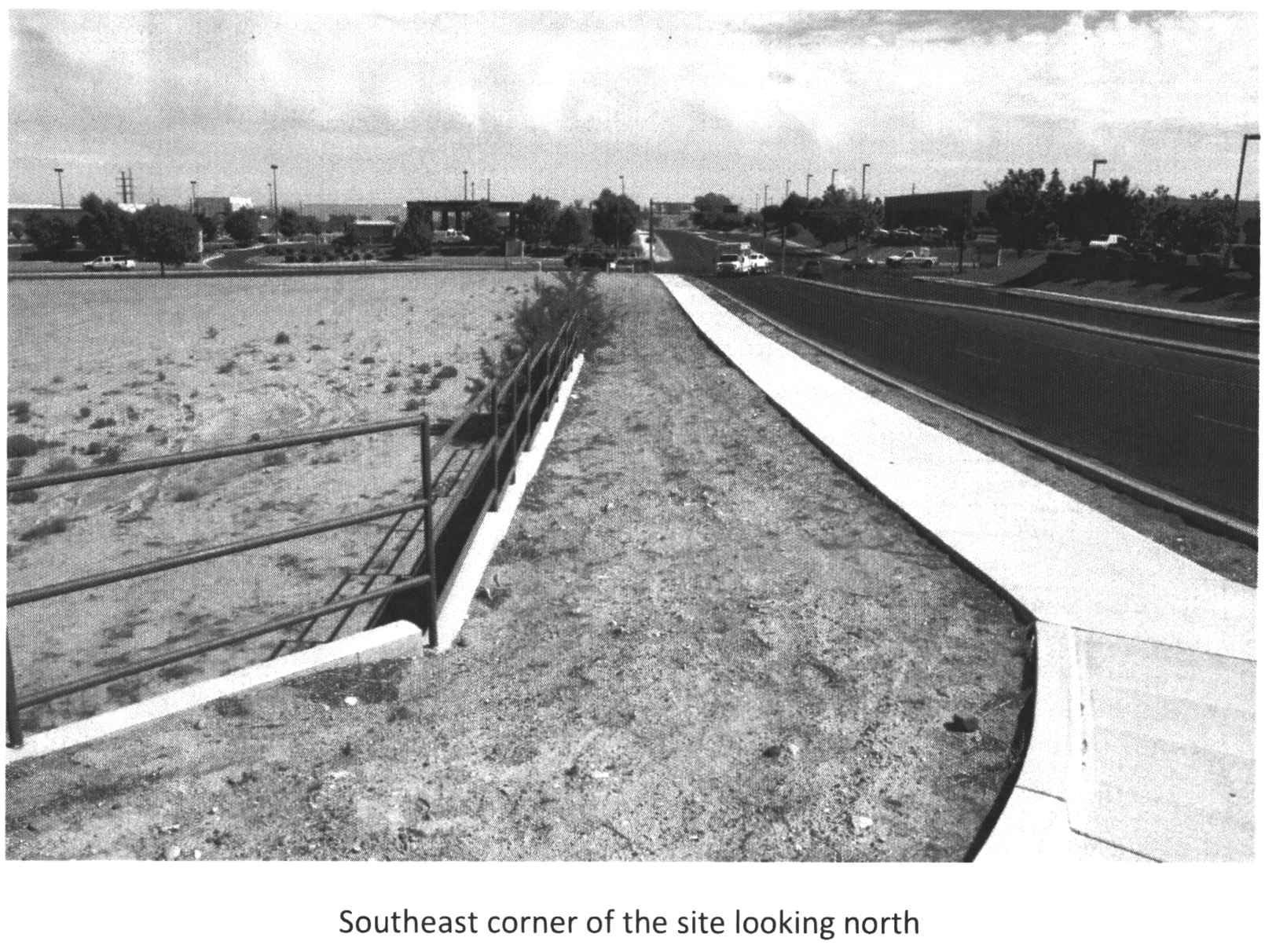
Northwest corner of the site looking east



Northeast corner of the site looking west



Northeast corner of the site looking south



Southeast corner of the site looking north



Southeast corner of the site looking west



Southwest corner of the site looking east



Southwest corner of the site looking north



Existing onsite retaining wall

F16/D005K

Biazar, Shahab

To: Paul Evans
Subject: RE: Dreamstyle in the Renaissance Center - Plat

Hi,

Thank you for sending me the plat.

I reviewed your new submittal for the grading and drainage plan and I like you to take care of the following items:

The existing topography is not shown or legible.
The drainage report and calculations should be resubmitted.
Please stamp date both the report and the grading plan the same date.
Attached the latest grading and drainage plan to the building permit set.
I you would also email me the PDF copy of the drainage report and the revised grading and drainage plan.

Thanks and have a nice day.

From: Paul Evans [mailto:pevans@tierrawestllc.com]
Sent: Thursday, September 19, 2013 8:04 AM
To: Biazar, Shahab
Cc: jgarcia@tierrawestllc.com
Subject: Dreamstyle in the Renaissance Center - Plat

Good Morning Shahab,

Hope the week is treating you well. Attached is the plat, as requested, for Tract 4A2 in the Renaissance center (in front of Sportsman's Warehouse) which is being developed for Dreamstyle.

We have resubmitted the G&D plan, addressing Hydrology comments for Building Permit, as we discussed earlier this week.

Let me know if you need a hard copy of the plat, or if you have any other questions.

Thanks,

PAUL EVANS
ENGINEER INTERN, EIT
TIERRA WEST LLC
5571 MIDWAY PARK PLACE, NE
ALBUQUERQUE, NM
505.858.3100
WWW.TIERRAWESTLLC.COM

PRIVILEGED AND CONFIDENTIAL

THE INFORMATION CONTAINED IN THIS ELECTRONIC MAIL MESSAGE IS CONFIDENTIAL,

MAY BE PRIVILEGED, AND IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL(S) NAMED ABOVE OR THEIR DESIGNEE. IF YOU ARE NOT THE INTENDED RECEPIENT OF THIS MESSAGE, YOU ARE HEREBY NOTIFIED THAT ANY DISSEMINATION, DISTRIBUTION, OR COPYING OF THIS COMMUNICATION IS STRICTLY PROHIBITED. ANY UNAUTHORIZED INTERCEPTION OF THIS MESSAGE IS ILLEGAL UNDER THE LAW. IF YOU HAVE RECEIVED THIS MESSAGE IN ERROR, PLEASE IMMEDIATELY NOTIFY ME BY RETURN MESSAGE OR BY TELEPHONE AND DELETE THE ORIGINAL MESSAGE FROM YOUR EMAIL SYSTEM. THANK YOU.

Verbal NO 9/19/13 (1) Need to Plot The Plan W/ Existing Topography (2) update the Drainage Report Shahab

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Dream Style City Drainage #: F16D005K

DRB#: 1001118 13-DRB 70545 EPC#: Work Order#:

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

Owner: Union Development Corporation Contact: Jim Trump

Address: 122 Tulane Dr. Albuquerque, NM 87106

Phone#: 505-321-6493 Fax#: 505-268-0449 E-mail: jim@buildingnewmexico.org

Architect: Rick Bennett Architects (RBA) Contact: David McEachern

Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: Contact:

Address:

Phone#: Fax#: E-mail:

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
_X_ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
_X_ GRADING PLAN
___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
_X_ BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
___ WORK ORDER APPROVAL
___ GRADING CERTIFICATION
___ SO-19 APPROVAL
___ ESC PERMIT APPROVAL
___ ESC CERT. ACCEPTANCE
___ OTHER (SPECIFY)

RECEIVED
SEP 17 2013
LAND DEVELOPMENT SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 09/16/2013 By: Ronald R. Bohannan

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

TIERRA WEST, LLC

5571 Midway Park Place NE
Albuquerque, NM 87109
(505) 858-1118 Fax (505) 858-3100 1-800-245-3102
tierrawestllc.com

September 17, 2013

Mr. Curtis Cherne
Principal Engineer, Planning Department
City of Albuquerque Development and Review Services
PO Box 1293
Albuquerque, NM 87103

RE: DREAMSTYLE, GRADING AND DRAINAGE PLAN
HYDROLOGY FILE (F16/D005K)

Dear Mr. Curtis Cherne:

Per the correspondence from your office dated June 14, 2013 regarding the above referenced property; please find the following responses addressing the comments listed below.

1. FEMA Map is not clear. Please add the location of the site on the map.
   The Flood Map was revised to clearly show the location of the subject site.

2. Clearly identify the existing and proposed retaining walls. The legend does not match the plan. Provide top of wall and bottom of wall elevations?
   The plan was revised to clearly show the existing and new retaining wall. Top and bottom of wall elevations were also added.

3. Please include a detail for the 1' x 3' metal scupper in the wall.
   The plan was revised to show a concrete drainage canale for the small drainage area conveying flows to the corner where the existing and new retaining walls intersect. Detail Sheet C6 shows the detail for the canale.

4. Cobble apron is called out to be 5' x 5' on sheet C2 and the detail on sheet C6 is 4' x 4'.
   The plan and detail sheet were revised to consistently show a 4' diameter cobble area around each landscape drain.

5. Darken the building boundary.
   The plan was revised to darken the building boundary.

6. Please double check the area east side of the building. How is the runoff draining around the building? At one location bottom of the wall is at 48.67 and finished floor elevation is at 46.50.
   A continuous drainage swale was incorporated into the design to carry positive drainage around the east and north area of the building. In the event that all of the landscape drains are 100% clogged, the drainage will continue around the northeast corner of the building, along the north edge, and overtop at the curb cut at the far northwest corner of the parking lot. This maximum water surface elevation is 1.84 feet below FFE.

7. The runoff appears to overflow into Renaissance Boulevard on the north side of the project.
   The plan was revised to include a berm near the northwest corner of the site which will prohibit any onsite flows from entering Renaissance Boulevard.

8. The orifice plate detail provided is for drop inlets. Please provide an orifice plate detail for manholes.
   The design was revised to use Single Type D Inlets in place of Vented Manhole Inlets; therefore the included detail is now consistent with the design.

9. Please include removal notes for the existing curbing on the west side of the project.
   A removal note was added to the plan for the existing curb and gutter along the west side of the site.

10. Section C-C on sheet C6 includes curb and gutter in the parking area. Will the gutter be depressed?
    The curb and gutter for this area was revised to show a sloping gutter section so water will not pond along the gutter line.

If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, P.E.

Enclosure/s

JN: 2013015
RRB/PE/JG

Attn: Curtis Cherne

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Dream Style City Drainage #: F16D005K

DRB#: 1001118 13-DRB 70545 EPC#: Work Order#:

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

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Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: Contact:

Address:

Phone#: Fax#: E-mail:

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

___ DRAINAGE REPORT
___ DRAINAGE PLAN 1st SUBMITTAL
X DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
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___ EROSION & SEDIMENT CONTROL PLAN (ESC)
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT (TCL)
___ ENGINEER'S CERT (TCL)
___ ENGINEER'S CERT (DRB SITE PLAN)
___ ENGINEER'S CERT (ESC)
___ SO-19
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CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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cc X S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
___ FOUNDATION PERMIT APPROVAL
cc X BUILDING PERMIT APPROVAL
___ GRADING PERMIT APPROVAL ___ SO-19 APPROVAL
___ PAVING PERMIT APPROVAL ___ ESC PERMIT APPROVAL
___ WORK ORDER APPROVAL ___ ESC CERT. ACCEPTANCE
___ GRADING CERTIFICATION ___ OTHER (SPECIFY)

RECEIVED
JUN 11 2013

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes ___ No ___ Copy Provided

DATE SUBMITTED: 06-11-13 By: Ronald R. Bohannan

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres
3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more
4. **Erosion and Sediment Control Plan:** Required for any new development and redevelopment site with 1-acre or more of land disturbing area, including project less than 1-acre than are part of a larger common plan of development

CITY OF ALBUQUERQUE

June 14, 2013

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Pl. NE
Albuquerque, NM 87109

Re: Dream Style, Grading and Drainage Plan (F16/D005K)
Tract 4A2 Correction Plat of Tracts 4A1 & 4A2
Grading Plan Engineer's Stamp Date 06-11-2013
Drainage Management Plan date 05-16-2013

Dear Mr. Bohannan,

Based upon the information provided in your submittals received 05-16-13 and 06-11-2013, the above referenced plan is approved for Site Plan for Building Permit. However, the following comments have to be addressed prior to Building Permit approval:

1. FEMA Map is not clear. Please add the location of the site on the map.
2. Clearly indentify the existing and proposed retaining walls. The Legend does not match the plan. Provide Top of wall and bottom of the wall elevations.
3. Please include a detail for the 1'x3' metal scupper in the wall.
4. Cobble apron is called out to be 5'x5' on sheet C2 and the detail on sheet C-6 is 4'x4'.
5. Darken the building boundary.
6. Please double check the area east side of the building. How is the runoff draining around the building? At one location bottom of the wall is at 48.67 and finished floor elevation is at 46.50.
7. The runoff appears to overflow into Renaissance Boulevard on the north side of the project.
8. The orifice plat detail provided is for drop inlets. Please provide an orifice plate detail for manholes.
9. Please include removal notes for the exiting curbing on the west side of the project?
10. Section C-C on sheet C6 includes curb & gutter in the parking area. Will the gutter be depressed?

If you have any questions, you may contact me by telephone at 505-924-3695.

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Department
Development and Building Services

C: e-mail

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

City of Albuquerque

Planning Department

Development & Building Services Division

RAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 02/2013)

Project Title: Dream Style City Drainage #: F16 D005K

DRB#: 1001118 13-DRB 70545 EPC#: Work Order#:

Legal Description: TR 4A2 Correction Plat of TRACTS 41A1 & 4A2

City Address: 1460 Renaissance Blvd. NE

Engineering Firm: Tierra West, LLC Contact: Ronald R. Bohannan

Address: 5571 Midway Park Place NE Albuquerque, NM 87109

Phone#: 505-858-3100 Fax#: 505-858-1118 E-mail: rrb@tierrawestll.com

Owner: Union Development Corporation Contact: Jim Trump

Address: 122 Tulane Dr. Albuquerque, NM 87106

Phone#: 505-321-6493 Fax#: 505-268-0449 E-mail: jim@buildingnewmexico.org

Architect: Rick Bennett Architects (RBA) Contact: David McEachern

Address: 1104 Park Ave SW Albuquerque, NM 87102

Phone#: 505-242-1859 Fax#: 505-242-6630 E-mail: david@rba81.com

Surveyor: Contact:

Address:

Phone#: Fax#: E-mail:

Contractor: Contact:

Address:

Phone#: Fax#: E-mail:

TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- X DRAINAGE PLAN 1st SUBMITTAL
- ___ DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL G & D PLAN
- X GRADING PLAN
- ___ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ___ ENGINEER'S CERT (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERT (TCL)
- ___ ENGINEER'S CERT (DRB SITE PLAN)
- ___ ENGINEER'S CERT (ESC)
- ___ SO-19
- ___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ___ SIA/FINANCIAL GUARANTEE RELEASE
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D APPROVAL
- ___ S. DEV. FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TCL TEMP)
- ___ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL 50
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ GRADING CERTIFICATION
- ___ SO-19 APPROVAL
- ___ ESC PERMIT APPROVAL
- ___ ESC CERT. ACCEPTANCE
- ___ OTHER (SPECIFY)

RECEIVED
MAY 17 2013
LAND DEVELOPMENT SECTION
Paid $50.00 ✓

WAS A PRE-DESIGN CONFERENCE ATTENDED: ___ Yes X No ___ Copy Provided

DATE SUBMITTED: 05/16/2013 By:

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

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DRAINAGE MANAGEMENT PLAN

for

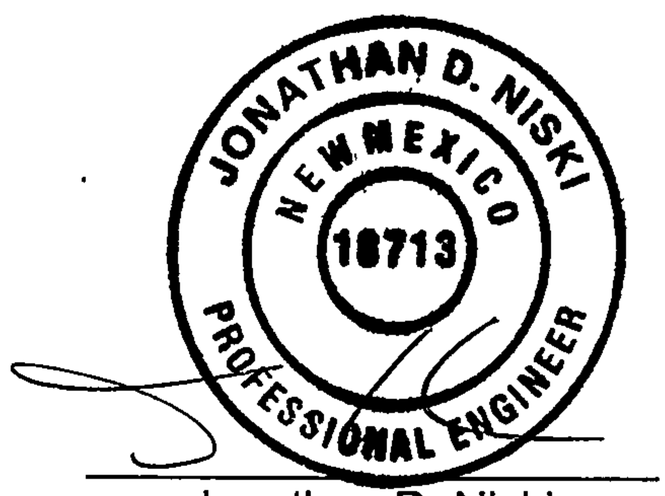
Dream Style
1450 Renaissance Blvd NE
Tract 4A2 Renaissance Center
Albuquerque, New Mexico

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

May 16, 2013

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Jonathan D. Niski
PE #18713

Job No 2013015

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Appendices

Hydrologic and Hydraulic Analysis..... APPENDIX A

Drainage Report for Tract 4A (Sportsman's Warehouse, for reference).....APPENDIX B

Site Photos of Undeveloped Condition..... APPENDIX C

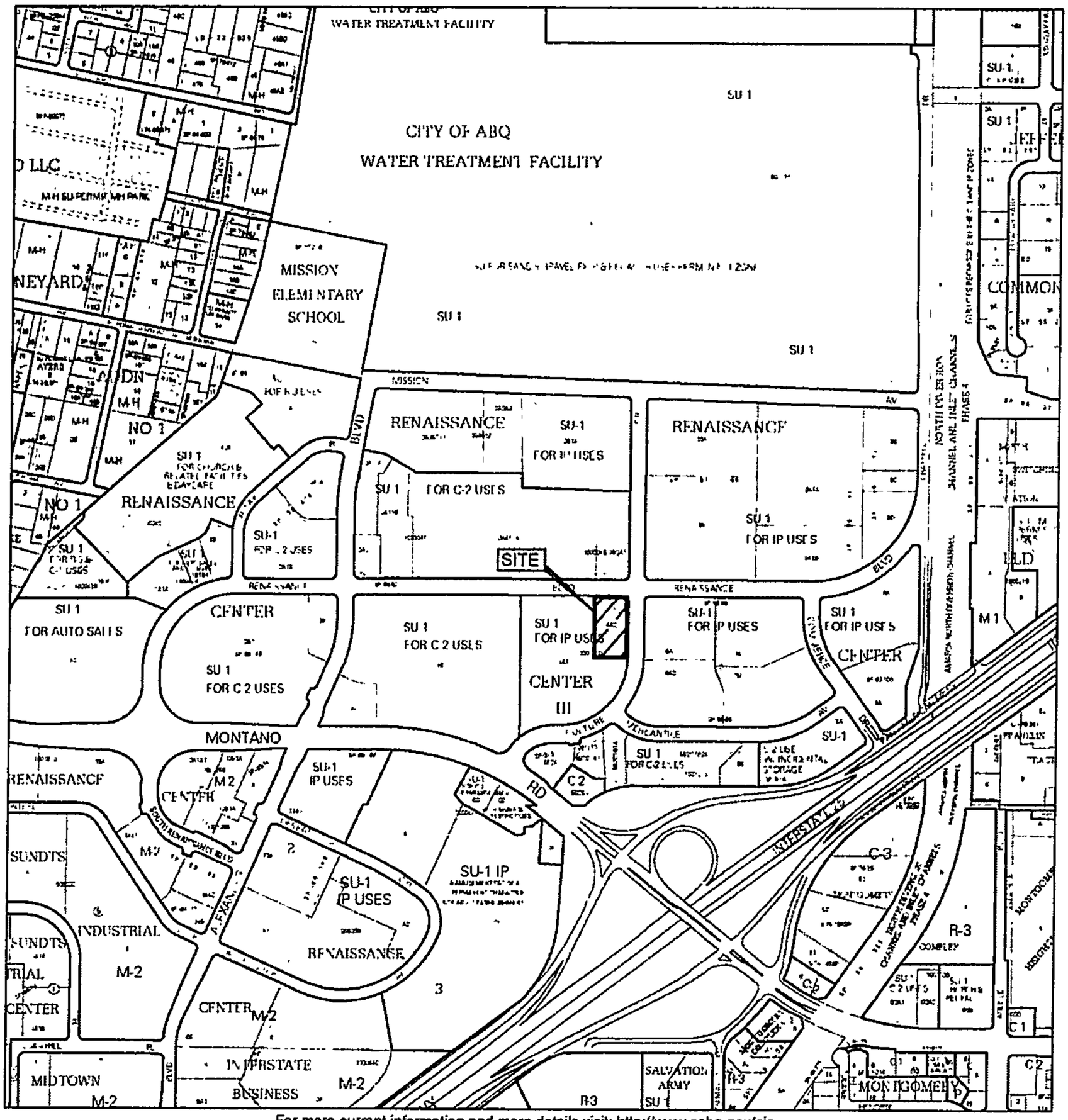
PURPOSE

The purpose of this report is to provide the drainage management plan for the development of Dream Style, an outdoor and home improvement retail user. This plan will be utilized for the development of a 15,088 square foot (footprint) two-story structure and associated parking facilities located on the 1.44 acre undeveloped outlot for the Sportsman's Warehouse located at 1460 Renaissance Boulevard NE. This plan is in accordance with the DPM, Chapter 22, Hydrology Section. The purpose of this report is to provide the drainage analysis and management plan for the new site and to act as a detailed record for future use.

