Tracts 29, 30, 31
at Arrowwood

DRAINAGE MASTER PLAN

Prepared for

Longford Homes

&

Curb, Inc.

Prepared by

WILSON
&COMPANY
ENGINEERS & ARCHITECTS

2600 The American Rd, SE
Suite 100
Rio Rancho, NM 87124

FINAL SUBMITTAL VERSION

October 11, 2004

WILSON
&COMPANY

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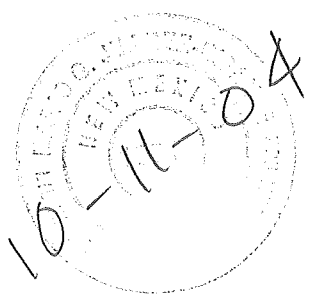
I, Mario G. Juarez-Infante, P.E., do hereby certify that this document was prepared by me or under my direction, and is true and correct to the best of my knowledge and belief and that I am a duly registered Professional Engineer under the laws of the State of New Mexico.

Mario G. Juarez-Infante, P.E.
NMPE No. 15340

Date



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EXECUTIVE SUMMARY

Tracts 29, 30, 31 at Arrowwood Development (hereinafter Arrowwood Development) encompasses approximately 103 acres of undeveloped land located in the City of Albuquerque, Bernalillo County. The area is bounded by future Gibson Boulevard on the north, future 98th Street on the east, Anderson Heights on the west, and the Sacate Channel on the south. Longford Homes and Curb, Inc., are proposing to develop this area for residential use.

A thorough review of the ***Drainage Management Plan for Anderson Hills*** (hereinafter Reference 1), written by Mark Goodwin & Associates, P.A., dated August 19, 2003, the ***Drainage Study for El Rancho Grande Units 14 and 15***, dated October 10, 2003, and revised on November 21, 2003 (hereinafter Reference 2), the ***Drainage Report for Anderson Heights*** (hereinafter Reference 3), dated April 2004, and the ***Drainage Report for El Rancho Grande Unit 9B*** (hereinafter Reference 4), written by Mark Goodwin & Associates, P.A., dated September 2004. A thorough review was conducted with attention to the respective recommendations and goals.

This drainage plan serves to support drainage analysis necessary to assess the effects of interim and full development conditions. For purposes of this report, *Interim* conditions refer to development of Arrowwood as illustrated in Figure 1, without development of the infrastructure recommended in Reference 3. Full development conditions refer to development of Arrowwood as illustrated in Figure 1 and completion of all drainage infrastructure provided in Reference 1 and the installation of the main storm drain provided in this report. This report recognizes off-site flows west of Arrowwood Development, and provides recommendations for maintaining free discharge into the Amole Detention Basin. Goals defined within References 1-4, and followed within the Arrowwood Development DMP include:

- Reference 1: Basin 60122, Q_p = 46.15 ft^3/s, shall be routed and retained in Basin 60123 in the interim condition, following future development, the South Power Line Diversion will convey flows in to the Rio Bravo Channel.
- Reference 1: Basin 60123, Q_p = 136.19 ft^3/s, shall be retained on-site in the interim condition, following future development, the South Power Line Diversion will convey flows in to the Rio Bravo Channel.
- Reference 2: Basin Map, Basins 15-N, 15-B2, 15-G and 15-M, Q_p = 24.0 ft^3/s total, shall be conveyed to Amole Detention Basin. This basin is illustrated in Figure 3, designated as basin 00015.

- Reference 2: Exhibit 4 Master Storm Drain Basin Map, Basin DB19, Q_p = 189 ft^3/s, shall be conveyed to the Amole Detention Basin. Reference 4 modifies the basin boundary by splitting flow and changing conveyance routes, which supercedes Reference 2 as of September 2004. This basin is illustrated in Figure 3, designated as basin 00002.
- Reference 3: Roadway bypass flow on Amole Mesa Avenue, Q_p = 5.29 ft^3/s, and on Colobel Avenue, Q_p = 5.67 ft^3/s, shall be conveyed to the Amole Detention Basin.

INTRODUCTION

Tracts 29, 30, 31 at Arrowwood Development (hereinafter Arrowwood Development) encompasses approximately 103 acres of undeveloped land located in the City of Albuquerque, Bernalillo County. The area is bounded by future Gibson Boulevard on the north, future 98th Street on the east, Anderson Heights on the west, and the Sacate Channel on the south. Longford Homes and Curb, Inc., are proposing to develop this area for residential use.

A thorough review of the ***Drainage Management Plan for Anderson Hills*** (hereinafter Reference 1), written by Mark Goodwin & Associates, P.A., dated August 19, 2003, the ***Drainage Study for El Rancho Grande Units 14 and 15***, dated October 10, 2003, and revised on November 21, 2003 (hereinafter Reference 2), the ***Drainage Report for Anderson Heights*** (hereinafter Reference 3), dated April 2004, and the ***Drainage Report for El Rancho Grande Unit 9B*** (hereinafter Reference 4), written by Mark Goodwin & Associates, P.A., dated September 2004. A thorough review was conducted with attention to the respective recommendations and goals.

This plan discusses existing drainage analyses conducted by Reference 1, Reference 2, Reference 3, & Reference 4 , and establishes hydrologic conditions as a result of the proposed development. Drainage Infrastructure improvements are presented for both the interim and full development conditions.

Reference 1 describes proposed conditions due to a major shift of future Gibson Boulevard Corridor, several hundred feet south of the 1999 Amole Hubbell DMP location, thus shifting about 30 acres from the South Power Line and/or Sacate Blanco Watershed into the Amole Arroyo Watershed below Westgate Dam. The primary guidelines established by the Reference 1 are:

- Basin 60122, Q_p = 46.15 ft^3/s, shall be routed and retained in Basin 60123 in the interim condition, following future development, the South Power Line Diversion will convey flows in to the Rio Bravo Channel.
- Basin 60123, Q_p = 136.19 ft^3/s, shall be retained on-site in the interim condition, following future development, the South Power Line Diversion will convey flows in to the Rio Bravo Channel.
- Westpack properties runoff is attenuated with a pond, west of Arrowwood Development.

Reference 2 describes proposed conditions for El Rancho Grande Units 14 and 15, as single-family residential developments. The Amole-Hubbell DMP allows for full discharge of developed flows from the Amole Arroyo Basin to the Amole and Hubbell Lake storage facilities. The primary guidelines established by the Reference 2 are:

- Basin Map, Basins 15-N, 15-B2, 15-G, and 15-M, Q_p = 24.0 ft^3/s total, shall be conveyed to Amole Detention Basin.
- Exhibit 4 Master Storm Drain Basin Map, Basin DB19, Q_p = 189 ft^3/s, shall be conveyed to the Amole Detention Basin.
- Exhibit 4 Master Storm Drain Basin Map, Basin DB19, Q_p = 189 ft^3/s, shall be conveyed to the Amole Detention Basin. Reference 4 modifies the basin boundary by splitting flow and changing conveyance routes, which supercedes Reference 2 as of September 2004. This basin is illustrated in Figure 3, designated as basin 00002.

Reference 3 describes proposed conditions for Anderson Heights, to the west of Arrowwood Development, as single-family residential units. This report provides calculations and design for the conveyance of runoff from Anderson Heights Subdivision (Basin 60122 and 60123 as established in Reference 1). The primary guidelines established by the Reference 2 are:

- Hydraulic Calculation of bypass flow, Q_p = 5.29 ft^3/s, shall be conveyed to Amole Detention Basin via Amole Mesa Avenue.
- Hydraulic Calculation of bypass flow, Q_p = 5.67 ft^3/s, shall be conveyed to Amole Detention Basin via Colobel Avenue.
- Runoff from Anderson Heights Subdivision shall be conveyed through a storm drain and ponding system to the South Power Line Diversion, which will convey flows into the Rio Bravo Channel.

This report establishes the base guidelines that will be followed in development of Tracts 29, 30, 31 at Arrowwood. As stated in the Amole-Hubbell DMP, full discharge for residential development is allowed.

