CITY OF ALBUQUERQUE

COPY

December 17, 2008

L-10/D028

CERTIFICATE OF COMPLETION AND ACCEPTANCE

Jody Pauza, President
Fuller Homes, Inc.
PO Box 13900
Albuquerque, NM 87197

RE: AUTUMN VIEW
Project Number: 769181

Dear Mr. Pauza:

This is to certify that the City of Albuquerque accepts the construction of the infrastructure provided in the Work Order Construction Plans, City project number 769181. The work was completed pursuant to the required public infrastructure listed in the Subdivision Improvements Agreement (SIA) Procedure B, between Fuller Homes, Inc. and the City of Albuquerque executed on December 28, 2005.

Having satisfied the requirements referenced above, the SIA and any associated Financial Guaranty, held by the City, can now be released. The indemnity and hold harmless provisions of the SIA in favor of the City shall remain in effect. The contractor's warranty period will begin December 17, 2008 and is effective for a period of one (1) year.

Please be advised this Certificate of Completion and Acceptance shall only become effective upon final plat approval and filing in the Bernalillo County Clerk's office.

Should you have any questions or issues regarding this project, please contact me at (505) 924-3996.

Sincerely,

12/22/08

Richard Dourte, P.E.
City Engineer
Development & Building Services
Planning Department

12-17-08

cc: Rio Grande Engineering (e-mail)
Salls Brothers Construction (e-mail)
Vincent Paul, DMD Maps & Records (e-mail)
Barbara A. Romero, DMD Street Maintenance (e-mail)
Paul Baca, DMD Street Maintenance (e-mail)
SIA File, City Project Number 769181

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

No. of Lots: 82
Nearest Major Streets
Coors Blvd SW & Tower RD SW

FIGURE 12

SUBDIVISION IMPROVEMENTS AGREEMENT-PUBLIC AND/OR PRIVATE (Procedure B)

AGREEMENT TO CONSTRUCT
PUBLIC AND/OR PRIVATE SUBDIVISION IMPROVEMENTS

THIS AGREEMENT is made this 28 day of December, 20 05, by and between the City of Albuquerque, New Mexico ("City"), a municipal corporation, whose address is P. O. Box 1293 (One Civic Plaza), Albuquerque, New Mexico 87103, and Fuller Homes Inc. ("Subdivider"), a [state the type of business entity, for instance, "New Mexico corporation," "general partnership," "joint venture," "individual," etc.:] a N.M. Corporation., whose address is P.O. Box 13900 Alb. NM 87192 and whose telephone number is 505-8884740, is made in Albuquerque, New Mexico, and is entered into as of the date of final execution of this Agreement.

1. Recital. The Subdivider is developing certain lands within the City of Albuquerque, Bernalillo County, New Mexico, known as [existing legal description:] Tracts 355 & 356 Unit 3 and tracts A & B Lands of H. Rojo, recorded on December 5, 1944 in the records of the Bernalillo County Clerk at Book D, pages 118 through ____ (the "Subdivision"). The Subdivider certifies that the Subdivision is owned by [state the name of the present real property owner exactly as shown on the real estate document conveying title in the Subdivision to the present owner:] Fuller Homes, Inc. ("Owner").

The Subdivider has submitted and the City has approved a preliminary plat or Site Development Plan identified as Autumn View Subdivision describing Subdivider's Property.

As a result of the development of the Subdivision, the Subdivision Ordinance ("S.O.") and/or the Zoning Code, Section 14-16-3-11, require the Subdivider, at no cost to the City, to install certain public and/or private Improvements, which are reasonably related to the development of the Subdivision, or to financially guarantee the construction of the public and/or private improvements as a prerequisite to approval of the final plat of, or the Site Development Plan for the Subdivision.

2. Improvements and Construction Deadline. The Subdivider agrees to install and complete the public and/or private improvements described Exhibit A, the required infrastructure listing ("Improvements"), to the satisfaction of the City, on or before the 15 day of September, 20 06 ("Construction Completion Deadline"), at no cost to the City. The Improvements are shown in greater detail on the Subdivider's proposed and approved plans, which have been filed with the City Engineer and are identified as Project No. 769.1.81.

Note: To compute the Construction Completion Deadline: If a final plat will be filed after Subdivider meets the requirements of this Agreement, the Construction Completion Deadline can be no later than two years after execution of this Agreement. (See Subdivision Ordinance Section 14-14-3.) If a final plat will not be filed pursuant to this Agreement, the Construction Completion Deadline can be no later than one year after approval of the preliminary plat by the Development Review Board ("DRB"), unless

2005190775
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Page: 1 of 6
12/30/2005 10:07A
Bk-A109 Pg-261
Mary Herrera Bern. Co. AGRE R 19.00

the DRB grants an extension, not to exceed one additional year per extension, and the Subdivider processes an amendment to the Agreement. (See Subdivision Ordinance Section 14-14-3.) If this Agreement, with any amendments does not utilize the maximum time allowed for completion of construction, the Subdivider may obtain an extension of the Construction Completion Deadline if Subdivider shows adequate reason for the extension.

3. Work Order Requirements. The City agrees to issue a Work Order after:

A. The Subdivider causes to be submitted all documents, and meets all requirements listed in Development Process Manual, Volume 1, Chapter 5, Work Order Process, and figure 1, including submitting a Certificate of Insurance in a form acceptable to the City. The certificate must establish that the Subdivider has procured or has caused to be procured public liability insurance in the amount of not less than One Million Dollars ($1,000,000) combined single limit for accidents or occurrences which cause bodily injury, death or property damage as a result of any condition of the Subdivision, the Improvements or the Subdivider's construction activities within, or related to the Subdivision. The insurance policy must name the City of Albuquerque, its employees and elected officials, as their interest may appear, as additional insured. The Subdivider must maintain the insurance until the City accepts the public Improvements and/or approves the private Improvements. The cancellation provision must provide that, if the policy is either canceled prior to the expiration date of the policy or is materially changed or not renewed, the issuing company will mail 30 days written notice to the City, attention City Engineer.

B. The Subdivider complies with all applicable laws, ordinances and regulations, including, but not limited to the City Excavation Ordinance and Sidewalk Ordinance, and pays the following required engineering, staking, testing fees, and other related City fees and County Clerk recording fees:

Type of Fee	Amount
Engineering Fee	3.25% of Actual Construction Cost
Excavation And Sidewalk Ordinance, Street Restoration Fees	As required per City-approved estimate. (Figure 7)

(Note: The Subdivider must pay the City all City fees which have been incurred during construction before the City will accept the public Improvements.

4. Surveying, Inspection and Testing. The Improvements shall be inspected, surveyed and tested in accordance with all applicable laws, ordinances, and regulations, and according to the following terms:

A. Construction Surveying. Construction surveying for the construction of the public Improvements shall be performed by Santiago Romero #7924 and construction surveying of the private Improvements shall be performed by Santiago Romero. If the construction surveying is performed by an entity other than the City, the City may monitor the construction surveying and the Subdivider shall ensure that the construction surveying entity provides all construction surveying field notes, plats, reports and related data to the City which the City requires for review. Record drawings shall be provided by the entity performing the survey. The Subdivider shall pay the City a reasonable fee for any construction surveying performed by the City.

B. Construction Inspection Methods. Inspection of the construction of the public Improvements shall be performed by Rio Grande Engineering, and inspection of the private Improvements shall be performed by Rio Grande Engineering, both New Mexico Registered Professional Engineers. If the inspection is performed by an entity other than the City, the City may monitor the inspection and the Subdivider

Mary Herrera Bern. Co. AGRE R 19.00
2005190775
6386829
Page: 2 of 6
12/30/2005 10:07A
Bk-A109 Pg-261

shall ensure that the inspecting entity provides all inspection results, reports and related data to the City which the City requires for review. The City retains the right to perform its own general overall inspection of the construction project at any time prior to final acceptance of the Improvements, if deemed necessary or advisable by the City Engineer. The Subdivider shall pay the City a reasonable fee for the level of inspection performed by the City.

C. Field Testing. Field testing of the construction of the public Improvements shall be performed by Geotest Inc, and field testing of the private Improvements shall be performed by Geotest, Inc., both certified testing laboratories under the supervision of a New Mexico Registered Professional Engineer, in accordance with the current City of Albuquerque Standard Specifications for Public Works Construction. If any field testing is performed by an entity other than the City, the City may monitor the field testing and the Subdivider shall ensure that the field testing entity provides all field testing results, reports and related data to the City which the City requires for review. The Subdivider shall pay the City a reasonable fee for any field testing performed by the City.

D. Additional Testing. The City retains the right to perform all additional testing which the City Engineer deems is necessary or advisable, and the Subdivider shall pay the City a reasonable fee therefor.

5. Financial Guaranty. If final plat approval is not requested prior to construction of the Subdivision, a financial guaranty is not required. If final plat approval is requested, the Subdivider must provide the City with a financial guaranty in an amount of not less than 125% of the estimated cost of constructing the Improvements, as approved by the City Engineer. The financial guaranty must be irrevocable and may be in the form of a letter of credit, escrow deposit or loan reserve letter issued by a Federally Insured Financial Institution; a bond issued by a surety qualified to do business in New Mexico; or other pledge of liquid assets which meets all City requirements. The City must be able to call the financial guaranty at any time within the sixty (60) days immediately following the Construction Completion Deadline.

To meet the Subdivision Ordinance requirements, the Subdivider has acquired or is able to acquire the following "Financial Guaranty:"

Type of Financial Guaranty: Loan Reserve Bank of Oklahoma)
Amount: $ 1,760,780.03 Name of Financial Institution or Surety
Date City first able to call Guaranty: September 15, 2006
[Construction Completion Deadline]: September 15 20 06
If Guaranty other than a Bond, last day City able to call Guaranty is:
November 15, 2006, 20____
Additional information:_____

6. Notice of Start of Construction. Before construction begins, the Subdivider shall deliver an acceptable Notice to Proceed to the City and shall arrange or a preconstruction conference and all required inspections.

7. Completion, Acceptance and Termination. When the City receives Subdivider's final acceptance package, the City shall review it for completeness and accuracy. (See DPM Volume 1, Chapter 5, Work Order Process, Step 9.) If the package is acceptable, the City shall approve the package and issue a Certificate of Completion and Acceptance for the public Improvements and a Certificate of Completion for the private Improvements. Thereafter, the Subdivider's obligations to the City pursuant to this Agreement shall terminate, with the exception of the bond or other guarantee which the Subdivider has provided to assure the materials and workmanship, as required by the Subdivision Ordinance. After the City approves the final acceptance package, the City will promptly release this Agreement and the Financial Guaranty.

2005190775
6386829
Page: 3 of 6
12/30/2005 10:07A
Bk-A109 Pg-261
Mary Herrera Bern. Co. AGRE R 19.00

8. Conveyance of Property Rights. When the Improvements are completed, if the City does not own the real property upon or in which the public Improvements are constructed, the Subdivider will convey to the City all real and personal property rights which the City deems reasonably necessary, and all public Improvements, free and clear of all claims, encumbrances and liens before the City will accept the public Improvements. Conveyance may be made by appropriate dedication on the final plat of the Subdivision.

9. Reduction of Financial Guaranty Upon Partial Completion. The Subdivider shall be entitled to a reduction of the Financial Guaranty as a result of completing construction of part of the Improvements if the following conditions are met:

A. Loan Reserve Financial Guaranty. If a loan reserve letter was provided as the Financial Guaranty, the Subdivider must follow the procedures and meet the requirements detailed in the Development Process Manual, Volume 1, Chapter 5.

B. Non-Loan Reserve Financial Guaranty. If a Financial Guarantee other than a loan reserve letter has been provided, the completed Improvements must be free-standing, functionally independent of any Improvements which have not yet been completed and completed in substantial compliance with the approved construction plans, as determined by City on-site inspection in order to qualify for a Financial Guaranty reduction. If the Improvements which have been completed meet all City requirements, the City Engineer will estimate the cost of completing the remaining Improvements. Thereafter, the subdivider must submit the following documents to the City for review and approval:

(1) A revised Financial Guaranty in an amount of not less than 125% of the cost of completing the remaining Improvements, as estimated by the City;

(2) A bond or other instrument acceptable to the City, which guarantees the completed Improvements against defective materials and workmanship for the period required by the Subdivision Ordinance.

(3) Conveyance of real and personal property rights which meet the requirements of section 8 of this Agreement.

After the City receives and approves the required documents, the City shall issue a Partial Certificate of Completion and Acceptance for the completed public Improvements and a Certificate of Partial Completion for the completed private Improvements.

10. Indemnification. Until the Improvements are accepted by the City, the Subdivider shall be solely responsible for maintaining the premises upon which the Improvements are being constructed in a safe condition. The Subdivider agrees to defend, indemnify and hold harmless the City and 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 Subdivider, its agents, representatives, contractors or subcontractors or arising from the failure of the Subdivider, its agents, representatives, contractors or subcontractors to perform any act or duty required of the Subdivider 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 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 directions or instructions by the indemnitee, where such giving or failure to give directions or instructions is 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.

2005190775
6386829
Page: 4 of 6
12/30/2005 10:07A
Bk-A109 Pg-261
Mary Herrera Bern. Co. AGRE R 19.00

11. Assignment. This Agreement shall not be assigned without the prior written consent of the City and the Subdivider and the express written concurrence of any financial institution or surety which has undertaken to guarantee the completion of the Improvements. The City's approval will not be withheld unreasonably. If so assigned, this Agreement shall extend to and be binding upon the successors and assigns of the parties hereto.

12. Release. If the Subdivision or any part thereof is sold, conveyed or assigned, the City will not release the Subdivider from its obligations under this Agreement and will continue to hold the Subdivider responsible for all Improvements until a successor in interest to the Subdivider has entered into a Subdivision Improvements Agreement with the City. Thereafter, if the Subdivider's successor in interest has provided a substitute financial guaranty acceptable to the City, the City will release this Agreement and any related Financial Guaranty.