INTRODUCTION

The subject of this report, as shown on *Exhibit A – Vicinity Map*, is a 1.44-acre-parcel of land located at the southwest corner of Renaissance Boulevard and Culture Drive NE. The site appears on zone atlas page F-16-Z. As shown on *Exhibit B – FIRMap 35001C0138G*, the subject property is outside mapped flood zones. A previous drainage report (Report) for the improvements to the overall Sportsman's property (of which this property was a part) was prepared by Tierra West, LLC in February 2004. The Report designed surface drainage, parking lot ponds, and an onsite private storm drain system to accommodate the 100 year, 6 hour storm. The proposed development has been designed to convey flow in the manner consistent with the assumptions of the referenced report.

Exhibit A – Vicinity Map



For more current information and more details visit: http://www.cabq.gov/gis

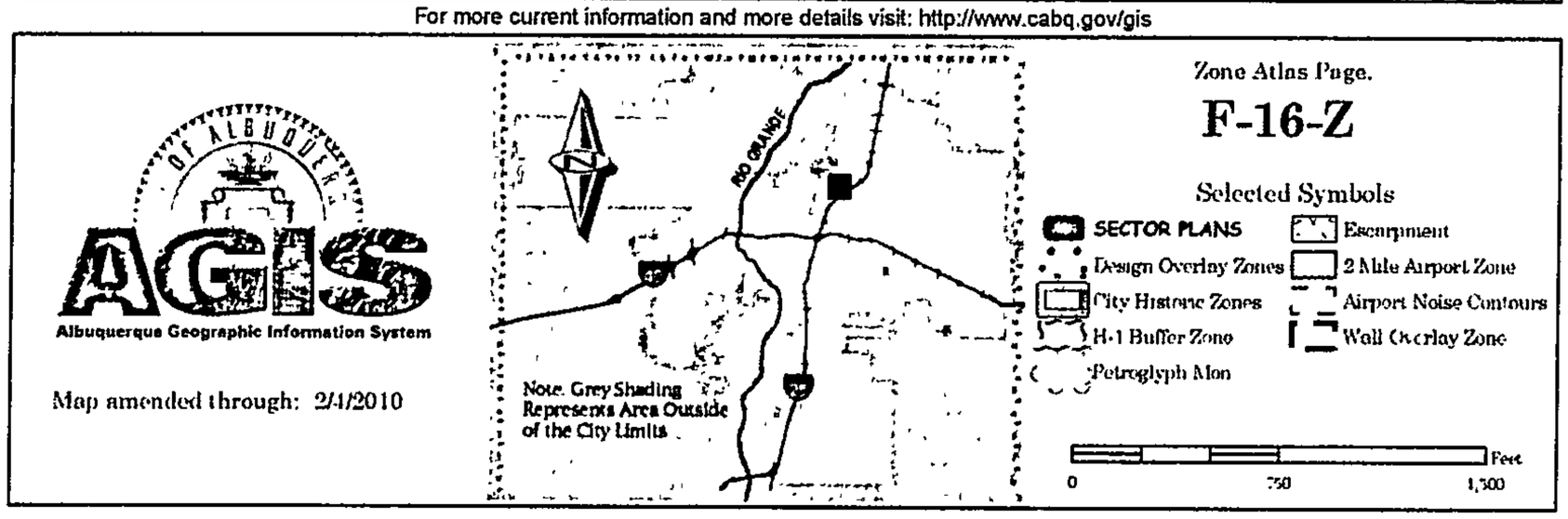
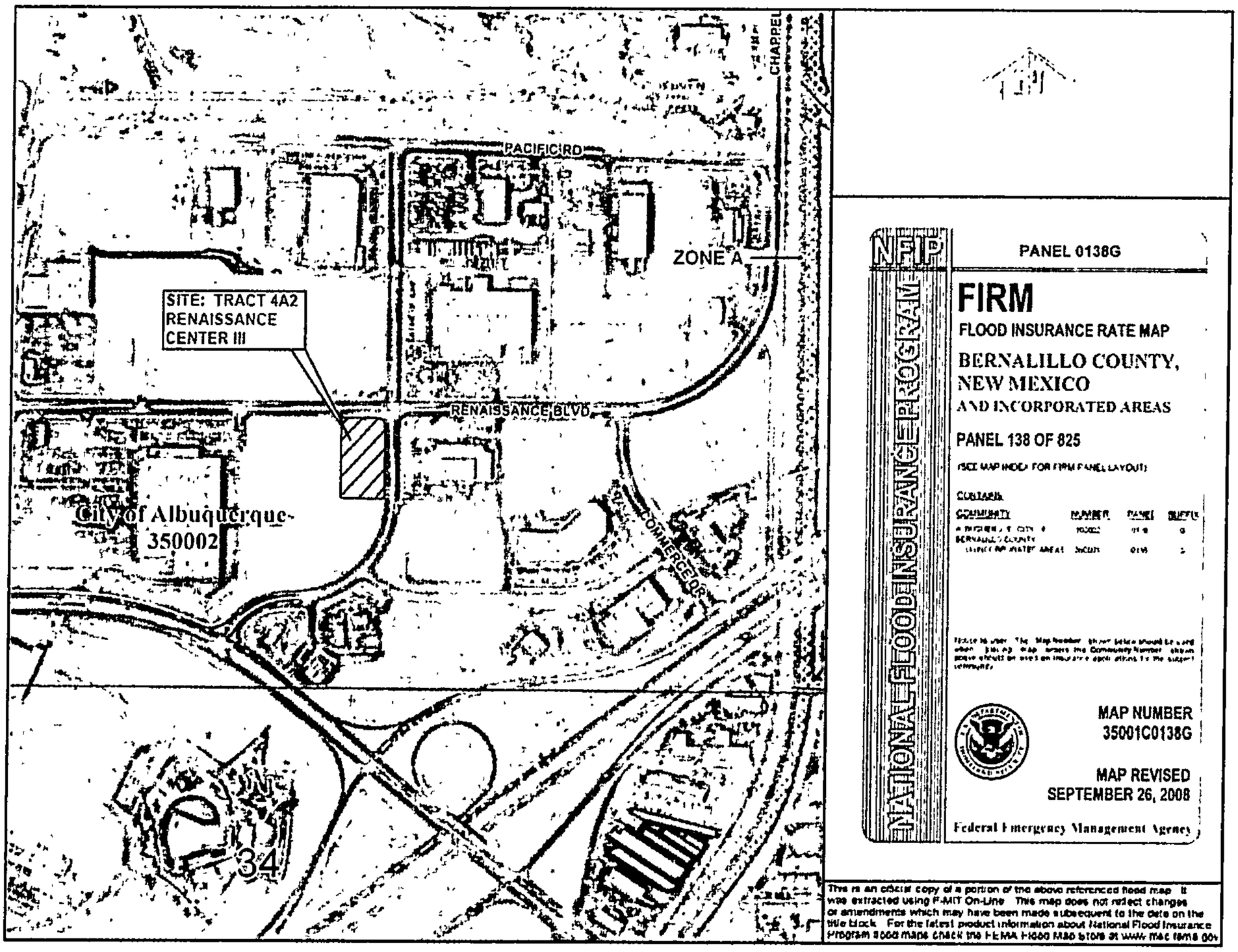


Exhibit B – FIRMap 35001C0138G



EXISTING CONDITIONS

The site was rough graded during mass grading for the center but is vacant and undeveloped with little vegetation and bare ground. There is an existing retaining wall adjacent to a portion of the east property line and adjacent to the existing access drive at the south end of the site. The existing retaining wall has heights ranging from approximately 2 ft to 10 ft. A portion of the north end of the site drains directly to Renaissance Blvd. The majority of the site drains to the rough graded shallow pond at the southeast corner of the lot. Finally, a portion of the site

which makes up half of the access drive off of Culture Drive drains into the main parking area of Sportsman's Warehouse which is then conveyed to parking lot grated inlets and ultimately to the existing 54" storm drain in Renaissance Boulevard which conveys storm water to the Renaissance Detention Pond (west of Bob Turner Ford). Although the site is lower than adjacent public right of way; no offsite flows are directed to the site.

An excerpt from the report by Tierra West, LLC, dated February 2004 titled: Modified Drainage Report for Tract 4A, Renaissance Center (Report), is included for reference in Appendix B. The referenced Report designates the site's northeasterly corner as *Basin 6, Basin 7, Basin 8, and portions of Basin 1.* As stated above, a portion of the subject site contributes runoff to the main parking lot of Sportsman's Warehouse by design. The runoff from this area is intercepted by catch basins with orifice plates limiting the flow out of the system to 0.1 cfs/ac. A hydrology map and calculations for the existing conditions are included in Appendix A of this report.

PROPOSED CONDITIONS

A two-story building with associated parking is proposed for this tract. Proposed grading will adhere to the overall design for the site within the original drainage Report for Sportsman's Warehouse and direct surface flows to onsite grated inlets with restricted discharge via orifice plates. Where practical, flow from the parking areas will be directed to depressed landscape islands via curb cuts for water quality and passive water harvesting. New landscaping will be installed in the parking lot islands and around the building. A hydrology map and calculations for the proposed conditions are included in Appendix A of this report. A portion of the existing retaining wall will be demolished and reconstructed to accommodate the building location (see attached grading and drainage plan for details).

The buildings' finish floor elevation was set at 5046.50 (NAVD 88) which exceeds the height of the adjacent 100-year water elevation of the proposed parking lot ponds for the North Parking Lot Pond (Emergency Overflow = 5046.00) and South Parking Lot Pond (Emergency Overflow = 5045.98) and is also above the maximum water surface elevation for any of the on-site ponds for Sportsman's Warehouse (Pond 5, 5046.17). (Note: Elevations for the 2003 drainage report have been adjusted for the datum difference of +2.67 ft.)

An additional private area drain system to collect drainage around the building foundations and to collect nuisance drainage from landscape areas around the building is incorporated into the plans. The sizing of all onsite catch basins and drainage piping are based on the hydrologic and hydraulic analysis included in Appendix A.

The allowable discharge for the subject site is 0.144 cfs based on the discharge allowance of 0.1 cfs/ac in the Master Drainage Plan for the Renaissance Center. As designed, this drainage management plan will restrict the 100 yr, 6 hr flow to 0.143 cfs by implementing orifice plates at the grated inlet outlet pipes. See Appendix A for hydrologic and hydraulic drainage calculations and orifice plate sizes.

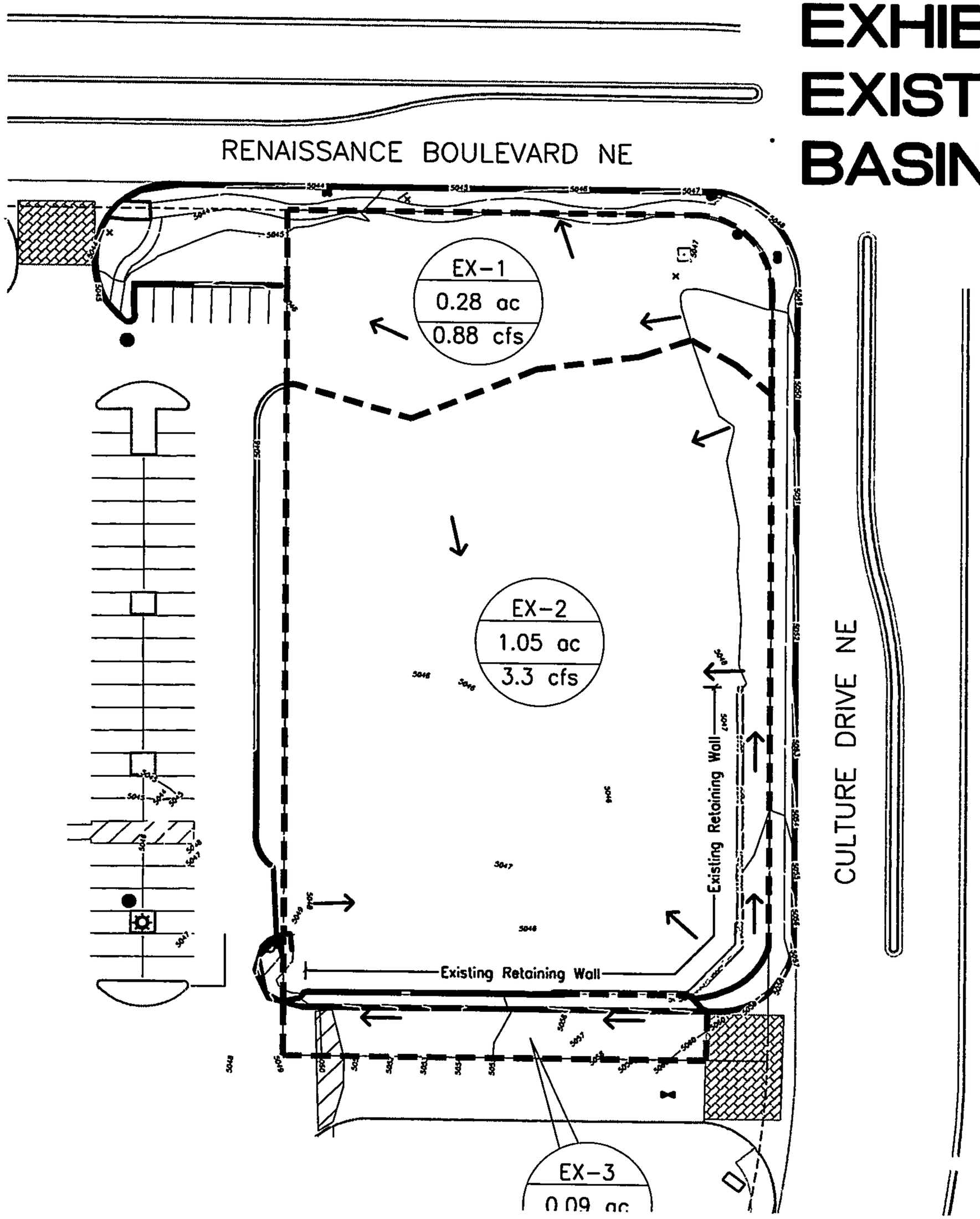
SUMMARY AND RECOMMENDATIONS

Per the Sportsman's Warehouse (Tract 4A) drainage report, all required drainage infrastructure was sized to accommodate the developed condition of this tract. The proposed improvements will accommodate the proposed development and not adversely impact the historic drainage patterns. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. It is recommended this development be approved for grading and Site Plan for Building Permit.

APPENDIX A

Hydrologic and Hydraulic Analysis

EXHIBIT A
EXISTING DRAINAGE BASINS



LEGEND

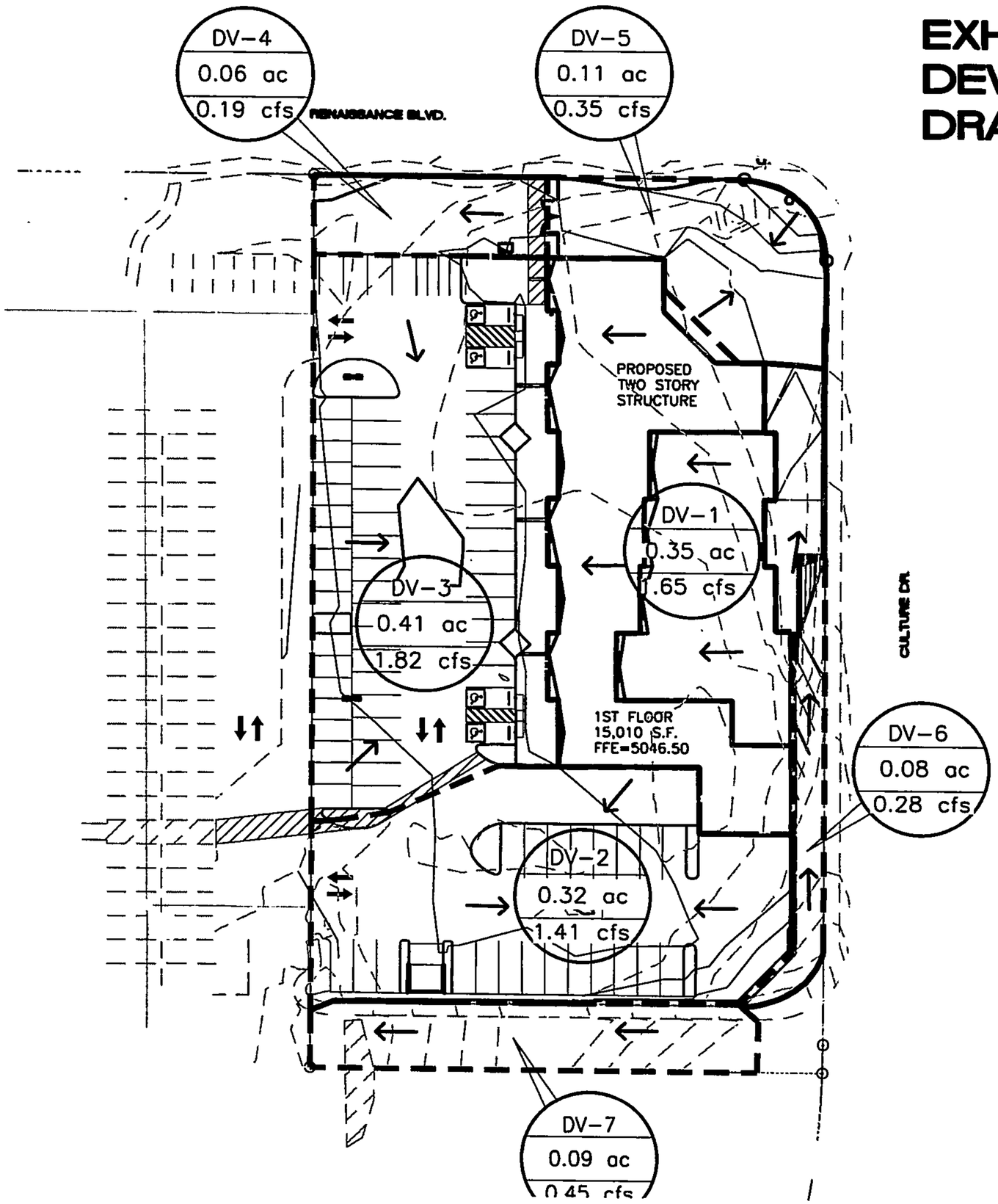
→ FLOW DIRECTION

HYDRO BASIN BOUNDARY

Basin ID
Basin Area
Q100,6

N

EXHIBIT B
DEVELOPED
DRAINAGE BASINS



LEGEND

→ FLOW DIRECTION

HYDRO BASIN BOUNDARY

Basin ID
Basin Area
Q100,6



DPM Weighted E Method

Precipitation Zone 2

Renaissance Center, Albuquerque NM

DreamStyle @ Renaissance Blvd. and Culture Dr. NE

TWLLC/PRE **15-May-13**

Existing Conditions

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	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)						
Ex-1	12,238.04	0.281	0.00044	0%	0	0%	0.000	100%	0.280947	0%	0.000	1.130	0.026	0.88	0.520	0.012	0.48
Ex-2	45,756.22	1.050	0.00164	0%	0	0%	0.000	100%	1.050418	0%	0.000	1.130	0.099	3.30	0.520	0.046	1.80
Ex-3	4,175.51	0.096	0.00015	0%	0	0%	0.000	0%	0	100%	0.096	2.120	0.017	0.45	1.340	0.011	0.30
Total	**62,169.77**	**1.427**	**0.00223**										**0.142**	**4.63**		**0.068**	**2.58**

Notes:

Under the existing conditions, basin EX-1 discharges runoff directly to Renaissance Blvd. Basin EX-3 discharges runoff to the main parking area of Sportsman's Warehouse (which was accounted for in the approved drainage report for Sportsman's.

Developed Conditions

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr		
Basin ID	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)						
Dv-1	15,297.85	0.351	0.00055	0%	0	0%	0.000	0%	0	100%	0.351	2.120	0.062	1.65	1.340	0.039	1.10
Dv-2	13,798.59	0.317	0.00049	0%	0	0%	0.000	15%	0.047516	85%	0.269	1.972	0.052	1.41	1.217	0.032	0.93
Dv-3	17,778.10	0.408	0.00064	0%	0	0%	0.000	15%	0.061219	85%	0.347	1.972	0.067	1.82	1.217	0.041	1.19
Dv-4	2,569.44	0.059	0.00009	0%	0	0%	0.000	95%	0.056037	5%	0.003	1.180	0.006	0.19	0.561	0.003	0.11
Dv-5	4,845.28	0.111	0.00017	0%	0	0%	0.000	100%	0.111232	0%	0.000	1.130	0.010	0.35	0.520	0.005	0.19
Dv-6	3,716.09	0.085	0.00013	0%	0	0%	0.000	90%	0.076779	10%	0.009	1.229	0.009	0.28	0.602	0.004	0.16
Dv-7	4,155.44	0.095	0.00015	0%	0	0%	0.000	0%	0	100%	0.095	2.120	0.017	0.45	1.340	0.011	0.30
Total	**62,160.79**	**1.427**	**0.00223**										**0.223**	**6.16**		**0.135**	**3.98**

Notes:

Under the proposed developed condition, basin DV-2 will produce a 100 yr, 6hr discharge rate of 1.41 cfs and 0.052 ac-ft of volumetric runoff. An orifice plate will be installed inside the drop inlet to restrict the discharge to the allowable rate of 0.0317 cfs (0.317 ac * 0.1 cfs/ac) with corresponding orifice size of 0.7" (see South Parking Lot Pond Volume Calculations). As shown in the accompanying pond volume calculations the ponding area has a volume capacity of 0.187 ac-ft and can therefore accommodate the full runoff volume for basin DV-2.