EXISTING CONDITIONS

Arrowwood Development is located in southwest Albuquerque. The site consists of Lot 29A, 30A-1 and 31A-1 of the Salazar-Davis Tracts. The approximately 103 acre area, bounded by 98th Street on the east, Anderson Heights subdivision on the west, a future un-named right-of-way on the south, and Gibson Boulevard on the north makes up the development area. See Figure 1 for the Vicinity Map. Lands within the development generally slope toward the southeast. For the purposes of this analysis, the entire 103-acre on-site area was considered as a single basin for existing conditions. Run-off is generally captured by an unnamed natural arroyo and conveyed NE, and discharged into the Amole Detention Basin. See Figure 2 for the existing conditions.

INTERIM CONDITIONS

HYDROLOGIC MODEL

A comprehensive developed condition hydrologic model was created to assess drainage conditions and infrastructure necessary as a result of Arrowwood Development. As part of the model, the following assumptions were made:

- Land treatments for developed areas are based on 6.8 DU's per acre and assumptions compatible with the COA DPM, section 22.2
- Land treatments are based on 6.0 DU's per acre for those areas that will remain undeveloped in the interim
- Runoff from offsite watersheds must be conveyed through the development
- Ensure that Amole Detention Basin capacity is not exceeded
- Bulking factors consistent with the DPM are included (7% for undeveloped areas, 0% for developed areas)

Hydrologic analyses in this report conform to Section 22.2, Hydrology, of the Development Process Manual, Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993 (COA DPM). Hydrologic modeling was performed using the Arid-lands Hydrologic Model, August 1997 by Anderson Hydro (AHYMO_97). The 100–year 6–hour return frequency storm was used as the basis of this analysis.

The proposed development is found on FEMA flood insurance rate map number 35001C0336 D. A southern portion of Lot 30A-1 is within the flood zone A, the 100-year floodplain, as seen on Figure 4.

Review of available soils information indicated loamy fine sand soils of the Bluepoint series. The description of this series is found in the USDA Natural Resources Conservation Service soil mapping of Bernalillo County and portions of Sandoval County (see Figure 7). The Bluepoint series is described as a deep, somewhat excessively drained soil comprised mostly of fine sand. The surface layer is pale brown loamy fine sand about 8 inches thick. The underlying layer is pale brown loamy sand to a depth of 20 inches and light yellowish brown loamy sand to a depth of 60 inches or more. Water erosion hazard is low, while wind erosion hazard is severe. These areas support range, irrigated crops, watershed, wildlife habitat, and community development uses.

These soils have been formed in sandy alluvial and eolian sediments on alluvial fans and terraces, with slopes ranging from 1 to 9 percent. The Bluepoint Series fits within Hydrologic Group "A", implying low runoff potential.

INTERIM CONDITIONS INFRASTRUCTURE

Timing for Arrowwood Development is such that Tracts 29A & 30A-1 will be fully built out before any drainage infrastructure is constructed in Anderson Heights (Reference 3). Interim conditions will require that Arrowwood Development mitigate existing off-site drainage as provided in Reference 3. A brief summary of the recommended interim drainage infrastructure is provided illustrated in Figure 3A and summarized below.

On-Site Three ponds will be strategically located within Tract 29A, 30A-1, and Tract 8 (future school site), including internal storm drain piping, which will capture, detain, and discharge peak flows to the Amole Detention Basin. Internal storm drain will be constructed to accommodate full development conditions.

Development of Tract 29A, will introduce developed peak runoff, which will be collected by an internal storm drain, conveyed toward Tract 30A-1, and discharged into temporary Pond 2. Pond 2 is approximately 4.71 acre-ft. Pond 2 will have a 10" ϕ orifice plate capable of discharging approximately 9.31 ft^3/s, and will tie into the internal sub-division storm drain, drain east and outfall into Basin 00004. At this point, run-off will be generally captured by an unnamed

approximately 10.60 acre-ft. Pond 1 will have a 12" ϕ pipe, which will tie into the internal sub-division storm drain, and discharge of approximately 11.17 ft^3/s. A Maintenance & Operation Agreement, between the City of Albuquerque and Curb Inc., will be required to maintain Pond 1 throughout its interim life.

Basin 11 will continue to runoff eastwardly into Basin 00004, collected by a temporary earth channel located in Tract 8 (future school site) and discharge into Pond 3. Pond 3 is approximately 5.19 acre-ft. Pond 3 will have a 36" ϕ pipe capable of discharging approximately 52.59 ft^3/s, and will outfall into the Sacate Blanco Diversion. Maintenance & Operation will be the responsibility of Curb Inc., until such time that Tract 8 is sold to Albuquerque Public Schools or other entity. Maintenance will continue until permanent upstream infrastructure (identified in this report) is complete-in-place.

PROPOSED CONDITIONS

The proposed development will consist of 372 lots of single-family housing. The portions of the adjacent streets that abut the development will be constructed with the project. Among the roads to be constructed are the west half of 98th Street, the north half Colobel Avenue to the south, and the adjacent half of all of the streets abutting Lot 31A-1. This report considers Reference 1, Reference 2, Reference 3, and Reference 4 off-site flows and mitigates on-site post-development run-off. Street capacities are provided in Appendix C, *Hydraulic Analysis*.

On-Site Currently, the Amole watershed is primarily undeveloped. There will be four on-site drainage basins and four off-site basins. Figure 3 shows proposed watershed basins for off-site and on-site areas. Proposed basins were delineated based on development areas and their relationship to existing topographic conditions. Development of the land treatments for the proposed conditions model for the on-site areas was determined to be 6.8 DU's per acre directly from the proposed lot layout of the development.

Off-Site The land treatments for the remaining off-site basins were assumed to be 6.0 DU's per acre, based on surrounding development and land treatments considered in Reference 1, 2 & 4.

Under developed conditions, the development will discharge as it has historically, to the Amole Detention Basin. Free discharge is allowed from the proposed development with the conveyance of offsite flows. On-site flows will be collected by a storm drain system and conveyed into the Amole Detention Basin.

Off-Site The land treatments for the remaining off-site basins were assumed to be 6.0 DU's per acre, based on surrounding development and land treatments considered in Reference 1, 2 & 4.

Under developed conditions, the development will discharge as it has historically, to the Amole Detention Basin. Free discharge is allowed from the proposed development with the conveyance of offsite flows. On-site flows will be collected by a storm drain system and conveyed into the Amole Detention Basin.

In the developed condition, off-site flows will be routed through the proposed storm drain system. The off-site area includes portions of El Rancho Grande Subdivision as obtained from reference 2. Basin areas labeled 00002 and 00003, which were obtained from reference 2, were modified for this analysis to accommodate proposed infrastructure. Peak flows were interpolated based on the basin areas and peak flows given in Exhibit 4 of the report entitled "Master Storm Drain Basin Map". Except for small bypass flows established in Reference 3, Anderson Heights Subdivision (designated as Basins 60122 and 60123 in reference 1) runoff will be retained on-site in the interim condition, while it will be routed through the South Power Line Diversion into the Rio Bravo Channel in the future condition. See Figures 3 and 4 for the existing and proposed basin boundaries.

MODELING RESULTS

Table 1 shows land treatment applied to on-site and off-site basins, along with peak discharges and the total runoff volumes resulting from the 100-year, 6-hour storm event.