13. Payment for Incomplete Improvements. If the Subdivider fails to satisfactorily complete construction of the Improvements by the Construction Completion Deadline, the City may construct or cause the Improvements to be constructed as shown on the final plat and in the approved plans and specifications. The Subdivider shall be jointly and severally liable to pay to, and indemnify the City for the total cost, including, but not limited to engineering, legal and contingent costs, together with any damages, either direct or consequential, which the City may sustain as a result of Subdivider's failure to perform as required by this Agreement. If the direct or indirect costs and damages to the City exceed the amount of the City's Claim of Lien or any Financial Guaranty, the Subdivider shall be liable to, and shall pay, the City for all such costs and damages. The surety or sureties shall be jointly and severally liable to pay to and indemnify the City for the total cost to the extent of their obligations pursuant to any Financial Guaranty.

14. Binding on Subdivider's Property. The provisions of this Agreement constitute covenants running with Subdivider's Property for the benefit of the City and its successors and assigns until terminated, and are binding on the Subdivider and the Owner and their heirs, successors and assigns.

15. Notice. For purposes of giving formal written notice, including notice of change of address, the Subdivider's and the City's addresses are as stated in the first paragraph of this Agreement. Notice may be given either in person or by certified U.S. mail, postage paid. Notice will be considered to have been received within six days after the notice is mailed if there is no actual evidence of receipt.

16. 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.

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

18. 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.

19. 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.

20. Form not Changed. Subdivider agrees that changes to this form are not binding unless initialed by the subdivider and signed by the City's Legal Department on this form.

21. Authority to Execute. If the Subdivider signing below is not the Owner of the Subdivision, the Owner must execute the Power of Attorney below.

Mary Herrera Bern. Co. AGRE R 19.00
2005190775
6386829
Page: 5 of 6
12/30/2005 10:07A
Bk-A109 Pg-261

Executed on the date stated in the first paragraph of this Agreement.

SUBDIVIDER:

By [Signature]: Jody Pauza
Name: JODY PAUZA
Title: PRESIDENT
Dated: 12/9/05

CITY OF ALBUQUERQUE

City Engineer
Dated: 12-28-05

12-23-05

SUBDIVIDER'S NOTARY

STATE OF NM)
) ss.
COUNTY OF Bernalillo)

This instrument was acknowledged before me on 9th day of December, 2005 by [name of person:] Jody Pauza, [title or capacity, for instance, "President" or "Owner":] President of [Subdivider:] Trailer Homes, Inc.

OFFICIAL SEAL
MARIANNE A. KETCHEM
NOTARY PUBLIC-STATE OF NEW MEXICO
My commission expires: 10.01.06

Marianne A. Ketchem
Notary Public

My Commission Expires:

CITY'S NOTARY

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

This instrument was acknowledged before me on 28th day of, December, 2005 by Richard Dourte, City Engineer of the City of Albuquerque, a municipal corporation, on behalf of said corporation.

Gloria D. Saavedra
Notary Public

My Commission Expires:
11-25-2007

EXHIBIT A AND POWER OF ATTORNEY ATTACHED

2005190775
8386829
Page: 6 of 6
12/30/2005 10:07A
Bk-A109 Pg-261
Mary Herrera Bern. Co. AGRE R 19.00

Project Number: 169181

FIGURE 12

INFRASTRUCTURE LIST

ORIGINAL

Date Submitted: 08/15/05
Date Site Plan Approved: ____
Date Preliminary Plat Approved: 8/31/05
Date Preliminary Plat Expires: 8/31/06
DRB Project No.: ~~P2002~~ 1003189
DRB Application No.: 05 DRB 01127

Revised 10/24/05

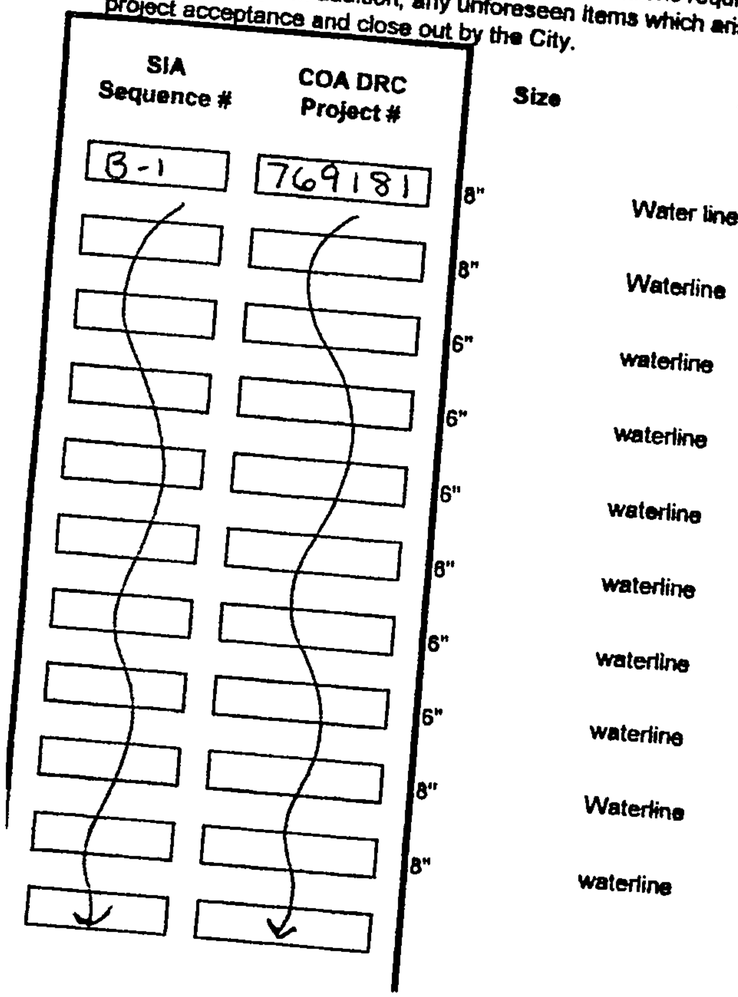
EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

AUTUMN VIEW SUDIVISION
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

TRACT 355 & 356, UNIT 3, LANDS OF ATRISCO GRANT AND TRACT A & B LANDS OF HECTOR ROJO
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
B-1	769181	8"	Water line	Tower Road	650'	Coors Blvd	Autumn View St	/	/	/
		8"	Waterline	Autumn View ST	178'	Tower Road	Balearic Ave	/	/	/
		6"	waterline	Balearic Ave	380'	Zaragoza St	Santander st	/	/	/
		6"	waterline	Vigo st	380'	Zaragoza St	Santander st	/	/	/
		6"	waterline	Bolero ave	390'	Zaragoza St	Santander st	/	/	/
		8"	waterline	Alicante Ave	390'	Zaragoza St	Santander st	/	/	/
		6"	waterline	Zaragoza st	780'	Balearic ave	Alicante Ave	/	/	/
		6"	waterline	Santander st	780'	Balearic ave	Alicante Ave	/	/	/
		8"	Waterline	public water easemtn lot 28	240'	Alicante Ave	San Ygnacio rd	/	/	/
		8"	waterline	San Ygnacio	1200'	west property line	existing wl on east side of arnole	/	/	/



ORIGINAL

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location		From	To	Private Inspector	City Inspector	City Cnst Engineer
B-1	76918	48' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Autumn View ST	180'	Tower Road	Balearic Ave	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Balearic Ave	380'	Zaragoza St	Santander st	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Vigo st	380'	Zaragoza St	Santander st	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Bolero ave	390'	Zaragoza St	Santander st	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Alicante Ave	390'	Zaragoza St	Santander st	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Zaragoza st	780'	Balearic ave	Alicante Ave	/	/	/
		28' F-F	Residential Road with Curb and Gutter including 4' Sidewalk	Santander st	780'	Balearic ave	Alicante Ave	/	/	/
		6' ~~28' F-F~~	~~Residential Road with Curb and Gutter including 4' Sidewalk~~ Pedistrian trail	public water easement lot 28	240'	Alicante Ave	San Ygnacio rd	/	/	/
		~~28' F-F~~	~~Residential Road with Curb and Gutter including 4' Sidewalk~~	~~San Ygnacio~~		~~west property line~~	~~east property line~~	/	/	/
		24F-E	Arterial Road with Curb and Gutter including 6' Sidewalk,	San Ygnacio	640'	east property line	west property line	/	/	/
		66' F-F	Arterial Road with Curb and Gutter including 6' Sidewalk, both sides, 6' bike lane all water,sewer,stormdrainage required Traffic Signalization as required.	Tower road ~~4994~~	1075'	coors	1075' west of Coors	/	/	/

ORIGINAL

NAME OF PLAT AND/OR SITE PLAN AUTUMN VIEW SUDIVISION

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
							/	/	/
							/	/	/
							/	/	/
							/	/	/

NOTES

1 Engineers Certification of Grading required for release of SIA and Financial Guarantee

Water line will must connect to pressure zone 1W

2 site lighting shall be installed per DPM Standards.

3 Landscape agreement between Autumn View Home Owners Association and the City of Albuquerque must be executed prior to release of Fnacial Guarantee

4 Private improvements to Adjacent Property owners shall be constructed Prior to release of financial Guarantees (Certified). including water meters

AGENT / OWNER

David Sorle
NAME (print)

Rio Grande Engineering
FIRM

[signature] 8/19/05
SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: _____

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

Andrew Garcia 8/31/05
DRB CHAIR - date

[signature] 8-31-05
TRANSPORTATION DEVELOPMENT - date

[signature] 8/31/05
UTILITY DEVELOPMENT - date

Bradley L. Bingham 8/31/05
CITY ENGINEER - date

Christina Sandoval 8/31/05
PARKS & GENERAL SERVICES - date

_____
AMAFCA - date

_____
_____ - date

_____
_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER
1	10-24-05	[signature]	Roger Green	[signature]

ORIGINAL

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		8"	Sewerline ~~Delete~~	~~San Jon Court~~	~~Taos Place~~	~~Terminous~~	/	/	/
B-1	769181	8"	Sewerline	Tower Road 1000'	1075' west of Coors	esting sas east of amole channel	/	/	/
		8"	Sewerline	Autumn View ST 180'	Tower Road	Balearic Ave	/	/	/
		8"	Sewerline	Balearic Ave 380'	Zaragoza St	Santander st	/	/	/
		8"	Sewerline	Vigo st 380'	Zaragoza St	Santander st	/	/	/
		8"	Sewerline	Bolero ave 370'	Zaragoza St	Santander st	/	/	/
		8"	Sewerline	Alicante Ave 390'	Zaragoza St	Santander st	/	/	/
		8"	Sewerline	Zaragoza st 780'	Balearic ave	Alicante Ave	/	/	/
		8"	Sewerline	Santander st 780'	Balearic ave	Alicante Ave	/	/	/
		8"	Sewerline	public water easement lot 28 240'	Alicante Ave	San Ygnacio rd	/	/	/
		8"	Sewerline	San Ygnacio 1260'	west property line	ex. sas in Coors	/	/	/
		60"	RCP storm drain and appurtanances per tower/sage master drainage plan	Tower Road 960'	Amole channel	1075' West of Coors	/	/	/
		48"	RCP storm drain and appurtanances	Public drainage easmt lot 28 345	Alicante Ave	San Ygnacio	/	/	/

CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development & Building Services

October 7, 2008

David Soule, P.E.
Rio Grande Engineering
1616 Central SE, Suite 201
Albuquerque, New Mexico 87106

Re: **Autumn View Subdivision** (DRC Project # 769181) Drainage File: **L10-D 028**
Engineers Certification for Release of Financial Guaranty
Engineer's Stamp dated **10/07/2008**
Engineers Certification dated 10/07/2008

Mr. Soule:

Based upon the information provided in your Engineer's Certification submittal received 9/23/2008, and additional information received 10/07/2008, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty on the subject project.

If I can be of further assistance, please feel free to contact me at 924-3981.

Sincerely,

10/7/8

Gregory R. Olson, P.E.
Hydrology Section

XC: Brad Bingham, COA/Hydrology
Marilyn Maldonado, COA# 769181
X:\DBS\SHARE\Hydrology\ROFG\ROFG 2008\L10-D028_ROFG-Approval_Autumn View Subd.doc
Drainage file L10-D 028

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

Albuquerque - Making History 1706-2006

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: ***Autumn View*** ZONE MAP/DRG. FILE #: L10/D28

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: **Tracts 355,356 town of Atrisco grant and tract A & B, Lands of Hector Rojo**

CITY ADDRESS: **San Ygnacia and Tower**

ENGINEERING FIRM: Rio Grande Engineering CONTACT: David Soule, PE

ADDRESS: 1606 Central SE, Suite 105 PHONE: (505)321-9099

CITY, STATE: Albuquerque, New Mexico ZIP CODE: 87107

OWNER: ***Fuller Homes*** CONTACT: Wade

ADDRESS: PO Box 13900 PHONE: 888-4740

CITY, STATE: Albuquerque, NM 87192 ZIP CODE: 87192

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Russ Hugg CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- x ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

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- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

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OCT 07 2008

HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- x NO
- ____ COPY PROVIDED

DATE SUBMITTED: 10/7/2008 BY: David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.

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FAX TRANSMISSION

PLANNING DEPARTMENT
DEVELOPMENT & BUILDING SERVICES

Plaza del Sol Building, 600 Second Street N.W., Albuquerque, New Mexico 87102
2nd Floor West - Front Counter ~ Phone: 924-3895 ~ Fax: 924-3864

To: David Soule, Rio Grande Engineering **From:** Greg Olson, Hydrology

Fax: 872-2205 **Pages:** 1

Phone: 321-9099 **Date:** October 2, 2008

Re: Autumn View Subdivision **CC:**

Engineers Certification of G&D Plan

City Drainage File No. L10 – D028

10/2/08

☐ **Urgent** X **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

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HYDROLOGY

Message:

David,

I have reviewed the additional info submitted for this project, but need the following addressed to accept the Certification:

1. **Submit a complete set of Sheets 1 & 2 of the G&D Plan, plus the supplemental sheet, each bearing your Certification language, PE seal and signature, all with same date.** ✓
2. **Add notes on the west side of sheet 1 to reference the supplemental sheet.** ✓
3. **On the supplemental sheet, label the realigned swale and identify whether it is paved or include a cross section, and label the X-ed out channel as "Not Built"** ✓

If you can make these revisions and resubmit within a day or two, then I will withhold a rejection letter and expedite approval when I received the amended submittal.