Further, basins DV-1, 3, 4, 5, and 6 produce a 100 yr, 6 hr discharge (total) rate of 4.29 cfs and a volumetric runoff of 0.17 ac-ft. An orifice plate will be installed inside the collector manhole in the north parking lot to restrict the discharge to the allowable rate of 0.11 cfs (1.1 ac * 0.1 cfs/ac) with corresponding orifice size of 1.4" (see North Parking Lot Pond Volume Calculations). As shown in the accompanying gond volume calculations the north parking lot pond has a capacity of 0.233 ac-ft and can therefore accommodate the full runoff volume for the contributing basins.

Equations:

Weighted E = $E_a*A_a + E_b*A_b + E_c*A_c + E_d*A_d$ / (Total Area)

Volume = Weighted D * Total Area

Flow = $Q_a * A_a + Q_b * A_b + Q_c * A_c + Q_d * A_d$

west

NORTH PARKING LOT POND
VOLUME CALCULATIONS

A_b - Bottom Of The Pond Surface Area

A_t - Top Of The Pond Surface Area

D - Water Depth

D_t - Total Pond Depth

C - Change In Surface Area / Water Depth

Volume = $A_b * D + 0.5 * C * D^2$

$C = (A_t - A_b) / D_t$

A_b = 6.80 ft^2

A_t = 14,113.76 ft^2

D_t = 1.44 ft

C = 9796.50

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
5040.56	0	0	0.0000	Bottom of drop inlet
5041.06	0.5	0.0001	0.0209	
5041.56	1.0	0.0002	0.0420	
5042.06	1.5	0.0002	0.0556	
5042.56	2.0	0.0003	0.0664	
5043.06	2.5	0.0004	0.0757	
5043.56	3.0	0.0005	0.0840	
5044.06	3.5	0.0005	0.0916	
5044.56	4.0	0.0006	0.0985	Top of grate
5045.06	4.5	0.0282	0.1050	
5045.56	5.0	0.1126	0.1112	
5046.00	5.4	0.2334	0.1163	Emergency overflow

Orifice Equation

$Q = CA(2gH)^{1/2}$

C = 0.6

Diameter (in) 1.4

Area (ft^2)= 0.011

g = 32.2

H (ft) = Depth of water above center of orifice

Q (cfs)= Flow

Notes:

A_b based on interior dimensions of a single type D inlet (see COA Std. Dwg. #2206)

Outlet pipe is 8" (0.667 ft) diameter pipe

Ponding depth above grate = 1.44 ft

SOUTH PARKING LOT POND
VOLUME CALCULATIONS

A_b - Bottom Of The Pond Surface Area
A_t - Top Of The Pond Surface Area
D - Water Depth
D_t - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = $A_b * D + 0.5 * C * D^2$

$C = (A_t - A_b) / D_t$

A_b =	6.80	ft^2
A_t =	14,113.76	ft^2
D_t =	1.44	ft
C =	9796.50	

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
5041.35	0	0	0.0000	Bottom of drop inlet
5041.85	0.5	0.0001	0.0052	
5042.35	1.0	0.0002	0.0105	
5042.85	1.5	0.0002	0.0139	
5043.35	2.0	0.0003	0.0166	
5043.85	2.5	0.0004	0.0189	
5044.35	3.0	0.0005	0.0210	
5044.85	3.5	0.0005	0.0229	
5044.91	3.6	0.0006	0.0231	Top of grate
5045.35	4.0	0.0006	0.0246	
5045.85	4.5	0.0995	0.0263	
5046.20	4.9	0.1873	0.0273	Emergency overflow

Orifice Equation

$Q = CA(2gH)^{1/2}$

C =	0.6	
Diameter (in)	0.7	
Area (ft^2)=	0.003	
g =	32.2	
H (ft) =	Depth of water above center of orifice	
Q (cfs)=	Flow	

Notes:

A_b based on interior dimensions of a single type D inlet (see COA Std. Dwg. #2206)

Outlet pipe is 8" (0.667 ft) diameter pipe

Ponding depth above grate = 1.29 ft

APPENDIX B

Reference Report: *Drainage Report for Tract 4A (Sportsman's Warehouse)*

MODIFIED DRAINAGE REPORT

for

Tract 4A,Renaissance Center
Albuquerque, New Mexico
Sportsman Warehouse

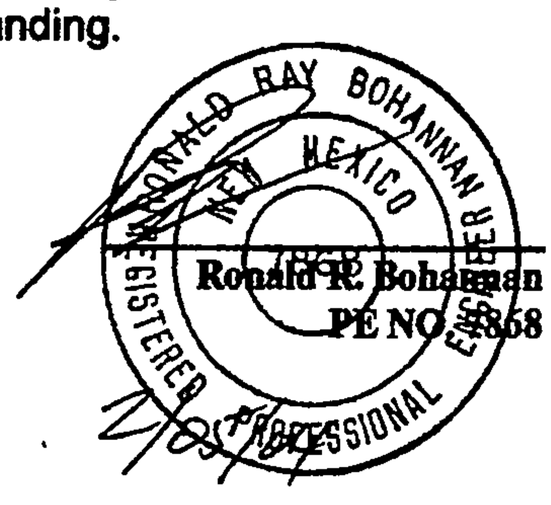
Prepared by

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

Prepared for
GA Architects
3032 South 1030 West
Salt Lake City, Utah 84119

February 2004

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE NO. 9868

Job No 230104

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Appendix

Site Hydrology ..... A

Map Pocket

Site Grading and Drainage Plan

PURPOSE

The purpose of this report is to prove the development of the subject 8.56-acre property, for the use as a retail/distribution building, is in accordance with the DPM Chapter 22. This report will propose a drainage management plan and demonstrate that the proposed improvements do not adversely effect the surrounding properties, nor the upstream or downstream facilities. This is to modify the approved plan to allow a Sportsman Warehouse to be constructed.

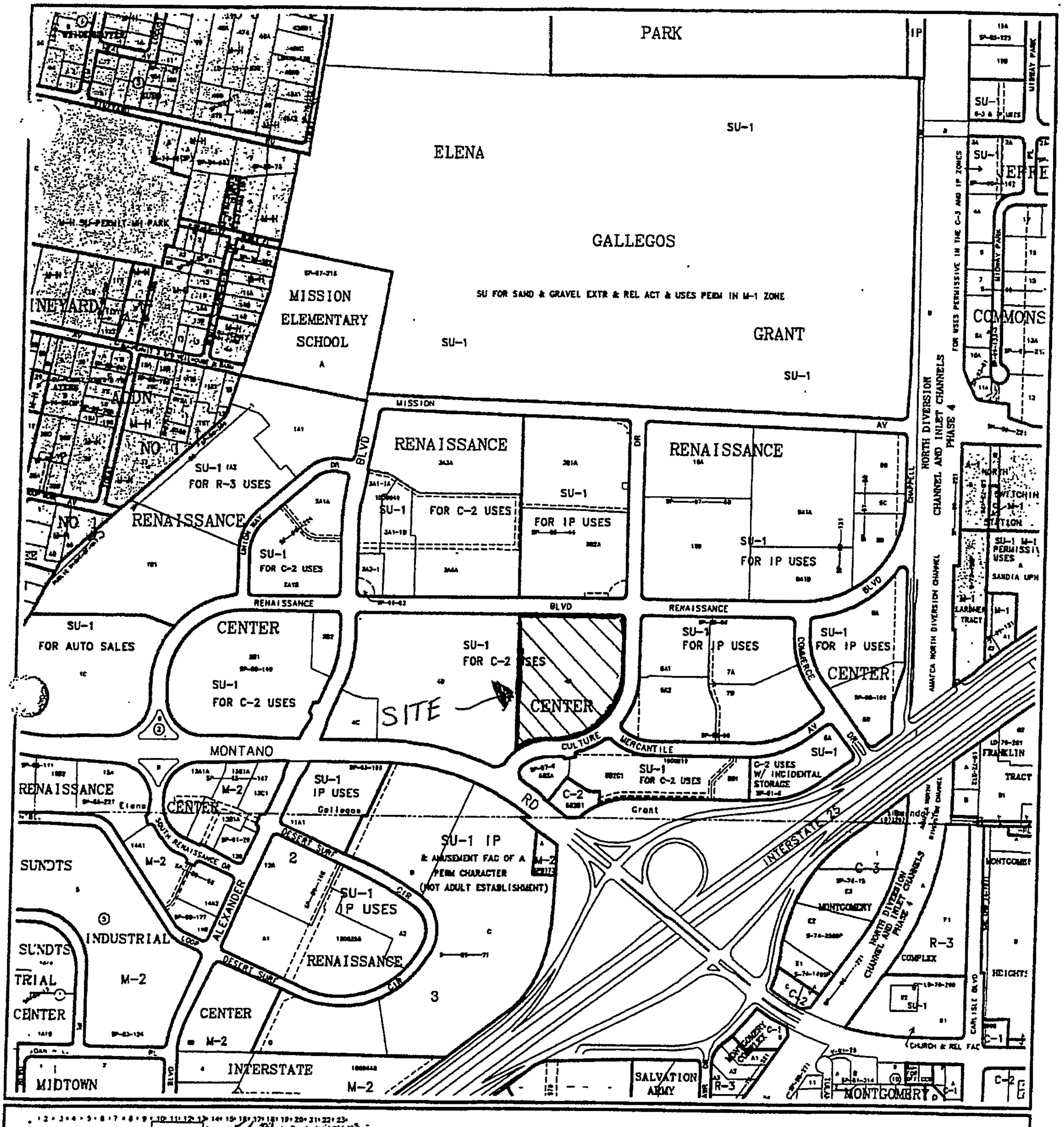
INTRODUCTION

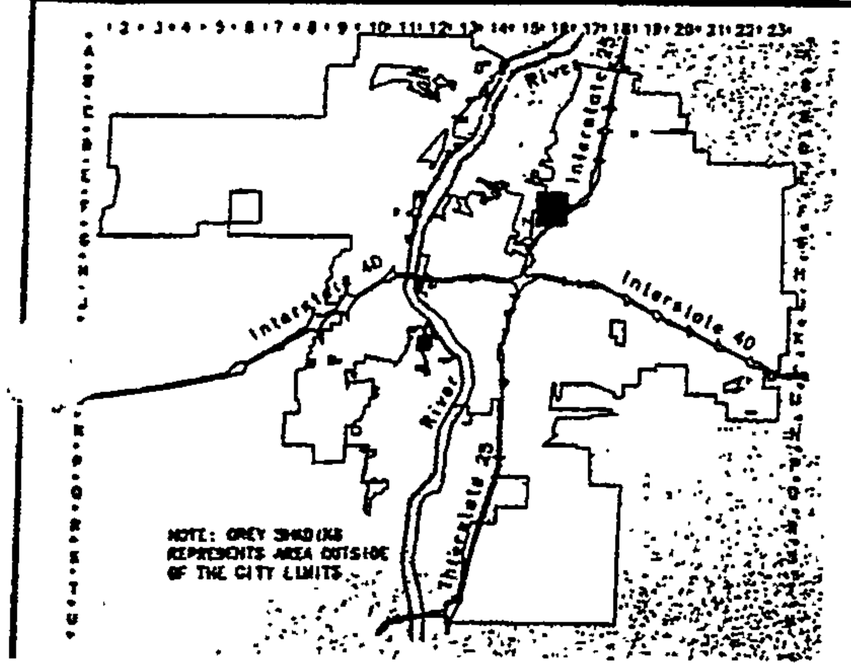
The subject of this report, which is highlighted on the Exhibit A vicinity map, is an 8.56 acre parcel of land located on the southwest corner of Renaissance Boulevard and Culture Boulevard. The site is located on Zone Atlas page F-16. The site currently exists as a rough graded parcel within the Renaissance Center. The legal description of the property is Lot 4A of North Renaissance Center. As shown on FEMA map 35001C0138D, the site lies within flood zone X.

This site was analyzed within the Drainage Report and grading plan for the entire Renaissance Center. The Master Storm Drain Management Plan for the Renaissance Center allows for .1 cfs peak discharge per developed acre. Based upon the approved Drainage Management Plan design criteria, this site is allowed to discharge .848 cfs in developed conditions. Since our improvements are consistent with developed condition assumptions within the Renaissance Center's Master Drainage Plan the site should be allowed to discharge the proposed peak discharge rate of .83 CFS into the existing storm drain system.

EXISTING CONDITIONS

The site slopes from South to Northwest, with the majority of the sites' grades between 3-4%. The southeast portion of the site consists of a 3:1 slope. The site was rough graded with the





CITY OF Albuquerque

A Albuquerque G Geographic I Information S System

PLANNING DEPARTMENT

EXHIBIT A

4

GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

F-16-Z

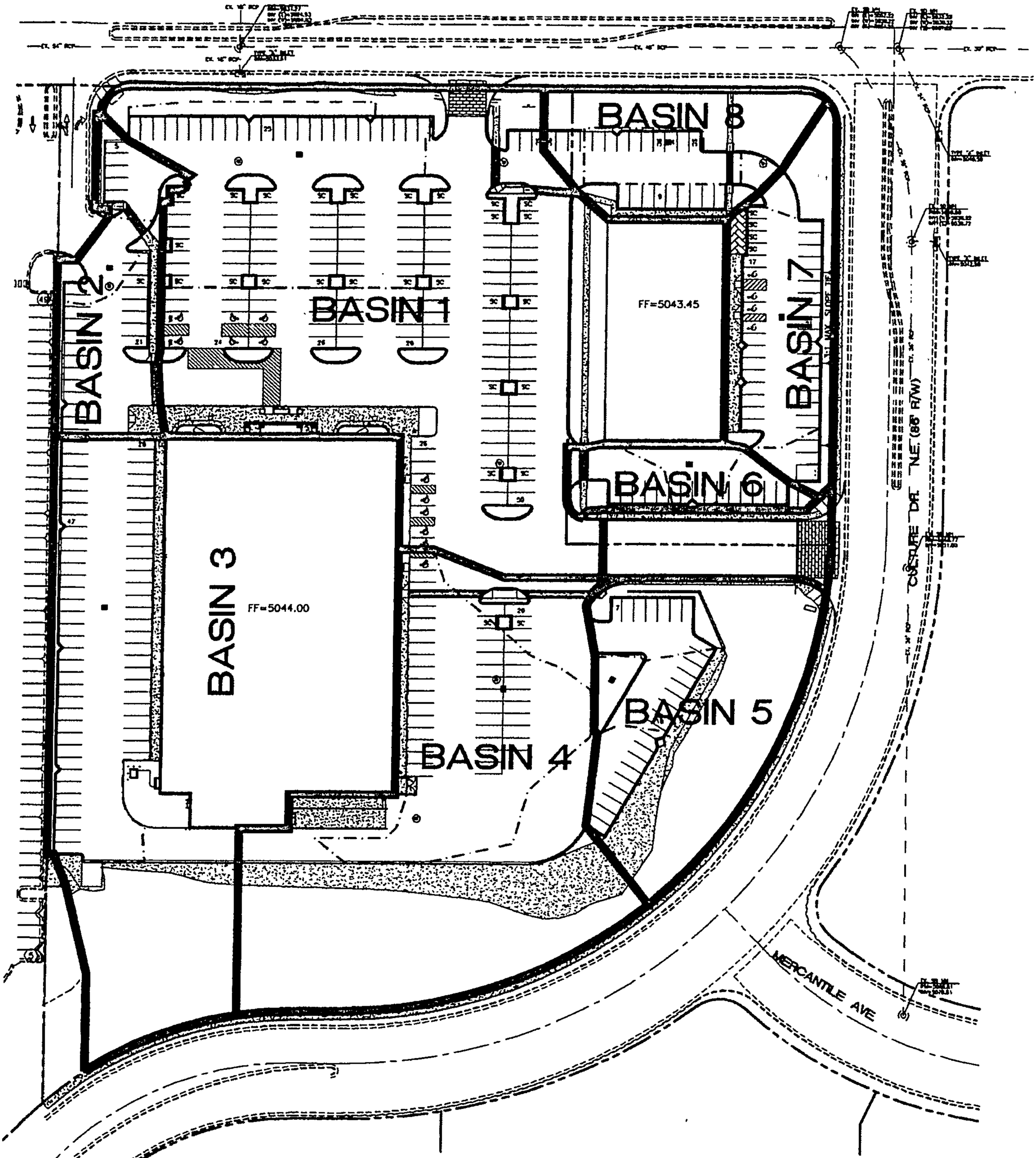
Map Amended through July 28, 2000

construction of the Renaissance Center, though native vegetation covers the entire site. During the development of tract 4-B to the west (Costco) a small desiltation pond was constructed at the north west corner of the site. As shown in Appendix A, the site currently generates a peak runoff rate of 18.0 CFS. The storm runoff currently overflows the desiltation pond and enters the Renaissance Boulevard Right-of-Way. Due to the completion of the roadways adjacent to the site on the north, south and east site and Costco on the West, no offsite flow enter the site.

PROPOSED CONDITIONS

The proposed improvements consist of two retail / Distribution buildings and the associated parking lots and delivery areas. As shown in Exhibit B, the site consists of 8 drainage basins. As shown in Appendix A, the developed runoff rates for each basin was determined using AHYMO. The site discharge will be controlled by creating 8 individual ponds located on the site. Each pond will drain to a single grated type 'D' inlet. Orifice plates constructed at the outlet of each inlet will control the discharge rate of each inlet and pond. The Grading Plan includes a table of orifice plate sizes for each inlet. The onsite storm drain system will be connected to the back of an existing inlet located adjacent to the site in Renaissance Boulevard. This connection can be accomplished through the SO-19 process.

The storm drain system was modeled using the routing command within AHYMO. The pond volumes and discharge rate calculations as well as the input and output AHYMO files are located in Appendix A. Based upon the model the entire site will have a peak discharge of .82 CFS to the existing storm drain system in Renaissance, which is less than the allowed rate of .86 CFS. In the event of inlet clogging or a storm event greater than the predicted 100-year, 6-hour design storm, the site will overflow directly to Renaissance through both driveways into Renaissance Boulevard.



PROPOSED BASIN MAP

SUMMARY AND RECOMMENDATIONS

This site is an existing parcel within the Renaissance Center. The City of Albuquerque Hydrology Section approved the Drainage Management Plan for the entire Renaissance Center, which our site is a portion of. The Renaissance Centers' Master Drainage Plan allows for a peak discharge rate of 0.1 CFS per acre for the fully developed condition. The proposed improvements generate a peak flow of .83 CFS, which is lower than the .848 CFS allowed. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. Since this site encompasses more than 5 acres, a NPDES permit will be required in addition to a Top Soil Disturbance Permit, prior to any construction activity. The connection of the onsite storm drainage system to the existing inlet will occur behind the curb therefore the work can be done under the City of Albuquerque SO-19 process, therefore an infrastructure list is not required. It is recommended this development be approved for rough grading, Site Plan for Subdivision and Site Plan for Building Permit.

