

CITY OF ALBUQUERQUE



September 30, 2008

Angela N. Valdez, P.E.
Wilson & Company, Inc.
2600 The American Rd. SE Ste. 100
Rio Rancho, NM 87124

RE: Valle Vista @ The Trails Unit II, (C-09/D009)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 4/19/2006
Engineers Certification dated 09/11/2008

Ms. Valdez,

Based upon the information provided in your Engineer's Certification submittal dated 09/12/2008, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

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

Sincerely,

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

C: Marilyn Maldonado, COA# 730086
File

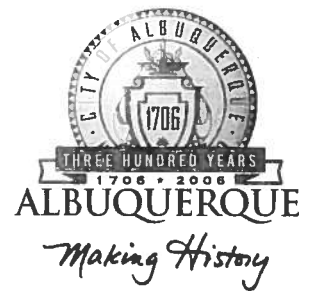
PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

CITY OF ALBUQUERQUE



April 27, 2006

Angela Valdez, P.E.
Wilson & Company
4900 Lang Ave. NE
Albuquerque, NM 87109

Re: Valle Vista – at the Trails Unit II, Tract 11 of the Trails Unit II bulk land plat, Grading and Drainage Plan
Engineer's Stamp dated 4-19-06 (C9-D9)

Dear Ms. Valdez,

Based upon the information provided in your submittal received 4-19-06, the above referenced plan is approved for Grading Permit. Upon completion of the project, please provide an Engineer Certification for our files.

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

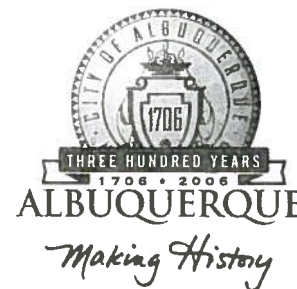
If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
File

CITY OF ALBUQUERQUE



January 10, 2006

Steve Salazar, PE
Wilson & Company
2600 American Rd, SE, Ste. 100
Rio Rancho, NM 87124

Re: Valle Vista at the Trails Subdivision Drainage Report

Engineer Stamp 12-12-05 (C9/D9) C9/D9

Dear Mr. Salazar,

Based upon information provided in your submittal dated ~~12-23-05~~ **12-14-05**, 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. If you have any questions about this process please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso).

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

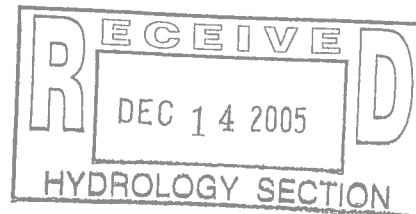
www.cabq.gov

DRAINAGE REPORT


for

**TRACT 11 OF THE TRAILS UNIT II
(VALLE VISTA AT THE TRAILS UNIT II)
Albuquerque, New Mexico**

DECEMBER 2005



I, Steve J. Salazar, do hereby certify that this report was prepared by me or under my direction and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.



Steve J. Salazar, P.E.
NM No. 16241

12/12/05
Date



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List of Exhibits

Exhibit A: Vicinity Map

Exhibit B: FEMA Flood map with site

Exhibit C: Zone Atlas Sheet C-9-Z with site

Exhibit D: Soils Map

List of Plates

(Located in Pockets)

Plate 1: Overall Pond Grading & Drainage plan - Interim Conditions

Plate 2: Overall Pond Grading & Drainage plan - Future Developed Conditions (Drainage Master Plan)

Plate 3: Grading & Drainage Plan

List of Appendices

Appendix A: AHYMO Input and Output for Interim Conditions

Appendix B: AHYMO Input and Output for Fully Developed Conditions

Appendix C: FLOWMASTER Street Capacity Analysis

Appendix D: HYDRAFLOW Storm Drain Sizing Analysis

Appendix E: MISCELLANEOUS CALCULATIONS

Introduction

Wilson & Company prepared this drainage report under contract to Longford Homes. The document provides a basis for the design of storm water conveyance systems within Tract 11 of the Trails Unit II (subject property). The objective of this report is to analyze the hydrologic characteristics associated with the existing and developed conditions.

