City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 14, 2002

James Hughes, PE
Mark Goodwin & Associates, PA
PO Box 90606
Rio Rancho, NM 87119

Re: Southwynd Subdivision Grading and Drainage
Engineer's Stamp Dated 1-31-02, (L10/D20)

Dear Mr. Hughes,

Based on the information contained in your submittal dated 2-08-02, the above referenced plan cannot be approved for Preliminary Plat or Building Permit until the following comments are addressed:

- Please identify all offsite flows on the basin map north of Eucariz that will affect Unser. Also, please label all roads.
- Please state the pipe size for the future storm drain on Unser between Eucariz and Tower. Who will be placing this future pipe in Unser?
- All runoff from improvements made must be kept on site until the future storm drain connects to Coors. Please show that the two temporary ponds on site will hold all road improvement runoff such as, Unser, Eucariz, Tower, and site drainage.
- Public easements and covenants for the maintenance of both ponds will be needed.
- Is there going to be a pipe placed in Eucariz? Please show profile.

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

Sincerely,

Carlos A. Montoya, PE
City Floodplain Administrator, PWD
Development and Building Services

c: Terri Martin, Hydrology
File (2)

DRAINAGE REPORT

FOR

SOUTHWYND SUBDIVISION

MARK GOODWIN & ASSOCIATES

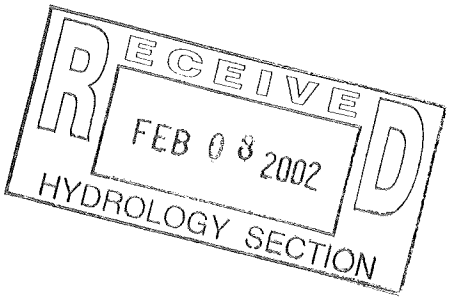
DRAINAGE REPORT

FOR

SOUTHWYND SUBDIVISION

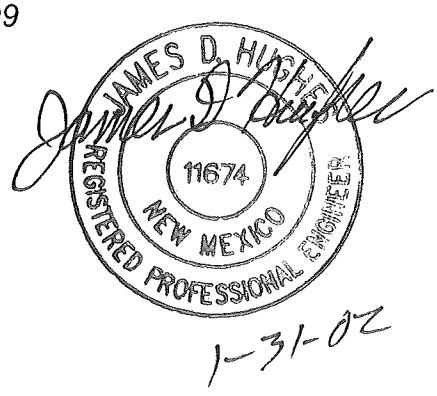
Prepared for

Sivage Thomas Homes
Albuquerque, NM 87110



Prepared by

Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199



1-31-02

January 2002

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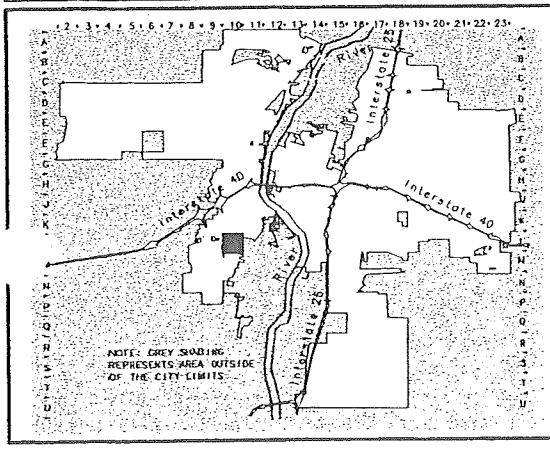

CITY OF
Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

L-10-Z

Map Amended through December 08, 2000

PURPOSE

The primary purpose of this report is to demonstrate the adequacy of the proposed drainage to allow this 19.28 acre site to be subdivided into about 125 single-family, detached, residential lots, and so associated public drainage infrastructure can be constructed and turned over to the City of Albuquerque for maintenance.

EXISTING CONDITIONS

This property is surrounded on three sides by totally undeveloped property and by Tower Road on the fourth side. There is only about 18 acres of undeveloped land west of this site that drains into it and another 10 acres drain in from the east side. A large offsite drainage area has been diverted by the SAD 222 constriction of storm sewer about 450 West of 82nd Street. This site has a flood plain in the southeast corner which ponds all existing onsite drainage, so there is no runoff from this site under existing conditions.