Please review these issues and call me at 924-3981 if you have any questions.

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

8-16-05 Rio Grande Eng

PROJECT TITLE: ***Autumn View*** ZONE MAP/DRG. FILE #: L10/D28

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: **Tracts 355,356 town of Atrisco grant and tract A & B, Lands of Hector Rojo**

CITY ADDRESS: **San Ygnacia and Tower**

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	1606 Central SE, Suite 105	PHONE:	(505)321-9099
CITY, STATE:	Albuquerque, New Mexico	ZIP CODE:	87107
OWNER:	***Fuller Homes***	CONTACT:	Wade
ADDRESS:	PO Box 13900	PHONE:	888-4740
CITY, STATE:	Albuquerque, NM 87192	ZIP CODE:	87192
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Russ Hugg	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

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- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
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- ____ PAVING PERMIT APPROVAL
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- ____ OTHER (SPECIFY)

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LAND DEVELOPMENT SECTION

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- ____ YES
- x NO
- ____ COPY PROVIDED

David Soule Print
Picked up 10/6/08 AO

DATE SUBMITTED: 9/22/2008 BY: David Soule

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal.

The particular nature, location and scope of the proposed development defines the degree of drainage detail.

One or more of the following levels of sumbittal may be required based on the following:

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Rio Grande Engineering
Land Development and Civil Engineering Services

September 22, 2008

Mr. Bradley Bingham
Principal Engineer
Planning Department
City of Albuquerque

RE: Grading and Drainage Plan Certification
L10/D28
Autumn View

Dear Bradley:

The purpose of this letter is to introduce and explain the enclosed supplemental to the certified grading plan. The attached plan reflects the offsite grading performed by the contractor. The approved grading plan was vague regarding the offsite work within the County. The offsite work was shown on the work order drawings and the attached plan is also included in the Work Order As-builts.

Should you have any questions regarding this submittal, please do not hesitate to call me.

Sincerely,

David Soule, PE

Enclosures

cc: file

JN: 2302

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LAND DEVELOPMENT SECTION

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

L-10/D028

PROJECT TITLE: ***Autumn View Subdivision*** ZONE MAP/DRG. FILE #: ~~L10/D25~~

DRB #: 1 EPC #: WORK ORDER #: 1 T69181

LEGAL DESCRIPTION:

CITY ADDRESS:

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	5300 Sequoia NW Suite 206	PHONE:	(505)321-9099
CITY, STATE:	Alb	ZIP CODE:	87120
OWNER:	***Fuller Homes of New Mexico***	CONTACT:	Jody
ADDRESS:		PHONE:	888-4740
CITY, STATE:		ZIP CODE:	
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Surv-tek	CONTACT:	Russ Hugg
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

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- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

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- ____ OTHER (SPECIFY)

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JUN 24 2008

HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

Verbal 10 7/15/08 BLB/TES

David Soule, Picked up Print of Sh. 1 on 10/6/08 AM

DATE SUBMITTED: 6/18/2008 BY: David Soule

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TY OF ALBUQUERQUE

August 1, 2005

David Soule, PE
Rio Grande Engineering
1606 Central Ave. SE, Ste 201
Albuquerque, NM 87106

Re: Autumn View Subdivision Drainage Report
Engineer's Stamp dated 8-15-05 (L10/D28)

Dear Mr. Soule,

Based upon the information provided in your submittals dated 8-16-05, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board approves the grading plan, please submit a mylar copy for my signature in order to obtain a Rough Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

Prior to Release of SIA and Financial Guarantees, an Engineer's Certification of this grading plan 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: Chuck Caruso, DMD
file

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HYDROLOGY SECTION

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

CITY OF ALBUQUERQUE

8/25/05 per Database JO

August 1, 2005

David Soule, PE
Rio Grande Engineering
1606 Central Ave. SE, Ste 201
Albuquerque, NM 87106

Re: Autumn View Subdivision Drainage Report
Engineer's Stamp dated 8-15-05 (L10/D28)

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Bradley L. Bingham

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

C: Chuck Caruso, DMD
file

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: *Autumn View Subd* ZONE MAP/DRG. FILE #: L10/D28

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: **Tracts 355 & 356, Lands of Atrisco Grant unit 3, and Tracts A & B, Lands of Hector Rojo**

CITY ADDRESS: _____

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	1606 Central NW Suite 201	PHONE:	(505)321-9099
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87106
OWNER:	*Fuller homes*	CONTACT:	Jody Pauza
ADDRESS:	*PO Box 13900*	PHONE:	888-4740
CITY, STATE:	*Albuquerque, NM*	ZIP CODE:	87192
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	JGI	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

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- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY) **Concurance for Bern. Co**

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

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HYDROLOGY SECTION

DATE SUBMITTED: 8/15/2005 BY: David Soule

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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 22, 2004

Mr. David Soule, P.E.
Rio Grande Engineering
3500 Comanche NE, Suite E-5
Albuquerque, NM 87107

RE: Water and Sanitary Sewer Availability Statement L-9
Tracts 355 and 356, Lands of Atrisco Grant Unit 3 and Tracts A and B of the Lands of Hector Rojo

Mr. Soule:

Records indicate that the referenced parcels are split between pressure zones 1W and 2WR as defined by the 5,063' contour. Several development alternatives are therefore possible. Mass grading may be performed to lower the entire site to be served by the 1W pressure zone, or fill may be imported to raise the lower elevations to a point within the 2WR pressure zone. Service through both zones could also be attained, but would require extensive public line extensions.

Project Information: The property includes approximately 15.2 acres of undeveloped property located between San Ignacio and Tower Roads and west of the Amole Del Norte Diversion Channel. As of the date of this correspondence, the site is located within an unincorporated area of Bernalillo County with A-1 zoning. The site is a subsection of a larger area of land which is the subject of a pending EPC case seeking both annexation into the City of Albuquerque and establishment of zoning. The proposed zoning of the subject site is R-D / R-1 as set forth in the Tower / Unser Sector Plan. According to your request for availability, development of the site would include subdivision of the site so as to create a total of 90 individual lots which would subsequently be developed as single family residences.

Existing Conditions: Water lines proximate to the site are limited to a 1W zone-30-inch within the existing right-of-way of the Amole Del Norte Drainage Channel and a 6-inch fire hydrant stub out in San Ignacio which connects to the 30-inch transmission line. Nearby sanitary sewer lines are limited to a single 8-inch collector located in Tower. Records indicate that the line terminates in a manhole located approximately 250 feet west of Coors.

Sanitary Sewer Service would require installation of minimum 8-inch collectors within the rights-of-way each of the streets internal to the proposed subdivision. Stub outs to each of the proposed lots within the subdivision must be included with the design of the new sewer. A 10-inch line in Tower would be required to cover the northern frontage of the proposed subdivision. Grades permitting, some of the site may potentially outfall to the existing manhole #491 in Tower. This would involve not only the installation of the line required to cover the northern frontage, but a complete extension of the existing line to the northwestern property corner of Tract 355.

Whether or not the line in Tower is utilized as an outfall for the project, a minimum 8-inch line must also be constructed along the southern frontage in San Ignacio. Installation of this line would require an underpass beneath the Amole Drainage Channel in San Ignacio. This would be accomplished through Horizontal Directional Drilling (HDD) operations. Should the Tower outfall prove infeasible, the new sewer line in San Ignacio would need to connect to a yet to be constructed line on the east side of the channel. Please refer to Availability Statement #40209 for specific information regarding the required sewer outfall in this area. Please be

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

Rio Grande Engineering

August 15, 2005

Mr. Bradley Bingham, PE
Hydrology Devlopment
Public Works Department
City of Albuquerque

RE: Grading and Drainage Plan
RESUBMITTAL
Autumn View- L10/D28

Dear Brad:

The purpose of this letter is to respond to your written comments dated 8/1/05 and to explain how the grading plan was revised based upon your comments. The following is your comments with the response in bold summarizing how we addressed them.

Please label the 48"-66" storm drain on the grading plan on Tower Road. Provide the calculation for the storm drain in the SE corner.
The required capacity of the line as shown at AP-34 in the Tower/Sage Drainage Master Plan calls for 368 cfs. I have modified the slope so a 60" RCP has the capacity of 522.29 cfs based upon the attached Manning's calculations.

The lots on the northwest corner of the subdivision should be elevated to better blend with the surrounding property.
This corner was lowered due to a maximum elevation requirement for water service. An excerpt from the Availability statement is enclosed.

Please provide street names on the grading and drainage plan
The names have been added.

Inlets in a sump condition should be designed for 2 X Q100 which is shown to be 53.2cfs (106.4cfs). Extra inlets should be provided.
I belied the sump condition requirement for doubling the capacity was only applicable when there were no overflow allowances. The pedestrian access serves as an emergency overflow. I have corrected the plan to include 2-double D inlets.

I have a concern about the 5% kept in treatment A. How is this 5% kept at each basin? I believe that Treatment C should receive this 5% Please look this over.
I made a judgment call based upon the typical landscaping in the area. Very few of the home owners actually landscape the rear yards especially between our double walls. I have revised the treatments accordingly.

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What is the purpose of the concrete swale on lot 13? Provide offsite basin and quantify runoff.
The offsite basin was included in the existing condition calculations. I did not make it clear though. The existing flow rate is 12.06 cfs. I met with the neighbors and they requested I channelize this along the wall and down the side yard between lots 3 and D-3. The easements will be granted for these improvements prior to final plat.

Provide copy of pre-annexation agreement
A copy will be provided to you under separate cover,

It was my intent and is my belief that all of your comments have been successfully addressed. Therefore I request your approval of the enclosed grading plan

Should you have any questions or wish to discuss this matter further, feel free to contact me at any time.

Sincerely,

David Soule, PE
1606 Central SE
Albuquerque, New Mexico 87106
505-321-9099
david@riograndeengineering.com

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CITY OF ALBUQUERQUE
NEW MEXICO

AMOLE DEL NORTE
STORM DRAINAGE FACILITIES

TOWER/SAGE
DRAINAGE MASTER PLAN

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE, NEW MEXICO

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A20-D
4.4 Ac.

A19-D 6.9 Ac.

A14-D
28.9 Ac.

A15-D
16.2 Ac.

A16-D
40.8 Ac.

B7-D
37.8 Ac.

B8-D
57.0 Ac.

S8-D
43.7 Ac.

S9-D
47.9 Ac.

75th STREET

STINSON STREET

COOKS

SEDIMENTATION PONDS

CHANNEL

AMOLE DEL NORTE

BLVD.

30 31 32 27 28 33 34 23 24 25 37 38

BASIN

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TABLE 3

TOWER/SAGE DRAINAGE MASTER PLAN

SUMMARY OF PEAK DISCHARGES AND PEAK VOLUMES

(ALL FLOWS INCLUDE A 5% BULKING FACTOR)

ANALYSIS POINT	Q(10) (6hr.) (cfs)	V(10) (24hr.) (ac.ft.)	Q(100) (6hr.) (cfs)	V(100) (24hr.) (ac.ft.)
1	70	3.2	112	5.2
2	126	5.7	204	9.4
3	179	8.3	292	13.7
4	244	11.4	397	18.8
5	298	14.0	490	23.2
6	73	3.7	119	6.1
7	78	4.2	132	7.0
8	86	4.7	147	7.9
9	445	22.0	748	36.8
10	457	22.6	766	37.8
11	35	1.5	58	2.4
12	77	3.5	132	5.8
13	118	5.6	211	9.6
14	142	6.8	252	11.6
15	46	1.9	77	3.2
16	65	2.7	109	4.6
17	132	5.5	228	9.6
18	185	8.0	318	13.8
19	202	9.4	348	16.4
20	345	16.5	599	27.7
21	820	39.3	1414	67.2
22	23	39.3	25	67.2
23	59	42.1	90	71.9
24	111	45.8	178	78.1
25	151	50.2	250	85.9
26	56	2.5	91	4.1
27	104	5.2	170	8.7
28	127	8.2	207	13.5
29	14	0.5	24	0.9
30	22	1.1	39	1.9
31	24	1.7	46	3.0
32	30	2.1	57	3.7
33	180	11.7	303	19.6
34	217	14.9	368	25.2
35	32	2.2	55	3.7
36	71	5.9	118	9.8
37	120	9.9	201	16.7
38	149	13.7	251	23.2
39	58	2.4	96	4.0
40	83	3.6	138	5.9
41	124	5.4	199	8.9
42	48	2.1	77	3.4
43	171	7.5	276	12.3
44	175	8.0	283	13.2
45	36	1.5	55	2.5

NOTE: SEE MAP NO. 2 FOR LOCATION OF ANALYSIS POINTS

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Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
A	48	1	12.57	1	144.03	60.74	4.83
Tower	60	4	19.63	1.25	522.29	368.00	18.74

Manning's Equation:

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

A = Area
R = D/4
S = Slope
n = 0.013

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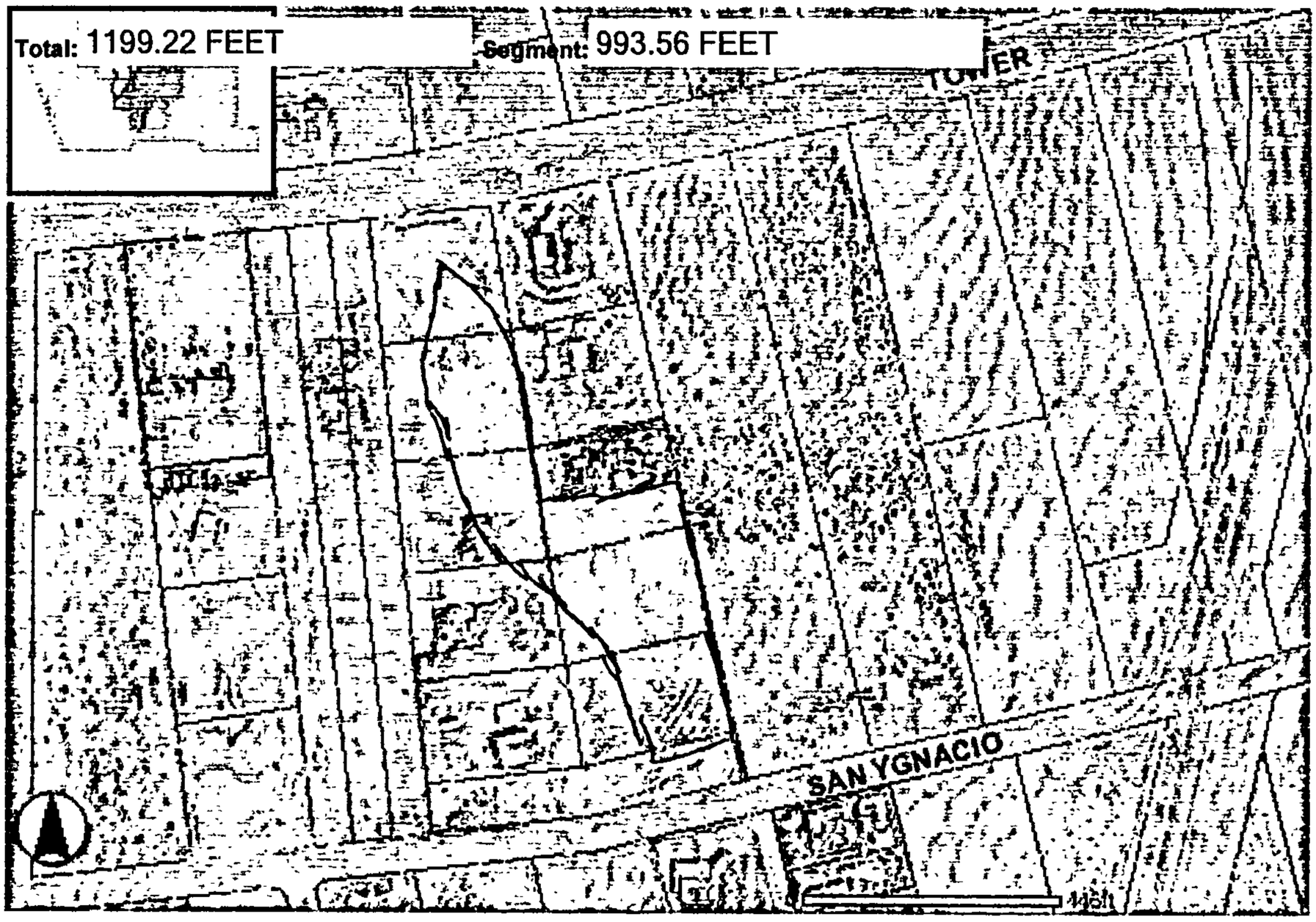

upland Area = 5.74 Acres

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1" = 400

Channel Capacity

	Top Width	Bottom Width	Depth	Area	WP	R	Slope	Q Provided	Q Required	Velocity
	(ft)	(ft)	(ft)	(ft^2)	(ft)		(%)	(cfs)	(cfs)	(ft/s)
East/West	8	4	1	6.00	8.47	0.7082039	0.65	33.69	12.06	2.01
North south	5	5	1	5.00	7.00	0.7142857	2.37	53.91	12.06	2.41

Manning's Equation:

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

A = Area
R = D/4
S = Slope
n = 0.017

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Weighted E Method

Existing Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
upland	256568.40	5.740	65%	3.731	5%	0.287	10%	0.574	20%	1.148	0.813	0.389	12.06
onsite	653400.00	15.240	80%	12.192	0%	0.000	20%	3.048	0%	0.000	0.550	0.699	24.48
Total	909968.40	20.980		15.923		0.287		3.622		1.148		1.087	36.54

Proposed Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year, 6-hr.			10-day
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
A	215417.27	4.945		0	47%	2.324	0%	0	53%	2.621	1.359	0.560	16.17	0.910
B	117738.00	2.023		0	47%	0.951	0%	0	53%	1.072	1.359	0.229	6.62	0.372
C	229475.00	2.108		0	47%	0.991	0%	0	53%	1.117	1.359	0.239	6.89	0.388
D	33607.00	3.649		0	47%	1.715	0%	0	53%	1.934	1.359	0.413	11.93	0.671
E	33607.00	2.516		0	47%	1.182	0%	0	53%	1.333	1.359	0.285	8.23	0.463
Total	596237.27	15.240		0.00		7.16		0.00		8.08		1.73	49.84	2.80

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

Where for 100-year, 6-hour storm

Ea= 0.44	Qa= 1.29
Eb= 0.67	Qb= 2.03
Ec= 0.99	Qc= 2.87
Ed= 1.97	Qd= 4.37

Developed Conditons

ZARAGOSA	20.29 CFS
ALICANTE	32.22 CFS
BOLERO	6.89 CFS
VIGO	6.62 CFS
SANTANDER	29.68 CFS
BELEARIC	4.85 CFS

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L10/D024

CITY of ALBUQUERQUE
SIXTEENTH COUNCIL

COUNCIL BILL NO. O-04-50 ENACTMENT NO. O-2005-020

SPONSORED BY: Miguel Gomez, By Request

ORDINANCE

ANNEXATION, 04EPC 00059, ANNEXING 40 ACRES, MORE OR LESS, LOCATED ON THE AMOLE DEL NORTE DIVERSION CHANNEL, BETWEEN SAGE ROAD SW AND TOWER ROAD SW, AND AMENDING THE ZONE MAP TO ESTABLISH RD/R-1 ZONING AS PER EXHIBIT A, ATTACHED.

BE IT ORDAINED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

Section 1. AREA PROPOSED FOR ANNEXATION. The owners of the area annexed hereby presented a properly signed petition to annex the following territory: 40 acres, more or less, located on Amole Del Norte Diversion Channel, between Sage Road SW and Tower Road SW; and more particularly described as follows:

A. Lots 355, 356, 400, and 401, Town of Atrisco Grant; and Tracts A & B, Lands of Hector Rojo.

B. All of the right-of-way adjoining the land described in A. of this section to the extent it is not already in the City.

Section 2. ANNEXATION ACCEPTED. The area specified in Section 1 above is designated Developing Urban in the Comprehensive Plan which makes it suitable for annexation. Furthermore, the petition for annexation meets the requirements of Resolution 54-1990 (City's Annexation Policy). Therefore, the area specified in Section 1 above is hereby annexed.

Section 3. ZONE MAP AMENDED. The request for R-1 zoning is justified per Resolution 270-1980 because it will allow residential and commercial development that is consistent with the existing property located to the

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Page: 1 of 8
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southwest, which is more advantageous to the community. Therefore, the zone map adopted by Section 14-16-1-1 et. Seq. R.O.A. 1994 is hereby amended, establishing RD/R-1 zoning for the area specified in Section 1 above.

Section 4. FINDINGS ACCEPTED. The Council shall adopt the following zone map amendment findings:

1. This is a request for establishment of RD/R-1 zoning for approximately 39 acres, Lots 355, 356, 400, 401, Town of Atrisco Grant and Lots A & B, Lands of Hector Rojo, located on the Amole del Norte Diversion Channel, between Sage Road SW and Tower Road SW. The site is currently undeveloped and includes a portion of the Amole del Norte Diversion Channel. The site is currently zoned County A-1 and Diversion Channel.

2. The applicant requests RD/R-1 zoning for lots 355, 356, Town of Atrisco Grant and for lots A and B, Lands of Hector Rojo as per the Tower/Unser Sector Development Plan. Together these lots are approximately 15.1 acres.

3. The subject site is designated Developing Urban in the Comprehensive Plan with a goal to create a quality urban environment with identifiable, individual but integrated communities. The request for annexation will implement this stated goal and will also implement the following policies for Developing Urban areas:

a. This request for annexation and establishment of RD/R-1 zoning, recommended by the Tower/Unser Sector Development Plan for the northern portion of the annexation request, will allow the subject property to achieve appropriate density patterns and design (Policy b).

b. This site is appropriate for annexation because it is vacant and contiguous to existing and programmed urban facilities and services. In addition, there are a variety of community and public services that are accessible to this site (Policy e).

c. The applicant proposes to develop single-family homes (6 du/net acre), which respects existing neighborhood values, natural environmental conditions and carrying capacities, scenic resources,

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Page: 2 of 6
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and resources of other social, cultural, and recreational concern (policy d).

4. The elementary schools in this area, including Mary Ann Binford Elementary School, Truman Middle School, and West Mesa High School, are operating close to or above their designed capacity and are projected to accrue substantial enrollment increases in the next 5 years. An elementary school, located at 86th Street and Tower Road, is slated to open in the fall of 2004 to provide relief to Mary Ann Binford Elementary School. This new school is expected to have an enrollment of 900 students, a number that would bring the school above maximum capacity when it opens. This request for annexation will add a strain to the overcrowded public schools in the region (West Side Strategic Plan, Policy 2.5).

5. This request for establishment of RD/R-1 zoning supports the goals for the Bridge/Westgate Community, as identified in the West Side Strategic Plan by allowing this site to receive urban style services appropriate in this community (Policy 3.40). At the same time, this request may lead to an increase in the demand for public service facilities in this community, i.e. schools, transit facilities, fire/police stations, libraries, or other community services (Policy 3.44).

6. This request for a zone change from County A-1 to City RD/R-1 meets the requirements of R-270-1980 because the annexation constitutes a changed condition that makes the current County A-1 zoning inappropriate given the urban services that will become accessible to the site (Section 1.D). Most importantly though, the requested zoning is more advantageous to the community as articulated by the goals and policies of the Comprehensive Plan, West Side Strategic Plan, and Tower/Unser Sector Development Plan.

7. According to the Office of Community and Neighborhood Coordination, as of February 26, 2004, there were no known Recognized Neighborhood Associations in this area affected by this request. There is neighborhood opposition to this request.

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Page: 3 of 6
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8. Several residents did not have actual notice of the County Commission Hearing approving annexation of the subject property.

Section 5. PRE-ANNEXATION AGREEMENT AND PRE-ANNEXATION AGREEMENT ADDENDUM. The City and the applicant for annexation have agreed to all the measures listed in the attached Annexation Agreement and Addendum, labeled EXHIBIT B.

Section 6. SEVERABILITY CLAUSE. If any section, paragraph, sentence, clause, word or phrase of this ordinance is for any reason held to be invalid or unenforceable by any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this ordinance. The Council hereby declares that it would have passed this ordinance and each section, paragraph, sentence, clause, word or phrase thereof irrespective of any provisions being declared unconstitutional or otherwise invalid.

Section 7. EFFECTIVE DATE AND PUBLICATION. This ordinance shall take effect five days after publication by title and general summary and when a plat of the territory hereby annexed is filed in the office of the County Clerk.

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PASSED AND ADOPTED THIS 7th DAY OF March, 2005

BY A VOTE OF: 5 FOR 4 AGAINST.

Yes: 5

No: Gomez, Griego, Heinrich, O'Malley

Brad Winter

Brad Winter, President

City Council

APPROVED THIS 1st DAY OF April, 2005

Bill No. O-04-50

Martin J. Chavez, Mayor

City of Albuquerque

ATTEST:

City Clerk

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Page: 5 of 6
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Proposed annexation in Zone Map L-10

100?

Map Scale: 1" = 500 '

Map Printed April 27, 2004

------ MUNICIPAL LI

AREA PROPOSED FOR ANNEXATION

GRAY SHADING INDICATES COUNTY

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PRE-ANNEXATION AGREEMENT TO CONSTRUCT PUBLIC IMPROVEMENTS

THIS AGREEMENT is made this _____ day of _____, 2004, by and between the City of Albuquerque, New Mexico ("City"), whose address is P. O. Box 1293, One Civic Plaza, Albuquerque, New Mexico 87103, and Albuquerque Excavators ("Developer"), a [state the type of business entity, for instance, "New Mexico corporation," "general partnership," "joint venture," "individual," etc.:] New Mexico Corporation, whose address is 7201 Isleta Blvd., Albuquerque, New Mexico 87105 and whose telephone number is 873-5000, in Albuquerque, New Mexico, and is entered into as of the date of final execution of this Agreement.

RECITALS:

A. WHEREAS, Developer is developing certain lands outside the City of Albuquerque Bernalillo County, New Mexico, known as [describe:] Tracts 355, 356,400,401, Town of Atrisco Grant and Tracts A & B, Lands of Hector Rojo recorded on December 5, 1944 in the records of Bernalillo County at Book Misc. D, pages 118 through _____ ("Developer's Property"). The Developer certifies that the Developer's Property is owned by [state the name of the present real property owner exactly as shown on the real estate document conveying title in Developer's Property to the present owner:] Albuquerque Excavators ("Owner").

B. WHEREAS, Developer has applied for annexation of Developer's Property into the Albuquerque City limits under annexation AX_____; and

C. WHEREAS, Developer represents and covenants that Developer will develop Developer's Property at a maximum residential density of 6 du's; and

D. WHEREAS, Developer's development of the property at a density of 6 du's will require additional infrastructure to service the development; and

E. WHEREAS, Developer has agreed to prepare a Traffic Impact Study ("TIS") acceptable to the City pursuant to criteria in the City's Development Process Manual ("DPM") in connection with the development of Developer's Property; and

F. WHEREAS, under Albuquerque City Council Resolution R-68 Enactment No. 54-1990 annexation of areas planned to be urban intensity of development will be approved when certain policies are satisfied including a commitment by the land owner that he or his successors in interest will in a manner that satisfies City standards, install and pay for necessary major streets, water, sanitary sewer, and storm-water handling facilities; and

G. WHEREAS, Developer proposes to install public infrastructure improvements upon City property that abuts or is near or on Developer's Property. The City requires, and the

Developer is willing to provide certain assurances as a prerequisite to the City's granting annexation approval and permission to the Developer to enter City property to construct the improvements; and

H. WHEREAS, the City and Developer desire to enter into this Agreement to satisfy the conditions of City policy for annexation of Developer's Property into the City.

THEREFORE, in consideration of the foregoing promises, THE CITY AND DEVELOPER AGREE:

1. Deadline and Improvements. The Developer agrees to install and complete the following public infrastructure improvements, identified as Project No._____, to the satisfaction of the City, on or before the _____ day of _____, 20____ ("Construction Completion Deadline"), at no cost to the City.