APPENDIX A

SITE HYDROLOGY

Weighted E Method

On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1	120,060	2.76	0%	0	11%	0.30	0%	0.00	89%	2.45	1.973	0.453	12.22	1.223	0.281	7.99
2	15,043	0.35	0%	0	12%	0.04	0%	0.00	88%	0.30	1.959	0.056	1.52	1.213	0.035	0.99
3	92,390	2.12	0%	0	0%	0.00	18%	0.38	82%	1.74	1.942	0.343	9.37	1.192	0.211	6.11
4	64,661	1.48	0%	0	0%	0.00	32%	0.48	68%	1.01	1.803	0.223	6.24	1.078	0.133	3.98
5	30,300	0.70	0%	0	17%	0.12	40%	0.28	43%	0.30	1.496	0.087	2.55	0.832	0.048	1.53
6	7,906	0.18	0%	0	22%	0.04	0%	0.00	78%	0.14	1.825	0.028	0.76	1.107	0.017	0.48
7	18,550	0.43	0%	0	24%	0.10	0%	0.00	76%	0.32	1.798	0.064	1.75	1.086	0.039	1.11
8	16,107	0.37	0%	0	48%	0.18	0%	0.00	52%	0.19	1.477	0.046	1.31	0.831	0.026	0.77
Totals	365,017	8.38										1.299	35.72		0.789	22.98

Equations:

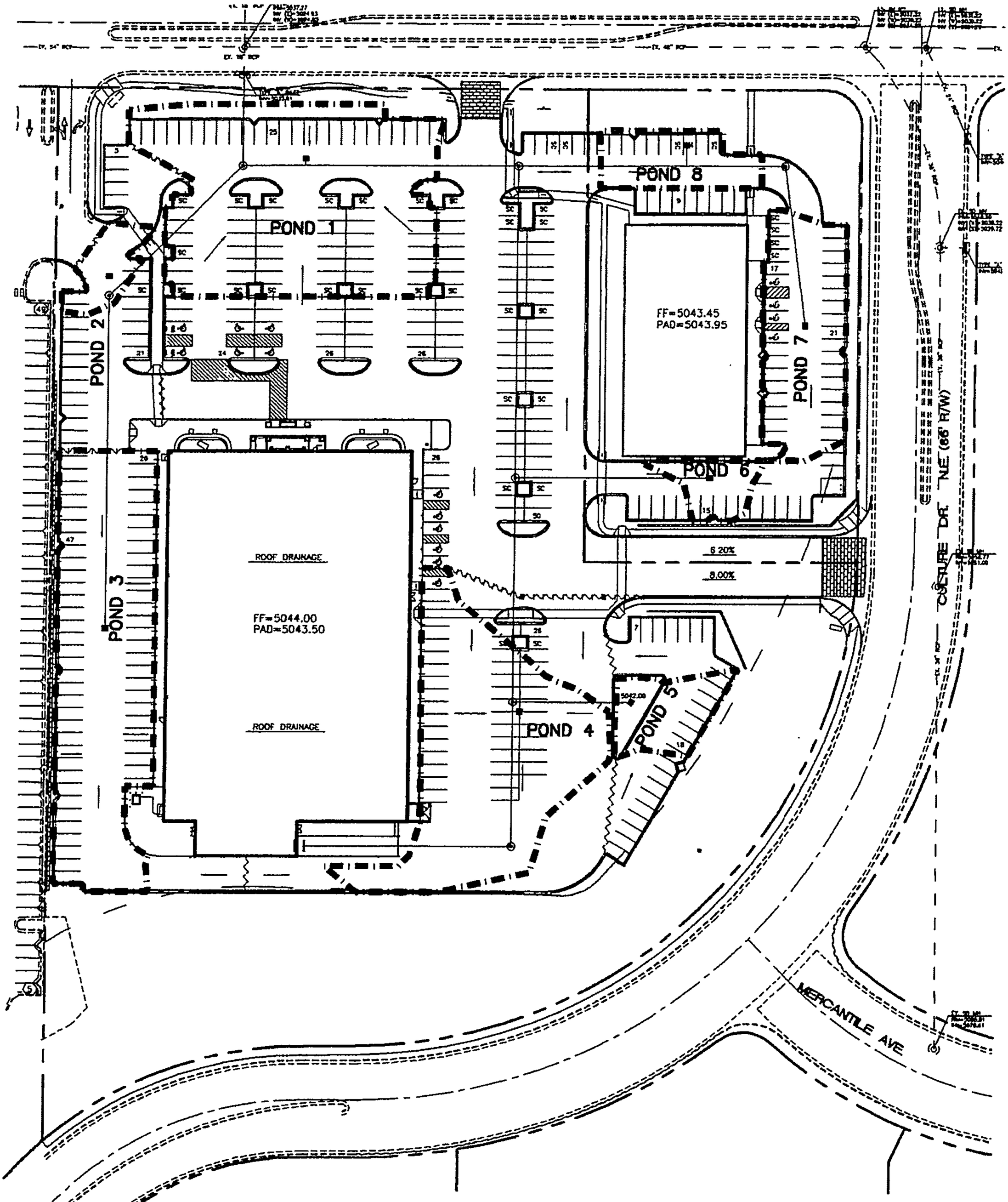
Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

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

Excess Precipitation, E (inches)		
Zone 2	100-Year	10 - Year
E_a	0.53	0.13
E_b	0.78	0.28
E_c	1.13	0.52
E_d	2.12	1.34

Peak Discharge (cfs/acre)		
Zone 2	100-Year	10 - Year
Q_a	1.56	0.38
Q_b	2.28	0.95
Q_c	3.14	1.71
Q_d	4.7	3.14


POND 1
POND 2
POND 3
POND 4
POND 5
POND 6
POND 7
POND 8
FF=5043.45
PAD=5043.95
FF=5044.00
PAD=5043.50
ROOF DRAINAGE
ROOF DRAINAGE
6.20%
8.00%
CULTURE DR. NE (66' R/W)
MERCANTILE AVE
N

PONDING MAP

VOLUME CALCULATIONS
POND 1

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	26,322.00
Dt =	1.70
C =	15479.53

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5035.50	0	0	0.0000
5039.50	4.00	0.0006	0.0131
5039.93	4.425	0.0328	0.0138
5040.35	4.850	0.1291	0.0144
5040.78	5.275	0.2897	0.0150
5041.20	5.700	0.5144	0.0156

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 2

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	2,258.00
Dt =	0.75
C =	3001.60

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5035	0	0	0.0000
5039.00	4.00	0.0006	0.4653
5039.19	4.188	0.0019	0.4764
5039.38	4.375	0.0055	0.4873
5039.56	4.563	0.0116	0.4979
5039.75	4.750	0.0201	0.5083

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	3
Area (ft^2)=	0.049
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 3

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	21,165.00
Dt =	1.42
C =	14900.14

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0131
5042.36	4.36	0.0222	0.0137
5042.71	4.71	0.0870	0.0142
5043.07	5.07	0.1948	0.0147
5043.42	5.42	0.3457	0.0153

Orifice Equation

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 4

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

$Volume = Ab * D + 0.5 * C * D^2$
$C = (At - Ab) / Dt$

Ab =	6.80
At =	21,221.00
Dt =	1.42
C =	14939.58

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0131
5042.36	4.355	0.0223	0.0137
5042.71	4.710	0.0872	0.0142
5043.07	5.065	0.1953	0.0147
5043.42	5.420	0.3466	0.0153

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 5

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	4,335.00
Dt =	1.50
C =	2885.47

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0815
5042.38	4.375	0.0053	0.0853
5042.75	4.750	0.0194	0.0889
5043.13	5.125	0.0427	0.0924
5043.50	5.500	0.0754	0.0958

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	1.25
Area (ft^2)=	0.009
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 6

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	2,238.00
Dt =	0.50
C =	4462.40

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.25	0	0	0.0000
5042.25	4.00	0.0006	0.1594
5042.38	4.125	0.0014	0.1619
5042.50	4.250	0.0039	0.1644
5042.63	4.375	0.0079	0.1668
5042.75	4.500	0.0135	0.1692

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	1.75
Area (ft^2)=	0.017
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 7

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	9,839.00
Dt =	1.00
C =	9832.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5037.75	0	0	0.0000
5041.75	4.00	0.0006	0.0131
5042.00	4.25	0.0077	0.0135
5042.25	4.50	0.0289	0.0139
5042.50	4.75	0.0642	0.0143
5042.75	5.00	0.1136	0.0147

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2

H (Ft) = Depth of water above center of orifice
Q (CFS)= Flow

VOLUME CALCULATIONS
POND 8

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

$Volume = Ab * D + 0.5 * C * D^2$
$C = (At - Ab) / Dt$

Ab =	6.80
At =	4,300.00
Dt =	1.00
C =	4293.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5037.50	0	0	0.0000
5041.50	4.00	0.0006	0.0131
5041.75	4.25	0.0037	0.0135
5042.00	4.50	0.0130	0.0139
5042.25	4.75	0.0285	0.0143
5042.50	5.00	0.0501	0.0147

Orifice Equation
$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/05/2004
INPUT FILE = C:\AHYMOW~1\230104~1.TXT USER NO.= AHYMO-S-9702d1TierraW-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	100.10	-	1	.00431	12.24	.452	1.96828	1.500	4.438	PER IMP=	89.00
COMPUTE NM HYD	100.20	-	2	.00054	1.54	.056	1.95491	1.500	4.459	PER IMP=	88.00
COMPUTE NM HYD	100.30	-	3	.00331	9.38	.342	1.93762	1.500	4.428	PER IMP=	82.00
COMPUTE NM HYD	100.40	-	4	.00232	6.26	.223	1.79938	1.500	4.213	PER IMP=	68.00
COMPUTE NM HYD	100.50	-	5	.00109	2.57	.086	1.48481	1.500	3.680	PER IMP=	43.00
COMPUTE NM HYD	100.60	-	6	.00028	.76	.027	1.82119	1.500	4.265	PER IMP=	78.00
COMPUTE NM HYD	100.70	-	7	.00067	1.78	.064	1.79445	1.500	4.158	PER IMP=	76.00
COMPUTE NM HYD	100.80	-	8	.00058	1.33	.046	1.47353	1.500	3.582	PER IMP=	52.00
ROUTE RESERVOIR	201.00	1	9	.00431	.02	.024	.10370	6.233	.006	AC-FT=	.446
ROUTE RESERVOIR	202.00	2	10	.00054	.51	.056	1.95440	1.833	1.466	AC-FT=	.019
ROUTE RESERVOIR	203.00	3	11	.00331	.02	.024	.13355	6.199	.007	AC-FT=	.336
ROUTE RESERVOIR	204.00	4	12	.00232	.01	.023	.18468	6.166	.010	AC-FT=	.216
ROUTE RESERVOIR	205.00	5	13	.00109	.10	.086	1.48456	2.366	.137	AC-FT=	.073
ROUTE RESERVOIR	206.00	6	14	.00028	.17	.027	1.82034	2.000	.944	AC-FT=	.013
ROUTE RESERVOIR	207.00	7	15	.00067	.01	.022	.61339	3.100	.033	AC-FT=	.059
ROUTE RESERVOIR	208.00	8	16	.00058	.01	.022	.71921	2.733	.039	AC-FT=	.042
ADD HYD	301.00	11&10	20	.00385	.52	.080	.38893	1.833	.212		
ADD HYD	302.00	13&12	21	.00341	.11	.109	.60014	2.400	.051		
ADD HYD	303.00	14&21	22	.00369	.28	.136	.69271	2.100	.118		
ADD HYD	304.00	15&16	23	.00125	.03	.044	.66249	2.866	.036		
ADD HYD	305.00	22&23	24	.00494	.31	.180	.68507	2.133	.097		
ADD HYD	306.00	9&24	25	.00925	.32	.204	.41418	2.133	.055		
ADD HYD	307.00	24&20	26	.00879	.83	.260	.55536	1.933	.147		
FINISH											

```
**************************************************************************
*                                                                        *
*                SPORTSMAN WAREHOUSE DRAINAGE ANALYSIS                   *
*                  NORTH RENAISSANCE CENTER (230104)                     *
*              PROPOSED CONDITIONS (100-YEAR, 6-HR STORM)                *
*                                                                        *
**************************************************************************
*
START                   TIME=0.0 HR
RAINFALL                TYPE=1 RAIN QUARTER=0.0 IN
                        RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                        RAIN DAY=2.75 IN DT=0.03333 HR
*
* BASIN 1
*
COMPUTE NM HYD          ID=1 HYD NO=100.1 AREA=0.00431 SQ MI
                        PER A=0 PER B=11.00 PER C=0.00 PER D=89.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=1 CODE=1

*
* BASIN 2
*
COMPUTE NM HYD          ID=2 HYD NO=100.2 AREA=0.00054 SQ MI
                        PER A=0 PER B=12.00 PER C=0.00 PER D=88.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=2 CODE=1

*
*BASIN 3
*
COMPUTE NM HYD          ID=3 HYD NO=100.3 AREA=0.00331 SQ MI
                        PER A=0 PER B=0.00 PER C=18.00 PER D=82.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=3 CODE=1

*
*BASIN 4
*
COMPUTE NM HYD          ID=4 HYD NO=100.4 AREA=0.00232 SQ MI
                        PER A=0 PER B=0.00 PER C=32.00 PER D=68.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=4 CODE=1

*
*BASIN 5
*
COMPUTE NM HYD          ID=5 HYD NO=100.5 AREA=0.00109 SQ MI
                        PER A=0 PER B=17.00 PER C=40.00 PER D=43.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=5 CODE=1

*
*BASIN 6
*
COMPUTE NM HYD          ID=6 HYD NO=100.6 AREA=0.00028 SQ MI
                        PER A=0 PER B=22.00 PER C=0.00 PER D=78.00
                        TP=0 HR MASS RAINFALL=-1
PRINT HYD               ID=6 CODE=1

*
*BASIN 7
```

```
*
COMPUTE NM HYD       ID=7 HYD NO=100.7 AREA=0.00067 SQ MI
                     PER A=0 PER B=24.00 PER C=0.00 PER D=76.00
                     TP=0 HR MASS RAINFALL=-1
PRINT HYD            ID=7 CODE=1

*
*BASIN 8
*
COMPUTE NM HYD       ID=8 HYD NO=100.8 AREA=0.00058 SQ MI
                     PER A=0 PER B=48.00 PER C=0.00 PER D=52.00
                     TP=0 HR MASS RAINFALL=-1
PRINT HYD            ID=8 CODE=1

*

* POND 1
*
ROUTE RESERVOIR      ID=9 HYD NO=201.00 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                          0.0000            0.0000          5035.50
                          0.0131            0.0006          5039.50
                          0.0138            0.0328          5039.93
                          0.0144            0.1291          5040.35
                          0.0150            0.2897          5040.78
                          0.0156            0.5144          5041.20

PRINT HYD            ID=9 CODE=1
*
* POND 2
*
ROUTE RESERVOIR      ID=10 HYD NO=202.00 INFLOW ID=2 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                          0.0000            0.0000          5035.00
                          0.4653            0.0006          5039.00
                          0.4764            0.0019          5039.19
                          0.4873            0.0055          5039.38
                          0.4979            0.0116          5039.56
                          0.5083            0.0201          5039.75

PRINT HYD            ID=10 CODE=1
*

* POND 3
*
ROUTE RESERVOIR      ID=11 HYD NO=203.00 INFLOW ID=3 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                          0.0000            0.0000          5038.00
                          0.0131            0.0006          5042.00
                          0.0137            0.0222          5042.36
                          0.0142            0.0870          5042.71
                          0.0147            0.1948          5043.07
                          0.0153            0.3457          5043.42

PRINT HYD            ID=11 CODE=1
*

* POND 4
*
ROUTE RESERVOIR      ID=12 HYD NO=204.00 INFLOW ID=4 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                          0.0000            0.0000          5038.00
```

0.0131	0.0006	5042.00
0.0137	0.0223	5042.36
0.0142	0.0872	5042.71
0.0147	0.1953	5043.07
0.0153	0.3466	5043.42

PRINT HYD ID=12 CODE=1
*

* POND 5
*

ROUTE RESERVOIR ID=13 HYD NO=205.00 INFLOW ID=5 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.00
0.0815	0.0006	5042.00
0.0853	0.0053	5042.38
0.0889	0.0194	5042.75
0.0924	0.0429	5043.13
0.0958	0.0754	5043.50

PRINT HYD ID=13 CODE=1
*

* POND 6
*

ROUTE RESERVOIR ID=14 HYD NO=206.00 INFLOW ID=6 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.25
0.1594	0.0006	5042.25
0.1619	0.0014	5042.38
0.1644	0.0039	5042.50
0.1668	0.0079	5042.63
0.1692	0.0135	5042.75

PRINT HYD ID=14 CODE=1
*

* POND 7
*

ROUTE RESERVOIR ID=15 HYD NO=207.00 INFLOW ID=7 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5037.75
0.0131	0.0006	5041.75
0.0135	0.0077	5042.00
0.0139	0.0289	5042.25
0.0143	0.0642	5042.50
0.0147	0.1136	5042.75

PRINT HYD ID=15 CODE=1
*

* POND 8
*

ROUTE RESERVOIR ID=16 HYD NO=208.00 INFLOW ID=8 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5037.50
0.0131	0.0006	5041.50
0.0135	0.0037	5041.75
0.0139	0.0130	5042.00
0.0143	0.0285	5042.25
0.0147	0.0501	5042.50

PRINT HYD ID=16 CODE=1

```
*

*
*ADD PONDS 1 THRU 8
*
ADD HYD             ID=20 HYD NO=301.00 ID=11 ID=10
ADD HYD             ID=21 HYD NO=302.00 ID=13 ID=12
ADD HYD             ID=22 HYD NO=303.00 ID=14 ID=21
ADD HYD             ID=23 HYD NO=304.00 ID=15 ID=16
ADD HYD             ID=24 HYD NO=305.00 ID=22 ID=23
ADD HYD             ID=25 HYD NO=306.00 ID=9  ID=24
ADD HYD             ID=26 HYD NO=307.00 ID=24 ID=20

PRINT HYD                   ID=26 CODE=1

*
FINISH
```

```
          AHYMO PROGRAM (AHYMO_97) -                                  - Version:  1997.02d
               RUN DATE (MON/DAY/YR) = 02/05/2004
               START TIME (HR:MIN:SEC) = 11:41:09     USER NO.= AHYMO-S-
9702d1TierraW-AH
               INPUT FILE = C:\AHYMOW~1\230104~1.TXT

     **********************************************************************
     *                                                                    *
     *                SPORTSMAN WAREHOUSE DRAINAGE ANALYSIS               *
     *                  NORTH RENAISSANCE CENTER (230104)                 *
     *                PROPOSED CONDITIONS (100-YEAR, 6-HR STORM)          *
     *                                                                    *
     **********************************************************************
     *
     START                    TIME=0.0 HR
     RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN
                              RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                              RAIN DAY=2.75 IN DT=0.03333 HR

                         COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
- PEAK AT 1.40 HR.
                         DT =     .033330 HOURS        END TIME =     5.999400 HOURS
                            .0000   .0016   .0033   .0049   .0066   .0084   .0102
                            .0120   .0139   .0158   .0178   .0199   .0219   .0241
                            .0263   .0286   .0309   .0333   .0358   .0384   .0411
                            .0439   .0467   .0497   .0529   .0561   .0596   .0631
                            .0669   .0709   .0751   .0807   .0866   .0930   .1066
                            .1371   .1840   .2514   .3434   .4644   .6186   .8106
                           1.0449  1.2624  1.3533  1.4300  1.4982  1.5602  1.6174
                           1.6704  1.7200  1.7664  1.8102  1.8514  1.8904  1.9273
                           1.9622  1.9953  2.0268  2.0566  2.0850  2.0915  2.0976
                           2.1033  2.1088  2.1140  2.1191  2.1239  2.1285  2.1329
                           2.1373  2.1414  2.1454  2.1494  2.1531  2.1568  2.1604
                           2.1639  2.1673  2.1706  2.1739  2.1771  2.1802  2.1832
                           2.1862  2.1891  2.1919  2.1947  2.1975  2.2002  2.2028
                           2.2054  2.2080  2.2105  2.2130  2.2154  2.2178  2.2202
                           2.2225  2.2248  2.2270  2.2293  2.2315  2.2336  2.2358
                           2.2379  2.2399  2.2420  2.2440  2.2460  2.2480  2.2500
                           2.2519  2.2538  2.2557  2.2576  2.2594  2.2612  2.2631
                           2.2648  2.2666  2.2684  2.2701  2.2718  2.2735  2.2752
                           2.2769  2.2785  2.2802  2.2818  2.2834  2.2850  2.2866
                           2.2881  2.2897  2.2912  2.2928  2.2943  2.2958  2.2973
                           2.2987  2.3002  2.3017  2.3031  2.3045  2.3060  2.3074
                           2.3088  2.3102  2.3115  2.3129  2.3143  2.3156  2.3169
                           2.3183  2.3196  2.3209  2.3222  2.3235  2.3248  2.3261
                           2.3273  2.3286  2.3298  2.3311  2.3323  2.3335  2.3348
                           2.3360  2.3372  2.3384  2.3396  2.3408  2.3419  2.3431
                           2.3443  2.3454  2.3466  2.3477  2.3488  2.3500
     *
     * BASIN 1
     *
     COMPUTE NM HYD           ID=1 HYD NO=100.1 AREA=0.00431 SQ MI
                              PER A=0 PER B=11.00 PER C=0.00 PER D=89.00
                              TP=0 HR MASS RAINFALL=-1
```

```
          *****Warning*****A value for the Time to Peak was not previously
computed; use Tp=0.133333 hrs.

          TIME TO PEAK (hrs)=    .1333

          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   15.141     CFS   UNIT VOLUME =     .9986      B =
526.28       P60 = 2.0100
          AREA =       .003836 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =   1.1553     CFS   UNIT VOLUME =     .9881        B =
324.91       P60 = 2.0100
          AREA =       .000474 SQ MI     IA =     .50000 INCHES     INF =    1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD              ID=1 CODE=1

                                                PARTIAL HYDROGRAPH    100.10

          RUNOFF VOLUME =      1.96828 INCHES      =          .4524 ACRE-FEET
          PEAK DISCHARGE RATE =       12.24 CFS  AT    1.500 HOURS    BASIN AREA =
.0043 SQ. MI.



     *
     * BASIN 2
     *
     COMPUTE NM HYD         ID=2 HYD NO=100.2 AREA=0.00054 SQ MI
                            PER A=0 PER B=12.00 PER C=0.00 PER D=88.00
                            TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                                A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =   1.8757     CFS   UNIT VOLUME =     .9932        B =
526.28       P60 = 2.0100
          AREA =       .000475 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330
```

```
          K =    .132120HR     TP =    .133333HR     K/TP RATIO =    .990905
SHAPE CONSTANT, N =  3.563129
          UNIT PEAK =    .15791     CFS    UNIT VOLUME =     .9153        B =
324.91       P60 = 2.0100
          AREA =       .000065 SQ MI     IA =     .50000 INCHES     INF =   1.25000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD              ID=2 CODE=1

                                        PARTIAL HYDROGRAPH    100.20

          RUNOFF VOLUME =      1.95491 INCHES      =          .0563 ACRE-FEET
          PEAK DISCHARGE RATE =        1.54 CFS  AT    1.500 HOURS    BASIN AREA =
.0005 SQ. MI.


     *
     *BASIN 3
     *
     COMPUTE NM HYD         ID=3 HYD NO=100.3 AREA=0.00331 SQ MI
                            PER A=0 PER B=0.00 PER C=18.00 PER D=82.00
                              TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                                A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    10.713     CFS    UNIT VOLUME =     .9982        B =
526.28       P60 = 2.0100
          AREA =       .002714 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .107473HR     TP =    .133333HR     K/TP RATIO =    .806046
SHAPE CONSTANT, N =  4.440701
          UNIT PEAK =    1.7139     CFS    UNIT VOLUME =     .9929        B =
383.55       P60 = 2.0100
          AREA =       .000596 SQ MI     IA =     .35000 INCHES     INF =     .83000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD              ID=3 CODE=1

                                        PARTIAL HYDROGRAPH    100.30
```

```
          RUNOFF VOLUME =      1.93762 INCHES      =          .3421 ACRE-FEET
          PEAK DISCHARGE RATE =        9.38 CFS  AT    1.500 HOURS   BASIN AREA =
.0033 SQ. MI.


     *
     *BASIN 4
     *
     COMPUTE NM HYD       ID=4 HYD NO=100.4 AREA=0.00232 SQ MI
                          PER A=0 PER B=0.00 PER C=32.00 PER D=68.00
                          TP=0 HR MASS RAINFALL=-1
          TIME TO PEAK (hrs)=    .1333
          *****Warning*****This Tp value was used for a previously computed
hydrograph.
                               A new Tp value should be computed.


          K =    .072666HR     TP =    .133333HR     K/TP RATIO =    .545000
SHAPE CONSTANT, N =  7.106420
          UNIT PEAK =    6.2269     CFS    UNIT VOLUME =     .9976        B =
526.28       P60 = 2.0100
          AREA =       .001578 SQ MI     IA =     .10000 INCHES     INF =     .04000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330


          K =    .107473HR     TP =    .133333HR     K/TP RATIO =    .806046
SHAPE CONSTANT, N =  4.440701
          UNIT PEAK =    2.1356     CFS    UNIT VOLUME =     .9943        B =
383.55       P60 = 2.0100
          AREA =       .000742 SQ MI     IA =     .35000 INCHES     INF =     .83000
INCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033330

     PRINT HYD            ID=4 CODE=1

                                                PARTIAL HYDROGRAPH   100.40


          RUNOFF VOLUME =      1.79938 INCHES      =          .2226 ACRE-FEET
          PEAK DISCHARGE RATE =        6.26 CFS  AT    1.500 HOURS   BASIN AREA =
.0023 SQ. MI.


     *
     *BASIN 5
     *
     COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.00109 SQ MI
                          PER A=0 PER B=17.00 PER C=40.00 PER D=43.00
                          TP=0 HR MASS RAINFALL=-1
```

TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.8500 CFS UNIT VOLUME = .9932 B = 526.28 P60 = 2.0100
AREA = .000469 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .114824HR TP = .133333HR K/TP RATIO = .861180
SHAPE CONSTANT, N = 4.128735
UNIT PEAK = 1.6946 CFS UNIT VOLUME = .9923 B = 363.66 P60 = 2.0100
AREA = .000621 SQ MI IA = .39474 INCHES INF = .95526 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 100.50

RUNOFF VOLUME = 1.48481 INCHES = .0863 ACRE-FEET
PEAK DISCHARGE RATE = 2.57 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

*
*BASIN 6
*
COMPUTE NM HYD ID=6 HYD NO=100.6 AREA=0.00028 SQ MI
PER A=0 PER B=22.00 PER C=0.00 PER D=78.00
TP=0 HR MASS RAINFALL=-1
TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .86204 CFS UNIT VOLUME = .9862 B = 526.28 P60 = 2.0100
AREA = .000218 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132120HR TP = .133333HR K/TP RATIO = .990905
SHAPE CONSTANT, N = 3.563129
UNIT PEAK = .15011 CFS UNIT VOLUME = .9079 B = 324.91 P60 = 2.0100
AREA = .000062 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 100.60

RUNOFF VOLUME = 1.82119 INCHES = .0272 ACRE-FEET
PEAK DISCHARGE RATE = .76 CFS AT 1.500 HOURS BASIN AREA = .0003 SQ. MI.

*
*BASIN 7
*

COMPUTE NM HYD ID=7 HYD NO=100.7 AREA=0.00067 SQ MI
PER A=0 PER B=24.00 PER C=0.00 PER D=76.00
TP=0 HR MASS RAINFALL=-1
TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.0099 CFS UNIT VOLUME = .9932 B = 526.28 P60 = 2.0100
AREA = .000509 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132120HR TP = .133333HR K/TP RATIO = .990905
SHAPE CONSTANT, N = 3.563129
UNIT PEAK = .39184 CFS UNIT VOLUME = .9666 B = 324.91 P60 = 2.0100
AREA = .000161 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 100.70

RUNOFF VOLUME = 1.79445 INCHES = .0641 ACRE-FEET
PEAK DISCHARGE RATE = 1.78 CFS AT 1.500 HOURS BASIN AREA = .0007 SQ. MI.

*
*BASIN 8
*
COMPUTE NM HYD ID=8 HYD NO=100.8 AREA=0.00058 SQ MI
PER A=0 PER B=48.00 PER C=0.00 PER D=52.00
TP=0 HR MASS RAINFALL=-1
TIME TO PEAK (hrs)= .1333
*****Warning*****This Tp value was used for a previously computed hydrograph.
A new Tp value should be computed.

K = .072666HR TP = .133333HR K/TP RATIO = .545000
SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.1904 CFS UNIT VOLUME = .9897 B = 526.28 P60 = 2.0100
AREA = .000302 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132120HR TP = .133333HR K/TP RATIO = .990905
SHAPE CONSTANT, N = 3.563129
UNIT PEAK = .67841 CFS UNIT VOLUME = .9800 B = 324.91 P60 = 2.0100
AREA = .000278 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=8 CODE=1

PARTIAL HYDROGRAPH 100.80

RUNOFF VOLUME = 1.47353 INCHES = .0456 ACRE-FEET
PEAK DISCHARGE RATE = 1.33 CFS AT 1.500 HOURS BASIN AREA = .0006 SQ. MI.

*

* POND 1

*

ROUTE RESERVOIR ID=9 HYD NO=201.00 INFLOW ID=1 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5035.50
0.0131	0.0006	5039.50
0.0138	0.0328	5039.93
0.0144	0.1291	5040.35
0.0150	0.2897	5040.78
0.0156	0.5144	5041.20

* * * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5035.50	.000	.00
.80	.00	5035.50	.000	.00
1.60	8.47	5040.58	.217	.01
2.40	.51	5041.02	.418	.02
3.20	.10	5041.05	.432	.02
4.00	.07	5041.05	.436	.02
4.80	.07	5041.06	.439	.02
5.60	.07	5041.07	.443	.02
6.40	.01	5041.07	.446	.02
7.20	.00	5041.07	.445	.02
8.00	.00	5041.07	.444	.02
8.80	.00	5041.07	.443	.02
9.60	.00	5041.06	.442	.02
10.40	.00	5041.06	.441	.02
11.20	.00	5041.06	.440	.02
12.00	.00	5041.06	.439	.02
12.80	.00	5041.06	.438	.02
13.60	.00	5041.05	.437	.02
14.40	.00	5041.05	.436	.02
15.20	.00	5041.05	.435	.02
16.00	.00	5041.05	.434	.02
16.80	.00	5041.05	.433	.02
17.60	.00	5041.05	.432	.02
18.40	.00	5041.04	.431	.02
19.20	.00	5041.04	.430	.02

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 6.23
MAXIMUM WATER SURFACE ELEVATION = 5041.072
MAXIMUM STORAGE = .4458 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=9 CODE=1

PARTIAL HYDROGRAPH 201.00

RUNOFF VOLUME = .10370 INCHES = .0238 ACRE-FEET
PEAK DISCHARGE RATE = .02 CFS AT 6.233 HOURS BASIN AREA = .0043 SQ. MI.

```
*
* POND 2
*
ROUTE RESERVOIR      ID=10 HYD NO=202.00 INFLOW ID=2 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                         0.0000             0.0000          5035.00
                         0.4653             0.0006          5039.00
                         0.4764             0.0019          5039.19
                         0.4873             0.0055          5039.38
                         0.4979             0.0116          5039.56
                         0.5083             0.0201          5039.75

* * * * * * * * * * * * * * * * * * * *

  TIME        INFLOW      ELEV        VOLUME      OUTFLOW
  (HRS)       (CFS)       (FEET)      (AC-FT)     (CFS)

   .00          .00     5035.00          .000         .00
   .80          .00     5035.00          .000         .00
  1.60         1.07     5039.64          .015         .50
  2.40          .05     5039.42          .007         .49
  3.20          .01     5035.11          .000         .01
  4.00          .01     5035.07          .000         .01
  4.80          .01     5035.07          .000         .01
  5.60          .01     5035.08          .000         .01
      PEAK DISCHARGE =          .507 CFS - PEAK OCCURS AT HOUR    1.83
      MAXIMUM WATER SURFACE ELEVATION =     5039.722
      MAXIMUM STORAGE =         .0189 AC-FT       INCREMENTAL TIME=
.033330HRS

    PRINT HYD            ID=10 CODE=1

                                          PARTIAL HYDROGRAPH   202.00


       RUNOFF VOLUME =     1.95440 INCHES      =         .0563 ACRE-FEET
       PEAK DISCHARGE RATE =         .51 CFS  AT   1.833 HOURS   BASIN AREA =
.0005 SQ. MI.


    *
    * POND 3
    *
ROUTE RESERVOIR      ID=11 HYD NO=203.00 INFLOW ID=3 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                         0.0000             0.0000          5038.00
                         0.0131             0.0006          5042.00
                         0.0137             0.0222          5042.36
                         0.0142             0.0870          5042.71
                         0.0147             0.1948          5043.07
                         0.0153             0.3457          5043.42
```

```
* * * * * * * * * * * * * * * * *

   TIME        INFLOW       ELEV        VOLUME      OUTFLOW
   (HRS)       (CFS)        (FEET)      (AC-FT)     (CFS)

    .00          .00     5038.00          .000         .00
    .80          .00     5038.00          .000         .00
   1.60         6.51     5042.97          .165         .01
   2.40          .38     5043.35          .317         .02
   3.20          .07     5043.38          .327         .02
   4.00          .05     5043.38          .330         .02
   4.80          .05     5043.39          .332         .02
   5.60          .05     5043.39          .334         .02
   6.40          .00     5043.40          .335         .02
   7.20          .00     5043.39          .335         .02
   8.00          .00     5043.39          .334         .02
   8.80          .00     5043.39          .333         .02
   9.60          .00     5043.39          .332         .02
  10.40          .00     5043.38          .331         .02
  11.20          .00     5043.38          .330         .02
  12.00          .00     5043.38          .328         .02
  12.80          .00     5043.38          .327         .02
  13.60          .00     5043.38          .326         .02
  14.40          .00     5043.37          .325         .02
  15.20          .00     5043.37          .324         .02
  16.00          .00     5043.37          .323         .02
  16.80          .00     5043.37          .322         .02
  17.60          .00     5043.36          .321         .02
  18.40          .00     5043.36          .320         .02
  19.20          .00     5043.36          .319         .02
 PEAK DISCHARGE =          .015 CFS - PEAK OCCURS AT HOUR     6.20
 MAXIMUM WATER SURFACE ELEVATION =      5043.396
 MAXIMUM STORAGE =           .3356 AC-FT       INCREMENTAL TIME=
.033330HRS

     PRINT HYD            ID=11 CODE=1

                                          PARTIAL HYDROGRAPH    203.00


        RUNOFF VOLUME =       .13355 INCHES      =          .0236 ACRE-FEET
        PEAK DISCHARGE RATE =          .02 CFS  AT    6.199 HOURS    BASIN AREA =
.0033 SQ. MI.


     *
* POND 4
*
ROUTE RESERVOIR      ID=12 HYD NO=204.00 INFLOW ID=4 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                         0.0000             0.0000          5038.00
                         0.0131             0.0006          5042.00
                         0.0137             0.0223          5042.36
                         0.0142             0.0872          5042.71
                         0.0147             0.1953          5043.07
```

0.0153 0.3466 5043.42

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5038.00	.000	.00
.80	.00	5038.00	.000	.00
1.60	4.39	5042.78	.108	.01
2.40	.25	5043.10	.207	.01
3.20	.04	5043.11	.213	.01
4.00	.03	5043.11	.214	.01
4.80	.03	5043.12	.215	.01
5.60	.03	5043.12	.216	.01
6.40	.00	5043.12	.216	.01
7.20	.00	5043.12	.215	.01
8.00	.00	5043.11	.214	.01
8.80	.00	5043.11	.213	.01
9.60	.00	5043.11	.212	.01
10.40	.00	5043.11	.211	.01
11.20	.00	5043.10	.210	.01
12.00	.00	5043.10	.210	.01
12.80	.00	5043.10	.209	.01
13.60	.00	5043.10	.208	.01
14.40	.00	5043.10	.207	.01
15.20	.00	5043.09	.206	.01
16.00	.00	5043.09	.205	.01
16.80	.00	5043.09	.204	.01
17.60	.00	5043.09	.203	.01
18.40	.00	5043.08	.202	.01
19.20	.00	5043.08	.201	.01

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 6.17
MAXIMUM WATER SURFACE ELEVATION = 5043.119
MAXIMUM STORAGE = .2165 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=12 CODE=1

PARTIAL HYDROGRAPH 204.00

RUNOFF VOLUME = .18468 INCHES = .0229 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 6.166 HOURS BASIN AREA = .0023 SQ. MI.

*

* POND 5
*

ROUTE RESERVOIR ID=13 HYD NO=205.00 INFLOW ID=5 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.00
0.0815	0.0006	5042.00

0.0853	0.0053	5042.38
0.0889	0.0194	5042.75
0.0924	0.0429	5043.13
0.0958	0.0754	5043.50

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5038.00	.000	.00
.80	.00	5038.00	.000	.00
1.60	1.86	5043.09	.040	.09
2.40	.09	5043.47	.073	.10
3.20	.01	5043.43	.069	.10
4.00	.01	5043.36	.063	.09
4.80	.01	5043.30	.058	.09
5.60	.01	5043.23	.052	.09
6.40	.00	5043.17	.046	.09
7.20	.00	5043.09	.040	.09
8.00	.00	5042.99	.034	.09
8.80	.00	5042.89	.028	.09
9.60	.00	5042.80	.022	.09
10.40	.00	5042.67	.016	.09
11.20	.00	5042.52	.011	.09
12.00	.00	5042.35	.005	.09
12.80	.00	5038.62	.000	.01

PEAK DISCHARGE = .096 CFS - PEAK OCCURS AT HOUR 2.37
MAXIMUM WATER SURFACE ELEVATION = 5043.474
MAXIMUM STORAGE = .0731 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 205.00

RUNOFF VOLUME = 1.48456 INCHES = .0863 ACRE-FEET
PEAK DISCHARGE RATE = .10 CFS AT 2.366 HOURS BASIN AREA = .0011 SQ. MI.

*
* POND 6
*

ROUTE RESERVOIR ID=14 HYD NO=206.00 INFLOW ID=6 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5038.25
0.1594	0.0006	5042.25
0.1619	0.0014	5042.38
0.1644	0.0039	5042.50
0.1668	0.0079	5042.63
0.1692	0.0135	5042.75

```
* * * * * * * * * * * * * * * * *

  TIME        INFLOW      ELEV        VOLUME      OUTFLOW
  (HRS)       (CFS)       (FEET)      (AC-FT)     (CFS)

    .00         .00     5038.25        .000         .00
    .80         .00     5038.25        .000         .00
   1.60         .54     5042.66        .009         .17
   2.40         .02     5042.68        .010         .17
   3.20         .01     5039.84        .000         .06
   4.00         .00     5038.35        .000         .00
  PEAK DISCHARGE =          .169 CFS - PEAK OCCURS AT HOUR     2.00
  MAXIMUM WATER SURFACE ELEVATION =      5042.746
  MAXIMUM STORAGE =          .0133 AC-FT       INCREMENTAL TIME=
.033330HRS

  PRINT HYD             ID=14 CODE=1

                                        PARTIAL HYDROGRAPH    206.00


     RUNOFF VOLUME =      1.82034 INCHES      =          .0272 ACRE-FEET
     PEAK DISCHARGE RATE =          .17 CFS  AT    2.000 HOURS   BASIN AREA =
.0003 SQ. MI.

*

* POND 7
*
ROUTE RESERVOIR      ID=15 HYD NO=207.00 INFLOW ID=7 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                         0.0000             0.0000          5037.75
                         0.0131             0.0006          5041.75
                         0.0135             0.0077          5042.00
                         0.0139             0.0289          5042.25
                         0.0143             0.0642          5042.50
                         0.0147             0.1136          5042.75


* * * * * * * * * * * * * * * * *

  TIME        INFLOW      ELEV        VOLUME      OUTFLOW
  (HRS)       (CFS)       (FEET)      (AC-FT)     (CFS)

    .00         .00     5037.75        .000         .00
    .80         .00     5037.75        .000         .00
   1.60        1.25     5042.26        .031         .01
   2.40         .06     5042.46        .059         .01
   3.20         .01     5042.47        .059         .01
   4.00         .01     5042.46        .059         .01
   4.80         .01     5042.46        .059         .01
   5.60         .01     5042.46        .059         .01
   6.40         .00     5042.46        .058         .01
   7.20         .00     5042.45        .057         .01
```

8.00	.00	5042.44	.056	.01
8.80	.00	5042.44	.055	.01
9.60	.00	5042.43	.054	.01
10.40	.00	5042.42	.053	.01
11.20	.00	5042.42	.052	.01
12.00	.00	5042.41	.051	.01
12.80	.00	5042.40	.051	.01
13.60	.00	5042.40	.050	.01
14.40	.00	5042.39	.049	.01
15.20	.00	5042.38	.048	.01
16.00	.00	5042.38	.047	.01
16.80	.00	5042.37	.046	.01
17.60	.00	5042.36	.045	.01
18.40	.00	5042.36	.044	.01
19.20	.00	5042.35	.043	.01

PEAK DISCHARGE = .014 CFS - PEAK OCCURS AT HOUR 3.10
MAXIMUM WATER SURFACE ELEVATION = 5042.466
MAXIMUM STORAGE = .0595 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 207.00

RUNOFF VOLUME = .61339 INCHES = .0219 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 3.100 HOURS BASIN AREA = .0007 SQ. MI.

*

* POND 8
*

ROUTE RESERVOIR ID=16 HYD NO=208.00 INFLOW ID=8 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)
0.0000	0.0000	5037.50
0.0131	0.0006	5041.50
0.0135	0.0037	5041.75
0.0139	0.0130	5042.00
0.0143	0.0285	5042.25
0.0147	0.0501	5042.50

* * * * * * * * * * * * * * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	5037.50	.000	.00
.80	.00	5037.50	.000	.00
1.60	.96	5042.15	.022	.01
2.40	.05	5042.40	.042	.01
3.20	.01	5042.40	.042	.01
4.00	.01	5042.40	.041	.01
4.80	.01	5042.39	.041	.01

5.60	.01	5042.38	.040	.01
6.40	.00	5042.38	.039	.01
7.20	.00	5042.37	.038	.01
8.00	.00	5042.35	.038	.01
8.80	.00	5042.34	.037	.01
9.60	.00	5042.33	.036	.01
10.40	.00	5042.32	.035	.01
11.20	.00	5042.31	.034	.01
12.00	.00	5042.30	.033	.01
12.80	.00	5042.29	.032	.01
13.60	.00	5042.28	.031	.01
14.40	.00	5042.27	.030	.01
15.20	.00	5042.26	.029	.01
16.00	.00	5042.24	.028	.01
16.80	.00	5042.23	.027	.01
17.60	.00	5042.21	.026	.01
18.40	.00	5042.20	.025	.01
19.20	.00	5042.18	.024	.01

PEAK DISCHARGE = .015 CFS - PEAK OCCURS AT HOUR 2.73
MAXIMUM WATER SURFACE ELEVATION = 5042.407
MAXIMUM STORAGE = .0420 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 208.00

RUNOFF VOLUME = .71921 INCHES = .0222 ACRE-FEET
PEAK DISCHARGE RATE = .01 CFS AT 2.733 HOURS BASIN AREA = .0006 SQ. MI.