Vista Sandia is an existing 42 acre residential subdivision west of this site that will eventually drain to the Tower Rd. Storm Sewer in front of this site, but presently retains 100-yr flows in onsite ponds. Valencia Estates is another residential subdivision built in the Southwest corner of the intersection of Tower Road and Unser Boulevard, but it does not contribute any flow to Tower Road in front of this site. Two more developments north of Eucariz Avenue, Encanto Village East of Unser Boulevard and Whispering Pointe west of Unser Boulevard, have been planned to drain north and do not contribute any flow to this development. The first four of the following references each included designs with HGL calculations for the Tower Road storm sewer in front of this project.

REFERENCES

1. *Vista Sandia Subdivision Drainage Report by MARK GOODWIN & ASSOCIATES PA, MAY 97*
2. *Whimpering Pointe Drainage Report by MARK GOODWIN & ASSOCIATES PA, DEC. 97*
3. *"Drainage Report for Vista Sandia Subdivision" by Daggett Engineering & Surveying, Sept. 98*
4. *As built Plans for Vista Sandia Unit 2 by Daggett Engineering. Aug 00*
5. *Encanto Village Drainage Report by MARKGOODWIN & ASSOCATES, PA, APRIL 99*
6. *Construction Plans for Valencia Estates by MARK GOODWIN & ASSOCIATES, PA, APRIL 01*

PROPOSED MANAGEMENT PLAN

This 19.28 acre residential development will have free discharge to storm sewer in Tower Road. This project will construct the Tower Road storm sewer across its frontage only. Until the Tower Road trunk line is completed to its outfall at the Amole Del Norte Channel, by others, this project will provide onsite temporary retention ponds to handle onsite developed runoff plus offsite undeveloped runoff from the 100-Yr, ten day storm. The flood plain is based on flood insurance rate map FIRM NUMBER #35001-00328D effective September 1996, which is to be modified in conjunction with SAD-222. It will show that all 100-Yr flow is removed from Tower Road. That project should be completed in September 2002. In the interim, construction of the onsite retention pond will provide more than enough volume to compensate for the fill being placed below the 100-Yr. elevation in the "AH" portion of the Special Flood Hazard Area, SFHA. So, there will be no significant adverse impact to adjacent properties. In the interim the flood plain will remain as shown, and an elevation certificate will be required for any house built in that zone to show that the floor of the house is above the 100-Yr elevation. This project will construct retention Ponds sufficient to contain the 100-YR flood plain, so that the "AH" zone may otherwise be removed from the site. A LOMR will be requested by this development to address remapping the "AH" zone on this site with the assumption that the SAD-222 improvements will divert all 100-YR flow in Tower Road at a point located 450' west of 82nd Street. If both the SAD and this project are completed FEMA will issue a LOMR removing all SFHA's from the lots in this development.

ANALYSIS PROCEDURES

Final design for the Tower Rd. storm sewer was accomplished by updating, the Vista Sandia Design to included impacts from Whispering Point, Encanto Village and Valencia Estates, on the Drainage Basin Boundaries, the AHYMO model, and the HGL calculations. The single biggest change was that of revising times of concentration. Most of the watershed is very flat (ie 0.50% slopes for long distances). Equations B-2 and B-9 were used from DPM Section 22.2 where a velocity of 0.7 fps was used for the upper 400, a velocity of 1.4 fps was used for the next 1600 and 2.1 fps was used below the first 2000'. This significantly reduced the ultimate peak flow to Tower Road storm drain, so the pipe was downsized and new HGL calculations were run.

The horizontal geometry of the Vista Sandia Plan was modified in Tower Rd. to reflect changes from Valencia Estates, and this development(ie Tower Road storm sewer moved to north side of road). Another big change is the location that basin # 115 is added. It now drains into the Tower Rd. storm sewer at 75th Street instead of Stenson. The existing storm sewer in Vista Sandia Subdivision was not re-analyzed because the reduced flows from this new hydrology would have to be re-analyzed at each inlet to determined the new pipe flows. For the purpose of this analysis it is assumed that since the HGL at the down stream end of the Vista Sandia storm sewer is lower than originally designed, the HGL throughout Vista Sandia will also be lower. It was originally designed using a higher flow.