Table 1. Hydrologic Summary

Sub-basin	Acres	DUs/Acre	T_P	Land Treatments A	B	C	D	Q_{peak} (cfs)	Volume (ac-ft)	Methodology/Notes
ONSITE										
00001	45.9	6.8	0.13	0	0	37	63	174.87	6.132	DPM for D
00005A	18.1	6.8	0.13	0	0	37	63	69.00	2.418	DPM for D
00005B	11.7	6.8	0.13	0	0	37	63	44.61	1.563	DPM for D
00006	28.0	6.8	0.13	0	0	37	63	106.70	3.740	
OFFSITE										
15	6.4	---	0.13	0	0	20	80	24.00	0.848	DERIVED FROM REFERENCE 2
00002	13.2	---	0.13	0	19	26	55	46.42	1.599	DERIVED FROM REFERENCE 4
00004	29.0	6.0	0.13	0	0	43	57	108.03	3.738	DPM for D
00007	11.9	---	0.13	80	0	20	0	19.06	0.529	School Site
1	164.69	---	0.1992	95	0	5	0	175.77	6.299	DERIVED FROM REFERENCE 3
10	147.68	---	0.2812	95	0	5	0	112.96	5.648	DERIVED FROM REFERENCE 3
11	8.92	---	0.13	95	0	5	0	12.14	0.341	DERIVED FROM REFERENCE 3

STORM WATER IMPROVEMENTS

Longford Development and Curb, Inc. will install underground storm drain to capture both development flows and off-site flows as illustrated on Figure 5, and convey runoff to Amole Detention Basin. The proposed main trunk line varies in size between 36"ϕ at the upstream and 84"ϕ below future Unser Boulevard Corridor (see Exhibit 1). Catch basins shall be provided based on sub-division street capacity considerations as outlined in the Albuquerque DMP. The minimum 36"ϕ pipe size upstream, is consistent with the Section 22 of the DPM, which addresses potential pipe sediment due to wind erosion. Pipe slopes vary between 0.6%-2.6%, well within the criterion set forth by the City.

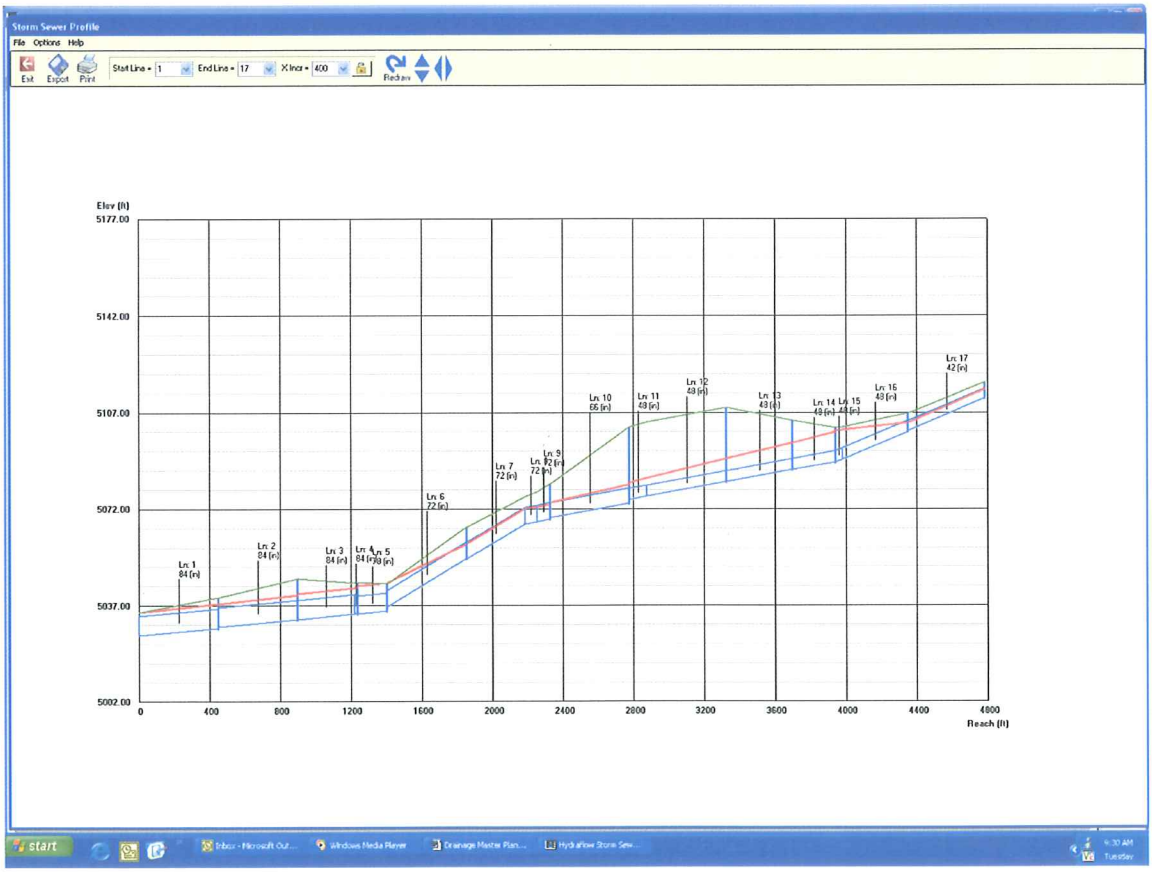


Exhibit 1: Mainline storm drain varies from 36"ϕ to 84"ϕ below future Unser Boulevard Corridor.

CONCLUSION

Detailed analyses considering the requirements of the off-site flows and reasonable assumptions within the Arrowwood Master Plan area show that development is in compliance of the Reference 1, Reference 2, Reference 3 and Reference 4 Drainage Master Plans, approved by the City of Albuquerque, which allows for 100% free discharge into the Amole Detention Basin. Conservative land treatment assumptions and mitigation of off-site flows demonstrate that the Arrowwood Development will create no new flood hazards or adversely affect existing facilities downstream.

A CLOMR will be prepared for Tract 29A, 30A-1 and Tract 8 (future school site), which will allow removal of flood plain in the interim condition. Under full development, Anderson Heights, located west of Arrowwood, will construct the necessary drainage infrastructure, at which time a LOMR will be prepared to permanently remove the existing floodplain affecting this area. The proposed project improvements will adequately protect the Arrowwood Development and Tract 8 from flooding and erosion damages.

GIBSON BOULEVARD CORRIDOR

AMOLE CHANNEL

RIOJA DR.

BLAKE ROAD CORRIDOR

AMAFCA R/W

PROJECT SITE

31A–1

AMOLE MESA AVE

29A

MESA ARENOSA DR.

30A–1

98TH STREET CORRIDOR

COLOBEL AVE.

AMOLE HUBBELL DRAINAGE

UNSER BOULEVARD CORRIDOR

AMOLE DETENTION BASIN

118TH STREET

WEST PAC PROPERTY

ZONE AO (DEPTH 1)

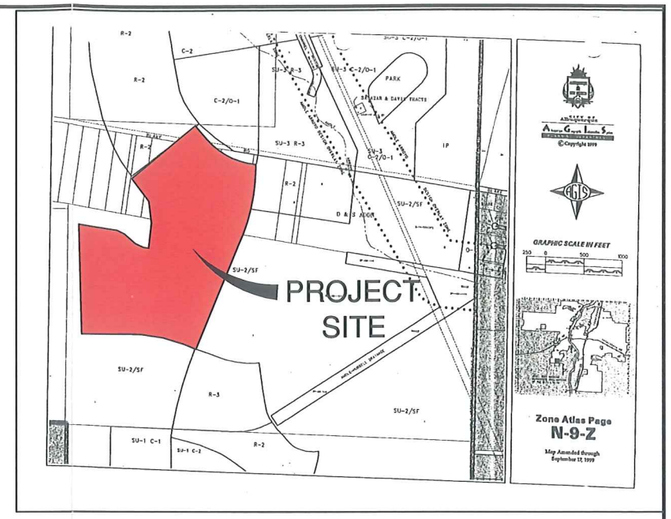
ZONE AO (DEPTH 1)

ZONE X

ZONE AO (DEPTH 2)

ZONE AO (DEPTH 2)

ZONE X



LOCATION MAP

SCALE: NTS

N

1000 0 500 1000 2000

GRAPHIC SCALE (IN FEET) 1" = 1000 ft.