Approximately 2150' LF of full width permanent street improvements on Tower Blvd. starting from Coors Blvd. to 2150' west of Coors Blvd. to include curb, asphaltic paving, median curbs, storm drainage lines, sanitary sewer lines, water lines, traffic signalization and necessary appurtenances ("Improvements").

On site and adjacent street infrastructure shall be determined by the City's Development Review Board at the time of site development plan approval or subdivision plat approval.

2. Albuquerque Public School Contribution: The Developer agrees to contribute a payment ("Payment") in the amount of One Hundred Dollars ($100.00) per residential lot which payment shall be used by the Board of Education of the City of Albuquerque to defer educational expenses associated with the development of Developer's Property. Developer agrees to submit the Payment in the form of a cashiers check to the City prior to final subdivision plat approval of Developer's Property or any portion thereof.

3. Work Order Requirements. The City agrees to issue a Work Order for the construction of the Improvements after:

a. The Developer submits all documents and meets all requirements listed in Development Process Manual, Volume 1, Chapter 5, Work Order Process, and Figure 1, including submitting a Certificate of Insurance in a form acceptable to the City. The certificate must establish that the Developer has procured or has caused to be procured public liability insurance in the amount of not less than One Million Dollars ($1,000,000) combined single limit for accidents or occurrences which are related to the activities covered by this Agreement which cause bodily injury, death or property damage to any member of the public as a result of any condition of the Developer's Property; the Improvements; or the Developer's construction activities on Developer's Property or the City's property. The insurance policy must name the City of Albuquerque, its employees and elected officials, as their interest may appear, as additional insureds. The Developer must maintain the insurance until the City accepts the Improvements. The cancellation provision must provide that, if the policy is either canceled

prior to the expiration date of the policy or is materially changed or not renewed, the issuing company will mail 30 days written notice to the City, attention City Engineer.

b. The Developer complies with all applicable laws, ordinances and regulations, including, but not limited to the City Excavation Ordinance and Sidewalk Ordinance, and pays the following required engineering, staking, testing fees, price adjustment for asphalt and concrete paving, if applicable, and other related City fees and County Clerk recording fees:

Type of Fee	Amount
Engineering Fee	3.25% of actual Construciton
Excavation and Sidewalk Ordinance, Street Restorations Fees As required per City approved estimate (Figure 7)	as required per city approved estimate
Price adjustment (asphalt/concrete)	

(Note: The Developer must pay the City price adjustment for asphalt and concrete paving, if applicable, all City fees which have been incurred during construction before the City will accept the public Improvements.)

4. Surveying, Inspection and Testing. The Improvements shall be inspected, surveyed and tested in accordance with all applicable laws, ordinances, and regulations, and according to the following terms:

a. Construction Surveying. Construction surveying for the construction of the Improvements shall be performed by Armijo Land Surveys. If the construction surveying is performed by an entity other than the City, the City may monitor the construction surveying and the Developer shall ensure that the construction surveying entity provides all construction surveying field notes, plats, reports and related data to the City which the City requires for review. The Developer shall pay the City a reasonable fee for any construction surveying performed by the City. As-built record drawings shall be provided to the City by the entity performing the survey.

b. Construction Inspection Methods. Inspection of the construction of the Improvements shall be performed by Rio Grande Engineering, a New Mexico Registered Professional Engineer. If the inspection is performed by an entity other than the City, the City may monitor the inspection and the Developer shall ensure that the inspecting entity provides all inspection results, reports and related data to the City which the City requires for review. The City retains the right to perform its own general overall inspection of the construction project at any time prior to final acceptance of the Improvements, if deemed

necessary or advisable by the City Engineer. The Developer shall pay the City a reasonable fee for any inspections performed by the City.

c. Field Testing. Field testing of the construction of the Improvements shall be performed by Vinyard and Associates, a certified testing laboratory under the supervision of a New Mexico Registered Professional Engineer, in accordance with the current City of Albuquerque Standard Specifications for Public Works Construction. If any field testing is performed by an entity other than the City, the City may monitor the field testing and the Developer shall ensure that the field testing entity provides all field testing results, reports and related data to the City which the City requires for review. The Developer shall pay the City a reasonable fee for any field testing performed by the City.

d. Additional Testing. The City retains the right to perform all additional testing which the City Engineer deems is necessary or advisable, and the Developer shall pay the City a reasonable fee therefore.

5. Acceptance and Termination. After the Developer completes the Improvements to the satisfaction of the City and submits the final acceptance package, the City will review it, and, if acceptable, the City will issue a Certificate of Completion and Acceptance for the Improvements. Thereafter, the Developer's obligations to the City pursuant to this Agreement shall terminate, with the exception of the bond or other guarantee that the Developer must provide to assure the materials and workmanship, as required by the Subdivision Ordinance.

6. Payment for Incomplete Improvements. If the Developer fails to complete construction of the Improvements satisfactorily by the Construction Completion Deadline, the City may make demand upon the excavation bond posted in accordance with City Street Excavation Ordinance 6-5-2-3(A)(3) or any successor ordinance in order to obtain payment for completing the Improvements. If the cost of completing the Improvements exceeds the amount of the excavation bond, the City may proceed against the Developer for the balance of the completion costs and for any costs or damages incurred by the City as a result of Developer's failure to perform according to the terms of this Agreement.

7. Indemnification. Until the Improvements are accepted by the City, the Developer shall be solely responsible for maintaining the premises upon which the Improvements are being constructed in a safe condition. The Developer agrees to defend, indemnify and hold harmless the City and 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 Developer, its agents, representatives, contractors or subcontractors or arising from the failure of the Developer, its agents, representatives, contractors or subcontractors to perform any act or duty required of the Developer herein; provided, however, to the extent, if at all, Section 56-7-1 N.M.S.A. 1978 is applicable to this Agreement, this Agreement to indemnify will not extend to liability, claims, damages, losses or expenses, including attorney 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 directions or instructions by the indemnitee, where such giving or failure

to give directions or instructions is 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.

8. Covenant. This Agreement shall be a covenant running with the title to the Developer's Property and shall be binding upon the Developer, its heirs, personal representatives, successors and assigns.

9. Notice. For purposes of giving formal written notice, including notice of change of address, the Developer's and the City's addresses are as stated in the first paragraph of this Agreement. Notice may be given either in person or by certified U.S. mail, postage paid. Notice will be considered to have been received within three (3) days after the notice is mailed if there is no actual evidence of receipt.

10. 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.

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

12. 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.

13. 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.

14. Forms Not Changed. Developer agrees that changes to this form are not binding unless initialed by the Developer and signed by the City's Legal Department on this form.

15. Authority to Execute. If the Developer signing below is not the Owner of the Developer's Property, the City may require the Developer to provide the City with satisfactory proof of Developer's authority to execute this Agreement.

16. Assignment. This Agreement shall not be assigned without the prior written consent of the City and the Developer and the express written concurrence of any surety which has undertaken to guarantee the completion of the Improvements. The City's approval will not be withheld unreasonably. If so assigned, this Agreement shall extend to and be binding upon the successors and assigns of the parties hereto.

17. Recitals. The Recitals are a material part of this Agreement and are incorporated herein by reference.

DEVELOPER

By: Jerry Padilla
Name: Jerry Padilla
Title: President
Dated: 3/29/05

CITY OF ALBUQUERQUE

James B. Lewis
Chief Administrative Officer
Dated: 7/6/05

APPROVED BY

Richard Dourte
City of Albuquerque Engineer

DEVELOPER'S NOTARY

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

This instrument was acknowledged before me on this 29th day of March, 2005, by [name(s) of person(s):] Jerry Padilla, [title or capacity] President of [Subdivider:] Albuquerque Petroglyphs Inc.

Official Seal
Priscille Vialpando
Notary Public
State of New Mexico
My Commission Expires: 12/8/05

CITY'S NOTARY

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

This instrument was acknowledged before me on this 6th day of July, 2005, by James B. Lewis, Chief Administrative Officer for the City of Albuquerque, a municipal corporation.

Notary Public
My Commission Expires:
1-20-06

ANNEXATION AGREEMENT ADDENDUM, O-04-50

The purpose of this addendum is to amend the previous annexation agreement between Albuquerque Excavators and the City of Albuquerque. This amendment is relative to annexation bill O-04-50. All items not specifically addressed in this amendment and covered under the original annexation agreement, shall remain. This addendum is based upon the meetings we have had to date with the neighborhood association representatives regarding the Albuquerque Excavators annexations. This Addendum covers the following items:

1. The zoning for this tract is RD/R1.

2. The developer has agreed to limit the west side of the development at the Tower/San Ignacio property to single story homes.

3. The portion of the annexation area between Tower/San Ignacio will have a maximum of 88 lots. In addition, the lots abutting the County land on the western property line will be larger in size (a minimum of 7,000 square feet).

4. The homes will have a package of standard amenities and several upgrades from which the homebuyer can choose. The package of standard amenities will be the same as or similar to those included in The Crossings, a Fuller Homes community located north of Interstate 40. These standard amenities shall include (but not be limited to):

    a. six-panel wood doors;
    b. tile roofs (if roof is pitched); and/or
    c. flat roofs
    d. cast iron sink;
    e. cathedral ceilings;
    f. plant ledges;
    g. arches; and
    h. walk-in closets;

5. The developer shall provide a retaining wall at the westerly edge of the proposed Subdivision.

6. Private Pocket Parks shall be provided as a part of the subdivisions.

7. The ~~two~~ one park sites in the O-50 development are approximately 11,790 square feet for the site off of Tower Road and ~~21,315 square feet for the site off of San Ygnacio.~~ 8/25/05

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8. The developer shall construct a decorative perimeter wall consistent with the City's perimeter wall design standards to be approved in conjunction with the preliminary plat.

9. Interior lot walls shall be masonry block.

10. At least 15% of the homes shall be over 2,000 square feet and at least 5% shall be over 2,500 square feet. This will make the base sales price of these homes higher. The minimum square footage shall be 1,400 square feet.

11. The minimum home price shall be $140,000.

12. Development will not exceed 6 dwelling units per acre.

13. Development will be governed by covenants with a mandatory homeowners' association.

14. The developer is also willing to vary its products in order to appeal to a diverse group of homeowners. Product types will be varied and will include flat roofs in certain parts of the subdivisions in order to maintain views.

15. The developer is wiling to pay APS $100/lot that could be used for future school construction.

16. The developer shall comply with all City of Albuquerque dust abatement regulations.

17. Lighting will be installed per City regulations.

18. Light fixtures will also be installed in order to minimize light pollution without compromising safety.

19. Pedestrian amenities and connections will be developed within the subdivisions with linkages to open space, trails, and bike lanes.

20. Subdivisions will include perimeter landscaping, street trees, and other amenities.

Approved: _____ Date: 8/25/05

Agreements with Rio Grande Engineering Firm

The following agreements have been reached between Rio Grande Engineering, Agent for Fuller Homes, and the current property owners of Lots 1,2,3, D3,D4, and D5 (formerly Lots D & 4 Land Division of James E. Gallegos, Town of Atrisco Grant Unit Three):

1. That the wall adjoining the new Fuller Homes Development and the properties mentioned above will be a retaining wall which will extend at least to the point of the current dirt elevation of the properties west of the Fuller Development.
2. That there will be a split face 8 inch block wall which will extend approximately six feet above the retaining wall running all along the properties mentioned above. (The property owner may opt for a five foot wall instead of the six foot wall.)
3. That the block portion of the pilasters on such wall will be slightly raised above the normal wall height.
4. That Fuller Homes will be responsible for removing all existing walls running north-south and tie into all existing interior landscaping walls running east-west on any of the above mentioned properties.
5. That the property owners mentioned above will allow Fuller Homes to place the wall adjoining the properties on the exact property line which will make such wall a shared wall between all Fuller Home residents and those property owners mentioned above. Although ownership of said wall will be shared, the property owners mentioned above will not have any liability for workmanship or construction of this wall. Allowing this wall to be placed exactly on the property line will be contingent on a separate satisfactory agreement being reached on a private drainage plan between Fuller Homes and the property owners of lots 2, 3, D3, D4, and D5.
6. That all above mentioned projects and construction (including all costs) will be the responsibility of Fuller Homes or its agent.

AGREED UPON BY ALL PARTIES SIGNING BELOW:

Owner(s) of Lot 1

Owner(s) of Lot 2

Owner(s) of Lot 3

Owner(s) of Lot D3

Owner(s) of Lot D4

Owner(s) of Lot D5

[redacted] Fuller Homes

8/25/05
Date

CITY OF ALBUQUERQUE

August 1, 2005

David Soule, PE
1606 Central Ave. SE.
Rio Grande Engineering
Albuquerque, NM 87106

Re: Autumn View Subdivision Drainage Report
Engineer's Stamp dated 07-07-05 (L10/D28)

Dear Mr. Soule,

Based upon the information provided in your submittals dated 07-07-05, the above referenced report cannot be approved for Preliminary Plat until the following comments are addressed.

- Please label a 48-66"storm drain on the grading plan on Tower Road. Provide the calculations for the storm drain in the SE corner.
- The lots on the northwest corner of the subdivision should be elevated to better blend with the surrounding property.
- Please provide street names on the grading and drainage plan.
- Inlets in a sump condition should be designed for 2 x Q100 which was shown to be 53.2 cfs (106.4 cfs). Extra inlets should be provided.
- I have a concern about the 5% kept in treatment A. How is this 5% kept at each basin? I believe that Treatment C should receive this 5%, please look this over.
- What is the purpose of the concrete swale on lot 13? Provide offsite basin and quantify runoff.
- Provide copy of pre-annexation agreement.