Inlet spacing and design for Tower Road and Unser Boulevard will limit 10-Yr spread of flow to leave one lane open in each direction. The onsite sump inlets have no emergency overflow so they were designed to pass 100-Yr. flow through the grates assuming 50% of the grates will clog.

Pads in the flood plain were set 1.0' above the elevation published on the FIRM, and The 100-YR 6hr volume from AMYMO was used to calculate the 10-day volume. The actual pond volumes were calculated using the Conic Method.

One last minute change was made to basin # 114E by changing the grading plan and street capacities and inlet calculations because it turns out that Cotton Tail Street has capacity to drain all of Crepe Myrtle Road. The drainage basins and AHYMO were not changed. Proration was used to determined peak flows to inlets and for street capacities.

TABLE 1 - SUMMARY OF HYDROLOGY

Description	Basin ID	Area Acres	Area Sq. Mi.	Land Treatment				Hr. Tp	Future 100-YR Peak Flow		Existing 100-YR Peak Flow & Volume		
				A	B	C	D		Inc. (cfs)	Cumm (cfs)	Q_{100} (cfs)	V_{100} 6-Hr (Ac-ft)	V_{100} 10-day (Ac-ft)
Eucariz Ave. @ 82nd st.	110	1.58	0.0025	0	10	0	90	0.28	5.33				
Vista Sandia	111	41.12	0.0643	0	28	15	57	0.28	95.55	101.08			
Tower Rd.	112	1.89	0.0030	0	10	0	90	0.20	6.55	105.80			
Res. West of Unser	113A	8.80	0.0138	0	28	15	57	0.21	24.30		→	SEEMS	LOW?
Eucariz & W ½ Unser	113B	3.18	0.0050	0	20	0	80	0.30	8.22	135.19			
Commercial	114A	4.20	0.0066	0	10	10	80	0.13	17.11				
E½ Unser & N½ Tower	114B	3.28	0.0051	0	20	0	80	0.23	9.82				
S ½ Tower Rd.	114C	1.20	0.0019	0	10	0	90	0.13	5.13	154.18			
Southwynd	114D	13.11	0.0205	0	28	15	57	0.22	35.30				
Southwynd	114E	8.44	0.0132	0	28	15	57	0.30	18.69				
Res. East of 75th St.	115A	9.80	0.0153	0	28	15	57	0.17	30.41				
Tower	115B	1.36	0.0021	0	10	0	90	0.17	5.06				
Tower	115C	1.36	0.0021	0	10	0	90	0.17	5.06	234.69			
Res. East of Sensen	116	22.50	0.0352	0	28	15	57	0.20	64.19	282.28			
Tower	117		0.0000	--	--	--	--	0.13	10.52	288.12			

Description	Basin ID	Area Acres	Area Sq. Mi.	Land Treatment				Hr. Tp	Future 100-YR Peak Flow		Existing 100-YR Peak Flow & Volume		
				A	B	C	D		Inc. (cfs)	Cumm (cfs)	Q_{100} (cfs)	V_{100} 6-Hr (Ac-ft)	V_{100} 10-day (Ac-ft)
Eucariz Ave. @ 82nd st.	110	1.58	0.0025	0	10	0	90	0.28			5.33	0.294	0.472
Vista Sandia	111	41.12	0.0643	0	28	15	57	0.28			95.55	5.006	7.936
Tower Rd.	112	1.89	0.0030	0	10	0	90	0.20			6.55	0.289	0.502
Res. West of Unser	113A	8.80	0.0138	100	0	0	0	0.21			7.84	0.331	0.331
Eucariz & W ½ Unser	113B	3.18	0.0050	0	50	50	0	0.30			4.33	0.222	0.222
Commercial	114A	4.20	0.0066	90	0	10	0	0.13			6.18	0.172	0.172
E½ Unser & N½ Tower	114B	3.28	0.0051	0	10	50	40	0.23			8.16	0.369	0.533
S ½ Tower Rd.	114C	1.20	0.0019	0	10	50	40	0.13			4.19	0.137	0.197
Southwynd	114D	13.11	0.0205	0	28	15	57	0.22			35.30	1.594	2.528
Southwynd	114E	8.44	0.0132	0	28	15	57	0.30			18.69	1.026	1.627
Res. East of 75th St.	115A	9.80	0.0153	20	0	60	20	0.17			23.84	0.864	1.109
Tower	115B	1.36	0.0021	0	10	50	40	0.17			4.03	0.152	0.220
Tower	115C	1.36	0.0021	0	10	50	40	0.17			4.03	0.152	0.220
Res. East of Sensen	116	22.50	0.0352	20	0	70	10	0.20			4.00	1.658	1.939
Tower	117		0.0000	--	--	--	--	0.13			47.38	0.283	0.283

