CITY OF ALBUQUERQUE

Scanned 8/18/14

October 23, 2006

Steve J. Salazar, P.E.
Wilson & Company, Inc.
2600 American Rd SE, Ste 100
Rio Rancho, NM 87124

Re: Santa Fe 3 (new) at the Trails Unit II (Tract 4) Grading and Drainage Plan
Engineer's Stamp dated 10-13-06 (C9/D1D)

Dear Mr. Salazar,

Based upon the information provided in your submittal dated 10-13-06, the above referenced plan is approved for Amended 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.

The following comments need to be addressed in order to obtain Work Order Approval.

This submittal has more dwelling units per acre than the previous submittal for this project, which increases the amount of impervious area and therefore the runoff. Provide the calculations for the increase in runoff and whether pond F/system is still adequate. Also, provide street capacity calculations.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

BLD

C: file
Brad Bingham

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

Scanned
8/18/14

DRAINAGE REPORT

for

TRACT 4 OF THE TRAILS UNIT II
(~~ESTADOS AT THE TRAILS UNIT II~~)
Albuquerque, New Mexico

Santa Fe III Tract 4

FEBRUARY 2006

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

2/21/06
Date

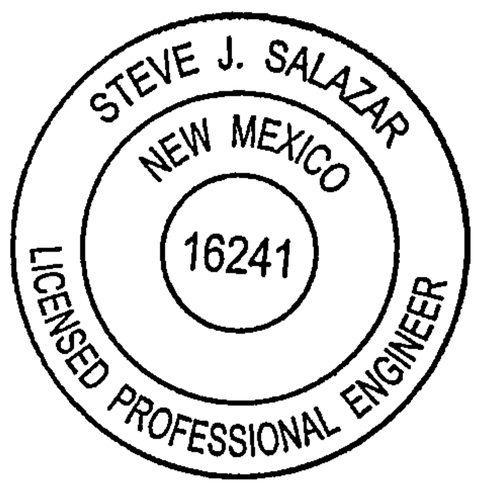

Table of Contents

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

Plate 4: Proposed Basin Map

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 4 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 4 of the Trails Unit II is a single-family subdivision with 76 total lots within The Trails master planned community. The "Master Drainage Study for The Trails Subdivision", dated December 2003, prepared by Bohannan-Huston, Inc (BHI Study) outlines the major drainage requirements for the entire Trails development. This covers a large area surrounding the subject property. The master planned area will drain through a series of detention 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 4 of the Trails Unit II drains to Pond F as outlined in the Drainage Master Plan.

Project Description

The proposed development is located within the city limits of Albuquerque, New Mexico. The subject property consists of approximately 19.35 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. The subject property is bound by Oakridge Street to the east, Treeline Avenue and Santa Fe at The Trails Unit II to the south, Taos at the Trails to the west, Heritage Unit II to the northwest and Tract 1 and Tract 2 of the Trails to the north. See Exhibit A, Vicinity Map.

There are currently 7 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), Santa Fe at the Trails Unit II (Tract 6 of the Trails Unit II) and Tract 11 of the Trails Unit II (Valle Vista at 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 4.

The current legal description of the proposed development is "Tract 4 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 4 of Trails Unit II is currently zoned R-D. No portion of Tract 4 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 4 of Trails Unit II consists of approximately 19.35 acres of undeveloped land on the west side of Albuquerque, south of Ventana Ranch subdivision. Currently, the site is located in a local depression 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. Offsite flows from Taos at The Trails Unit II and Santa Fe at the Trails Unit II to the west are currently collected by storm drain and conveyed to Pond E, which acts as a retention pond in the existing conditions.

Developed Conditions

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

The developed site will consist of ~~76~~ 104 lots of single-family housing. Tract 4 of Trails Unit II is contained within Basin F of the Drainage Master Plan. Proposed flows for individual sub-basins are determined based on an area percentage of the overall Basin F flow. The overall Basin F has an area of 82.9 acres and a fully developed 100-year flow of 275.0 cfs. This plan develops 23.34% (19.35 acres) of the total 82.9 acres. The total generated runoff for Tract 11 under fully developed conditions is 64.88 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).

This report divides the proposed development into sub-basins. (See the proposed Basin Map in Plate 4). Drainage & basin boundaries were determined 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 and Street Flow Capacity Calculations in Appendix C). Grading was affected mostly by the grading of Pond F and the storm drain design per The Trails Unit II Construction Plans.