WILSON & COMPANY
2600 THE AMERICAN ROAD S.E.
SUITE 100
RIO RANCHO, NEW MEXICO
87124
(505) 898–8021

TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 1

VICINITY/LOCATION MAP

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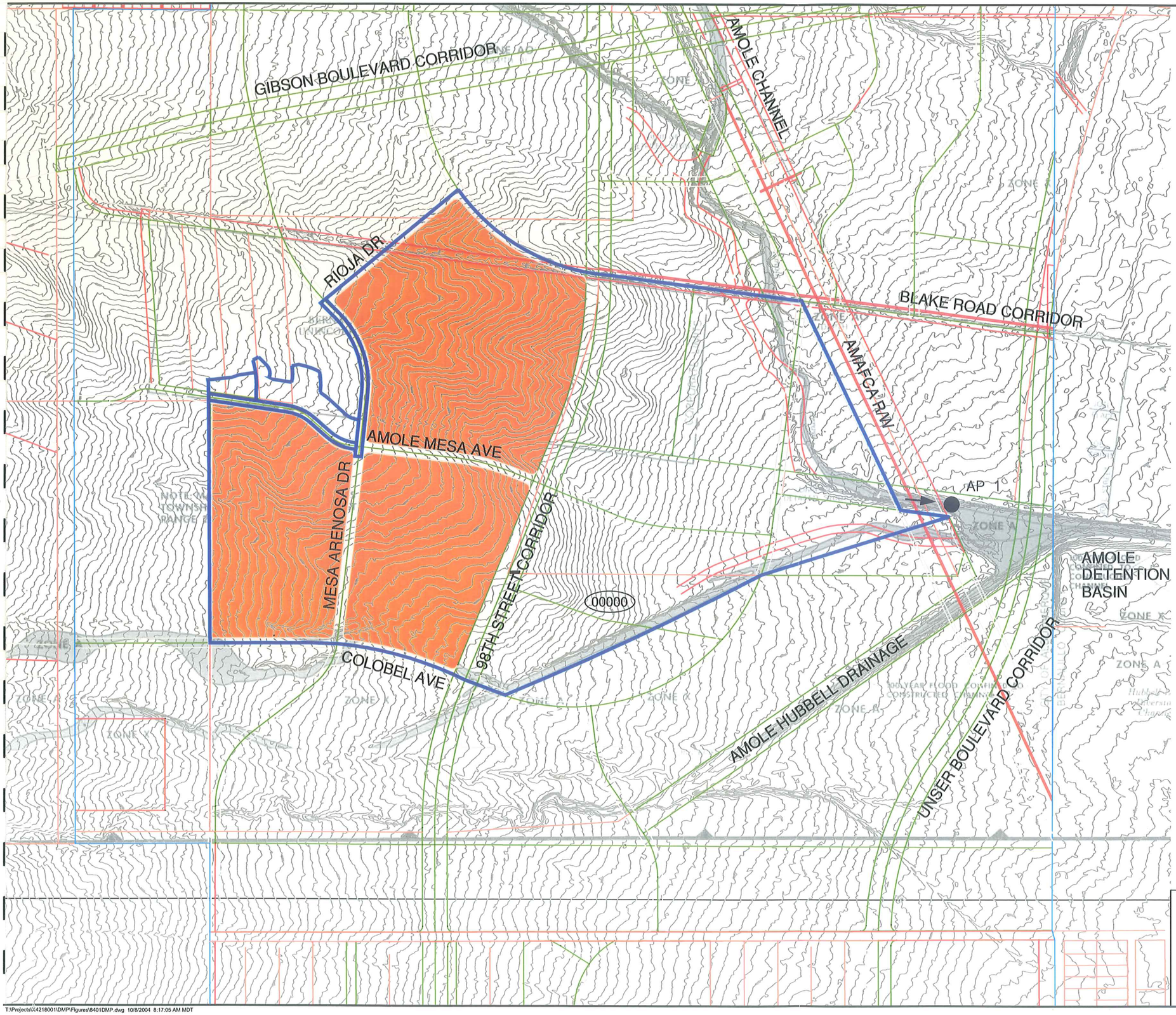

LEGEND

- PROJECT SITE
- EXISTING BASIN BOUNDRY
- ANALYSIS POINT
- XXXXX BASIN I.D. LABEL

BASIN TABLE

BASIN	AREA (AC)	Q 100 (CFS)	V 100 AC-FT
00000	200.0	172.18	7.835

ANALYSIS POINT TABLE

ANALYSIS POINT	Q 100 (CFS)
AP 1	172.18

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

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SUITE 100
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(505) 898-8021

TRACTS 29, 30, 31 DRAINAGE MANAGEMENT PLAN FIGURE 2

EXISTING CONDITIONS

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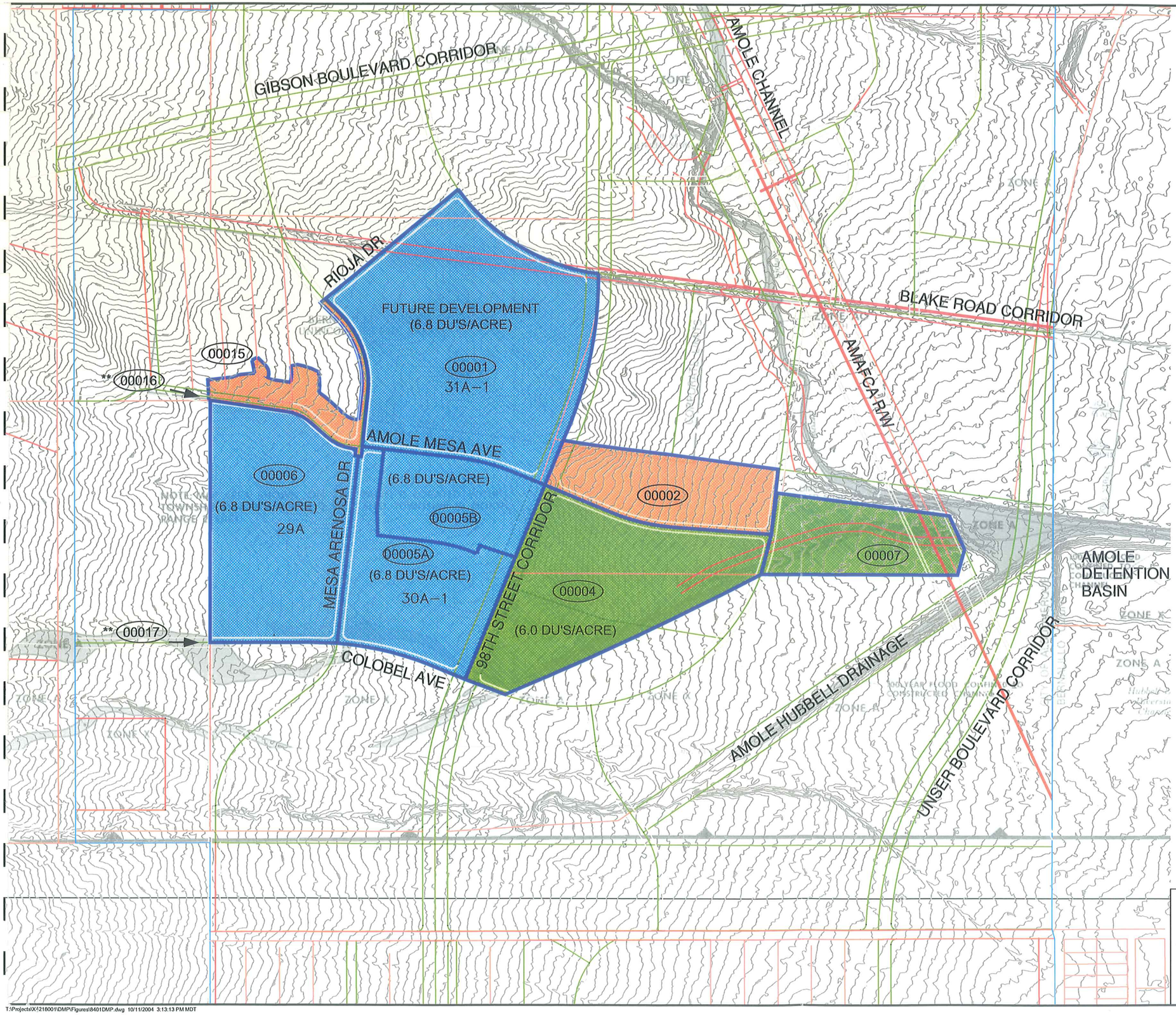