100 YEAR PRECIPITATION *(From Figures D, E and F, and Eq. 28 of DPM 22.2)*
P_{60} = 1.90", P_{360} = 2.20", P_{1440} = 2.67", P_{10} days = 10.0-[24.9/(2.67")$^{1.4}$] = 3.70"

TABLE 2 — STREET DRAINAGE CAPACITIES

Basin No.	Area Ac.	% of Total	Increment	Cumm.	Contributing Basins	Curb Type/Slope	Flow Depth ft[1]	Velocity fps	Energy Depth ft[2]	Location
10YR CAPACITY IN ARTERIAL STREETS										
114B	3.28	100	6.18cfs			std 64% 0.85%	0.40'	2.4	0.49	Tower Rd.
115B	1.36	100	3.27cfs			std 64% .50%	0.36'	1.7	0.40	Tower Rd. Sta 78+00
100YR CAPACITY IN LOCAL STREETS										
114E	2.60	30.81	5.76cfs			roll 28' 0.50% .005 1/2	0.29	1.7	0.33	Crepe Myrtle Rd. Sta 14+ 50
114D	2.60	19.83	7.00cfs			roll 28' 0.50 %	0.30	1.8	0.35	Javeline Rd. Sta 15+ 50
114D	2.60	19.83	7.00cfs			roll 26' 0.50%	0.30	1.8	0.35	Greywolf Rd. Sta 28+00
114E	2.13	25.3	4.73cfs			std 40' 0.5%	.41	1.9	0.47	75th St. Sta 19+50'
114D	8.74	66.66	23.53cfs			std 28' 0.5%				Cotton Tail St. Sta 16+50
114E	2.13	84.24	15.74	39.27	66.66 % of 114D	std 28' 0.5%	0.63'	3.2	0.79	Cotton Tail St. Sta 16+50

[1] Flow depths are taken from Plate 22.3 D-1 and 22.3 D-2 of the DPM and reduced by 3/4" for roll curb types to account for the differences in gutter depression. Allowable depths may not exceed curb heights which are 0.33' for roll curb and gutter and 0.67' for standard curb and gutter.

[2] Energy depth is calculated as flow depth plus energy head. Allowable depths are 0.20' above top of curb.