Proposed flows from Sub-Basins 1 through 6 are captured by inlets and directed through a storm drain system to Pond F. (See the HydraFlow Storm Drain Calculations and Inlet Capacity Calculations in Appendix D). The total amount of the Offsite flow that is coming into Tract 4 of The Trails Unit II at AP-X is 62.71 cfs. (See Plate 4, proposed Basin map).

In the interim, Pond F will be plugged to retain upstream flows from a 100 year 10 day event. In the extreme event, a runoff volume of 1.8 AC-FT from Pond D will safely be conveyed into natural depression within Tract 4. The total amount of the flow coming into Pond F is 338.86 cfs, of which 48.6 cfs (Out= 48.6 cfs) is let out of Pond F. A volume of 8.12 AC-FT will be retained in Pond F, which currently has a capacity of 9.41 AC-FT. See Plate 1, Overall Pond Grading & Drainage Plan - Interim Conditions for summary tables. See Appendix A for AHYMO input and output. There will be Offsite flows coming from the north into the Tract 4 of The Trails Unit II. An undeveloped basin of 18.89 acres from the north carrying a flow of 62.71 drains through Tract 4, so as part of this development, the storm drain system for Tract 4 will be designed to accommodate these flows.

In the future developed conditions, all ponds will be detention surge ponds. Upstream flows from Santa Fe and Taos at the Trails will be routed through Pond F, and then conveyed through Pond G. According to the Drainage Master Plan, Pond F will be a surge detention facility with a maximum storage capacity of 9.41 AC-FT. According to the "Amendment to the Trails Subdivision Master Drainage Study", a maximum 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 F 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 4 of Trails Unit II Grading Plan is attached as Plate 3. It illustrates the overall grading concept for the Tract 4 of Trails Unit 2 as well as the proposed storm drain.

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 4 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 Pond F is scheduled to be installed. As a result of the interim conditions analysis, Pond F safely retains the 100-year 10-day rainfall based on current conditions.

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =01/09/2006

INPUT FILE = TRAILS.WPD

USER NO.= AHYMO-C-9803c01UNMLIB-AH

COMMAND	IDENTIFICATION	TIME TO PEAK (HOURS)	CFS HYDROGRAPH ID	FROM ID	TO ID	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	NOTATION
*S THE TRAILS OVERALL DRAINAGE - INTERIM CONDITIONS												
*SUMMARY	1 MID. B. PIEDRAS- DEV CONDS WITH BULK - MODIFIED 7/95											
START												
			TIME= .00									
RAINFALL TYPE= 2												
			RAIN24= 2.660									
SEDIMENT BULK												
			PK BF = 1.00									
S												
*S**********												
*S**********												
*S********** COMPUTE ONSITE BASINS FROM THE TRAILS SUBDIVISION**********												
COMPUTE NM HYD	OFFSITE1	-	50			.19980	38.48	4.588	.43051	2.050	.301	PER IMP= .00
*S BASIN A IS CURRENTLY 0% DEVELOPED												
COMPUTE NM HYD	BASIN.A	-	20			.10480	86.57	2.406	.43051	1.500	1.291	PER IMP= .00
*S BASIN D IS CURRENTLY 73% DEVELOPED												
COMPUTE NM HYD	BASIN.D	-	25			.09110	122.40	6.205	1.27718	1.550	2.099	PER IMP= 36.50
*S BASIN C IS CURRENTLY 0% DEVELOPED												
COMPUTE NM HYD	BASIN.C	-	20			.02110	17.06	.484	.43051	1.500	1.263	PER IMP= .00
*S BASIN F IS CURRENTLY 55% DEVELOPED												
COMPUTE NM HYD	BASIN.F	-	20			.12960	196.82	7.347	1.06295	1.500	2.373	PER IMP= 27.50
*S WITH TRACT 6 IMPROVEMENTS, BASIN G IS CURRENTLY 100% DEVELOPED												
COMPUTE NM HYD	BASIN.G	-	20			.04990	105.96	4.292	1.61257	1.500	3.318	PER IMP= 50.00
COMPUTE NM HYD	OFFSITE2	-	55			.08050	14.42	1.848	.43051	2.050	.280	PER IMP= .00
*S BASIN B IS CURRENTLY 0% DEVELOPED												
COMPUTE NM HYD	BASIN.B	-	30			.03910	31.61	.898	.43051	1.500	1.263	PER IMP= .00
*S BASIN E IS CURRENTLY 22% DEVELOPED												
COMPUTE NM HYD	BASIN.E	-	30			.12060	132.88	4.377	.68044	1.500	1.722	PER IMP= 11.00
*S BASIN H IS CURRENTLY 16% DEVELOPED												
COMPUTE NM HYD	BASIN.H	-	20			.03110	28.24	1.015	.61193	1.550	1.419	PER IMP= 8.00
*S BASIN L IS CURRENTLY 4% DEVELOPED												
COMPUTE NM HYD	BASIN.L	-	20			.02770	19.34	.703	.47583	1.550	1.091	PER IMP= 2.00
*S BASIN J IS CURRENTLY 15% DEVELOPED												
COMPUTE NM HYD	BASIN.J	-	80			.05140	34.57	1.647	.60067	1.600	1.051	PER IMP= 7.50
ROUTE RESERVOIR	POND.J		80		90	.05140	9.86	1.647	.60066	2.050	.300	AC-FT= .863
*S BASIN K IS CURRENTLY 14% DEVELOPED												
COMPUTE NM HYD	BASIN.K	-	85			.07050	55.37	2.215	.58923	1.550	1.227	PER IMP= 7.00