Tract 11 of the Trails Unit II is a single-family subdivision with 18 total lots within The Trails master planned community. Each lot is approximately 0.5 acres in area. The "Master Drainage Study for The Trails Subdivision", dated December 2003, prepared by Bohannon-Huston, Inc (BHI Study) outlines the major drainage requirements for the entire Trails development. This DMP covers a large area surrounding the subject property. The master planned area will drain through a series of detention surge ponds to the southeast corner of the Trails project to reduce flows. As established in the "Amendment to The Trails Subdivision Master Drainage Study", dated May 5, 2004 and prepared by Wilson & Company, a future storm drain system (currently under design, COA#761281) is scheduled to carry developed flows from the southeast corner of the Trails south to the Boca Negra Detention Dam. Wilson & Company has revised the BHI Study as the project progresses to more accurately model the drainage conditions. This revised Drainage Master Plan is included in this report as Plate 2 (also referred to as the Overall Pond Grading & Drainage Plan for Future Developed Conditions). The Drainage Master Plan establishes revised Basin, Pond and Hydrologic summary data. Tract 11 of the Trails Unit II drains to Pond H, Trails Unit II COA # 730085 as outlined in the BHI Drainage Master Plan.

Project Description

The proposed development is located within the city limits of Albuquerque, New Mexico. The subject property consists of approximately 11.73 acres of undeveloped land on the west side of Albuquerque, south of Ventana Ranch subdivision. The Trails Subdivision is located on Albuquerque's Northwest Mesa, west of Universe Boulevard and south of Paseo Del Norte. Rainbow Blvd binds the subject property to the east, Woodmont Avenue to the north, unplatted land to the west and state land to the south. There is a 50 feet PNM Gas Easement on the east side of the tract, which runs parallel to Rainbow Blvd. See Exhibit A, Vicinity Map.

There are currently 6 other tracts within the Trails Subdivision that are developed or under construction - Santa Fe at the Trails (Tract C of the Trails), Taos at the Trails (Tract D of the Trails), Heritage at the Trails Units I and II (Tract A & B of the Trails respectively), The Reserve at the Trails (Tract F of the Trails), and Santa Fe at the Trails Unit II (Tract 6 of the Trails Unit II). The Trails Unit II (COA #730084) is also currently under construction, which includes the development of Woodmont Avenue, Oakridge Street, Rainbow Boulevard, Paseo Del Norte and Universe Boulevard within the boundaries of The Trails Unit II. Also included is the construction of all major

drainage facilities necessary for the development of The Trails Unit II, including facilities within Tract 11.

The current legal description of the proposed development is "Tract 11 of the Trails Unit II" (Filed in Book 2004C, Page 332, on 10/18/2004). The site is located on Zone Atlas Sheet C-9-Z. See Exhibit C for site location on this Zone Atlas Sheet. Tract 11 of the Trails Unit II is currently zoned R-D. No portion of Tract 11 lies within the 100-year flood zone based on FIRM Map #35001C0111D dated September 20, 1996. See Exhibit B for site location on the Flood Insurance Rate Map.

Existing Conditions

Tract 11 of Trails Unit II consists of approximately 11.73 acres of undeveloped land on the west side of Albuquerque, south of Ventana Ranch subdivision. Currently, the site drains to the southeast with slopes ranging from 2% to 5% and is covered with native grasses, scrub brush, and exposed basaltic ridges. The soils are classified as Alemeda Sandy Loam (AmB) for slopes based on sheet 10 of Soil survey of Bernalillo County. See Exhibit D for site location on the Soils map. A shallow basaltic layer runs subsurface of the natural grade, and varies in depth from 0 ft to 9 ft.

Developed Conditions

(Refer to Plates 1 & 2 – Interim and Developed Conditions)

The developed site will consist of 18 lots of single-family housing, each lot approximately of 0.5 acres. Tract 11 of the Trails Unit II is contained within Basin H1 of the The Trails Unit II of the overall Grading & Drainage plan, which follows Drainage Master Plan. The total generated runoff for Tract 11 under fully developed conditions is 33.32 cfs. (See Appendix B of AHYMO Input and Output for Fully Developed Conditions). Table A-5 from Section 22.2 of the City of Albuquerque Development Process Manual was used for determining the percentage of Land Treatment D (Impervious) for Tract 11 of The Trails Unit II. (See Appendix E of Miscellaneous Calculations).

Drainage system was designed based on the grades established in the grading & drainage plan, and by street flow capacity and storm drain requirements. (See the Grading & Drainage Plans in Plate 3, Street Flow Capacity Calculations in Appendix C, and Storm Drain Sizing Analysis in Appendix D). Grading was affected mostly by the existing grading of Pond E and design of Woodmont Ave. & Rainbow Blvd per The Trails Unit II Construction Plans.