4" .35

34' from the

DRAINAGE MANAGEMENT PLAN

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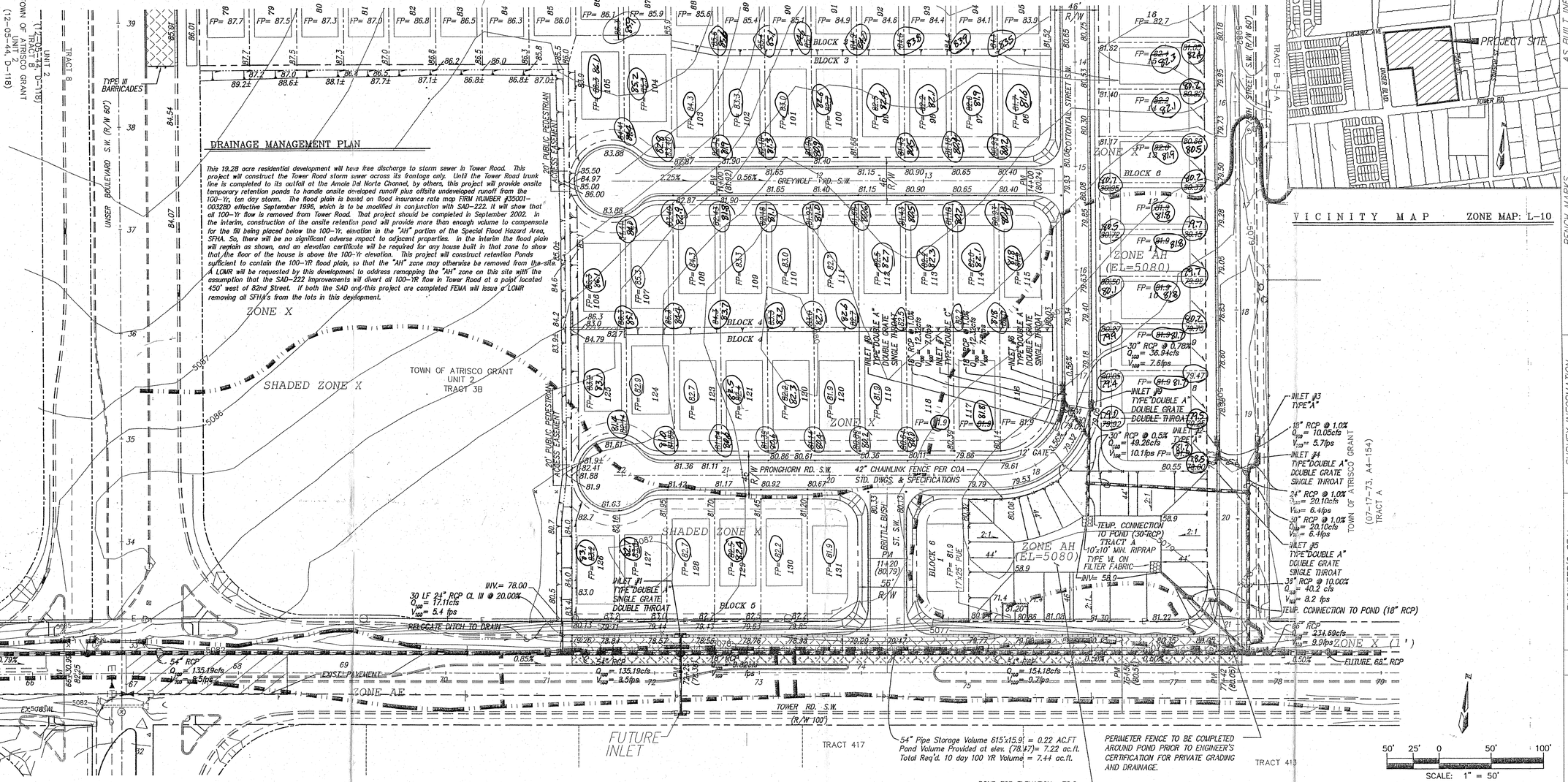
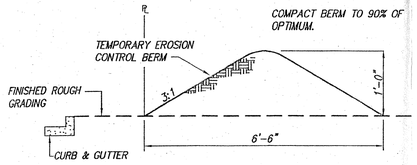


VICINITY MAP ZONE MAP: L-10



EROSION CONTROL BERM DETAIL

N.T.S.

EROSION CONTROL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL SEDIMENT OUT OF EXISTING RIGHT-OF-WAY.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING UP ANY SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. EROSION CONTROL BERMS ARE REQUIRED AROUND THE ENTIRE SITE.
5. ALL EROSION CONTROL BERMS MUST BE IN PLACE AND ENGINEER CERTIFIED PRIOR TO BUILDING PERMIT RELEASE.

DRAINAGE CERTIFICATION

I, James D Hughes, NMPE 11674, of the firm Mark Goodwin & Associates, hereby certify that the private portion of this project has been graded and will drain in substantial compliance with and in accordance with the design intent of the approved plan dated 11-5-02 (Except as noted below). The record information edited onto the original design document (circled as-built elevations) was obtained from Thomas Patrick, NMPS 12651, of the firm Community Sciences Corporation. I further certify that I have personally visited the project site on 2/10/04 and 6/27/2005 and have determined by visual inspection that the survey data provided is representative of actual site conditions and is true and correct to the best of my knowledge and belief. This certification is submitted in support of a request for Release of Financial Guaranty.