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =06/28/2005
INPUT FILE = TRAILS.WPD USER NO.= AHYMO-C-9803c01UNMLIB-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
*S THE TRAILS OVERALL DRAINAGE - INTERIM CONDITIONS											
*SUMMARY	1 MID. B. PIEDRAS- DEV CONDS WITH BULK - MODIFIED 7/95										
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.660
SEDIMENT BULK										PK BF =	1.00
S											
*S**********											
*S**********											
*S********** COMPUTE ONSITE BASINS FROM THE TRAILS SUBDIVISION**********											
COMPUTE NM HYD	OFFSITE1	-	50	.19980	38.48	4.588	.43051	2.050	.301	PER IMP=	.00
*S BASIN A IS CURRENTLY 0% DEVELOPED											
COMPUTE NM HYD	BASIN.A	-	20	.10480	86.57	2.406	.43051	1.500	1.291	PER IMP=	.00
*S BASIN D IS CURRENTLY 73% DEVELOPED											
COMPUTE NM HYD	BASIN.D	-	25	.09110	122.40	6.205	1.27718	1.550	2.099	PER IMP=	36.50
*S BASIN C IS CURRENTLY 0% DEVELOPED											
COMPUTE NM HYD	BASIN.C	-	20	.02110	17.06	.484	.43051	1.500	1.263	PER IMP=	.00
*S BASIN F IS CURRENTLY 55% DEVELOPED											
COMPUTE NM HYD	BASIN.F	-	20	.12960	196.82	7.347	1.06295	1.500	2.373	PER IMP=	27.50
*S WITH TRACT 6 IMPROVEMENTS, BASIN G IS CURRENTLY 100% DEVELOPED											
COMPUTE NM HYD	BASIN.G	-	20	.04990	105.96	4.292	1.61257	1.500	3.318	PER IMP=	50.00
COMPUTE NM HYD	OFFSITE2	-	55	.08050	14.42	1.848	.43051	2.050	.280	PER IMP=	.00
*S BASIN B IS CURRENTLY 0% DEVELOPED											
COMPUTE NM HYD	BASIN.B	-	30	.03910	31.61	.898	.43051	1.500	1.263	PER IMP=	.00
*S BASIN E IS CURRENTLY 22% DEVELOPED											
COMPUTE NM HYD	BASIN.E	-	30	.12060	132.88	4.377	.68044	1.500	1.722	PER IMP=	11.00
*S BASIN H IS CURRENTLY 16% DEVELOPED											
COMPUTE NM HYD	BASIN.H	-	20	.03110	28.24	1.015	.61193	1.550	1.419	PER IMP=	8.00
*S BASIN L IS CURRENTLY 4% DEVELOPED											
COMPUTE NM HYD	BASIN.L	-	20	.02770	19.34	.703	.47583	1.550	1.091	PER IMP=	2.00
*S BASIN J IS CURRENTLY 15% DEVELOPED											
COMPUTE NM HYD	BASIN.J	-	80	.05140	34.57	1.647	.60067	1.600	1.051	PER IMP=	7.50
ROUTE RESERVOIR	POND.J	80	90	.05140	9.86	1.647	.60066	2.050	.300	AC-FT=	.863
*S BASIN K IS CURRENTLY 14% DEVELOPED											
COMPUTE NM HYD	BASIN.K	-	85	.07050	55.37	2.215	.58923	1.550	1.227	PER IMP=	7.00
*S**********											
*S****RUNOFF FROM THE TRAILS IS CONVEYED TO THE BOCA NEGRA DETENTION FACILITY											
*S****VIA UNIVERSE SD PER "AMENDMENT TO THE TRAILS SUBDIVISION MASTER DRAINAGE S											
*S****DATED MAY 5, 2004 BY WILSON & CO.											
*S**********											
*S****END OF THE TRAILS DRAINAGE ANALYSIS											
FINISH											