*

*

*ADD PONDS 1 THRU 8
*
ADD HYD ID=20 HYD NO=301.00 ID=11 ID=10
ADD HYD ID=21 HYD NO=302.00 ID=13 ID=12
ADD HYD ID=22 HYD NO=303.00 ID=14 ID=21
ADD HYD ID=23 HYD NO=304.00 ID=15 ID=16
ADD HYD ID=24 HYD NO=305.00 ID=22 ID=23
ADD HYD ID=25 HYD NO=306.00 ID=9 ID=24
ADD HYD ID=26 HYD NO=307.00 ID=24 ID=20

PRINT HYD ID=26 CODE=1

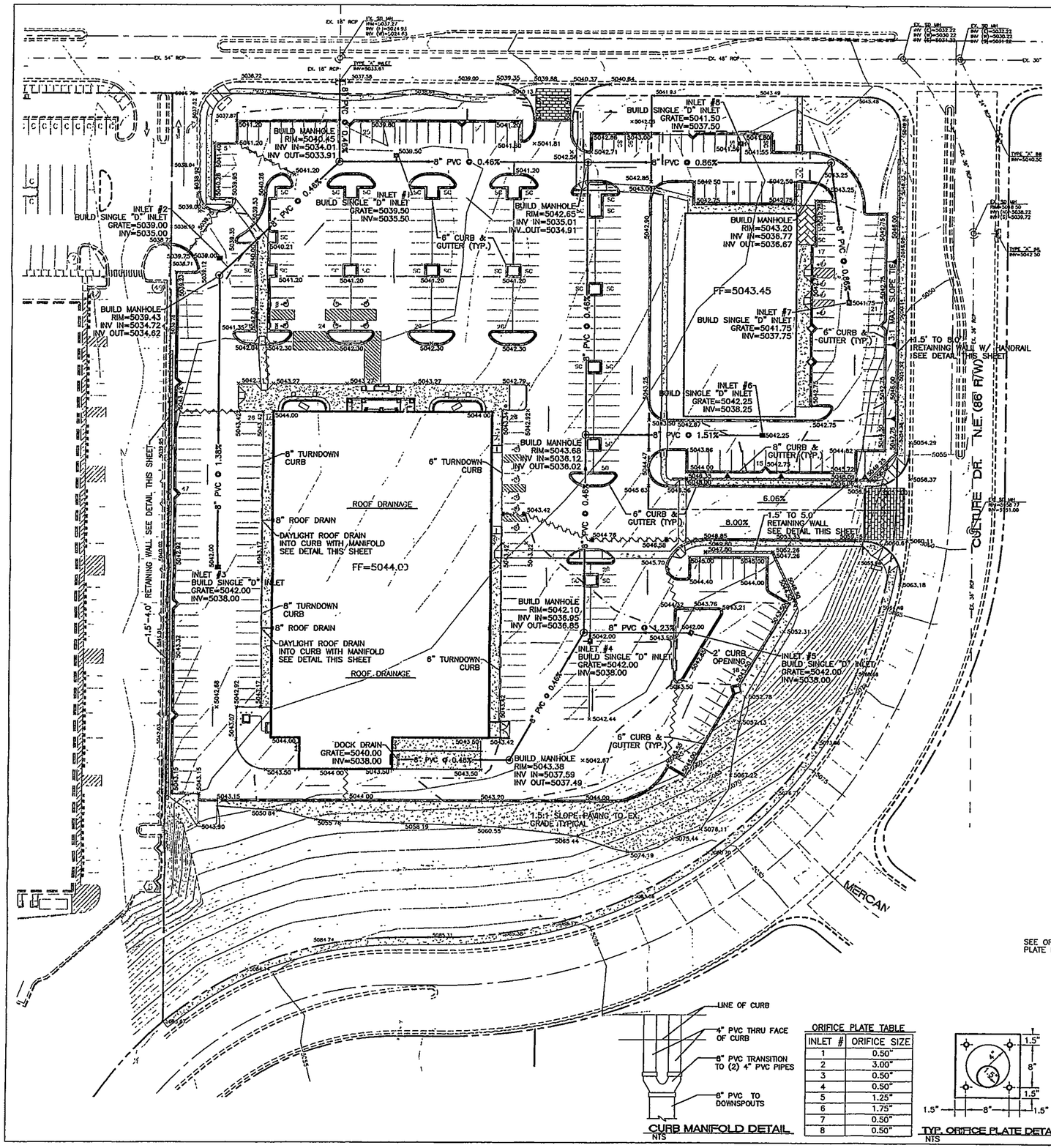
HYDROGRAPH FROM AREA 307.00

RUNOFF VOLUME = .55536 INCHES = .2604 ACRE-FEET
PEAK DISCHARGE RATE = .83 CFS AT 1.933 HOURS BASIN AREA = .0088 SQ. MI.

```
*
FINISH

     NORMAL PROGRAM FINISH              END TIME (HR:MIN:SEC) = 11:41:10
```

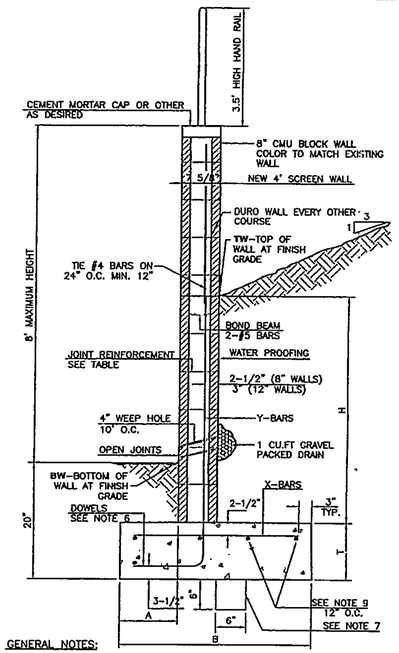
MAP POCKET



NOTICE TO CONTRACTORS

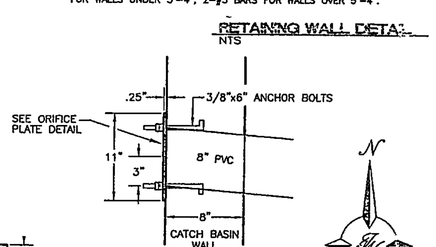
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

APPROVAL	NAME	DATE
INSPECTOR		



GENERAL NOTES:

1. ALL CONCRETE IS TO BE 4000 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 ± 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 V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
8. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.
9. #3 BARS TO BE USED ON WALLS LESS THAN 2'-8" IN HEIGHT, #4 BARS TO BE USED ON WALLS GREATER THAN OR EQUAL TO 2'-3" X BARS TO BE USED ON WALLS EXCEEDING 2'-8"
10. BOND BEAM, 1-#4 BARS FOR WALLS UNDER 3'-4", 2-#4 BARS FOR WALLS UNDER 5'-4", 2-#5 BARS FOR WALLS OVER 5'-4".



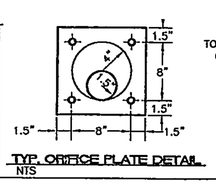
RETAINING WALL DETAIL
NTS

TO BE INSTALLED @ THE OUTFLOW OF ALL CATCH BASINS (SEE TABLE FOR SIZES)

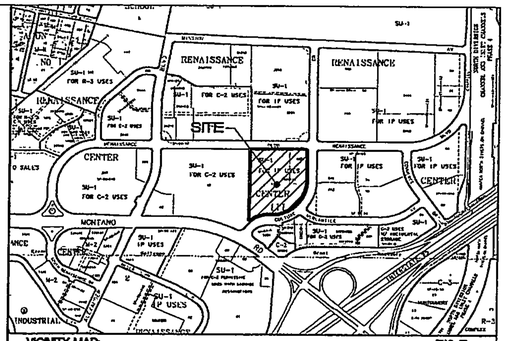
DETAIL A

CURB MANIFOLD DETAIL
NTS

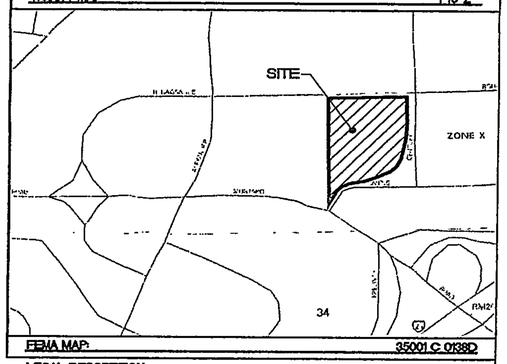
ORIFICE PLATE TABLE	
INLET #	ORIFICE SIZE
1	0.50"
2	3.00"
3	0.50"
4	0.50"
5	1.25"
6	1.75"
7	0.50"
8	0.50"



TYP. ORIFICE PLATE DETAIL
NTS



VICINITY MAP: F16-Z



FEMA MAP: 35001 C 0138D

LEGAL DESCRIPTION

TRACT 4A NORTH RENAISSANCE CENTER

NOTES:

1. ALL SPOT ELEVATIONS REPRESENT FLOWLINE ELEVATION UNLESS OTHERWISE NOTED.

8 INCH REINFORCED CONCRETE MASONRY WALL

H	X	A	B	T	Y-BARS	X-BARS
ft.-in.	ft.-in.	in.	ft.-in.	in.		
2'-0"	1'-1"	8"	2'-4"	9"	#3 @32" O.C.	
2'-8"	1'-9"	8"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.
3'-4"	2'-5"	8"	2'-4"	9"	#3 @32" O.C.	#3 @27" O.C.
4'-0"	3'-1"	10"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.
4'-8"	3'-10"	12"	3'-4"	10"	#5 @32" O.C.	#3 @27" O.C.
5'-4"	4'-6"	14"	3'-8"	10"	#4 @16" O.C.	#4 @30" O.C.
6'-0"	5'-3"	16"	4'-2"	12"	#6 @24" O.C.	#4 @25" O.C.

12 INCH REINFORCED CONCRETE MASONRY WALL

H	X	A	B	T	Y-BARS	X-BARS
ft.-in.	ft.-in.	in.	ft.-in.	in.		
5'-4"	4'-8"	14"	3'-8"	10"	#4 @24" O.C.	#3 @25" O.C.
6'-0"	5'-4"	15"	4'-2"	12"	#4 @16" O.C.	#4 @30" O.C.
6'-8"	6'-0"	16"	4'-6"	12"	#6 @24" O.C.	#4 @22" O.C.
7'-4"	6'-8"	18"	4'-10"	12"	#5 @16" O.C.	#5 @26" O.C.
8'-0"	7'-4"	20"	5'-4"	12"	#7 @24" O.C.	#5 @21" O.C.
8'-8"	8'-0"	20"	5'-8"	12"	#7 @16" O.C.	#5 @21" O.C.

LEGEND

- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- PROPOSED SIDEWALK
- EXISTING SIDEWALK
- PROPOSED PERIMETER WALL
- PROPOSED RETAINING WALL
- EXISTING RETAINING WALL
- LOT LINES

GRAPHIC SCALE

40 20 0 20 40

SCALE: 1"=40'

ENGINEER'S SEAL

RONALD R. BOHANNAN
P.E. #7868

TRACT 4A NORTH RENAISSANCE CENTER

GRADING AND DRAINAGE PLAN

TIERRA WEST, LLC
8509 JEFFERSON NE
ALBUQUERQUE, NEW MEXICO 87113
(505)858-3100

DRAWN BY	JDN
DATE	02/04/04
	23104GRAA-11-05-03W
SHEET #	3
JOB #	230104

JW COOHL
Incoming
Drainage
cc: Jim Tray
Dec McCa
Tak

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 22, 2001

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

Attn: David Soule, P.E.

RE: TRACT 4-A , NORTH RENAISSANCE CENTER (F16-D5K). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT, GRADING PERMIT, AND SO#19 PERMIT APPROVALS. ENGINEER'S STAMP DATED JUNE 1, 2001.

Dear Mr. Bohannon:

Based on the information provided on your June 13, 2001 submittal, the above referenced project is approved for Building Permit, Grading Permit, and SO#19 Permit. Note that Building Permit covers Grading and Foundation. ** Please furnish a second copy of Sh#3 for SO#19 Process.**

Please attach a copy of this approved plan to the contruction sets prior to sign-off by Hydrology.

A separate permit is required for construction within the City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Pam Lujan
Terri Martin
File

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

EPC.D. 2000 42
Incoming
Drainage

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 4, 2001

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

Re: Tract 4A North Renaissance Center, Drainage Report
Engineer's Stamp dated 3-5-01 (F16/D5K)

Dear Mr. Bohannan,

Based upon the information provided in your submittal dated 3-9-01, the above referenced site is approved for Site Development Plan for Subdivision, Site Development Plan for Building Permit and Grading Permit. Prior to Building Permit approval, please address the following comments.

- Connecting inlet to inlet will affect the functioning of the ponds to work as they are modeled. I think it would be better to have a manifold type system and model each subbasin, after reservoir-routing, to add to this manifold.

- Please specify any slope treatment between your site and the Costco site.

- Please add top-of-wall (TW) and bottom-of-wall (BW) symbols to applicable elevations.

- Please add a note about a handrail on your retaining wall along Century. A retaining wall that high next to a public sidewalk raises concerns. Please review your plan to see if there is a better solution for that area.

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

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

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

APPENDIX C

Site Photo's



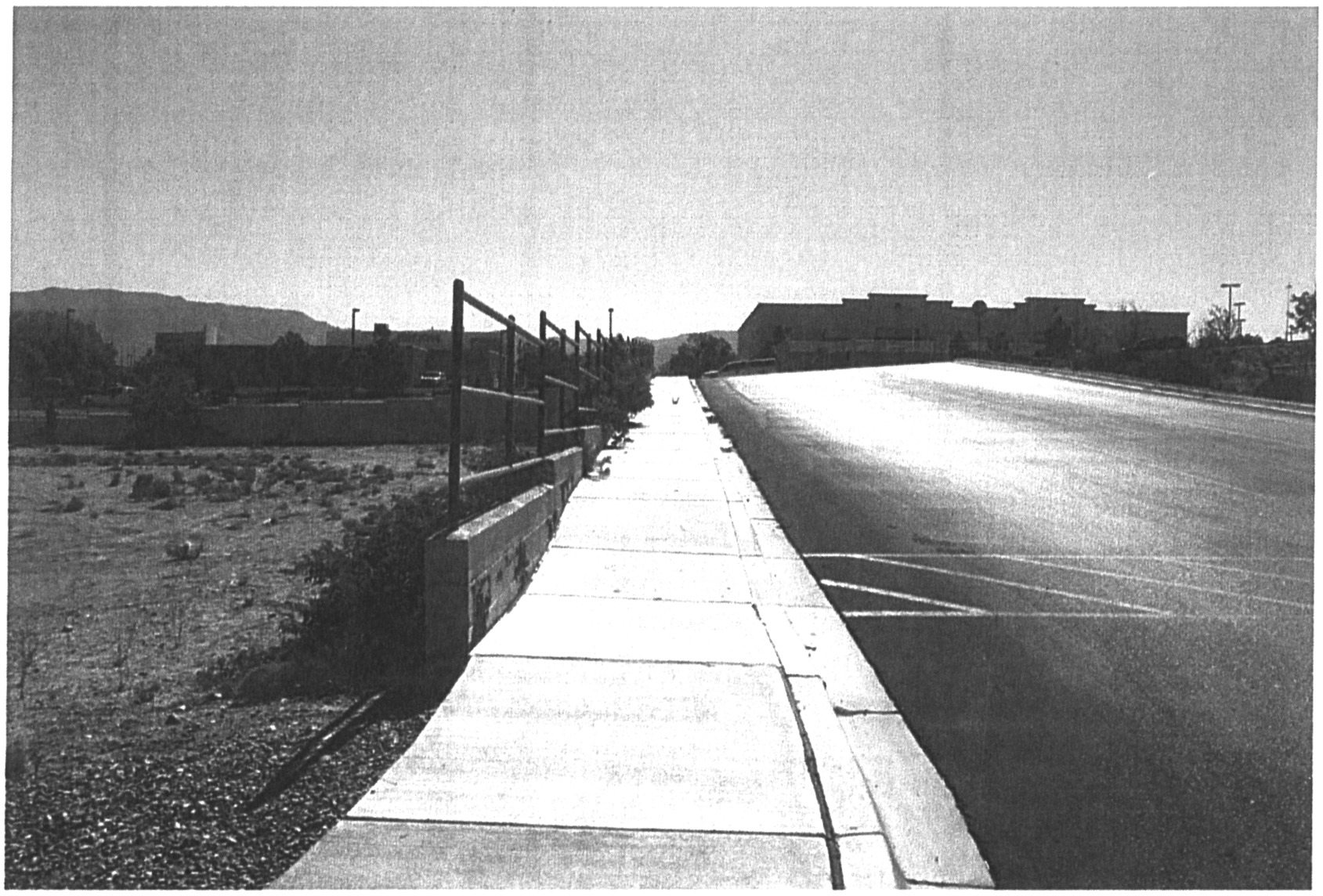
Northeast corner of the site looking south



Southeast corner of the site looking north



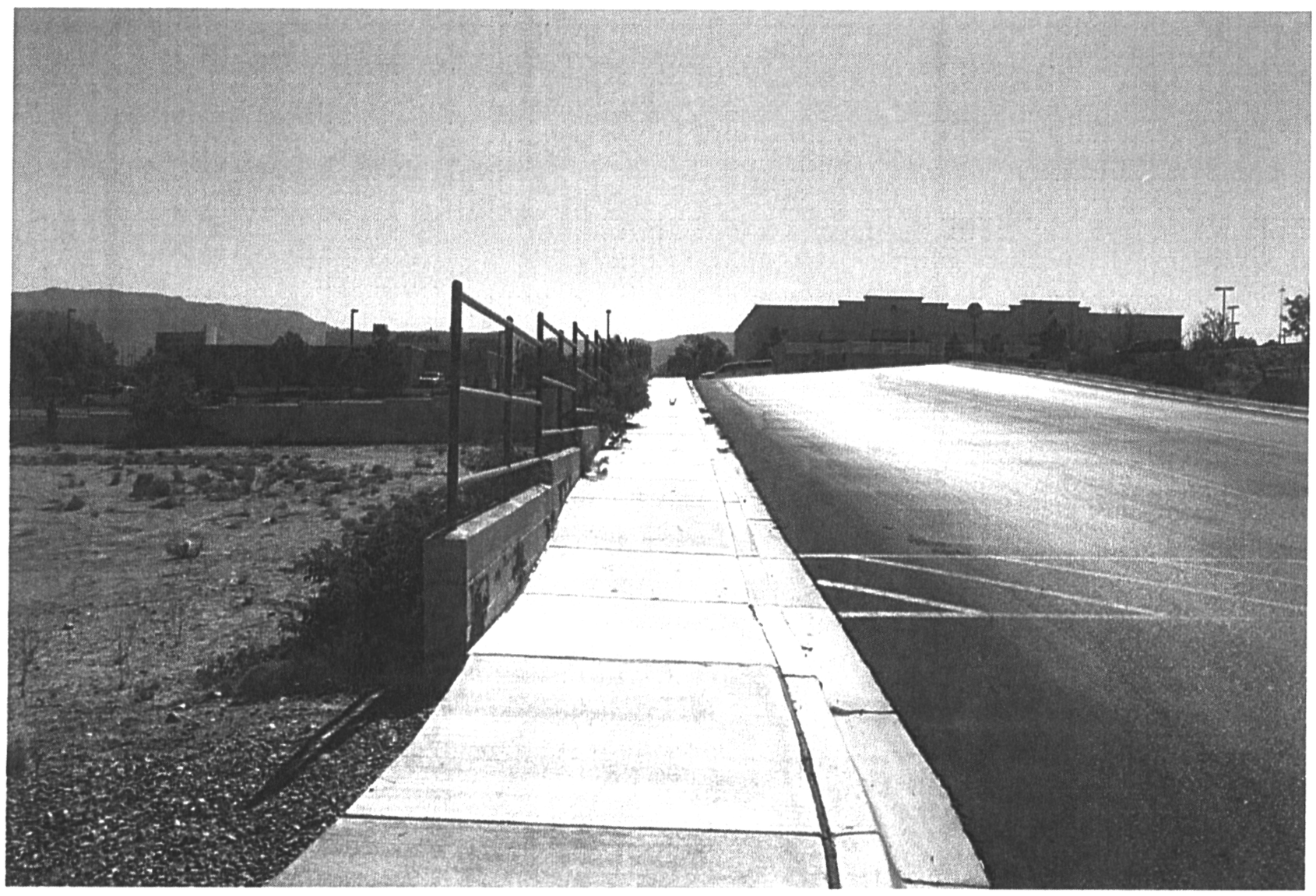
Southeast corner of the site looking west



Southwest corner of the site looking east



Southeast corner of the site looking west



Southwest corner of the site looking east



Southwest corner of the site looking north



Existing onsite retaining wall

CITY OF ALBUQUERQUE

August 5, 2004

Mr. Ron Bohannan, P.E.
TIERRA WEST, LLC
8509 Jefferson St. NE
Albuquerque, NM 87113

Re: TRACT 4A, RENAISSANCE CENTER
1450 RENAISSANCE BLVD. NE
Approval of Temporary Certificate of Occupancy (C.O.)
Engineer's Stamp dated 02/05/2004 (F-16/D005K)
Certification dated 08/04/2004

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

Dear Ron,

Based upon the information provided in your submittal received 08/04/2004, the above referenced certification is approved for release of 30-day Temporary Certificate of Occupancy by Hydrology.