Exceptions:

The following significant deviations from the approved plan were noted during inspection:

1. The as-built pond volume is 6.39 ac ft which occurs at elevation 78.2 which is 0.27' lower than planned. The original planned volume was 7.44 ac-ft. The flood-plain is contained in the pond, assuming that the Vista West Subdivision provides a separate pond for all of the drainage from basins #112, 113A, and 113B.

Information:

The following minor deviations from the approved plan were noted during inspection:

1. Intentionally leaving all front corners low for rough grading to be corrected at the time of house construction and sidewalk construction. Only two front corners were more than 1.5' low; the SW corner of lot 30 and the NW corner of lot 82.
2. The as-built rear yard elevations Lots 53-59, 91-95, 107-109 were lower than planned. However, fine grading by home builders after the as-built survey appeared to have eliminated the potential for cross lot drainage on all but lot 91.As-built survey is not available to confirm the corrected grades because the houses are sold and occupied.
3. Common side yard swales were used throughout but there are no Private side yard Drainage Easements.

The record information presented hereon is not necessarily complete and intended only to verify substantial compliance of the grading and drainage aspects of this project. Those relying on this record document are advised to obtain independent verification of its accuracy before using it for any other purpose.

James D. Hughes NMPE 11674 Date 10-26-05 (SEAL)

JAMES D. HUGHES 11674 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER

A2002SWYND/CLOMR/10-29-02 NHE

APPROVED FOR ROUGH GRADING (18")

CITY HYDROLOGY DATE

MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200, FAX (505) 797-9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:

SOUTHWYND SUBDIVISION GRADING AND DRAINAGE PLAN ENGINEER'S CERTIFICATION

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. | ZONE MAP NO. L-10-Z | SHEET 1 OF 2

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

STATION "1-M10" IS 4.5 MI. SW FROM DOWNTOWN ALBUQ. IN SE QUADRANT OF THE INTERSECTION OF UNSER BLVD. AND SAGE RD. FROM THE INTERSECTION OF SO. COORS RD., ROSENDA GARCIA RD. & SAGE RD., TRAVEL WEST ON SAGE RD. APPROX. 1.1 MI. TO UNSER BLVD. STATION IS LOCATED 64.0' EAST FROM CL OF UNSER AND 66.0' SOUTH FROM CL OF SAGE. STATION IS STANDARD COA BRASS CAP SET IN CONCRETE 0.2' ABOVE GROUND AND STAMPED "1-M10"
X = 358,862.36 Y = 1,476,654.54 Z = 5080.54

AS BUILT INFORMATION

	DATE
CONTRACTOR	
WORK STAKED BY	
INSPECTION BY	
FIELD VERIFICATION BY	
DRAWINGS CORRECTED BY	
MICRO-FILM INFORMATION	DATE
RECORDED BY	
NO.	

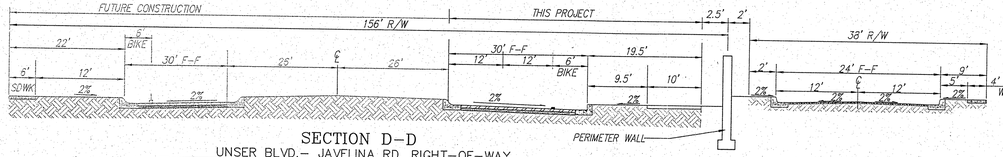
ENGINEER'S SEAL

JAMES D. HUGHES 11674 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER 11-5-02