LEGEND

- REFERENCE: ONSITE; CREATED IN THIS REPORT
- REFERENCE: OFFSITE; DRAINAGE STUDY FOR EL RANCHO GRANDE UNITS 14 AND 15, DATED OCTOBER 10, 2003 REVISED NOVEMBER 21, 2003*
- REFERENCE: OFFSITE; CREATED IN THIS REPORT
- (XXXXX) BASIN I.D. LABLE
- PROPOSED BASIN BOUNDARY
- * BASIN BOUNDARY REVISED BY VIRTUE OF THIS REPORT TO ACCOMODATE PROPOSED INFRASTRUCTURE

BASIN TABLE

BASIN	AREA	Q 100 (CFS)	V 100 AC-FT
00001	45.9 AC	174.9	6.132
00002	13.2 AC	46.4	1.599
00004	29.0 AC	108.0	3.738
00005A	18.1 AC	69.0	2.418
00005B	11.7 AC	44.6	1.563
00006	28.0 AC	106.7	3.740
00007	11.9 AC	46.8	1.631
00015	6.37 AC	24.0	0.848
**00016	1.29 AC	5.29	0.191
**00017	1.39 AC	5.67	0.205

**BASIN BOUNDARIES ARE UNDEFINED. BASIN AREAS BASED ON BYPASS FLOWRATES PER REVIEW OF DRAINAGE REPORT FOR ANDERSON HEIGHTS BY MARK GOODWIN & ASSOCIATES, DATED APRIL 2004.

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

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SUITE 100
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(505) 898-8021

TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 3

PROPOSED
CONDITIONS

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GIBSON BOULEVARD CORRIDOR

AMOLE CHANNEL

RIOJA DR

FUTURE DEVELOPMENT
(6.8 DU'S/ACRE)
31A–1
00001
A=45.9 AC

BLAKE ROAD CORRIDOR

AMAFCA R/W

00015
A=6.4 AC

1
A=164.7 AC

AMOLE MESA AVE

(6.8 DU'S/ACRE)

(6.8 DU'S/ACRE)
00005B
A=11.7 AC

00002
A=13.2 AC

00006
A=28.0 AC

29A

MESA ARENOSA DR

98TH STREET CORRIDOR

00004
A=29.0 AC

(6.0 DU'S/ACRE)

00007
A=11.9 AC

POND

10
A=147.7 AC

30A–1

00005A
A=18.1 AC

POND 1

POND 2

(6.8 DU'S/ACRE)

AMOLE
DETENTION
BASIN

11
A=8.9 AC

COLOBEL AVE

AMOLE HUBBELL DRAINAGE

UNSER BOULEVARD CORRIDOR

LEGEND

- REFERENCE: ONSITE, CREATED IN THIS REPORT
- REFERENCE: OFFSITE, DRAINAGE STUDY FOR EL RANCHO GRANDE UNITS 14 AND 15, DATED OCTOBER 10, 2003 REVISED NOVEMBER 21, 2003*
- REFERENCE: OFFSITE, CREATED IN THIS REPORT
- 00004 BASIN I.D. LABEL
- PROPOSED BASIN BOUNDARY
- PROPOSED INTERIM DETENTION POND
- * BASIN BOUNDARY REVISED IN THIS REPORT TO ACCOMODATE PROPOSED INFRASTRUCTURE

BASIN TABLE

BASIN	AREA	Q 100 (CFS)	V 100 AC–FT
00004	29.0 AC	45.45	1.3
00005A	18.1 AC	58.8	2.1
00005B	11.7 AC	44.7	1.6
00006	28.0 AC	92.8	3.3
00007	11.9 AC	19.1	0.53
00015	6.4 AC	24.0	0.85
1	164.7 AC	175.8	6.3
10	147.7 AC	113.0	5.6
11	8.9 AC	12.1	0.34

NOTE: BASINS 0001 AND 0002 WERE NOT MODELED IN INTERIM CONDITIONS. UNDER EXISTING CONDITIONS, DRAINAGE FROM THESE BASINS DOES NOT ENTER THE PROJECT SITE.

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

WILSON & COMPANY
2600 THI: AMERICAN ROAD S.E.
SUITE 100
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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 3A

PROPOSED INTERIM CONDITIONS

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GIBSON BOULEVARD CORRIDOR

AMOLE CHANNEL

BLAKE ROAD CORRIDOR

AMAFCA R/W

RIOJA DR

FUTURE DEVELOPMENT
(6.8 DU'S/ACRE)

00015

24.00 CFS

00001

** 00016
5.29 CFS
AP 16

AP 1

AMOLE MESA AVE

AP 4

174.87 CFS

00006

(6.8 DU'S/ACRE)

MESA ARENOSA DR

NOTE: THE AREA SHOWN ON THIS PANEL IS NOT ZONED AND TOWNSHIP
RANGE 2 EAST

(6.8 DU'S/ACRE)

44.61 CFS

00005B

00005A

(6.8 DU'S/ACRE)

106.70 CFS

AP 2

69.00 CFS

AP 3

98TH STREET CORRIDOR

00004

(6.0 DU'S/ACRE)

** 00017
5.67 CFS
AP 17

COLOBEL AVE

46.42 CFS

00002

AP 5

AP 6

108.03 CFS

46.77 CFS

00007

AMOLE
DETENTION
BASIN

AMOLE HUBBELL DRAINAGE

UNSER BOULEVARD CORRIDOR

ZONE A

ZONE X

LEGEND

- ANALYSIS POINT
- DRAINAGE FLOW DIRECTION
- 00007 — BASIN I.D. LABEL
- PROPOSED BASIN BOUNDARY
- ZONE A — FIRM MAP PANEL 35001C0336D
- PROPOSED STORM DRAIN LINE

ANALYSIS POINT TABLE

ANALYSIS POINT	Q 100 (CFS)
AP 1	28.88
AP 2	112.05
AP 3	179.26
AP 4	403.41
AP 5	530.69
AP 6	529.72
**AP 16	5.29
**AP 17	5.67

**BASIN BOUNDARIES ARE UNDEFINED. BASIN AREAS BASED ON BYPASS FLOWRATES PER REVIEW OF DRAINAGE REPORT FOR ANDERSON HEIGHTS BY MARK GOODWIN & ASSOCIATES, DATED APRIL 2004.

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 4

H & H ANALYSIS POINTS

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GIBSON BOULEVARD CORRIDOR

AMOLE CHANNEL

AMAFCA R/W

BLAKE ROAD CORRIDOR

RIOJA DR.

FUTURE DEVELOPMENT
(6.8 DU'S/ACRE)

00001
A=45.9 AC

00015
A=6.4 AC

1
A=164.7 AC

(6.8 DU'S/ACRE)

AMOLE MESA AVE

(6.8 DU'S/ACRE)

00002
A=13.2 AC

00006
A=28.0 AC

00005B
A=11.7 AC

MESA VERDE DR

98TH STREET CORRIDOR

(6.8 DU'S/ACRE)

(6.0 DU'S/ACRE)

00007
A=11.9 AC

AP 8

POND 3

AP 6

AP 7

10
A=147.7 AC

AP 1

POND 1

24" SD

36" SD

00005A
A=18.1 AC

POND 2

00004
A=29.0 AC

AP 2

AP 3

AP 4

48" SD

SOLOBEL AVE

AP 5

11
A=8.9 AC

AMOLE
DETENTION
BASIN

AMOLE HUBBELL DRAINAGE

UNSER BOULEVARD CORRIDOR

ZONE A

ZONE X

LEGEND

- ANALYSIS POINT
- DRAINAGE FLOW DIRECTION
- 00004 — BASIN I.D. LABEL
- PROPOSED BASIN BOUNDARY
- ZONE A — FIRM MAP PANEL 35001C0336D
- PROPOSED INTERIM CHANNEL
- PROPOSED INTERIM DETENTION POND
- PROPOSED INTERIM STORM DRAIN OUTFALL