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: file

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

L-10/D28

PROJECT TITLE: *Autumn View Subd* ZONE MAP/DRG. FILE #: L-10-Z

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: **Tracts 355 & 356, Lands of Atrisco Grant unit 3, and Tracts A & B, Lands of Hector Rojo**

CITY ADDRESS: _____

ENGINEERING FIRM:	Rio Grande Engineering	CONTACT:	David Soule, PE
ADDRESS:	1606 Central NW Suite 201	PHONE:	(505)321-9099
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87106
OWNER:	*Fuller homes*	CONTACT:	Jody Pauza
ADDRESS:	*PO Box 13900*	PHONE:	888-4740
CITY, STATE:	*Albuquerque, NM*	ZIP CODE:	87192
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	JGI	CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- X DRAINAGE REPORT
- _____ DRAINAGE PLAN 1st SUBMITTAL, *REQUIRES TCL or equal*
- _____ DRAINAGE PLAN RESUBMITTAL
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ ENGINEERS CERTIFICATION (TCL)
- _____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- _____ OTHER

Fee paid

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SIA / FINANACIAL GUARANTEE RELEASE
- x PRELIMINARY PLAT APPROVAL
- _____ S. DEV. PLAN FOR SUB'D. APPROVAL
- _____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- N/A BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY (PERM.)
- _____ CERTIFICATE OF OCCUPANCY (TEMP.)
- _____ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ WORK ORDER APPROVAL
- _____ OTHER (SPECIFY) Concurance for Bern. Co

RECEIVED
JUL 0 8 2005
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- _____ YES
- _____ NO
- _____ COPY PROVIDED

DATE SUBMITTED: 7/7/2005 BY: David Soule

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

1. **Conceptual Grading and Drainage Plans**: 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 subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE REPORT

For

AUTUMN VIEW SUBDIVISION
Albuquerque, New Mexico

Prepared by

Rio Grande Engineering
1606 Central Ave SE
Albuquerque, New Mexico 87106

JULY 2005

David Soule P.E. No. 14522

TABLE OF CONTENTS

Purpose 3
Introduction 3
Vicinity Map 4
Existing Conditions 5
Proposed Conditions 5
Summary 6

Appendix

Site Hydrology ..... A
Hydraulic Calculations ..... B

Map Pocket

Drainage Basin Map ..... A
Site Grading and Drainage Plan ..... B

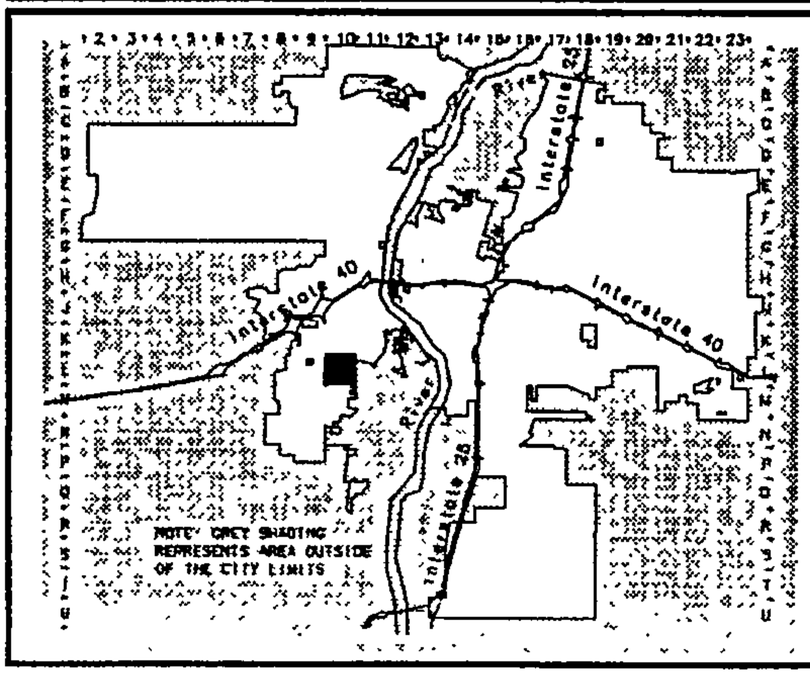
PURPOSE

The purpose of this report is to provide the Drainage Management Plan for the development of the Autumn View Subdivision. This plan will be utilized for the development of the subject property as a 82-lot single family residential subdivision. This plan was prepared in accordance with the City of Albuquerque's Development Process Manual. This report will demonstrate that the proposed improvements do not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A, is a 15-acre parcel of land located on the south side of Tower Road directly west of the Amole Del Norte Channel. The site is located in the Southwest Mesa area of Albuquerque. The legal description of this site is Tracts 355 and 356, Town of Atrisco Grant Unit 3 and Tract A & B, Lands of Hector Rojo. As shown on FIRM map 35001C0329E, the site is located entirely within Flood Zone X. The site is currently undeveloped.

The site is located within the Tower/Sage Master Drainage Plan boundaries. The development of this property will be in conformance to the Tower/Sage Master Drainage Plan. The upstream and downstream storm drainage facilities are in place within San Ygnacio Road which connect the regional detention pond constructed with SAD 222 to the Amole Channel. The drainage improvements located within Tower road are to be constructed with this project. The existing storm drain located within San Ygnacio was sized to accommodate the developed flow from this site.



A lbuquerque G eographic I nformation S ystem
PLANNING DEPARTMENT
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GRAPHIC SCALE IN FEET
250 0 750 1000

Zone Atlas Page

L-10-Z

Map Amended through February 03, 2004

Exhbt A - Vicinity Map

EXISTING CONDITIONS

The site is currently undeveloped. The site is covered with native grasses; there are a few signs of current and previous impact from human activities, roadways and small stock piles of earthen material. The site slopes from the northwest to the south east at a typical 6% slope. The site currently is impacted by minor offsite flows entering the site from west as sheet flow with one minor concentrated flow area. The flow is the result of the adjacent one-acre residential tracts whose back yards drain upon our site. The onsite and offsite flow drain to the southeast corner of the site where it enters the Amole Del Norte channel as sheet flow. Adjacent to the site, within San Ygnacio, there is an existing storm drain. This storm drain connects the Tower Pond to the Amole del Norte Channel. The storm drainage system was constructed with SAD 222 and the system was designed to accommodate the fully developed conditions of the contributing basin of which this site is contained in. The flows within Tower road are conveyed past the site via an asphalt channel constructed within the right of way. This flow is captured by an inlet located approximately 300' east of this site, where it is conveyed into the Amole Channel

PROPOSED CONDITIONS

The proposed improvements consist of an 82-lot single family residential lot subdivision with approximately 3000 lineal feet of 28' wide public roads. The onsite lot grading shall consist of a building pad and rear and side yard swales with typical grades of 1%. Each lot will drain directly to the adjacent roadway. The proposed roadway will consist of a 2% crowned roadway section with mountable and standard curb and gutters. As shown in Appendix A the site contains 15 acres. The developed storm water generation rates were calculated using the simplified procedure for 40 acre and smaller basins as shown in chapter ~~23~~ 22-part A of the Development Process Manual. As shown in Appendix A, the total developed flow developed on the site is predicted to be 49.27 cfs. The streets storm water conveyance capacity was calculated using the

Manning's Equation and an Excel spreadsheet. As shown in appendix B, the 100-year peak discharge rate will stay within the roadway, and the energy grade line will be contained within the right of way. As shown on the grading plan the mountable curb transitions to standard prior to the capacity of the mountable curb being exceeded.

As shown in the Tower/Sage Master Drainage Study, this site is located within Basin B8-D. Therefore the site is allowed to free discharge if the based upon 50% D and 50% B land treatments. Based upon the density and the DPM this site shall have a land treatment of 52% D, and 48% B. Due to the site being located at the very bottom of the drainage system the minor increase in flows will be insignificant, and the downstream conveyance system will not be adversely impacted.

SUMMARY AND RECOMMENDATIONS

This site is an undeveloped portion of land located within the boundaries of the Tower/Sage Master Drainage Plan. As regulated by this plan the site is allowed to discharge 48.77 cfs to the San Ygnacio right-of-way. The mainline storm drainage facilities were completed with Special Assessment District 222. The onsite developed storm water discharge will be conveyed via surface flow by each individual lot to the adjacent Roadway. The public street has capacity to convey the predicted flow. San Ygnacio and the downstream storm drainage facilities were designed to convey the developed flow leaving this site. This project will construct the storm drainage within Tower road as specified within the Master plan.

The proposed site development does not adversely affect the upstream or downstream facilities. The site was designed in conformance to City of Albuquerque Drainage Policy. Therefore, we request approval of the site-grading plan. Since public improvements will be constructed a work order and Subdivision Improvement Agreement will be required. Since this site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity.

APPENDIX A

SITE HYDROLOGY

Weighted E Method

Existing Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year Weighted E (ac-ft)	100-Year Volume (ac-ft)	100-Year Flow cfs
upland	256568.40	5.890	70%	4.123	5%	0.295	10%	0.589	15%	0.884	0.736	0.361	11.47
onsite	653400.00	15.240	80%	12.192	0%	0.000	20%	3.048	0%	0.000	0.550	0.699	24.48
Total	909968.40	21.130		16.315		0.295		3.637		0.884		1.060	35.94

Proposed Developed Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-hr. Weighted E (ac-ft)	100-Year, 6-hr. Volume (ac-ft)	100-Year, 6-hr. Flow cfs	10-day Volume (ac-ft)
A	215417.27	4.945	5%	0.247265	42%	2.077	0%	0	53%	2.621	1.348	0.555	15.99	0.905
B	117738.00	2.023	5%	0.101155	42%	0.850	0%	0	53%	1.072	1.348	0.227	6.54	0.370
C	229475.00	2.108	5%	0.105385	42%	0.885	0%	0	53%	1.117	1.348	0.237	6.81	0.386
D	33607.00	3.649	5%	0.182425	42%	1.532	0%	0	53%	1.934	1.348	0.410	11.80	0.668
E	33607.00	2.516	5%	0.125775	42%	1.057	0%	0	53%	1.333	1.348	0.282	8.13	0.460
Total	596237.27	15.240		0.76		6.40		0.00		8.08		1.71	49.27	2.79

0

How is this kept @ A ?

3.5 cfs acv

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

Where for 100-year, 6-hour storm

Ea= 0.44	Qa= 1.29
Eb= 0.67	Qb= 2.03
Ec= 0.99	Qc= 2.87
Ed= 1.97	Qd= 4.37

3.5 x 15.2 = 53.2 cf

Developed Conditons

ZARAGOSA	19.60 CFS
ALICANTE	31.40 CFS
BOLERO	6.81 CFS
VIGO	6.54 CFS
SANTANDER	29.34 CFS
BELEARIC	4.80 CFS

ALBUQUERQUE
NEW MEXICO
1706

CITY OF ALBUQUERQUE
NEW MEXICO

AMOLE DEL NORTE
STORM DRAINAGE FACILITIES

TOWER/SAGE
DRAINAGE MASTER PLAN

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
ALBUQUERQUE, NEW MEXICO

TABLE 2
TOWER/SAGE DRAINAGE MASTER PLAN
AHYMO BASIN PARAMETER WORKSHEET
PEAK BASIN FLOWS AND VOLUMES

(ALL FLOWS & VOLUMES INCLUDE A 5% BULKING FACTOR)

BASIN	AREA (ac.)	AREA (sq.mi.)	LENGTH (ft.)	ELEV. DIFF. (ft.)	SLOPE (%)	K	VEL (fps)	T(c) (hr.)	T(p) (hr.)	LAND TREATMENT (%) A	B	C	D	10 YEAR PEAK FLOW (6hr.) (cfs)	10 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)	100 YEAR PEAK FLOW (6hr.) (cfs)	100 YEAR RUNOFF VOLUME (24hr.) (ac.ft.)
B4-D	14.7	0.0230	200	5.0	2.50	0.7	1.11	0.05	0.03								
			450	6.0	1.33	3.0	3.46	0.04	0.02								
			1050	12.0	1.14	3.0	3.21	0.09	0.06								
		TOTAL =						0.18	0.12		50		50	29	1.1	51	2.0
B5-D TOWER POND	25.0	0.0391						0.20	0.13	30	50	15	5	21	0.6	55	1.6
B6-D	29.4	0.0459	200	1.0	0.50	0.7	0.49	0.11	0.07								
			950	1.0	0.11	3.0	0.97	0.27	0.18								
			850	5.0	0.59	3.0	2.30	0.10	0.07								
		TOTAL =						0.49	0.32		35		65	41	2.8	68	4.7
B7-D	37.8	0.0591	400	3.0	0.75	1.0	0.87	0.13	0.09								
			1000	3.0	0.30	3.0	1.64	0.17	0.11								
			950	5.0	0.53	3.0	2.18	0.12	0.08								
		TOTAL =						0.42	0.28		33		67	58	3.7	97	6.2
B8-D	57.0	0.0891	200	1.0	0.50	0.7	0.49	0.11	0.07								
			1000	1.0	0.10	3.0	0.95	0.29	0.20								
			800	1.0	0.13	3.0	1.06	0.21	0.14								
			950	5.0	0.53	3.0	2.18	0.12	0.08							170 ≈ 86	
		TOTAL =						0.74	0.49		50		50	49	4.4	86	7.8

?

SEE MAP NO. 2 FOR BASIN IDENTIFICATION

A18-D 6.6 Ac.

A19-D 6.9 Ac.

A20-D 4.4 Ac.

A13-D 28.9 Ac.

A14-D 28.9 Ac.

A15-D 16.2 Ac.

A16-D 40.8 Ac.

UNSER BLVD.

75th STREET

STINSON STREET

SEDIMENTATION POND

B6-D 29.4 Ac.

B7-D 37.8 Ac.

B8-D 57.0 Ac.

S7-D 36.5 Ac.

S8-D 43.7 Ac.

S9-D 47.9 Ac.

N YGNACIO ROAD

ROAD

AMOLE DEL NORTE

CHANNEL

COORS BLVD.

29 30 31 32 6 27 28 33 34 23 24 25 36 37 38

COORS BLVD.

NORTH CHANNEL

SEDIMENTATION POND

BASIN S

BASIN B

BASIN A

PORTION

PORTION

PORTION

EAST

EAST

EAST

48"

48"

48"

66"

66"

66"

60"

30"

36" ROAD

UNSER BLVD.