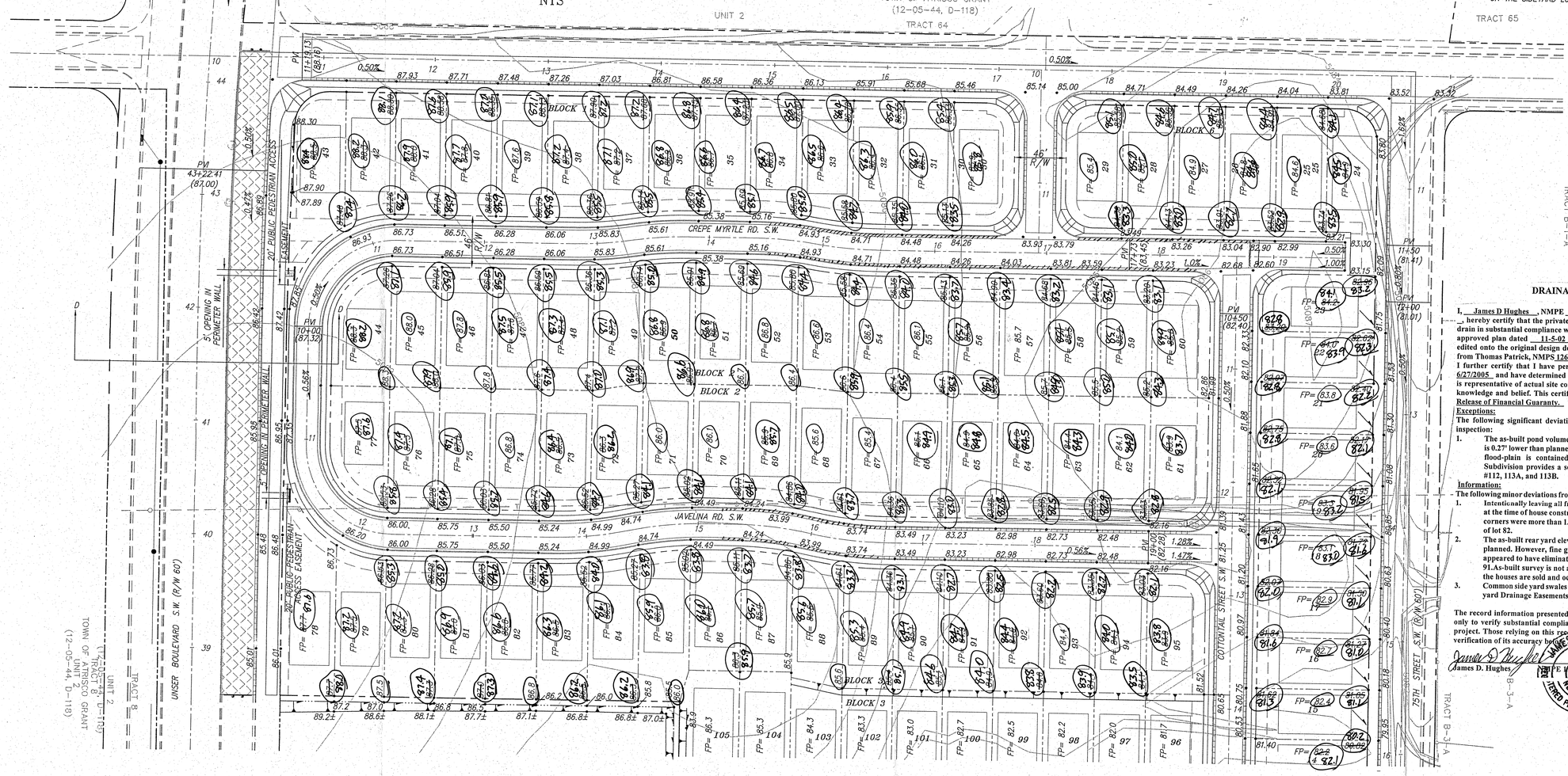
NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

		DATE
DESIGNED BY	JDH	12/01
DRAWN BY	KJS	12/01
CHECKED BY	DMG	12/01

RECEIVED OCT 31 2005 HYDROLOGY SECTION



SECTION D–D
UNSER BLVD.– JAVELINA RD. RIGHT–OF–WAY
NTS



NOTES

1. A BLOCK WALL WILL BE CONSTRUCTED ALONG THE ENTIRE PERIMETER BOUNDARY.
2. WHERE THE DIFFERENCE IN ADJACENT PAD ELEVATIONS IS GREATER THAN 1.3' AND LESS THAN 2.7' A GARDEN WALL SHALL BE CONSTRUCTED TO ACCOMODATE PROPER SIDEYARD LOT DRAINAGE AS SHOWN ON THE SIDEYARD LOT DETAIL.
3. WHERE THE DIFFERENCE IN ADJACENT PAD ELEVATIONS IS GREATER THAN 2.7' A RETAINING WALL SHALL BE CONSTRUCTED TO ACCOMADATE PROPER SIDEYARD LOT DRAINAGE AS SHOWN ON THE SIDEYARD LOT DETAIL