ANALYSIS POINT FLOWS

ANALYSIS POINT	Q 100 (CFS)
AP 1	280.1
AP 2	11.2
AP 3	95.3
AP 4	9.3
AP 5	77.6
AP 6	102.1
AP 7	183.9
AP 8	52.6

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 4A

INTERIM H & H
ANALYSIS POINTS

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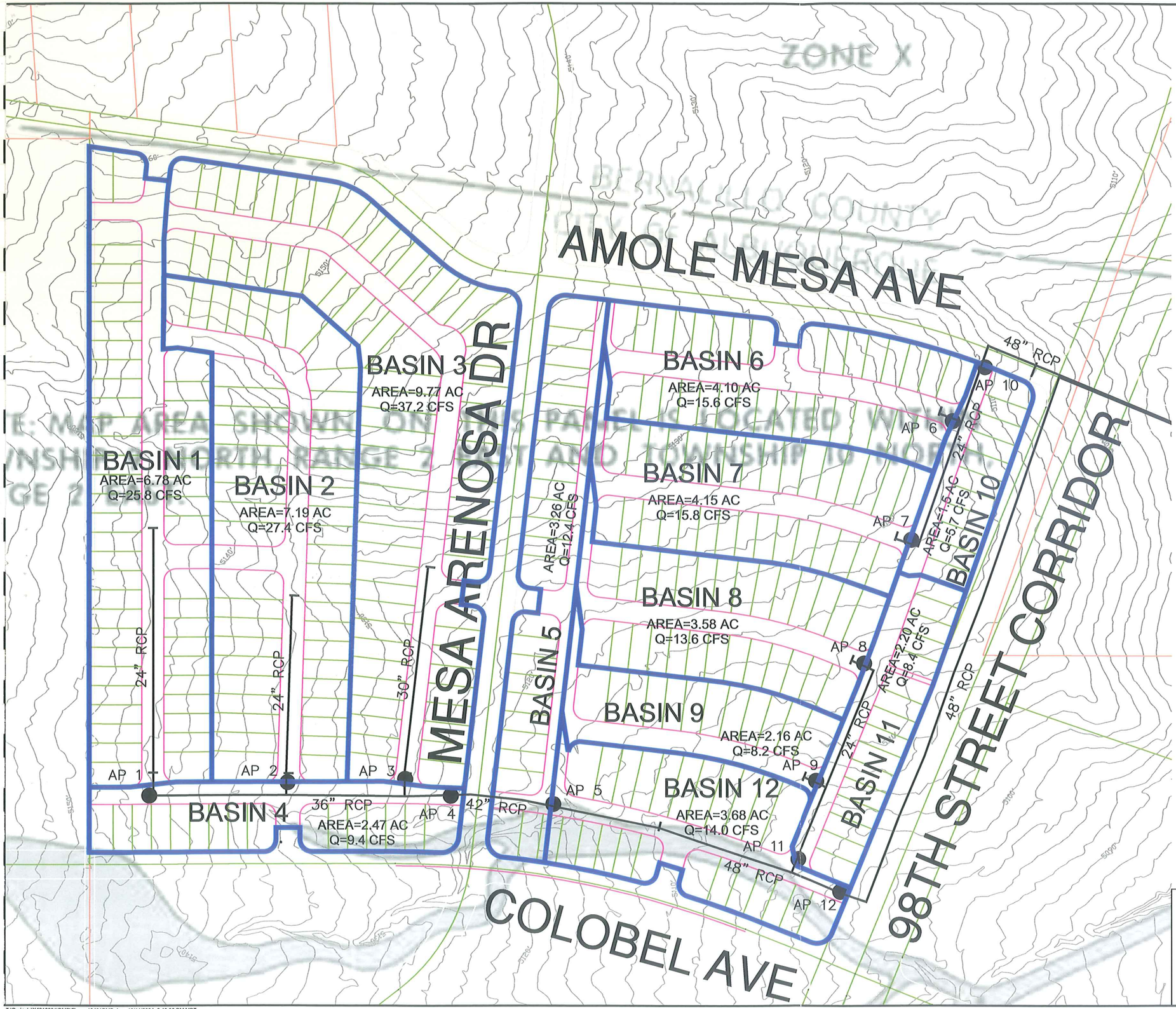

LEGEND

- PROJECT SITE
- PROPOSED STORM DRAIN LINE
- PROPOSED ONSITE BASIN BOUNDARY
- PROPOSED ONSITE R.O.W. LINE
- PROPOSED LOT LINE
- ZONE A — FIRM MAP PANEL 35001C0336D
- ANALYSIS POINT

ONSITE STREET CAPACITY TABLE

AP	SLOPE (%)	Q_{100} (cfs)	D_{100} (ft)
AP–1	0.5	25.8	0.54
AP–2	0.5	27.4	0.56
AP–3	0.5	37.2	0.62
AP–4	1.86	106.7	0.78
AP–5	2.37	12.4	0.35
AP–6	3.35	15.6	0.35
AP–7	2.64	15.8	0.37
AP–8	2.63	13.6	0.35
AP–9	2.66	8.2	0.30
AP–10	1.67	37.1	0.50
AP–11	1.23	30.2	0.49
AP–12	0.86	56.6	0.66

N

200 0 100 200 400

GRAPHIC SCALE (IN FEET) 1" = 200 ft.

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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 6

ONSITE STREET CAPACITY

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POND 1
Q_{OUT} = 11.2 CFS
$V_{10\,DAY}$ = 10.19 AC-FT
12" OUTLET PIPE

ZONE X

AMOLE MESA AVE

BASIN 1
AREA=6.78 AC
Q=25.8 CFS

BASIN 2
AREA=7.19 AC
Q=27.4 CFS

BASIN 3
AREA=9.77 AC
Q=37.2 CFS

MESA ARENOSA DR

BASIN 5
AREA=3.26 AC
Q=12.4 CFS

BASIN 6
AREA=4.10 AC
Q=15.6 CFS

BASIN 7
AREA=4.15 AC
Q=15.8 CFS

BASIN 8
AREA=3.58 AC
Q=13.6 CFS

BASIN 9
AREA=2.16 AC
Q=8.2 CFS

BASIN 10
AREA=1.5 AC
Q=5.7 CFS

BASIN 11
AREA=2.20 AC
Q=8.4 CFS

BASIN 12
AREA=3.68 AC
Q=14.0 CFS

BASIN 4
AREA=2.47 AC
Q=9.4 CFS

AP 1
AP 2
AP 3
AP 4
AP 5
AP 6
AP 7
AP 8
AP 9
AP 10
AP 11
AP 12

24" RCP
24" RCP
30" RCP
36" RCP
42" RCP
24" RCP
24" RCP
48" RCP

98TH STREET CORRIDOR

COLOBEL AVE

Q_{OUT} = 44.7 CFS

Q_{OUT} = 77.6 CFS

POND 2
Q_{OUT} = 9.31 CFS
$V_{10\,DAY}$ = 3.99 AC-FT
10" OUTLET PIPE

LEGEND

- PROPOSED STORM DRAIN LINE
- PROPOSED ONSITE BASIN BOUNDARY
- PROPOSED ONSITE R.O.W. LINE
- PROPOSED LOT LINE
- ZONE A — FIRM MAP PANEL 35001C0336D
- ANALYSIS POINT
- PROPOSED INTERIM DETENTION POND

ONSITE STREET CAPACITY TABLE

AP	SLOPE (%)	Q_{100} (cfs)	D_{100} (ft)
AP–1	0.5	25.8	0.54
AP–2	0.5	27.4	0.56
AP–3	0.5	37.2	0.62
AP–4	1.86	106.7	0.78
AP–5	2.37	12.4	0.35
AP–6	3.35	15.6	0.35
AP–7	2.64	15.8	0.37
AP–8	2.63	13.6	0.35
AP–9	2.66	8.2	0.30
AP–10	1.67	37.1	0.50
AP–11	1.23	30.2	0.49
AP–12	0.86	56.6	0.66

N

200 0 100 200 400
GRAPHIC SCALE (IN FEET) 1" = 200 ft.