75th STREET

ATKINSON STREET

42"

APPENDIX B

HYDRAULIC CALCULATIONS

Street Capacity Calculations

BELEARIC

28' F-F Street Section with 4" curb

Slope= 0.06

For water depths less than 0.0625 feet

Y= Water depth
Area = 16*Y^2
P= SQRT(1025*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.0016	0.33	0.00	0.00	0.00	0.61	0.01	1.08	0.01108
0.02	0.0064	0.66	0.01	0.01	0.01	0.97	0.02	1.21	0.02573
0.025	0.01	0.83	0.01	0.01	0.02	1.13	0.03	1.26	0.03373
0.035	0.0196	1.16	0.02	0.03	0.06	1.41	0.05	1.33	0.05069
0.045	0.0324	1.49	0.02	0.05	0.11	1.67	0.08	1.39	0.06868
0.052	0.043264	1.72	0.03	0.08	0.16	1.84	0.10	1.42	0.08178
0.06	0.0576	1.98	0.03	0.12	0.23	2.02	0.12	1.46	0.09719
0.0625	0.0625	2.06	0.03	0.13	0.26	2.08	0.13	1.47	0.10209

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.13	0.26	2.09	0.13	1.46	0.10271
0.1	0.172656	3.98	0.04	0.46	0.91	2.65	0.26	1.47	0.16438
0.13	0.311406	5.51	0.06	0.98	1.96	3.15	0.41	1.54	0.22582
0.16	0.495156	7.04	0.07	1.81	3.61	3.65	0.58	1.61	0.29249
0.2	**0.810156**	**9.08**	**0.09**	**3.46**	**6.93**	**4.28**	**0.86**	**1.69**	**0.38698**
0.207	**0.873506**	**9.43**	**0.09**	**3.83**	**7.66**	**4.38**	**0.91**	**1.70**	**0.40405**
0.2612	1.446942	12.20	0.12	7.48	14.96	5.17	1.35	1.78	0.54059
0.3025	1.9825	14.31	0.14	11.37	22.73	5.73	1.73	1.84	0.64912

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	11.43	22.87	5.75	1.74	1.84	0.65135
0.3039	2.0021	14.31	0.14	11.55	23.11	5.77	1.75	1.84	0.65538
0.3062	2.0343	14.31	0.14	11.86	23.73	5.83	1.79	1.86	0.66566
0.31	2.0875	14.31	0.15	12.38	24.77	5.93	1.84	1.88	0.68266
0.3125	2.1225	14.32	0.15	12.73	25.46	6.00	1.87	1.89	0.69386
0.32	2.2275	14.32	0.16	13.79	27.59	6.19	1.98	1.93	0.72749
0.3317	2.3913	14.34	0.17	15.52	31.03	6.49	2.15	1.99	0.78011
0.333	2.4095	14.34	0.17	15.71	31.42	6.52	2.17	1.99	0.78597

For water depths greater than 0.333 ft but less than 0.513 ft

Y3= Y - 0.333
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	15.94	31.89	6.54	2.19	1.99	0.79079
0.3601	2.80726	15.69	0.18	19.08	38.17	6.80	2.45	2.00	0.85246
0.38	3.122725	16.69	0.19	21.88	43.75	7.01	2.66	2.00	0.90285
0.4196	3.809389	18.67	0.20	28.27	56.54	7.42	3.11	2.02	1.00655
0.4603	4.596832	20.70	0.22	36.09	72.18	7.85	3.61	2.04	1.11717
0.504	5.534525	22.89	0.24	45.99	91.99	8.31	4.19	2.06	1.23981
0.513	5.7395	23.34	0.25	48.24	96.48	8.40	4.31	2.07	1.26552

Street Capacity Calculations

SANTANDER

28' F-F Street Section with 8" curb

Slope= 0.039

For water depths less than 0.125 feet

Y= Water depth
Area = 8*Y^2
P= SQRT(257*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.48	0.00	0.85	0.0080615
0.02	0.00	0.34	0.01	0.00	0.00	0.77	0.02	0.96	0.0188755
0.04	0.01	0.68	0.02	0.02	0.03	1.22	0.05	1.08	0.0440163
0.06	0.03	1.02	0.03	0.05	0.09	1.60	0.10	1.15	0.072102
0.08	0.05	1.36	0.04	0.10	0.20	1.94	0.15	1.21	0.1022575
0.1	0.08	1.70	0.05	0.18	0.36	2.25	0.22	1.25	0.134036
0.12	0.12	2.04	0.06	0.29	0.58	2.54	0.30	1.29	0.167161
0.125	0.13	2.13	0.06	0.33	0.65	2.61	0.33	1.30	0.1756291

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.35	0.69	2.55	0.33	1.25	0.1734796
0.16	0.23	3.91	0.06	0.58	1.16	2.58	0.41	1.13	0.1889612
0.2	0.42	5.95	0.07	1.22	2.43	2.93	0.59	1.15	0.2411483
0.24	0.69	8.00	0.09	2.30	4.60	3.36	0.81	1.21	0.3070684
0.2846	1.08	10.27	0.11	4.16	8.32	3.85	1.10	1.27	0.3887722
0.32	1.47	12.08	0.12	6.20	12.40	4.23	1.35	1.32	0.4576617
0.3551	1.91	13.87	0.14	8.79	17.57	4.60	1.63	1.36	0.5286346
0.365	2.05	14.37	0.14	9.62	19.24	4.71	1.72	1.37	0.5490651

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	10.17	20.35	4.81	1.78	1.39	0.5673866
0.4556	**3.31**	**14.46**	**0.23**	**21.42**	**42.83**	**6.46**	**2.94**	**1.69**	**0.8831004**
0.4848	3.72	14.49	0.26	25.96	51.93	6.98	3.38	1.77	0.992053
0.5	3.94	14.51	0.27	28.46	56.93	7.23	3.62	1.80	1.0490561
0.54	4.50	14.55	0.31	35.47	70.93	7.89	4.26	1.89	1.2000184
0.5584	4.75	14.56	0.33	38.89	77.77	8.18	4.57	1.93	1.2699227
0.63	5.76	14.64	0.39	53.32	106.64	9.26	5.84	2.06	1.5446186
0.667	6.27	14.67	0.43	61.45	122.91	9.80	6.53	2.11	1.6881605

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	64.87	129.74	9.59	6.72	2.02	1.6806518
0.72	7.09	17.32	0.41	67.39	134.78	9.51	6.85	1.98	1.683348
0.74	7.43	18.32	0.41	70.24	140.47	9.46	7.00	1.94	1.6906181
0.76	7.79	19.32	0.40	73.40	146.80	9.42	7.16	1.90	1.7018822
0.78	8.17	20.32	0.40	76.88	153.77	9.41	7.34	1.88	1.7166607
0.8	8.58	21.32	0.40	80.68	161.36	9.41	7.52	1.85	1.7345527
0.847	9.60	23.68	0.41	90.83	181.67	9.46	8.01	1.81	1.7870205

Street Capacity Calculations

BOLERO

28' F-F Street Section with 4" curb

Slope= 0.0552

For water depths less than 0.0625 feet

Y= Water depth
Area = 16*Y^2
P= SQRT(1025*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.0016	0.33	0.00	0.00	0.00	0.59	0.01	1.04	0.01049
0.02	0.0064	0.66	0.01	0.01	0.01	0.93	0.02	1.16	0.02439
0.025	0.01	0.83	0.01	0.01	0.02	1.08	0.03	1.21	0.03198
0.035	0.0196	1.16	0.02	0.03	0.05	1.36	0.05	1.28	0.04809
0.045	0.0324	1.49	0.02	0.05	0.10	1.60	0.07	1.33	0.06519
0.052	0.043264	1.72	0.03	0.08	0.15	1.77	0.09	1.36	0.07764
0.06	0.0576	1.98	0.03	0.11	0.22	1.94	0.12	1.40	0.09229
0.0625	0.0625	2.06	0.03	0.12	0.25	2.00	0.12	1.41	0.09695

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.13	0.25	2.00	0.13	1.40	0.09754
0.1	0.172656	3.98	0.04	0.44	0.88	2.54	0.25	1.41	0.15611
0.13	0.311406	5.51	0.06	0.94	1.88	3.03	0.39	1.48	0.21455
0.16	0.495156	7.04	0.07	1.73	3.47	3.50	0.56	1.54	0.278
0.2	0.810156	9.08	0.09	3.32	6.65	4.10	0.82	1.62	0.36795
0.207	**0.873506**	**9.43**	**0.09**	**3.67**	**7.34**	**4.20**	**0.87**	**1.63**	**0.3842**
0.2612	1.446942	12.20	0.12	7.17	14.35	4.96	1.29	1.71	0.51424
0.3025	1.9825	14.31	0.14	10.90	21.81	5.50	1.66	1.76	0.61763

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	10.97	21.93	5.51	1.67	1.76	0.61976
0.3039	2.0021	14.31	0.14	11.08	22.17	5.54	1.68	1.77	0.6236
0.3062	2.0343	14.31	0.14	11.38	22.76	5.59	1.71	1.78	0.63342
0.31	2.0875	14.31	0.15	11.88	23.76	5.69	1.76	1.80	0.64965
0.3125	2.1225	14.32	0.15	12.21	24.42	5.75	1.80	1.81	0.66034
0.32	2.2275	14.32	0.16	13.23	26.46	5.94	1.90	1.85	0.69245
0.3317	2.3913	14.34	0.17	14.88	29.76	6.22	2.06	1.90	0.7427
0.333	2.4095	14.34	0.17	15.07	30.14	6.25	2.08	1.91	0.74829

For water depths greater than 0.333 ft but less than 0.513 ft

Y3= Y - 0.333
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	15.29	30.59	6.27	2.10	1.91	0.75288
0.3601	2.80726	15.69	0.18	18.30	36.61	6.52	2.35	1.91	0.8116
0.38	3.122725	16.69	0.19	20.98	41.96	6.72	2.55	1.92	0.85961
0.4196	3.809389	18.67	0.20	27.12	54.23	7.12	2.99	1.94	0.95839
0.4603	4.596832	20.70	0.22	34.62	69.23	7.53	3.47	1.96	1.0638
0.504	5.534525	22.89	0.24	44.12	88.23	7.97	4.02	1.98	1.18067
0.513	5.7395	23.34	0.25	46.27	92.54	8.06	4.14	1.98	1.20517

Street Capacity Calculations

ALICANTE

28' F-F Street Section with 8" curb

Slope= 0.045

add picture

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.52	0.01	0.92	0.0088926
0.02	0.00	0.34	0.01	0.00	0.01	0.83	0.02	1.03	0.0207683
0.04	0.01	0.68	0.02	0.02	0.03	1.31	0.05	1.15	0.0483156
0.06	0.03	1.02	0.03	0.05	0.10	1.72	0.10	1.24	0.0790421
0.08	0.05	1.36	0.04	0.11	0.21	2.08	0.17	1.30	0.1120015
0.1	0.08	1.70	0.05	0.19	0.39	2.41	0.24	1.35	0.1467112
0.12	0.12	2.04	0.06	0.31	0.63	2.73	0.33	1.39	0.1828725
0.125	0.13	2.13	0.06	0.35	0.70	2.80	0.35	1.40	0.1921143

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.37	0.74	2.74	0.36	1.34	0.1898964
0.16	0.23	3.91	0.06	0.62	1.25	2.77	0.44	1.22	0.2072016
0.2	0.42	5.95	0.07	1.31	2.61	3.14	0.63	1.24	0.2643469
0.24	0.69	8.00	0.09	2.47	4.94	3.61	0.87	1.30	0.3363241
0.2846	1.08	10.27	0.11	4.47	8.94	4.13	1.18	1.37	0.425426
0.32	1.47	12.08	0.12	6.66	13.32	4.55	1.45	1.42	0.5005004
0.3551	1.91	13.87	0.14	9.44	18.87	4.94	1.76	1.46	0.5778104
0.365	2.05	14.37	0.14	10.34	20.67	5.05	1.84	1.47	0.6000599

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	10.93	21.86	5.17	1.91	1.50	0.6199287
0.4556	**3.31**	**14.46**	**0.23**	**23.00**	**46.01**	**6.94**	**3.16**	**1.81**	**0.9621486**
0.4848	3.72	14.49	0.26	27.89	55.78	7.49	3.63	1.90	1.0802023
0.5	3.94	14.51	0.27	30.58	61.15	7.77	3.89	1.94	1.1419605
0.54	4.50	14.55	0.31	38.10	76.19	8.48	4.58	2.03	1.3054977
0.5584	4.75	14.56	0.33	41.77	83.54	8.79	4.91	2.07	1.3812172
0.63	5.76	14.64	0.39	57.27	114.55	9.95	6.27	2.21	1.6787261
0.667	6.27	14.67	0.43	66.01	132.02	10.52	7.02	2.27	1.8341684

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	69.68	139.36	10.30	7.21	2.17	1.8269457
0.72	7.09	17.32	0.41	72.39	144.78	10.22	7.36	2.12	1.8303612
0.74	7.43	18.32	0.41	75.45	150.89	10.16	7.52	2.08	1.8386962
0.76	7.79	19.32	0.40	78.85	157.69	10.12	7.69	2.05	1.8513277
0.78	8.17	20.32	0.40	82.59	165.17	10.10	7.88	2.02	1.8677404
0.8	8.58	21.32	0.40	86.66	173.33	10.10	8.08	1.99	1.8875033
0.847	9.60	23.68	0.41	97.57	195.14	10.16	8.61	1.95	1.9451625

Street Capacity Calculations

VIGO

28' F-F Street Section with 4" curb

Slope= 0.0517

For water depths less than 0.0625 feet

Y= Water depth
Area = 16*Y^2
P= SQRT(1025*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.0016	0.33	0.00	0.00	0.00	0.57	0.01	1.00	0.01004
0.02	0.0064	0.66	0.01	0.01	0.01	0.90	0.02	1.13	0.02338
0.025	0.01	0.83	0.01	0.01	0.02	1.05	0.03	1.17	0.03066
0.035	0.0196	1.16	0.02	0.03	0.05	1.31	0.05	1.24	0.04613
0.045	0.0324	1.49	0.02	0.05	0.10	1.55	0.07	1.29	0.06255
0.052	0.043264	1.72	0.03	0.07	0.15	1.71	0.09	1.32	0.07451
0.06	0.0576	1.98	0.03	0.11	0.22	1.88	0.11	1.35	0.08859
0.0625	0.0625	2.06	0.03	0.12	0.24	1.93	0.12	1.36	0.09307