Upon completion of the Exceptions listed in your Drainage Certification, please resubmit an updated certification.

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

BLB

C: Phyllis Villanueva
File

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 22, 2001

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

Attn: David Soule, P.E.

RE: TRACT 4-A , NORTH RENAISSANCE CENTER (F16-D5K). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT, GRADING PERMIT, AND SO#19 PERMIT APPROVALS. ENGINEER'S STAMP DATED JUNE 1, 2001.

Dear Mr. Bohannon:

Based on the information provided on your June 13, 2001 submittal, the above referenced project is approved for Building Permit, Grading Permit, and SO#19 Permit. Note that Building Permit covers Grading and Foundation. ** Please furnish a second copy of Sh#3 for SO#19 Process.**

Please attach a copy of this approved plan to the contruction sets prior to sign-off by Hydrology.

A separate permit is required for construction within the City right-of-way. A copy of this approval letter must be on hand when applying for the excavation permit.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Pam Lujan
Terri Martin
File

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

PUBLIC WORKS DEPARTMENT

JUNE 22, 2001

INTEROFFICE CORRESPONDENCE HYDROLOGY DIVISION

TO: Pam Lujan, Permits

FROM: John Murray , Hydrology, PWD

SUBJECT: **PRIVATE DRAINAGE FACILITIES WITHIN PUBLIC RIGHT-OF-WAY DRAINAGE FILE NUMBER (F16-D5K). TRACT 4-A, N. RENAISSANCE**

Transmitted herewith is a copy of the approved drainage plan for the referenced project incorporating the SO #19 design.

This plan is being submitted to you for permitting and inspection. Please provide this section with a signed-off copy per the signature block upon construction and acceptance by your office.

As you are aware, the signed off SO #19 is required by this office for Certificate of Occupancy release; therefore your expeditious processing of this plan would be greatly appreciated and would avoid any unnecessary delay in the release of the Certificate of Occupancy.

Thank you for your cooperation and if you should have any questions and/or comments, please feel free to call me at 924-3984.

Attachment

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

April 4, 2001

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

Re: Tract 4A North Renaissance Center, Drainage Report
Engineer's Stamp dated 2-5-04 (F16/D5K)

Dear Mr. Bohannan,

Based upon the information provided in your submittal dated 3-4-04, the above referenced site is approved for Site Development Plan for Building Permit, Building Permit and SO#19 Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

A separate permit (SO#19) is required for construction within City R/W. A copy of this approval letter must be on hand when applying for the excavation permit.

Also, prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist and a copy of the recorded covenant will be required.

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: Pam Lujan, PWD
Matt Cline, Storm Drain Maintenance
file

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

MODIFIED DRAINAGE REPORT

for

Tract 4A,Renaissance Center
Albuquerque, New Mexico
Sportsman Warehouse

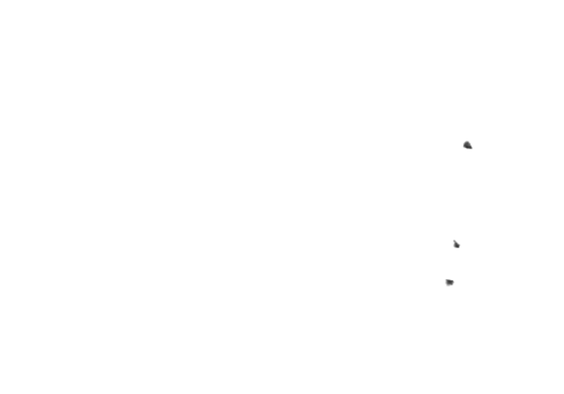
Prepared by

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

Prepared for
GA Architects
3032 South 1030 West
Salt Lake City, Utah 84119

February 2004

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.



Ronald R. Bohannan
PE NO. 7868



Job No 230104

PURPOSE

The purpose of this report is to prove the development of the subject 8.56-acre property, for the use as a retail/distribution building, is in accordance with the DPM Chapter 22. This report will propose a drainage management plan and demonstrate that the proposed improvements do not adversely effect the surrounding properties, nor the upstream or downstream facilities. This is to modify the approved plan to allow a Sportsman Warehouse to be constructed.

INTRODUCTION

The subject of this report, which is highlighted on the Exhibit A vicinity map, is an 8.56 acre parcel of land located on the southwest corner of Renaissance Boulevard and Culture Boulevard. The site is located on Zone Atlas page F-16. The site currently exists as a rough graded parcel within the Renaissance Center. The legal description of the property is Lot 4A of North Renaissance Center. As shown on FEMA map 35001C0138D, the site lies within flood zone X.

This site was analyzed within the Drainage Report and grading plan for the entire Renaissance Center. The Master Storm Drain Management Plan for the Renaissance Center allows for .1 cfs peak discharge per developed acre. Based upon the approved Drainage Management Plan design criteria, this site is allowed to discharge .848 cfs in developed conditions. Since our improvements are consistent with developed condition assumptions within the Renaissance Center's Master Drainage Plan the site should be allowed to discharge the proposed peak discharge rate of .83 CFS into the existing storm drain system.

EXISTING CONDITIONS

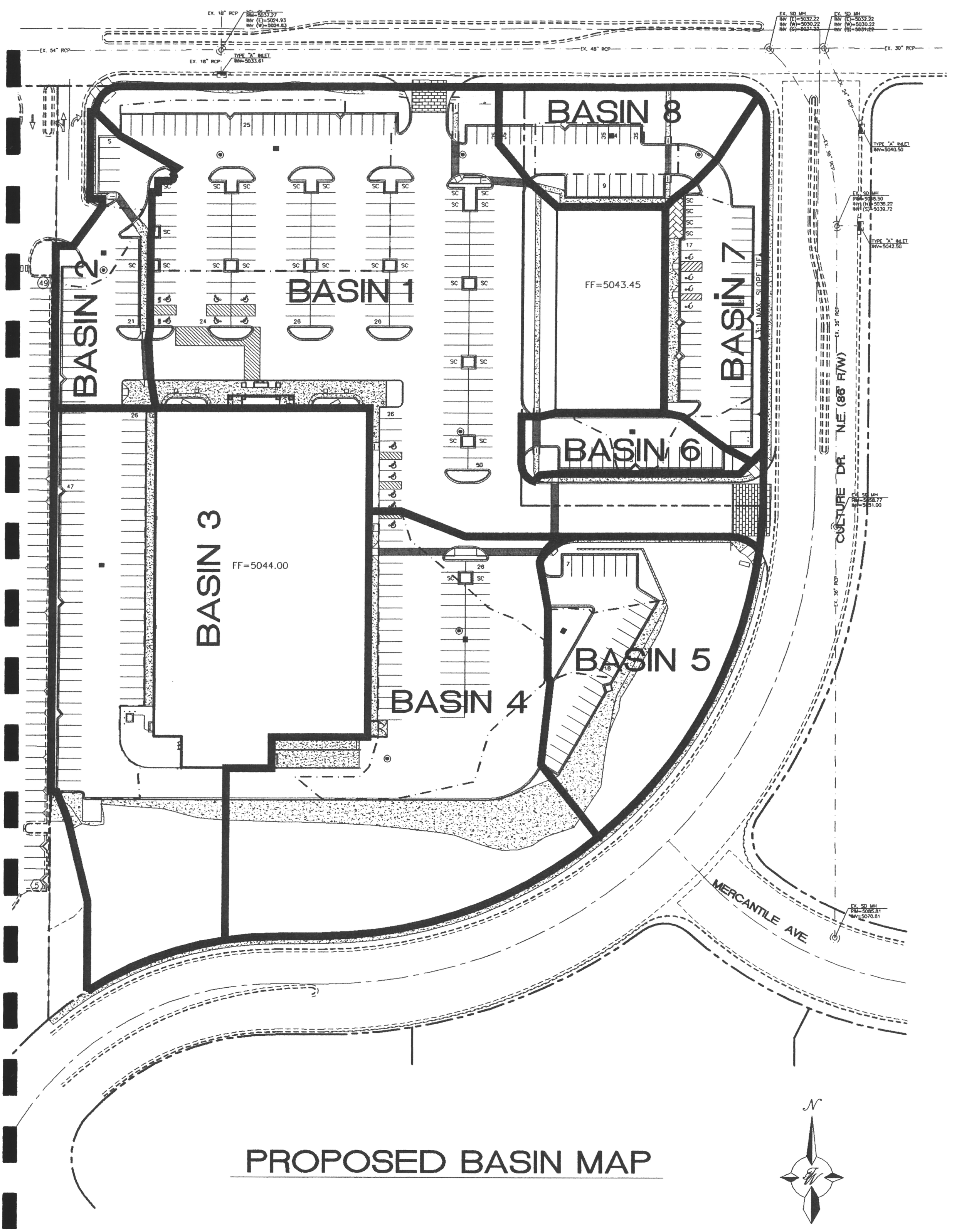
The site slopes from South to Northwest, with the majority of the sites' grades between 3-4%. The southeast portion of the site consists of a 3:1 slope. The site was rough graded with the

construction of the Renaissance Center, though native vegetation covers the entire site. During the development of tract 4-B to the west (Costco) a small desiltation pond was constructed at the north west corner of the site. As shown in Appendix A, the site currently generates a peak runoff rate of 18.0 CFS. The storm runoff currently overflows the desiltation pond and enters the Renaissance Boulevard Right-of-Way. Due to the completion of the roadways adjacent to the site on the north, south and east site and Costco on the West, no offsite flow enter the site.

PROPOSED CONDITIONS

The proposed improvements consist of two retail / Distribution buildings and the associated parking lots and delivery areas. As shown in Exhibit B, the site consists of 8 drainage basins. As shown in Appendix A, the developed runoff rates for each basin was determined using AHYMO. The site discharge will be controlled by creating 8 individual ponds located on the site. Each pond will drain to a single grated type 'D' inlet. Orifice plates constructed at the outlet of each inlet will control the discharge rate of each inlet and pond. The Grading Plan includes a table of orifice plate sizes for each inlet. The onsite storm drain system will be connected to the back of an existing inlet located adjacent to the site in Renaissance Boulevard. This connection can be accomplished through the SO-19 process.

The storm drain system was modeled using the routing command within AHYMO. The pond volumes and discharge rate calculations as well as the input and output AHYMO files are located in Appendix A. Based upon the model the entire site will have a peak discharge of .82 CFS to the existing storm drain system in Renaissance, which is less than the allowed rate of .86 CFS. In the event of inlet clogging or a storm event greater than the predicted 100-year, 6-hour design storm, the site will overflow directly to Renaissance through both driveways into Renaissance Boulevard.



PROPOSED BASIN MAP

SUMMARY AND RECOMMENDATIONS

This site is an existing parcel within the Renaissance Center. The City of Albuquerque Hydrology Section approved the Drainage Management Plan for the entire Renaissance Center, which our site is a portion of. The Renaissance Centers' Master Drainage Plan allows for a peak discharge rate of 0.1 CFS per acre for the fully developed condition. The proposed improvements generate a peak flow of .83 CFS, which is lower than the .848 CFS allowed. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. Since this site encompasses more than 5 acres, a NPDES permit will be required in addition to a Top Soil Disturbance Permit, prior to any construction activity. The connection of the onsite storm drainage system to the existing inlet will occur behind the curb therefore the work can be done under the City of Albuquerque SO-19 process, therefore an infrastructure list is not required. It is recommended this development be approved for rough grading, Site Plan for Subdivision and Site Plan for Building Permit.

Weighted E Method

On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
1	120,060	2.76	0%	0	11%	0.30	0%	0.00	89%	2.45	1.973	0.453	12.22	1.223	0.281	7.99
2	15,043	0.35	0%	0	12%	0.04	0%	0.00	88%	0.30	1.959	0.056	1.52	1.213	0.035	0.99
3	92,390	2.12	0%	0	0%	0.00	18%	0.38	82%	1.74	1.942	0.343	9.37	1.192	0.211	6.11
4	64,661	1.48	0%	0	0%	0.00	32%	0.48	68%	1.01	1.803	0.223	6.24	1.078	0.133	3.98
5	30,300	0.70	0%	0	17%	0.12	40%	0.28	43%	0.30	1.496	0.087	2.55	0.832	0.048	1.53
6	7,906	0.18	0%	0	22%	0.04	0%	0.00	78%	0.14	1.825	0.028	0.76	1.107	0.017	0.48
7	18,550	0.43	0%	0	24%	0.10	0%	0.00	76%	0.32	1.798	0.064	1.75	1.086	0.039	1.11
8	16,107	0.37	0%	0	48%	0.18	0%	0.00	52%	0.19	1.477	0.046	1.31	0.831	0.026	0.77
Totals	365,017	8.38										1.299	35.72		0.789	22.98

Equations:

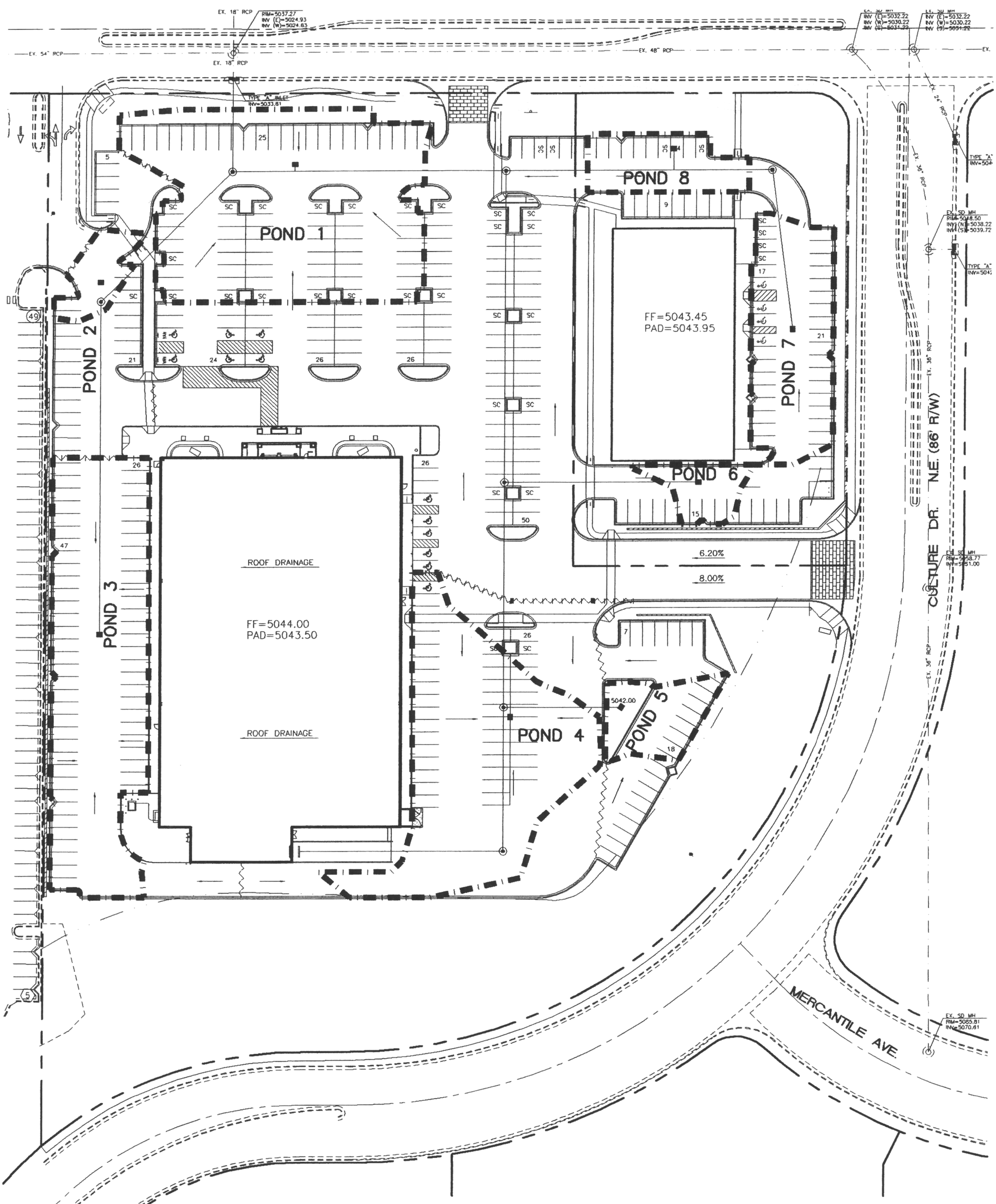
Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

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

Excess Precipitation, E (inches)		
Zone 2	100-Year	10 - Year
E_a	0.53	0.13
E_b	0.78	0.28
E_c	1.13	0.52
E_d	2.12	1.34

Peak Discharge (cfs/acre)		
Zone 2	100-Year	10 - Year
Q_a	1.56	0.38
Q_b	2.28	0.95
Q_c	3.14	1.71
Q_d	4.7	3.14


EX. 18" RCP
RIM=5037.27
INV (E)=5024.93
INV (W)=5024.63
EX. 54" RCP
EX. 48" RCP
TYPE "A" INLET
INV=5033.61
POND 1
POND 2
POND 3
POND 4
POND 5
POND 6
POND 7
POND 8
FF=5044.00
PAD=5043.50
ROOF DRAINAGE
ROOF DRAINAGE
FF=5043.45
PAD=5043.95
6.20%
8.00%
5042.00
CULVERT DR. N.E. (86' R/W)
EX. 36" RCP
EX. 24" RCP
MERCANTILE AVE.
EX. SD MH
RIM=5048.50
INV (N)=5038.22
INV (S)=5039.72
EX. SD MH
RIM=5058.77
INV=5051.00
EX. SD MH
RIM=5085.81
INV=5070.81
N
W

PONDING MAP

VOLUME CALCULATIONS
POND 1

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	26,322.00
Dt =	1.70
C =	15479.53

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5035.50	0	0	0.0000
5039.50	4.00	0.0006	0.0131
5039.93	4.425	0.0328	0.0138
5040.35	4.850	0.1291	0.0144
5040.78	5.275	0.2897	0.0150
5041.20	5.700	0.5144	0.0156

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 2

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	2,258.00
Dt =	0.75
C =	3001.60

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5035	0	0	0.0000
5039.00	4.00	0.0006	0.4653
5039.19	4.188	0.0019	0.4764
5039.38	4.375	0.0055	0.4873
5039.56	4.563	0.0116	0.4979
5039.75	4.750	0.0201	0.5083

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	3
Area (ft^2)=	0.049
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 3

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	21,165.00
Dt =	1.42
C =	14900.14

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0131
5042.36	4.36	0.0222	0.0137
5042.71	4.71	0.0870	0.0142
5043.07	5.07	0.1948	0.0147
5043.42	5.42	0.3457	0.0153

Orifice Equation

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 4

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	21,221.00
Dt =	1.42
C =	14939.58

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0131
5042.36	4.355	0.0223	0.0137
5042.71	4.710	0.0872	0.0142
5043.07	5.065	0.1953	0.0147
5043.42	5.420	0.3466	0.0153

Orifice Equation

Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 5

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	4,335.00
Dt =	1.50
C =	2885.47

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.00	0	0	0.0000
5042.00	4.00	0.0006	0.0815
5042.38	4.375	0.0053	0.0853
5042.75	4.750	0.0194	0.0889
5043.13	5.125	0.0427	0.0924
5043.50	5.500	0.0754	0.0958

Orifice Equation
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	1.25
Area (ft^2)=	0.009
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 6

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	2,238.00
Dt =	0.50
C =	4462.40

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5038.25	0	0	0.0000
5042.25	4.00	0.0006	0.1594
5042.38	4.125	0.0014	0.1619
5042.50	4.250	0.0039	0.1644
5042.63	4.375	0.0079	0.1668
5042.75	4.500	0.0135	0.1692

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	1.75
Area (ft^2)=	0.017
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 7

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	9,839.00
Dt =	1.00
C =	9832.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5037.75	0	0	0.0000
5041.75	4.00	0.0006	0.0131
5042.00	4.25	0.0077	0.0135
5042.25	4.50	0.0289	0.0139
5042.50	4.75	0.0642	0.0143
5042.75	5.00	0.1136	0.0147