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR) =09/30/2005
INPUT FILE = TRAILS.WPD USER NO.= AHYMO-C-9803c01UNMLIB-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
*S THE TRAILS OVERALL DRAINAGE - FULLY DEVELOPED CONDITIONS											
*SUMMARY	1 MID. B. PIEDRAS- DEV CONDS WITH BULK - MODIFIED 7/95										
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.660
SEDIMENT BULK										PK BF =	1.00
S											
*S**********											
*S**********											
*S********** COMPUTE ONSITE BASINS FROM THE TRAILS SUBDIVISION**********											
COMPUTE NM HYD	OFFSITE1	-	50	.19980	38.48	4.588	.43051	2.050	.301	PER IMP=	.00
ROUTE RESERVOIR	OFF.POND.1	50	53	.19980	9.40	4.588	.43051	3.250	.073	AC-FT=	2.420
COMPUTE NM HYD	BASIN.A	-	20	.10480	222.42	9.013	1.61257	1.500	3.316	PER IMP=	50.00
ADD HYD	1.A	53&20	52	.30460	224.45	13.601	.83721	1.500	1.151		
ROUTE RESERVOIR	POND.A	52	50	.30460	16.94	13.601	.83721	2.400	.087	AC-FT=	6.375
COMPUTE NM HYD	BASIN.D	-	25	.09110	151.97	7.835	1.61257	1.550	2.606	PER IMP=	50.00
ADD HYD	1.A.D	50&25	30	.39570	164.89	21.436	1.01571	1.550	.651		
ROUTE RESERVOIR	POND.D	30	50	.39570	23.56	21.436	1.01571	2.700	.093	AC-FT=	5.387
COMPUTE NM HYD	BASIN.C	-	20	.02110	44.81	1.815	1.61257	1.500	3.319	PER IMP=	50.00
ADD HYD	1.A.D.C	50&20	25	.41680	63.88	23.250	1.04593	1.500	.239		
COMPUTE NM HYD	BASIN.F	-	20	.12960	274.98	11.146	1.61257	1.500	3.315	PER IMP=	50.00
ADD HYD	1.A.D.C.F	20&25	30	.54640	338.86	34.396	1.18033	1.500	.969		
ROUTE RESERVOIR	POND.F	30	50	.54640	33.92	34.396	1.18033	2.450	.097	AC-FT=	9.405
COMPUTE NM HYD	BASIN.G	-	20	.04990	105.96	4.292	1.61257	1.500	3.318	PER IMP=	50.00
ADD HYD	1.A.D.C.F.G	20&50	30	.59630	138.81	38.688	1.21650	1.500	.364		
ROUTE RESERVOIR	POND.G	30	27	.59630	33.51	38.692	1.21664	3.400	.088	AC-FT=	3.656
COMPUTE NM HYD	OFFSITE2	-	55	.08050	14.42	1.848	.43051	2.050	.280	PER IMP=	.00
ROUTE RESERVOIR	OFFPOND2	55	50	.08050	4.49	1.848	.43051	3.200	.087	AC-FT=	.857
COMPUTE NM HYD	BASIN.B	-	30	.04010	85.15	3.449	1.61257	1.500	3.318	PER IMP=	50.00
ADD HYD	2.B	50&30	35	.12060	85.67	5.297	.82355	1.500	1.110		
ROUTE RESERVOIR	POND.B	35	50	.12060	3.38	5.297	.82350	6.450	.044	AC-FT=	3.150
COMPUTE NM HYD	BASIN.E	-	30	.07650	162.41	6.579	1.61257	1.500	3.317	PER IMP=	50.00
COMPUTE NM HYD	BASIN.E1	-	31	.01830	32.46	1.101	1.12838	1.500	2.772	PER IMP=	20.20
COMPUTE NM HYD	BASIN.E2	-	32	.02480	31.45	.967	.73104	1.500	1.981	PER IMP=	7.00
ADD HYD	2.B.E	50&30	40	.19710	164.84	11.876	1.12976	1.500	1.307		
ADD HYD	2.B.E.E1	40&31	41	.21540	197.30	12.977	1.12964	1.500	1.431		
ADD HYD	2.B.E.E1.E2	41&32	42	.24020	228.75	13.944	1.08848	1.500	1.488		
ROUTE RESERVOIR	POND.E	42	41	.24020	18.78	13.944	1.08848	2.200	.122	AC-FT=	5.865
COMPUTE NM HYD	BASIN.H	-	20	.03110	61.39	2.675	1.61257	1.500	3.084	PER IMP=	50.00
ADD HYD	2.B.E.H	41&20	30	.27130	74.88	16.619	1.14856	1.500	.431		
COMPUTE NM HYD	BASIN.L	-	20	.02770	51.30	2.382	1.61257	1.550	2.893	PER IMP=	50.00
ADD HYD	2BEHL	20&30	25	.29900	125.46	19.001	1.19155	1.550	.656		
COMPUTE NM HYD	BASIN.J	-	80	.05140	82.74	4.421	1.61257	1.600	2.515	PER IMP=	50.00
ROUTE RESERVOIR	POND.J	80	90	.05140	21.36	4.421	1.61256	2.100	.649	AC-FT=	2.140
COMPUTE NM HYD	BASIN.K	-	85	.07050	128.14	6.063	1.61257	1.550	2.840	PER IMP=	50.00
ADD HYD	J.K	90&85	91	.12190	136.13	10.484	1.61255	1.550	1.745		
ADD HYD	1ADCFG.JK	27&91	95	.71820	164.27	49.176	1.28384	1.550	.357		
ROUTE RESERVOIR	POND.K	95	70	.71820	101.37	49.176	1.28384	1.850	.221	AC-FT=	2.150
ADD HYD	TRAILS.ALL	25&70	**	1.01720	193.74	68.177	1.25671	1.600	.298		
*S**********											
*S****RUNOFF FROM THE TRAILS IS CONVEYED TO THE BOCA NEGRA DETENTION FACILITY											