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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 6A

INTERIM ONSITE STREET CAPACITY

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GIBSON BOULEVARD CORRIDOR

AMOLE CHANNEL

RIOJA DR

BLAKE ROAD CORRIDOR

AMAFCA R/W

BASIN RD 2

BASIN RD 1

AP-RD 2

AP-RD 1

AMOLE MESA AVE

BASIN RD 3

AP-RD 3

66" SD

84" SD

84" SD OUTFALL

72" SD

84" SD

36" SD OUTFALL

AMOLE DETENTION BASIN

POND 3 (SCHOOL)

MESA ARENOSA DR

BASIN RD 4

98TH STREET CORRIDOR

42" SD

48" SD

48" SD

AP-RD 4

AP-RD 6

BASIN RD 5

BASIN RD 6

AP-RD 5

COLOBEL AVE

AP-RD 7

AMOLE HUBBELL DRAINAGE

UNSER BOULEVARD CORRIDOR

LEGEND

- PROJECT SITE
- ZONE A — FIRM MAP PANEL 35001C0336D
- PROPOSED STORM DRAIN LINE
- PROPOSED STREET BASINS

OFFSITE STREET CAPACITY TABLE

AP	SLOPE (%)	Q_{100} (cfs)	D_{100} (ft)
AP–RD 1	2.17	3.2	0.29
AP–RD 2	0.60	2.8	0.34
AP–RD 3	3.45	25.0	0.41
AP–RD 4	0.89	6.8	0.34
AP–RD 5	2.70	2.2	0.25
AP–RD 6	2.70	9.0	0.38
AP–RD 7	3.18	11.4	0.40

N

600 0 300 600 1200

GRAPHIC SCALE (IN FEET) 1" = 600 ft.

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TRACTS 29, 30, 31
DRAINAGE MANAGEMENT PLAN
FIGURE 5

OFFSITE STREET CAPACITY

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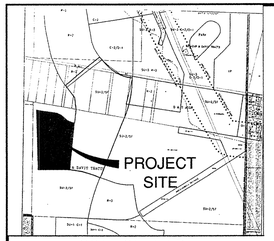
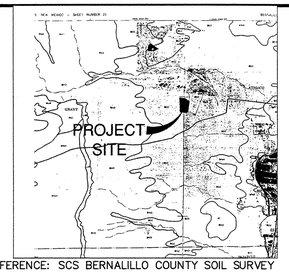
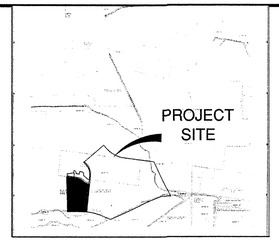


LOCATION MAP

ZONE ATLAS MAP NO. N-9



REFERENCE: SCS BERNALILLO COUNTY SOIL SURVEY



FLOOD INSURANCE MAP

REFERENCE: FLOOD INSURANCE STUDY PANEL 336

DRAINAGE CERTIFICATION

I, Steve J. Salazar, NMPE 16241, OF THE FIRM Wilson & Company, Inc., HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 11-21-05. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY Tim Aldrich, NMPS 7719, OF THE FIRM Aldrich Land Surveying.
I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON July 11, 2006 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 PERMANENT CERTIFICATE OF OCCUPANCY.

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.

Steve J. Salazar, NMPE 16241

DATE 9/18/06

STEVE J. SALAZAR NEW MEXICO 16241 LICENSED PROFESSIONAL ENGINEER

GRAPHIC SCALE

50 0 25 50 100 200

SCALE: 1 INCH = 50 FT.

LEGEND

RETAINING WALL

HIGH POINT

DIRECTION OF FLOW

XX.XX E LINE ELEVATION

BASIN BOUNDARY

TYPE DOUBLE C INLET

X-X RETAINING WALL POINT

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
10-1	37.67	33.00		
			4.67	38.0
10-2	37.67/37.00	33.00/32.33		
			4.67	44.0
10-3	37.00/36.34	32.33/31.67		
			4.67	36.0
10-4	36.34/35.67	31.67/31.00		
			4.67	44.0
10-5	35.67	31.00		

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
2-1	42.67	40.0		
			2.67	10.0
2-2	42.67/43.33	40.0		
			3.33	40.0
2-3	43.33/44.00	40.00/41.33		
			2.67	40.0
2-4	44.00/44.67	41.33/42.67		
			2.00-2.67	40.0
2-5	45.33/46.00	42.67/44.00		
			2.00	40.0
2-6	46.00/46.67	44.00		
			2.67-3.33	43.0
2-7	47.33/48.00	44.00/44.67		
			3.33	25.0
2-8	48.00/48.67	44.67		
			4.00	30.0
2-9	48.67/49.33	44.67		
			4.67	20.0
2-10	49.33/50.00	44.67/45.33		
			4.67	34.0
2-11	50.00/50.67	45.33		
			5.33-4.00	20.0
2-12	50.67/51.33	46.67/48.00		
			3.33	40.0
2-13	51.33/52.00	48.00/49.33		
			2.67	40.0
2-14	52.00/52.67	49.33/50.67		
			2.00-2.67	40.0
2-15	53.33	50.67		

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
3-0	47.00	45.67		
			1.33-3.33	30.0
3-1	47.67	44.33		
			3.33	25.0
3-2	47.67	44.33/45.00		
			2.67	15.0
3-3	47.67/49.00	45.00		
			4.00	26.0
3-4	49.00	45.00/45.67		
			3.33	14.0
3-5	49.00/49.67	45.67		
			4.00	26.0
3-6	49.67/50.33	45.67/46.33		
			4.00	14.0
3-7	50.33/51.00	46.33		
			4.67	26.0
3-8	51.00	46.33		
			4.67	14.0
3-9	51.00/52.33	46.33		
			6.00	26.0
3-10	52.33	46.33/47.00		
			5.33	14.0
3-11	52.33/53.67	47.00		
			6.67	26.0
3-12	53.67	47.00		
			6.67	14.0
3-13	53.67/54.33	47.00		
			7.33	35.0
3-14	54.33	47.00		
			7.33-5.33	16.0
3-15	52.33	47.00/47.67		
			4.67-2.67	45.0
3-16	52.33	49.67		

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
4-1	45.33	42.00		
			3.33	40.0
4-2	45.33/44.67	42.00/40.67		
			4.00	40.0
4-3	44.67	40.67/39.33		
			5.33	40.0
4-4	44.67	39.33/38.67		
			6.00-1.33	20.0
4-5	44.67	43.33		

SITE LOCATION: Tract 29A at Arrowwood Subdivision is bounded by future Amole Mesa Avenue to the north, future Mesa Arenosa Drive to the east, future Colobel Avenue to the south, and future Anderson Heights Development to the west as shown in the Vicinity Map.

METHODOLOGY: Section 22.2 of the City of Albuquerque DPM was followed to calculate the design volume. The Tract 29, 30, 31 at Arrowwood Drainage Master Plan dated Oct. 11, 2004 was referenced in design.

EXSITING CONDITIONS: The existing topography slopes SE between 2% to 4%. The proposed development is found on FEMA flood insurance rate map number 35001C0336 D (see Flood Map). A small area on the southern portion of tract 29 is located within the flood plain. A CLOMR is underway to modify this flood plain.

Review of available soils information indicated loamy fine sand soils of the Bluepoint series. The description of this series is found in the USDA Natural Resources Conservation Service soil mapping of Bernalillo County and portions of Sandoval County (see Soils Map). The Bluepoint series is described as a deep, somewhat excessively drained soil comprised mostly of fine sand. The surface layer is pale brown loamy fine sand about 8 inches thick. The underlying layer is pale brown loamy sand to a depth of 20 inches and light yellowish brown loamy sand to a depth of 60 inches or more. Water erosion hazard is low, while wind erosion hazard is severe. These areas support range, irrigated crops, watershed, wildlife habitat, and community development uses.

These soils have been formed in sandy alluvial and eolian sediments on alluvial fans and terraces, with slopes ranging from 1 to 9 percent. The Bluepoint Series fits within Hydrologic Group "A", implying low runoff potential.

PROPOSED CONDITIONS: The purpose of this Grading & Drainage Plan is to secure grading permit of temporary drainage facilities for Arrowwood Hills Development, otherwise known as Tract 29 at Arrowwood. This Grading and Drainage Plan complies with the Tract 29, 30, 31 at Arrowwood DMP, dated June 1st 2004 (hereinafter Arrowwood DMP). As the Arrowwood DMP establishes in the interim conditions, developed flows from Tract 29 will be captured by a storm drain system and conveyed to the temporary retention pond located on Tract 30 as shown on this plan. As the Arrowwood DMP establishes in the completely developed conditions, flows from Arrowwood Hills will be conveyed through the storm drain system that will be built as part of Tract 30 of the Arrowwood Development and conveyed to the Amole Detention Basin.

Offsite flows from Basin 1 and 10 (as defined in the Arrowwood DMP) to the west of Tract 29 will not need to be routed through the proposed development due to the development of Anderson Heights, which is comprised of the easternmost portion of Basin's 1 and 10. Developed flows from Anderson Heights will be routed through the South Power Line Diversion into the Rio Bravo Channel as defined in the approved Anderson Heights Drainage Report, dated April, 2004.

The storm drain system was designed based on the completely developed conditions, complying with the Arrowwood DMP. Bypass flows, as determined by the approved Anderson Heights Drainage Report, dated April, 2004, entering Arrowwood Hills on Amole Mesa Avenue will be conveyed as street flow east to Mesa Arenosa, then south to Colobel Avenue where it is collected and conveyed by the proposed storm drain system. Bypass flow from the west on Colobel Avenue will be conveyed to Mesa Arenosa where it will be captured and enter the proposed storm drain system.

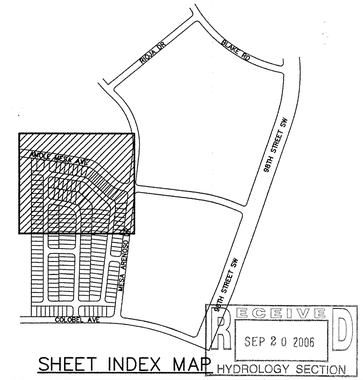
STREET CAPACITY/INLET DESIGN:

Section 22.2 of the COA DPM was followed to determine the street and inlet capacities.

On Amole Mesa at the northeast corner of the site, the flow is 30.89 cfs, including bypass flow from Anderson Heights of 5.29 cfs(as determined in the Arrowwood DMP), half street flow of 1.6 cfs and 24.0 cfs from El Rancho Grande Unit 15. The depth of flow at this point is 6.9 inches on a 2.31% slope.

On Mesa Arenosa at the southeast corner of the site, the flow is equal to the flow from Amole Mesa added to the street runoff from half of the street, which is 3.4 cfs. The overall flow on at this point is 34.29 cfs for a depth of 8.2 inches on a 0.89% slope. Two single grate type A inlets will be placed at this corner to capture 29.49 cfs, allowing 4.8 cfs to bypass.

On Colobel at the southeast corner of the site, the street carries 5.67 cfs of bypass flow from Anderson Heights(as determined in the Arrowwood DMP DATED OCT. 11, 2004) and 1.1 cfs for half of the street. The total flow at this point is 6.77 cfs for a depth of 4.4 inches on a 2.70% slope. One single grate type A inlet will be placed at this point to capture 5.6 cfs and allow 1.2 cfs to bypass.



SHEET INDEX MAP

RECEIVED SEP 20 2006 HYDROLOGY SECTION

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2600 THE AMERICAN ROAD SE
SUITE 100
RIO RANCHO, NEW MEXICO
87124
(505) 898-8021

ARROWWOOD HILLS

GRADING & DRAINAGE PLAN

STEVEN J. SALAZAR NEW MEXICO 16241 LICENSED PROFESSIONAL ENGINEER 10/12/05

REVISIONS	NO.	DATE	REMARKS	BY

DESIGN	DMD	WCEA NO. X421800101	DATE OCT 2005
DRAWN	DMD	PROJECT NO. N/A	SHEET NO. 1 OF 2
CHECK	SJS		

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RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
5-1	38.00	36.67		
			1.33-5.33	35.0
5-2	43.33	38.00		
			5.33-2.67	55.0
5-3	43.33	40.67		
6-1	37.33	35.33		
			2.00-5.33	39.0
6-2	42.67	37.33		
			5.33-2.67	45.0
6-3	42.67	40.00		
7-1	32.67	31.33		
			1.33-5.33	37.0
7-2	39.33	32.67/33.33		
			6.00-4.67	35.0
7-3	39.33/38.67	34.67		
			4.00-2.67	35.0
7-4	38.67	36.00		

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
8-1	26.00	24.00		
			2.00-4.67	60.0
8-2	26.67	22.00		
			4.67-6.00	15.0
8-3	28.00	22.00		
			6.00	35.0
8-4	28.00/28.67	22.00/22.67		
			6.00	10.0
8-5	28.67/29.33	22.67/22.33		
			6.00	30.0
8-6	29.33	23.33/24.67		
			4.67	10.0
8-7	29.33	24.67/25.33		
			4.00	30.0
8-8	29.33	25.33/26.00		
			3.33	10.0
8-9	29.33	26.00/26.67		
			2.67	30.0
8-10	29.33	26.67/27.33		
			2.00	10.0
8-11	29.33	27.33		

RETAINING WALL TABLE

WALL POINT	TOP OF WALL ELEV	TOP OF FOOTING ELEV	WALL HEIGHT (FT)	APPROX. WALL LENGTH (FT)
9-1	24.00	22.67		
			1.33-2.67	39.0
9-2	24.67	21.33		
			3.33	25.0
9-3	24.67	21.33/20.67		
			4.00	40.0
9-4	24.67	20.67		
			4.00	40.0
9-5	24.67/24.00	20.67/20.00		
			4.00	20.0
9-6	24.00	20.00		
			4.00	
9-7	24.00	20.00/19.33		
			4.67	40.0
9-8	24.00/23.33	19.33		
			4.00	40.0
9-9	23.33	19.33/18.67		
			4.67	40.0
9-10	23.33	18.67		
			4.67	20.0
9-11	23.33	18.67		
			4.00-2.00	20.0
9-12	21.33	18.67		

LEGEND

- RETAINING WALL
- HIGH POINT
- XX.XX — DIRECTION OF FLOW & LINE ELEVATION
- BASIN BOUNDARY
- TYPE DOUBLE C INLET
- (X-X) — RETAINING WALL POINT

DRAINAGE CERTIFICATION

I, Steve J. Salazar, NMPE 16241 OF THE FIRM Wilson & Company, Inc., HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 11-21-05. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY Tim Aldrich, NMPS 7719, OF THE FIRM Aldrich Land Surveying.

I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON July 11, 2006 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 PERMANENT CERTIFICATE OF OCCUPANCY.

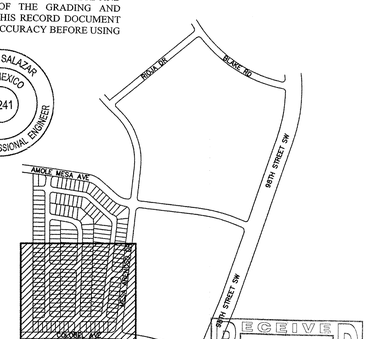
THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER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

Steven J. Salazar, NMPE 16241

DATE 9/19/06

STEVE J. SALAZAR NEW MEXICO 16241 LICENSED PROFESSIONAL ENGINEER

SHEET INDEX MAP



RECEIVED SEP 20 2006 HYDROLOGY SECTION

GRAPHIC SCALE

50 0 25 50 100 200

SCALE: 1 INCH = 50 FT.

N

WILSON & COMPANY	ARROWWOOD HILLS
2600 THE AMERICAN ROAD SE SUITE 100 RIO RANCHO, NEW MEXICO 87124 (505) 898-8021	GRADING & DRAINAGE PLAN

STEVE J. SALAZAR NEW MEXICO 16241 LICENSED PROFESSIONAL ENGINEER 10/12/06

REVISIONS	NO.	DATE	REMARKS	BY

DESIGN	DMD	WCEA NO. X421800101	DATE OCT 2005
DRAWN	DMD	PROJECT NO. N/A	SHEET NO. 2 OF 2
CHECK	SJS		

T:\Projects\X421800101\M\EXHIBITS\06-GD02.dwg 10/12/2005 11:03:38 AM MST