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS
POND 8

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	4,300.00
Dt =	1.00
C =	4293.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5037.50	0	0	0.0000
5041.50	4.00	0.0006	0.0131
5041.75	4.25	0.0037	0.0135
5042.00	4.50	0.0130	0.0139
5042.25	4.75	0.0285	0.0143
5042.50	5.00	0.0501	0.0147

Orifice Equation

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in)	0.5
Area (ft^2)=	0.001
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/05/2004
INPUT FILE = C:\AHYMOW~1\230104~1.TXT USER NO.= AHYMO-S-9702d1TierraW-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 1										RAIN6=	2.350
COMPUTE NM HYD	100.10	-	1	.00431	12.24	.452	1.96828	1.500	4.438	PER IMP=	89.00
COMPUTE NM HYD	100.20	-	2	.00054	1.54	.056	1.95491	1.500	4.459	PER IMP=	88.00
COMPUTE NM HYD	100.30	-	3	.00331	9.38	.342	1.93762	1.500	4.428	PER IMP=	82.00
COMPUTE NM HYD	100.40	-	4	.00232	6.26	.223	1.79938	1.500	4.213	PER IMP=	68.00
COMPUTE NM HYD	100.50	-	5	.00109	2.57	.086	1.48481	1.500	3.680	PER IMP=	43.00
COMPUTE NM HYD	100.60	-	6	.00028	.76	.027	1.82119	1.500	4.265	PER IMP=	78.00
COMPUTE NM HYD	100.70	-	7	.00067	1.78	.064	1.79445	1.500	4.158	PER IMP=	76.00
COMPUTE NM HYD	100.80	-	8	.00058	1.33	.046	1.47353	1.500	3.582	PER IMP=	52.00
ROUTE RESERVOIR	201.00	1	9	.00431	.02	.024	.10370	6.233	.006	AC-FT=	.446
ROUTE RESERVOIR	202.00	2	10	.00054	.51	.056	1.95440	1.833	1.466	AC-FT=	.019
ROUTE RESERVOIR	203.00	3	11	.00331	.02	.024	.13355	6.199	.007	AC-FT=	.336
ROUTE RESERVOIR	204.00	4	12	.00232	.01	.023	.18468	6.166	.010	AC-FT=	.216
ROUTE RESERVOIR	205.00	5	13	.00109	.10	.086	1.48456	2.366	.137	AC-FT=	.073
ROUTE RESERVOIR	206.00	6	14	.00028	.17	.027	1.82034	2.000	.944	AC-FT=	.013
ROUTE RESERVOIR	207.00	7	15	.00067	.01	.022	.61339	3.100	.033	AC-FT=	.059
ROUTE RESERVOIR	208.00	8	16	.00058	.01	.022	.71921	2.733	.039	AC-FT=	.042
ADD HYD	301.00	11&10	20	.00385	.52	.080	.38893	1.833	.212		
ADD HYD	302.00	13&12	21	.00341	.11	.109	.60014	2.400	.051		
ADD HYD	303.00	14&21	22	.00369	.28	.136	.69271	2.100	.118		
ADD HYD	304.00	15&16	23	.00125	.03	.044	.66249	2.866	.036		
ADD HYD	305.00	22&23	24	.00494	.31	.180	.68507	2.133	.097		
ADD HYD	306.00	9&24	25	.00925	.32	.204	.41418	2.133	.055		
ADD HYD	307.00	24&20	26	.00879	.83	.260	.55536	1.933	.147		
FINISH											

VOLUME CALCULATIONS

POND A(INLET 1)

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	6,319.00
Dt =	1.00
C =	6312.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
5033.98	0	0	0.0000
40.00	6.02	0.0009	0.0642
40.25	6.27	0.0055	0.0655
40.45	6.47	0.0157	0.0666
40.65	6.67	0.0317	0.0676
40.85	6.87	0.0534	0.0686
41.05	7.07	0.0810	0.0696
41.25	7.27	0.1143	0.0706
41.50	7.52	0.1642	0.0718

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND C (INLET 2)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	7,022.00
Dt =	1.75
C =	4008.69

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
35.27	0	0	0.0000
37.25	1.98	0.0003	0.0366
37.50	2.23	0.0032	0.0388
37.75	2.48	0.0119	0.0410
38.00	2.73	0.0263	0.0431
38.20	2.93	0.0420	0.0446
38.40	3.13	0.0613	0.0462
38.60	3.33	0.0844	0.0476
38.80	3.53	0.1111	0.0490
39.00	3.73	0.1415	0.0504

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND D (INLET 3)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	9,636.00
Dt =	1.50
C =	6419.47

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
35.98	0	0	0.0000
38.50	2.77	0.0004	0.0434
38.75	3.02	0.0051	0.0453
38.95	3.22	0.0154	0.0468
39.15	3.42	0.0317	0.0483
39.35	3.62	0.0538	0.0497
39.55	3.82	0.0818	0.0510
39.75	4.02	0.1158	0.0524
40.00	4.27	0.1665	0.0540
40.25	4.52	0.2264	0.0556

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND E (INLET 4)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	4,105.00
Dt =	1.50
C =	2732.13

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
38.2	0	0	0.0000
43.50	5.3	0.0008	0.2399
43.75	5.55	0.0028	0.2456
44.00	5.8	0.0087	0.2512
44.20	6	0.0163	0.2555
44.40	6.2	0.0264	0.2598
44.60	6.4	0.0389	0.2640
44.80	6.6	0.0540	0.2682
45.00	6.8	0.0716	0.2722
45.25	7.05	0.0971	0.2773

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	2
Area (ft^2)=	0.02181662
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND F (INLET 5)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	10,179.00
Dt =	1.25
C =	8137.76

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
41	0	0	0.0000
45.75	4.75	0.0007	0.0570
45.95	4.95	0.0045	0.0582
46.15	5.15	0.0157	0.0594
46.35	5.35	0.0345	0.0605
46.55	5.55	0.0606	0.0616
46.75	5.75	0.0943	0.0627
47.00	6	0.1469	0.0641

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND B(INLET 6)

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	5,815.00
Dt =	1.00
C =	5808.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
34.98	0	0	0.0000
40.50	5.52	0.0009	0.0615
40.75	5.77	0.0051	0.0629
40.95	5.97	0.0144	0.0639
41.15	6.17	0.0291	0.0650
41.35	6.37	0.0492	0.0661
41.55	6.57	0.0745	0.0671
41.75	6.77	0.1052	0.0681

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND I (INLET 7)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	7,448.00
Dt =	2.00
C =	3720.60

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
36	0	0	0.0000
39.50	3.5	0.0005	0.0488
39.75	3.75	0.0033	0.0506
40.00	4	0.0113	0.0522
40.20	4.2	0.0216	0.0536
40.40	4.4	0.0353	0.0548
40.60	4.6	0.0524	0.0561
40.80	4.8	0.0729	0.0573
41.00	5	0.0969	0.0585
41.25	5.25	0.1316	0.0599
41.50	5.5	0.1717	0.0614
41.75	5.75	0.2171	0.0627

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND H (INLET 8)

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	1,945.00
Dt =	1.10
C =	1762.00

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
39.51	0	0	0.0000
42.90	3.39	0.0005	0.0481
43.00	3.49	0.0007	0.0488
43.20	3.69	0.0024	0.0502
43.40	3.89	0.0057	0.0515
43.60	4.09	0.0105	0.0528
43.80	4.29	0.0171	0.0541
44.00	4.49	0.0252	0.0554

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND G (INLET 9)

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

$Volume = Ab * D + 0.5 * C * D^2$

$C = (At - Ab) / Dt$

Ab =	6.80
At =	7,466.00
Dt =	2.00
C =	3729.60

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
41	0	0	0.0000
45.00	4	0.0006	0.0522
45.20	4.2	0.0024	0.0536
45.40	4.4	0.0075	0.0548
45.60	4.6	0.0161	0.0561
45.80	4.8	0.0281	0.0573
46.00	5	0.0436	0.0585
46.50	5.5	0.0972	0.0614
47.00	6	0.1722	0.0641

<u>Orifice Equation</u>

$Q = CA\ SQRT(2gH)$

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND K (INLET 10)

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	4,412.00
Dt =	1.00
C =	4405.20

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
36.4	0	0	0.0000
41.00	4.6	0.0014	0.0561
41.20	4.8	0.0035	0.0573
41.40	5	0.0096	0.0585
41.60	5.2	0.0197	0.0596
41.80	5.4	0.0339	0.0608
42.00	5.6	0.0522	0.0619

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

VOLUME CALCULATIONS

POND J (INLET 11)

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

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	6.80
At =	4,450.00
Dt =	1.10
C =	5750.00

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q (CFS)
38.35	0	0	0.0000
41.75	3.37	0.0005	0.0479
41.85	3.47	0.0012	0.0486
42.05	3.67	0.0065	0.0500
42.25	3.87	0.0171	0.0514
42.45	4.07	0.0330	0.0527
42.65	4.27	0.0541	0.0540
42.85	4.47	0.0806	0.0553

<u>Orifice Equation</u>
Q = CA SQRT(2gH)

C =	0.6
Diameter (in	1
Area (ft^2)=	0.00545415
g =	32.2
H (Ft) =	Depth of water above center of orifice
Q (CFS)=	Flow

REAL PROPERTY ENCROACHMENT AGREEMENT
AND COVENANTS UPON REAL ESTATE
(Temporary structures, walls, fences, ...)

This Agreement, between the City of Albuquerque, New Mexico ("City") and **UNION PENSION TRANSACTION TRUST 93-2 NM** ("User") is made in Albuquerque, New Mexico and is entered into as of the date of filing this Agreement with the City Clerk.

1. **Recital**. The User is the owner of certain real property ("User's Property") located at **4821 CULTURE BLVD NE** in Albuquerque, New Mexico, and more particularly described as:

TRACT 4A2, RENAISSANCE CENTER III

The City is the owner of certain real property, easement or public right-of-way ("City's Property") adjoining, abutting or within User's Property. The User wishers to encroach upon, or already has encroached upon, the City's Property by constructing the following "Improvement":

1.5' TO 7.0' RETAINING WALL ALONG CULTURE BOULEVARD NE.

A sketch of the proposed or existing Improvement is attached and made a part of this Agreement.

The City agrees to permit the encroachment of the Improvements on the City's Property, provided the User complies with the terms of this Agreement.

2. **City Use of City's Property and City Liability**. The City has the right to enter upon the City's Property at any time and perform whatever inspection, installation, maintenance, repair, modification or removal ("Work") it deems appropriate without liability to the User. If the Work affects the Improvement, the City will not be financially or otherwise responsible for rebuilding or repairing the Improvement. The User promptly will repair the Improvement to the City's satisfaction. The cost of repairing the Improvement will be paid by User.

3. **User's Responsibility for Improvement**. The User will be solely responsible for constructing, maintaining, repairing and, if required, removing the Improvement, all in accordance with standards required by the City. The User will be solely responsible for paying all related costs. The User will not permit the Improvement to constitute a hazard to the health or safety of the general public or the interfere with the City's use of the City's Property. The User will conform with all applicable laws, ordinances and regulations.

(Approved by Legal Dept. as to form only-3/31/89)

4. **Demand for Repair, Modification or Removal**. The City may send written notice ("Notice") to the User requiring the User to repair, modify or remove the Improvement within ninety (90) days after mailing of the written notice to User ("Deadline") and the User will promptly comply with the requirements of the Notice. The City may demand removal of the Improvement without cause. If the removal is demanded, the City also may require the User to return the City's Property to its original condition by the Deadline. The User will perform all required work by the Deadline, at User's sole expense.

5. **Failure to Perform: Emergency**. If the User fails to comply with the terms of the Notice by the Deadline stated, or if the City determines that an emergency condition exists, the City may perform the work itself. The City then may assess the User for the cost of the work and for any other expenses or damages which result from User's failure to perform. The User shall pay the City the amount assessed within thirty (30) days after the City gives the User written notice of the amount due. If the City employs the City's Legal Department or an outside attorney to enforce this Agreement, the User shall pay the City all costs, charges and expenses, including reasonable attorney's fees for the City's Legal Department or outside attorney, expended or incurred by the City to successfully enforce this Agreement.

6. **Condemnation**. If any part of the User's property is ever condemned by the City, the User will forego all claims to compensation for any portion of User's structure which encroaches on City Property and for severance damage to the remaining portion of User's structure.

7. **Notice**. For purposes of giving formal written notice to the User, User's address and phone number is:

UNION PENSION TRANSACTION TRUST 93-2 NM
C/O BUILD NEW MEXICO
1110 PENNSYLVANIA NE STE A
ALBUQUERQUE, NM 87110
PHONE: 505.268.1200

Notice may be given to the User either in person or by mailing the notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the User within six (6) days after the notice is mailed if there is no actual evidence of receipt. The User may change User's address by giving written notice of the change by certified mail, return receipt requested, to the City Engineer at PO Box 1293, Albuquerque, New Mexico 87103.

8. **Indemnification**. The user agrees to indemnify, defend and hold harmless the City, its officials, agents and employees, from any claims, actions, suits or other proceedings arising from or out of the negligent acts or omissions of the failure of the User to perform any act or duty required of the User herein; provided, however, to the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney's fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the indemnitee, or the agents or employees of the indemnitee; or (2) the giving of or the failure to give direction or instructions by the indemnitee, where such giving or failure to give directions or instructions ins the primary cause of bodily injury to persons or damage to property. The indemnification required hereunder shall not be limited as a result of the specifications of any applicable insurance coverage. Nothing herein is intended to impair any right or immunity under the laws of the State of New Mexico.

9. **Term**. This Agreement may be terminated in writing at any time by the User or by the City, without cause. Termination by either party shall be effective ninety (90) days after mailing by a party of written notice of termination to the other party. A notice of termination shall be a Notice under Paragraph 4 requiring the User to remove the Improvement and return the City's property to its original condition by the Deadline.

10. **Binding on User's Property**. The obligations of the User set forth herein shall be binging upon the User, his heirs, assigns and successors and on User's Property, and constitute covenants running with User's Property until released by the City.

11. **Entire Agreement**. This Agreement contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith.

12. **Changes to Agreement**. Changes to this Agreement are not binding unless made in writing, signed by both parties.

13. **Construction and Severability**. If any part of this Agreement is held to be invalid or unenforceable, the remainder of the Agreement will remain valid and enforceable if the remainder is reasonably capable of completion.

14. **Captions**. The captions to the sections or paragraphs of this Agreement are not part of this Agreement and will not affect the meaning or construction of any of its provisions.

15. **Extent of Agreement**. User understands and agrees that the User is solely responsible for ascertaining whether User's Improvement encroaches upon the property or facilities of any other entity and that by entering into this Agreement, the City makes no representations or warranties that the City's property is the only property affected by the encroachment.

CITY OF ALBUQUERQUE

Approved By:

_____
City Engineer, Public Works Dept.

Date: _____

USER:
BANK OF ALBUQUERQUE AS TRUSTEE OF UNION PENSION TRANSACTION TRUST 93-2 NM, BANK OF ALBUQUERQUE, TRUSTEE, N.A.

By: Alan C. Wan, Vice President

Date: March 1, 2004

USER'S NOTARY

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

This instrument was acknowledged before me on 15th day of March, 20 04 by [name(s) of person(s):] **SEAN C. WALKER**, [title or capacity, for instance "President" or "Owner":] **VICE PRESIDENT and TRUST OFFICER** of [Subdivider:] **UNION PENSION TRANSACTION TRUST 93-2 NM**.

Notary Public

My Commission Expires:

OFFICIAL SEAL
TONI-LEI R. PONIC
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: Sept 9, 2006

CITY'S NOTARY

STATE OF _____)
) ss.
COUNTY OF _____)

This instrument was acknowledged before me on _____ day of _____, 20 _____ by_____, City Engineer. Public Works Department of the City of Albuquerque, a municipal corporation, on behalf of said corporation.

_____
Notary Public

My Commission Expires:

_____

INLET #8
BUILD SINGLE "D" INLET
GRATE=5041.50
INV=5037.50

BUILD MANHOLE
RIM=5042.65
INV IN=5035.01
INV OUT=5034.91

BUILD MANHOLE
RIM=5043.20
INV IN=5036.77
INV OUT=5036.67

FF=5043.45

INLET #7
BUILD SINGLE "D" INLET
GRATE=5041.75
INV=5037.75

INLET #6
BUILD SINGLE "D" INLET
GRATE=5042.25
INV=5038.25

BUILD MANHOLE
RIM=5043.68
INV IN=5036.12
INV OUT=5036.02

8" PVC @ 0.86%

8" PVC @ 0.88%

8" PVC @ 0.46%

8" PVC @ 1.51%

6" CURB & GUTTER (TYP.)

8" CURB & GUTTER (TYP.)

1.5' TO 5.0' RETAINING WALL SEE DETAIL THIS SHEET

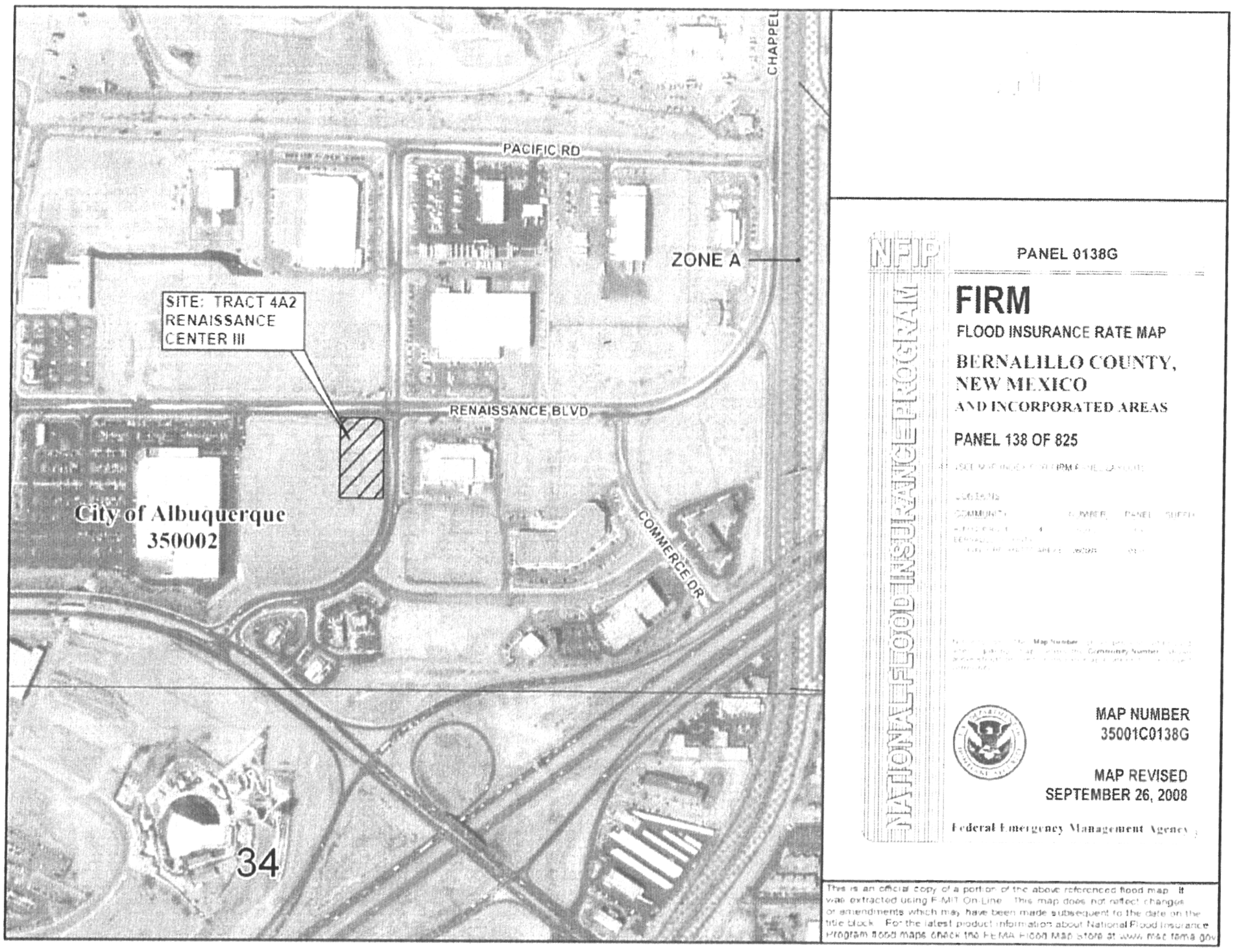
SLOPE TIE

3:1 MAX.

6.06%

8.00%

Exhibit B – FIRMap 35001C0138G



EXISTING CONDITIONS

The site was rough graded during mass grading for the center but is vacant and undeveloped with little vegetation and bare ground. There is an existing retaining wall adjacent to a portion of the east property line and adjacent to the existing access drive at the south end of the site. The existing retaining wall has heights ranging from approximately 2 ft to 10 ft. A portion of the north end of the site drains directly to Renaissance Blvd. The majority of the site drains to the rough graded shallow pond at the southeast corner of the lot. Finally, a portion of the site