The total developed onsite flows from Tract11, which is 33.32cfs (Basin H1) is captured through a series of inlets and shall be routed to Pond H, which is built as part of The Trails Unit II, City Project # 730084. Proposed offsite flows from the park to north of Tract 11 (Basin E1) are captured by inlets on north side of intersection of Woodmont Ave. and Rainbow Blvd. Developed offsite flows on Rainbow Blvd (Basin H2) are captured by inlets on north side of intersection of Woodmont Ave. and Rainbow Blvd

and then routed to Pond H. Developed offsite flows from Woodmont Ave to the north are captured by inlets on the Woodmont Avenue and then routed to Pond E. See plate 2, Overall Pond Grading and Drainage plan developed conditions. See Sub-Basin Analysis point summary under developed conditions in Plate 2, Overall Pond Grading and Drainage plan developed conditions. The storm drain system for Tract 11 of The Trails Unit is designed to safely carry a discharge of 33.32 cfs. See the HydraFlow Storm Drain Calculations and Inlet Capacity Calculations in Appendix D.

In the interim conditions, Ponds E & H will be plugged to retain upstream flows from a 100 year 10 day event until COA # 730085 is built out. See Plate 1, Overall Pond Grading & Drainage Plan - Interim Conditions for summary tables. See Appendix A for AHYMO input and output. See Appendix E for 10-day volume calculations. An undeveloped basin of 94.66 acres to the west of Tract 11 drains through Pond E, so as part of this development, a temporary detention pond will be built to accommodate these flows. This pond was designed for a 100 year 10 day volume of 3.39 AC-FT with a capacity of 3.8 AC-FT. See Plate 3, Grading and Drainage plan for Pond Design.

In the future developed conditions, Ponds E & H will be detention surge ponds. Upstream flows from Ponds E & H will be conveyed directly into the Universe storm drain system. According to the "Amendment to the Trails Subdivision Master Drainage Study", a maximum of flowrate of 200 cfs is allowed from the Trails Subdivision. According to the revised Drainage Master Plan, a maximum 100 year, 24 hour flowrate of 194 cfs will enter the Universe Blvd. storm drain system to the Boca Negra Dam, with a 100 year, 24 hour volume of 68.2 AC-FT. See Plate 2 for the Overall Pond Grading & Drainage Plan for Developed Conditions.

Once the storm drain from The Trails to the Boca Negra Detention Dam is completed, the plugs in the pond E within Tract 11 of The Trails Unit II can be removed, creating a detention surge facility and eliminating the need to retain runoff from the Trails.

The hydrologic analysis for the interim and developed condition was completed using the Arid Lands Hydrologic Model (AHYMO) Version 1997.02. The 100-year 24-hour return frequency storm was used as the basis of analysis. (See Appendices A & B for input and output data). Methodology outlined in Section 22.2 of the City of Albuquerque Development Process Manual was also incorporated into this analysis. Street flows have been evaluated using Flow Master by Haested Methods. Street flows were analyzed for the use of roll type curb where capacities permitted. Inlets are located to prevent exceeding the street flow capacities per the DPM. See Appendix C for street capacity analysis. Storm Drain design and analysis was performed using Hydraflow. See Appendix D for Hydraflow output.

Grading Plan

The Tract 11 of Trails Unit II Grading Plan is attached as Plate 3. It illustrates the overall grading concept for the Tract 11 of Trails Unit II as well as the proposed storm drain system.

Conclusion

The analysis performed for this report demonstrates that the proposed system of streets and storm drainage improvements will safely convey and retain fully the 100-year storm runoff from the offsite and the onsite basins contributing to the site development. Wilson & Company recommends that the proposed storm drain system undergo regular maintenance activities. This should include removing debris from grate inlets, as well as removing sediment buildup within the pipe system. The future area contributing flow to the Tract 11 storm drainage system should be analyzed in greater detail at the time of development to ensure that the runoff is within the constraints of this design.

Per the Trails Unit II Construction Plans, a plug at Ponds E & H are scheduled to be installed. As a result of the interim conditions analysis, Ponds E & H safely retains the 100-year 10-day rainfall based on current conditions.