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.12	0.25	1.94	0.12	1.36	0.09363
0.1	0.172656	3.98	0.04	0.42	0.85	2.46	0.25	1.37	0.14986
0.13	0.311406	5.51	0.06	0.91	1.82	2.93	0.38	1.43	0.20604
0.16	0.495156	7.04	0.07	1.68	3.35	3.39	0.54	1.49	0.26705
0.2	0.810156	9.08	0.09	3.22	6.43	3.97	0.79	1.56	0.35357
0.207	**0.873506**	**9.43**	**0.09**	**3.55**	**7.11**	**4.07**	**0.84**	**1.58**	**0.3692**
0.2612	1.446942	12.20	0.12	6.94	13.88	4.80	1.25	1.65	0.49433
0.3025	1.9825	14.31	0.14	10.55	21.10	5.32	1.61	1.71	0.59383

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	10.61	21.23	5.33	1.62	1.71	0.59588
0.3039	2.0021	14.31	0.14	10.73	21.45	5.36	1.63	1.71	0.59959
0.3062	2.0343	14.31	0.14	11.01	22.03	5.41	1.66	1.72	0.60905
0.31	2.0875	14.31	0.15	11.50	22.99	5.51	1.71	1.74	0.6247
0.3125	2.1225	14.32	0.15	11.82	23.63	5.57	1.74	1.76	0.63501
0.32	2.2275	14.32	0.16	12.80	25.61	5.75	1.84	1.79	0.66597
0.3317	2.3913	14.34	0.17	14.40	28.81	6.02	2.00	1.84	0.71441
0.333	2.4095	14.34	0.17	14.58	29.17	6.05	2.02	1.85	0.71981

For water depths greater than 0.333 ft but less than 0.513 ft

Y3= Y - 0.333
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	14.80	29.60	6.07	2.03	1.85	0.72422
0.3601	2.80726	15.69	0.18	17.71	35.43	6.31	2.27	1.85	0.78072
0.38	3.122725	16.69	0.19	20.31	40.61	6.50	2.47	1.86	0.82691
0.4196	3.809389	18.67	0.20	26.24	52.49	6.89	2.89	1.87	0.92198
0.4603	4.596832	20.70	0.22	33.50	67.00	7.29	3.35	1.89	1.02344
0.504	5.534525	22.89	0.24	42.69	85.39	7.71	3.89	1.91	1.13596
0.513	5.7395	23.34	0.25	44.78	89.56	7.80	4.00	1.92	1.15954

Street Capacity Calculations

ZARAGOSA

28' F-F Street Section with 8" curb

Slope= 0.0325

For water depths less than 0.125 feet

Y= Water depth
Area = 8*Y^2
P= SQRT(257*Y^2) + Y
n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.44	0.00	0.78	0.0070969
0.02	0.00	0.34	0.01	0.00	0.00	0.70	0.01	0.87	0.0166739
0.04	0.01	0.68	0.02	0.01	0.03	1.11	0.04	0.98	0.0390063
0.06	0.03	1.02	0.03	0.04	0.08	1.46	0.09	1.05	0.0640072
0.08	0.05	1.36	0.04	0.09	0.18	1.77	0.14	1.10	0.0908855
0.1	0.08	1.70	0.05	0.16	0.33	2.05	0.21	1.14	0.1192366
0.12	0.12	2.04	0.06	0.27	0.53	2.32	0.28	1.18	0.1488104
0.125	0.13	2.13	0.06	0.30	0.60	2.38	0.30	1.19	0.1563735

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.32	0.63	2.33	0.30	1.14	0.1543124
0.16	0.23	3.91	0.06	0.53	1.06	2.35	0.38	1.04	0.1676895
0.2	0.42	5.95	0.07	1.11	2.22	2.67	0.53	1.05	0.2140889
0.24	0.69	8.00	0.09	2.10	4.20	3.06	0.74	1.10	0.2729244
0.2846	1.08	10.27	0.11	3.80	7.60	3.51	1.00	1.16	0.3459686
0.32	1.47	12.08	0.12	5.66	11.32	3.86	1.24	1.20	0.4076163
0.3551	**1.91**	**13.87**	**0.14**	**8.02**	**16.04**	**4.20**	**1.49**	**1.24**	**0.4711676**
0.365	2.05	14.37	0.14	8.78	17.57	4.30	1.57	1.25	0.4894677

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	9.29	18.58	4.39	1.62	1.27	0.5059719
0.4556	3.31	14.46	0.23	19.55	39.10	5.90	2.69	1.54	0.790564
0.4848	3.72	14.49	0.26	23.70	47.40	6.37	3.09	1.61	0.888833
0.5	3.94	14.51	0.27	25.98	51.97	6.60	3.30	1.65	0.9402544
0.54	4.50	14.55	0.31	32.38	64.75	7.20	3.89	1.73	1.0764565
0.5584	4.75	14.56	0.33	35.50	70.99	7.47	4.17	1.76	1.1395352
0.63	5.76	14.64	0.39	48.67	97.35	8.46	5.33	1.88	1.3874556
0.667	6.27	14.67	0.43	56.10	112.20	8.94	5.96	1.93	1.5170305

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	59.22	118.43	8.76	6.13	1.84	1.5092218
0.72	7.09	17.32	0.41	61.52	123.04	8.68	6.25	1.80	1.511094
0.74	7.43	18.32	0.41	64.12	128.23	8.63	6.39	1.77	1.5171334
0.76	7.79	19.32	0.40	67.01	134.01	8.60	6.54	1.74	1.5268109
0.78	8.17	20.32	0.40	70.18	140.37	8.59	6.70	1.71	1.539689
0.8	8.58	21.32	0.40	73.65	147.30	8.59	6.87	1.69	1.5554018
0.847	9.60	23.68	0.41	82.92	165.84	8.63	7.31	1.65	1.601813

DROP INLET CALCULATIONS

INLET	TYPE OF INLET	AREA (SF)	Q (CFS)	H (FT)	H ALLOW (FT)
A	Double 'A'	11.24	60.74	1.2596	1.28

2

50%

53 cfs

look at this to make sure it is all in R/W

ORIFICE EQUATION

Q = CA sqrt(2gH)

C = 0.6

g = 32.2

Q

Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
A	36	1	7.07	0.75	66.88	60.74	8.59

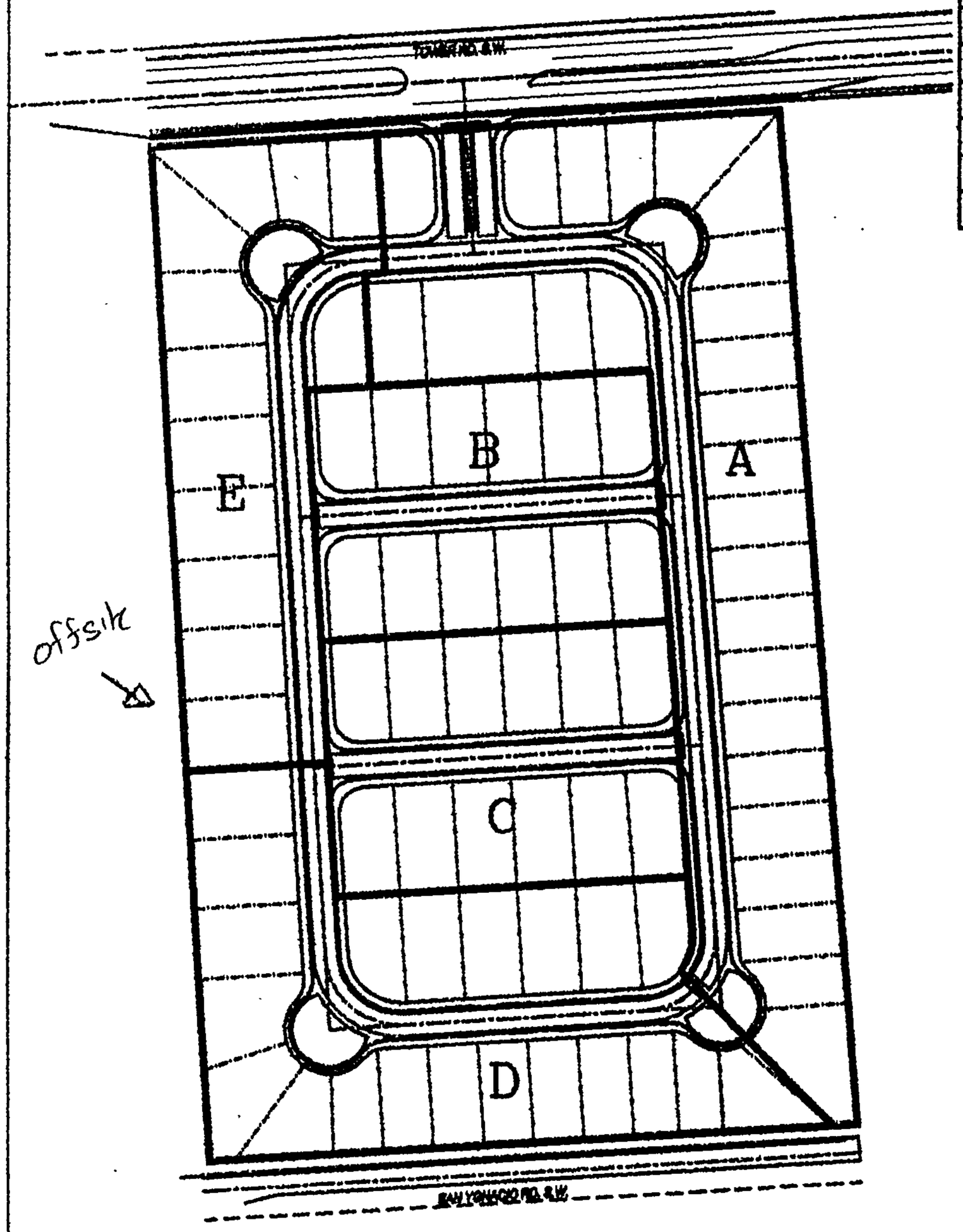
Manning's Equation:

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

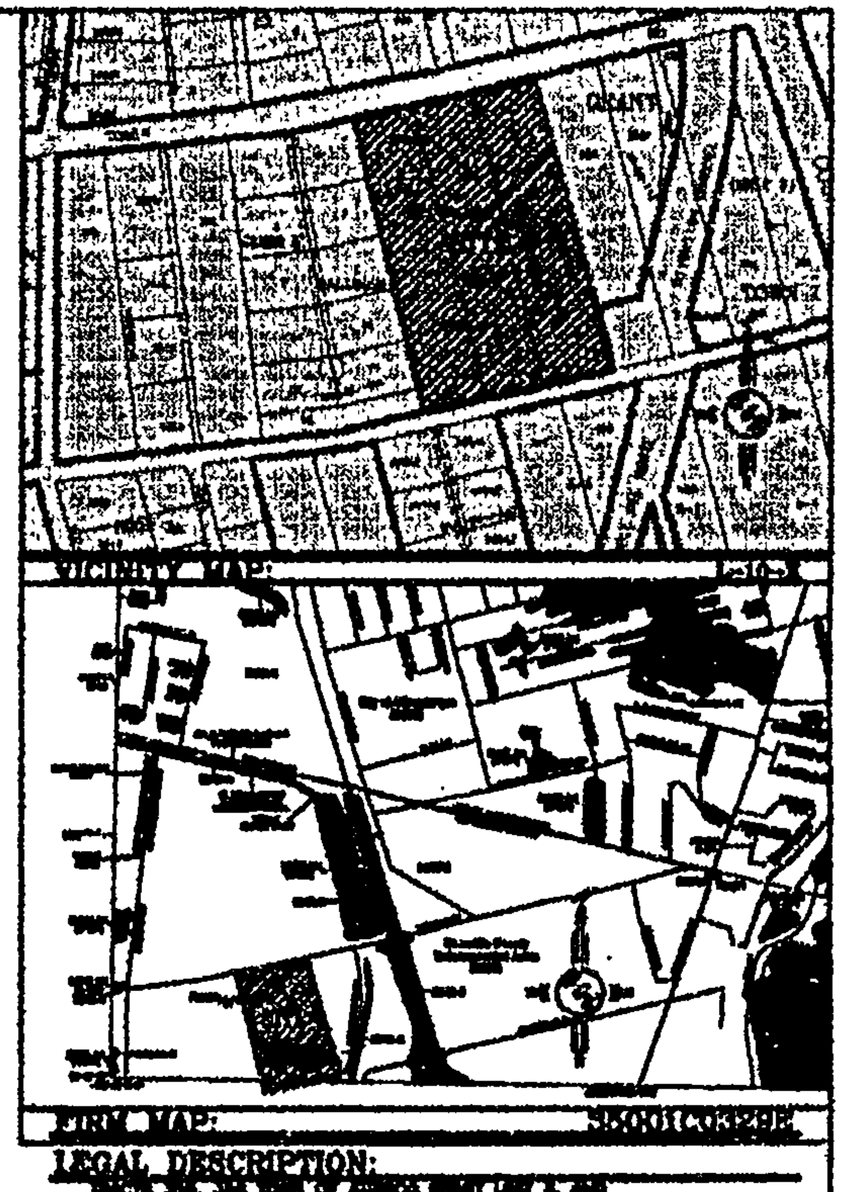
A = Area
R = D/4
S = Slope
n = 0.013

MAP POCKET A

DRAINAGE BASIN MAP



BASIN DATA		
BASIN	AREA	Q
A	4.9453 AC	
B	2.0231 AC	
C	2.1077 AC	
D	3.6485 AC	
E	2.5155 AC	



SURVEYOR'S SEAL	AUTUMN VIEW	DRAWN BY: MDW
		DATE: 6-30-05
	BASIN MAP	JOB NO. 0504-000-0-00-000
DAVID DULLE P.E. #71022	Rio Grande Engineering	SHEET # —
		JOB # 0504

MAP POCKET B

GRADING PLAN