DRAINAGE CERTIFICATION

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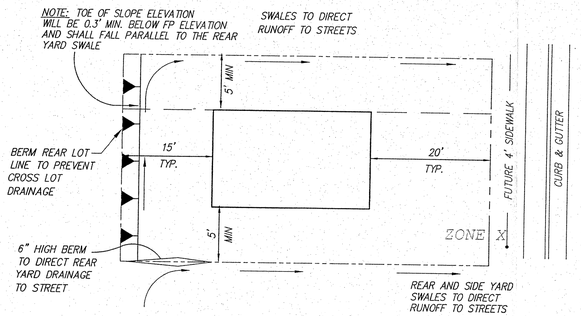
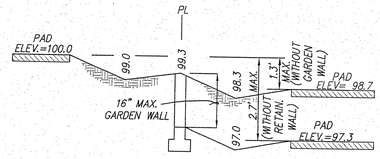
James D. Hughes Date 10-26-05 (SEAL)

JAMES D. HUGHES 11674 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER



TYPICAL LOT GRADING DETAIL
NTS



SECTION B–B
TYPICAL SIDEYARD GARDEN BLOCKWALL DETAIL
NTS
ANY DIFFERENCE IN PAD ELEVATIONS BETWEEN ADJACENT LOTS GREATER THAN 2.7' WILL REQUIRE RETAINING WALLS

LEGEND

- FLOODPLAIN
- NEW RETAINING WALL
- STANDARD CURB & GUTTER
- MOUNTABLE CURB & GUTTER, ROLL TYPE
- FP=76.98 FINISHED PAD ELEV.
- 28.53• PROPOSED SPOT ELEV.
- 3:1 SLOPE
- SWALE
- NEW STORM DRAIN INLET
- NEW STORM DRAIN INLET
- NEW MANHOLE
- EXIST. SANITARY SEWER MANHOLE
- EXIST. WATER VALVE
- EXIST. STORM SEWER MANHOLE
- –5135– EXIST. CONTOUR
- EXIST. CABLE T.V. PEDESTAL
- –E– EXIST. OVERHEAD ELECTRIC LINE
- –T– EXIST. OVERHEAD TELEPHONE LINE
- EXIST. P.P.
- EXIST. DROP INLET
- EXISTING EDGE OF PAVEMENT
- EXISTING CURB & GUTTER
- FUTURE CURB & GUTTER
- –SD– FUTURE STORM DRAIN LINE
- FUTURE MANHOLE

Approved for Rough Grading (±18") City Hydrology Date

A2002SWYND/A2002GD–BR/04–04–02/KJS

50' 25' 0 50' 100'
SCALE: 1" = 50'

AS BUILT INFORMATION
CONTRACTOR
WORK STARTED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO–FILM INFORMATION
RECORDED BY DATE
NO.

BENCH MARKS

SURVEY INFORMATION
NO. FIELD NOTES BY DATE

NO.	REMARKS	BY	DATE
	REVISIONS		
	DESIGN	JDH	12/01
	DESIGNED BY		DATE
	DRAWN BY	KJS	12/01
	CHECKED BY	DMG	12/01

dmg MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828–2200, FAX (505) 797–9539

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE:
SOUTHWYND SUBDIVISION
GRADING AND DRAINAGE PLAN
ENGINEER'S CERTIFICATION

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. | ZONE MAP NO. L-10-Z | SHEET 2 OF 2

RECEIVED
FEB 16 2006
HYDROLOGY SECTION

F:\A02JOBS\A2002SWND\2002gd–br.dwg Thu Apr 04 13:30:44 2002 D. MARK GOODWIN & ASSOCIATES, PLOTTED BY: KJS