Storm Sewer Summary Report

Page 1

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.
1		33.32	36 c	208.0	5419.26	5421.34	1.000	5427.00*	5427.52*	0.35	5427.87	End
2		28.05	36 c	215.2	5421.34	5423.49	0.999	5427.97*	5428.35*	0.18	5428.53	1
3		28.05	30 c	38.8	5423.49	5423.88	1.004	5428.53*	5428.71*	0.28	5429.00	2
4		24.35	30 c	135.1	5423.88	5425.23	0.999	5429.12*	5429.60*	0.32	5429.92	3
5		24.35	30 c	71.9	5425.23	5425.95	1.001	5429.92*	5430.17*	0.38	5430.56	4
6		5.27	18 c	24.8	5421.34	5421.84	2.016	5428.07*	5428.14*	0.14	5428.27	1
Project File: SD-112905.stm							Number of lines: 6			Run Date: 11-29-2005		
NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; *Surcharged (HGL above crown).												

Storm Sewer Profile

Elev. (ft)

5449.00

5442.00

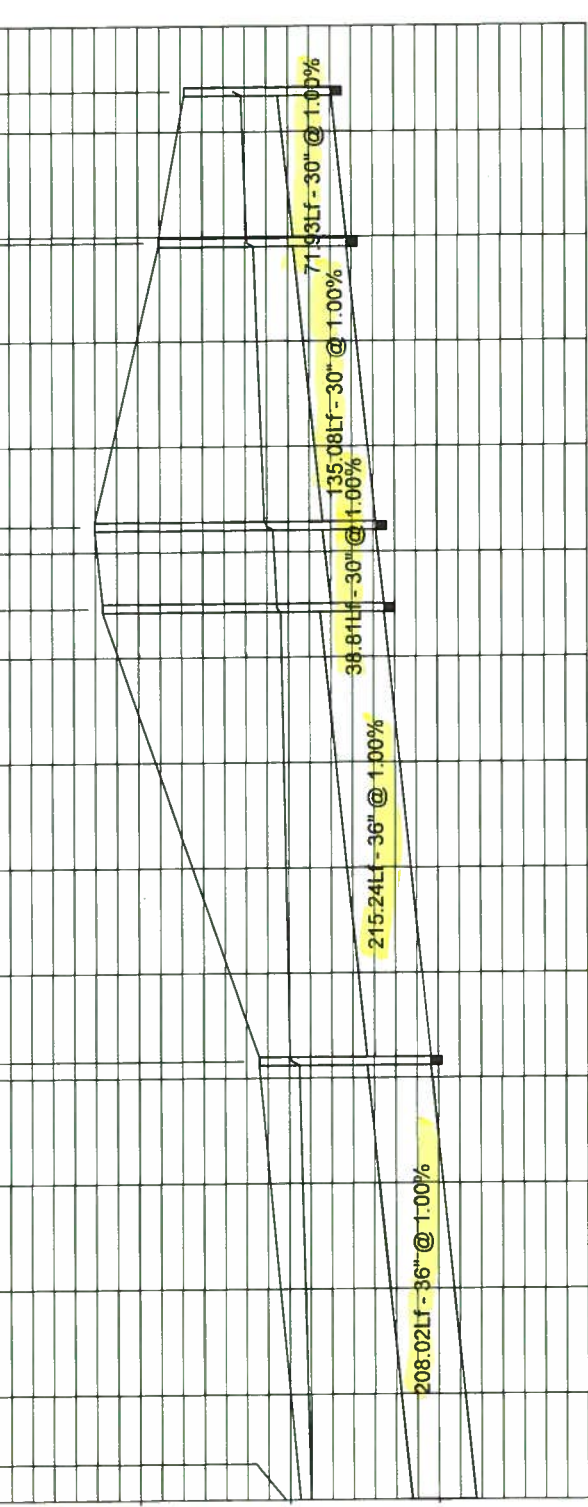
5435.00

5428.00

5421.00

5414.00

Sta 0+00.00 - Outfall	Sta 2+08.02 - Ln: 1	Sta 4+33.26+62.02 - Ln: 3	Sta 5+97.15 Sta 6+469.08 - Ln: 5
Grnd. El. 5427.50	Rim El. 5429.42	Rim El. 5434.01	Rim El. 5434.01
Inv. El. 5419.26 In	Inv. El. 5421.34 Out	Inv. El. 5420.88 Out	Inv. El. 5425.95 Out
	Inv. El. 5421.34 In	Inv. El. 5423.88 In	Inv. El. 5425.23 In



Reach (ft)

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700