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION

Storm Sewer Summary Report

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		13.25	54 c	150.0	5417.40	5418.89	0.994	5423.04	5423.05	0.01	5423.05	End
2		84.77	48 c	40.0	5418.89	5419.30	1.023	5423.05	5423.17	0.72	5423.89	1
3		84.77	48 c	92.4	5419.30	5419.76	0.498	5423.90*	5424.23*	0.11	5424.33	2
4		84.77	48 c	100.3	5419.76	5420.26	0.499	5424.33*	5424.68*	0.71	5425.39	3
5		73.51	42 c	237.7	5420.26	5421.63	0.576	5425.39*	5426.66*	0.91	5427.57	4
6		62.71	42 c	163.0	5421.63	5422.45	0.503	5427.81*	5428.45*	0.66	5429.11	5
7		11.20	18 c	41.7	5420.26	5420.67	0.984	5425.47*	5425.95*	0.94	5426.88	4
8		5.63	18 c	23.0	5420.67	5420.91	1.047	5427.35*	5427.42*	0.16	5427.58	7
9		5.40	18 c	50.0	5421.63	5422.06	0.860	5428.33*	5428.46*	0.15	5428.61	5

Project File: SD1-TRIAL.stm | Number of lines: 9 | Run Date: 10-06-2005

NOTES: c = cir; e = ellip; b = box; Return period = 100 Yrs. ; *Surcharged (HGL above crown).

CITY OF ALBUQUERQUE

Scanned 8/18/14

July 2, 2008

Steve J. Salazar, P.E.
Wilson & Company, Inc.
2600 The American Rd. SW Ste. 100
Rio Rancho, NM 87124

RE: Santa Fe 3 @ The Trails Unit II, (C-09/D001D)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 10/13/2006
Engineers Certification dated 06/30/2008

Mr. Salazar:

Based upon the information provided in your Engineer's Certification submittal dated 06/30/2008, 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# 730087
File

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov