Los Diamantes Subdivision

Drainage Management Plan

MARK GOODWIN & ASSOCIATES, PA

June 2015

Los Diamantes Subdivision

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CITY OF ALBUQUERQUE

PLANNING DEPARTMENT – Development Review Services

Richard J. Berry, Mayor

June 1, 2015

Diane Hoelzer, P.E.
Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

RE: **Los Diamantes Subdivision**
Drainage Report, and Grading and Drainage Plan
Engineer's Stamp Date 3-24-2015 (File: N09D013)

Dear Ms. Hoelzer:

Based upon the information provided in your submittal received 3-27-15, the above referenced plan cannot be approved for Preliminary Plat and Grading Permit until the following comments are addressed:

Conclusions from the meeting 3-11-15 were as follows:

- Per the meeting notes dated 3-11-15, the allowable discharge into the 30" stub at SDMH 16 (CPN 736782) is the difference between the upstream and downstream Q, or 505cfs - 472cfs = 33 cfs. This value matches that shown on Exhibit 4, Master SD Basin Map, for basin DB16.
- Per the same meeting notes, the Q at 98th St. is noted as 569cfs. The difference between the upstream and downstream Q at MH 17 is 569cfs – 505cfs = 64cfs. Exhibit 4 shows that DB20 (the roadway) discharges 19cfs, so 45 cfs is the allowable from DB9 (Exhibit 4).
- Per meeting notes, a storm drain in 98th was required.
- During the meeting we agreed that the street flows in Blake could be ignored due to the timing of the hydrograph.

Based on the above notes, revise the report to reflect the following:

- The total allowable developed discharge from this site, including Tract A is 45cfs (MH17) + 33cfs (MH16) = **78 cfs.**
- Based on a proration of area, Tract A is allowed 78cfs*(5.67 Ac/19.86 Ac) = **23 cfs.** Areas were taken from the preliminary plat.
- The allowable discharge for this subdivision is 78cfs -23cfs = **55cfs**. Per Exhibit 4, if 33cfs was intended to the existing stub, then the remaining 22cfs was intended to discharge to a storm drain in 98th St.

Comments:

1. Provide a plan to collect flows from developed Tract A and 98th St. roadway. CPN 736782 shows a stub at MH 17 that was intended to collect flows from DB9 and DB20. It is noted that there are inlets on 98th street near Blake at present.

PO Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

2. It is acceptable to discharge more than the intended 33 cfs into the 30" stub. How is the discharge part of the rating curb calculated in AHYMO? Also show that the 72" SD between MH 16 and 17 has capacity.
3. The grated inlet in Gold dust way Cul-de-sac is not a COA standard. Provide standard inlets.
4. Show Pond Volume on the Plan.
5. If Tract A is intended to discharge into 98th St. in the undeveloped condition, a desilting pond should be shown on the grading plan. Contours show that the SE corner of Tract A is at same elevation as T.O. Curb but view from google earth shows it to be lower than T.O. Curb in that area. Please confirm survey is accurate.

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

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

June 2, 2015

Mr. Rita Harmon, PE
Hydrology Division, Planning Dept.
Development and Building Services
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Los Diamantes Subdivision
Revised Engineers stamp date 6-5-15 (N09 / D013)

Dear Ms. Harmon;

In response to your comment letter dated 6-1-15, your comments are addressed below:

1. At our March 11 meeting, it was agreed upon that this residential project would be able to discharge 50 cfs from the first flush pond into the connecting 30" RCP storm drain stub (at manhole 16) near the intersection of Blake Road and 98th Street. The future commercial site will be allowed to discharge 28 cfs to bring the total discharge from the residential + commercial tract to 78 cfs. Please note that the Exhibit 4 you are referring to (along with the storm drain construction plans in Blake Road) was used as a guide in our discussion to set discharge design parameters that we all agreed upon for this development.
2. The total Q downstream of manhole #17 is 569 cfs. The total Q upstream of manhole #16 is 472 cfs. The total discharge added between the two manholes is 97 cfs (569cfs-472cfs) What portion of this discharge is added at manhole 16 versus 17 should have an insignificant impact since the HGL is below the top of pipe by approximately 2 feet and the increase between manhole 16 and 17 is only 17 cfs. The flowing full capacity of a 72" RCP pipe at a slope of 2.62% is 685 cfs. The design shown on the construction plans is 569cfs, which is well below the pipe capacity. Thus adding in 50 cfs at manhole 16 instead of slitting it between manhole 16 and 17 should not be an issue.
3. Yes a storm drain in 98th street will be required when Tract A (commercial) develops to accommodate the developed flows. The exact details of the storm drain design in 98th are premature at this time since Tract A is not even in a conceptual stage of design. The commercial tract requires a Site Plan that must be reviewed and approved at EPC and DRB.
4. OK.
5. Yes, the total from the residential plus commercial tract is 78 cfs. This design is to allow 50cfs from the residential portion and the remaining 28 cfs from the commercial portion (in the future).
6. Refer to answer #5.

7. *Refer to answer #5 and #2.*
8. *98th street is a fully developed existing road. For this reason, our development is not responsible for how existing flows are handled in the existing 98th street ROW. When Tract A develops the storm drain stub from manhole 17 in 98 th street will be extended, most likely in the existing median (as we discussed) and then extended to a future location in Tract A, to be designed at a later date.*
9. *Refer to the answer #2 for capacity of the 72" storm drain. Calculations and explanation for the rating table in the AHYMO file is provided in the report.*
10. *The grate shown in Gold Dust Way culdesac is also taken from COA Std dwg 2271 and 2272. It is commonly known as a "cattle guard inlet". I have used these numerous times in other developments. The COA standard details will be modified accordingly to the specific requirements of this project; such as the invert of the channel will be called out as well as the grate elevation and the actual length of the channel.*
11. *O.K.*
12. *The survey was recently done. I do not see any discrepancy between posted contour lines and the top of curb/flowline elevations in the area you are referring to. For instance between the published top of curb =17.18 and 19.22, there are two contour lines shown:5119 and 5118, which is what would be expected. At this time, Tract A will remain as an existing undeveloped condition, so I am unclear why a de-silting pond is being required at this time. This is not the usual practice to require a ponding facility on an undeveloped adjacent parcel of property.*

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

Diane Hoelzer, PE
Senior Engineer

DLH/dlh
f:\\14031 \Los Diamantes\ HYDRO_LTR_2_14031.docx

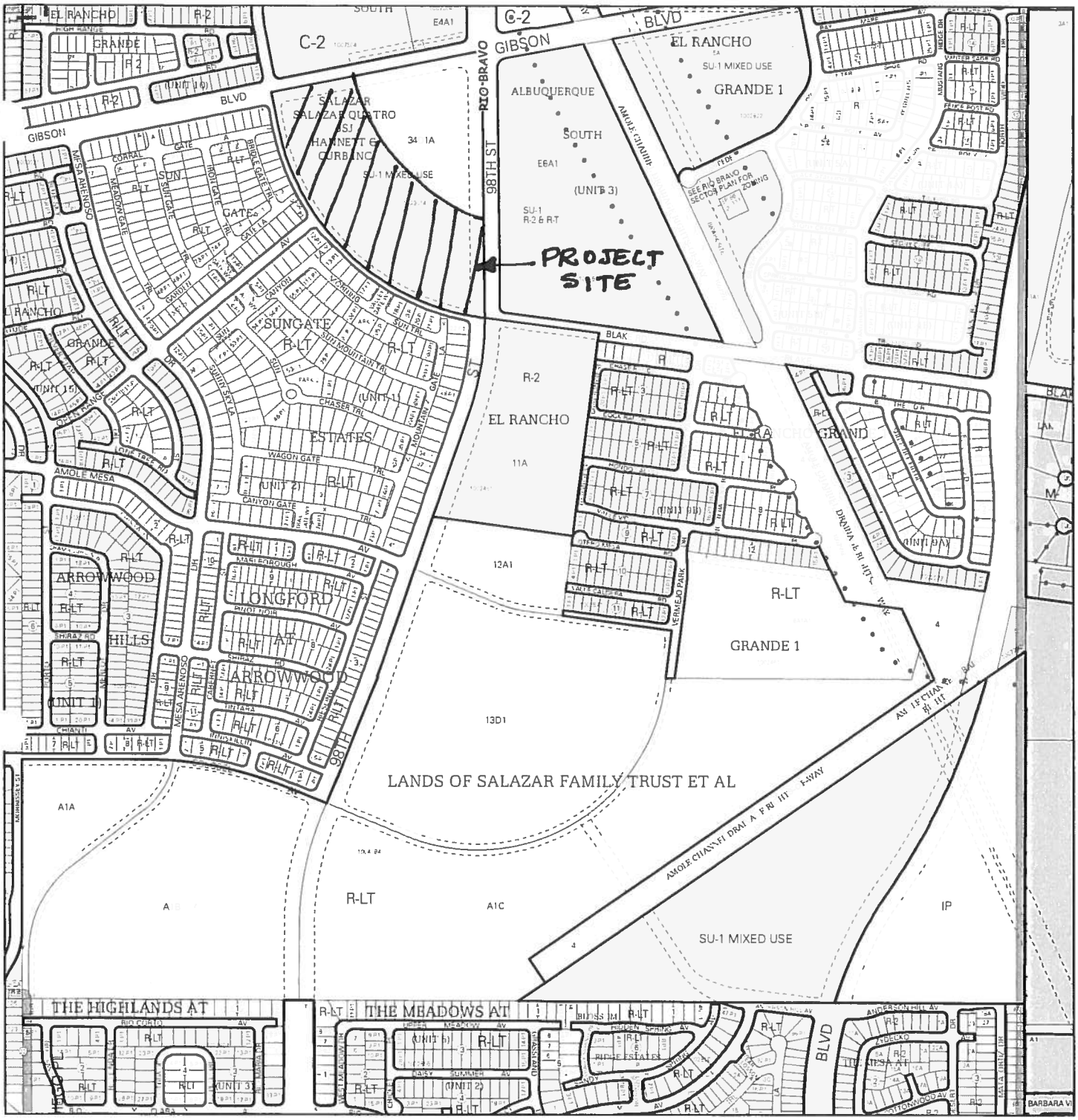
Los Diamantes Drainage Management Plan

The property is bounded by Blake Road to the south and west, by Gibson Blvd. to the north and by 98th Street to the east. The residential portion of the property encompasses 14.52 acres. The residential portion makes up 72% of the total area and will consist of an 80 lot subdivision for single family homes. Since the site is surrounded by developed streets, no offsite flows come onto the project site.

According to the Amole Hubbell Drainage Master Plan Update (excerpts from 2013 Report-Appendix D), this site is identified as sub basin A221 as shown on the Figure 3-7 Proposed Basin Map. The calculated 100 year peak discharge from this sub basin is 118.26 cfs. The report and construction plans indicate that the runoff is intercepted by a storm drain in Blake Road. This project site will discharge into an existing 30" storm pipe stub located at the southeast corner of the project site.

After meeting with City hydrology staff about the allowable discharge from this project site, it was decided that the design discharge from the project site would be based on the Sun Gate Phase I Utility Plan and Profile sheets 30-31 and the Sun Gate Estates Basin Boundary Map Exhibit 4. Both of these drawings can be found in Appendix D. It was further agreed that 50 cfs would be an acceptable allowable discharge value from this project site. When the adjacent commercial site develops, it is likely that an outfall located at the southeast corner of the commercial site will need to be constructed and a storm drain extended in the 98th street median and ultimately connected to the existing 72" storm drain in Blake Road.

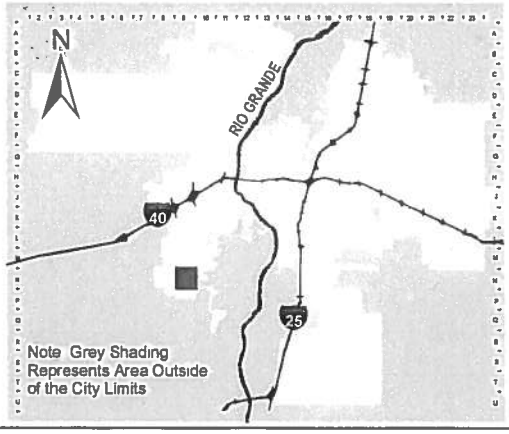
Onsite runoff will be conveyed by surface street flow to the southeast corner of the property into a detention pond that will also serve to retain the "first flush" from stormwater. A 4' diameter manhole with a weir type outfall spillway with a 11 linear foot circumference will be designed to discharge developed flows into the 72" storm drain in Blake through the connecting 30" storm drain stub while retaining the first flush. The maximum water depth for the first flush will be 1.38 feet. The 100 years "allowable" discharge from the project site will be 50 cfs.



For more current information and details visit: http://www.cabq.gov/gis

Albuquerque Geographic Information System

Map amended through: 4/2/2012



Zone Atlas Page:

N-09-Z

Selected Symbols

- SECTOR PLANS
- Design Overlay Zones
- City Historic Zones
- H-1 Buffer Zone
- Petroglyph Mon.
- Escarpment
- 2 Mile Airport Zone
- Airport Noise Contours
- Wall Overlay Zone

0 750 1,500 Feet

PRELIMINARY PLAT FOR LOS DIAMANTES SUBDIVISION

WITHIN THE
TOWN OF ATRISCO GRANT
PROJECTED SECTION 4
TOWNSHIP 9 NORTH, RANGE 2 EAST, NMPM
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
APRIL, 2015

VICINITY MAP ZONE ATLAS MAP N-9-Z NTS

LEGAL DESCRIPTION

A TRACT OF LAND SITUATE WITHIN THE TOWN OF ATRISCO GRANT, PROJECTED SECTION 4, TOWNSHIP 9 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, BEING ALL OF TRACT 34D-1-A, LANDS OF SALAZAR FAMILY TRUST, SALAZAR QUATRO TRUST, JSJ, INVESTMENT COMPANY AND FALBA HANNETT AND LANDS OF CURB INC. AS THE SAME IS SHOWN AND DESIGNATED ON SAID PLAT FILED FOR RECORD IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON NOVEMBER 25, 2003 IN BOOK 2003C, PAGE 357 AND CONTAINING (1,096,120 S.F.), 25.1635 ACRES MORE OR LESS.

SUBDIVISION DATA

GROSS ACREAGE	25.1635 AC
AREA OF PUBLIC RIGHT-OF-WAY DEDICATED	5.2999 AC
AREA OF TRACT A (COMMERCIAL)	5.6729 AC
AREA OF COMMON AREAS (TRACT B)	3.7900 AC
AREA OF RESIDENTIAL	14.1907 AC
ZONE ATLAS NO.	N-9-Z
NO. OF LOTS CREATED	80 LOTS
NO. OF TRACTS CREATED	2 TRACTS
ZONING	SU-1 MIXED USE
DATE OF SURVEY	FEBRUARY, 2015

PURPOSE OF PLAT

1. SUBDIVIDE LOT 34D-1-A, LANDS OF SALAZAR FAMILY TRUST, SALAZAR QUATRO TRUST, JSJ INVESTMENT COMPANY AND FALBA HANNETT AND LANDS OF CURB INC., INTO 80 RESIDENTIAL LOTS, 2 TRACTS (1 COMMERCIAL).
2. DEDICATE PRIVATE ROADWAY & PUBLIC RIGHT-OF-WAY AS SHOWN.
3. GRANT NEW EASEMENTS AS SHOWN.

NOTES

1. UNLESS OTHERWISE NOTED, ALL BOUNDARY CORNERS SHOWN THUS ⊙ SHALL BE A SET #4 REBAR WITH YELLOW PLASTIC CAP "N.M.P.S. 11993"
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PT'S, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS , ▲ WILL BE MARKED BY A FOUR INCH (4") ALUMINUM CAP STAMPED:

   "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION"
   "DO NOT DISTURB"
   N.M.P.S.#11993
3. FIELD SURVEY PERFORMED ON FEBRUARY, 2015.
4. ALL BEARINGS ARE GRID BEARINGS. NM STATE PLANE: CENTRAL ZONE-NAD 1983.
5. BOUNDARY SHALL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
6. THIS PROPERTY LIES WITHIN THE SECTION 4, TOWNSHIP 9 NORTH, RANGE 2 EAST, NEW MEXICO PRINCIPAL MERIDIAN, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO.
7. ALL DISTANCES ARE GROUND DISTANCES: U.S. SURVEY
8. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY, STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION.
9. PLAT SHOWS ALL EASEMENTS OF RECORD.
10. EASEMENT BEARINGS AND DISTANCES SHOWN HEREON ARE RECORD AND EASEMENTS HAVE BEEN ROTATED TO MATCH BASIS OF BEARINGS AND BOUNDARY UNLESS OTHERWISE INDICATED.
11. UPC #

OWNERS
98TH STREET, L.L.C.
6300 JEFFERSON NE
ALBUQUERQUE, N.M. 87109
(505) 975-0617

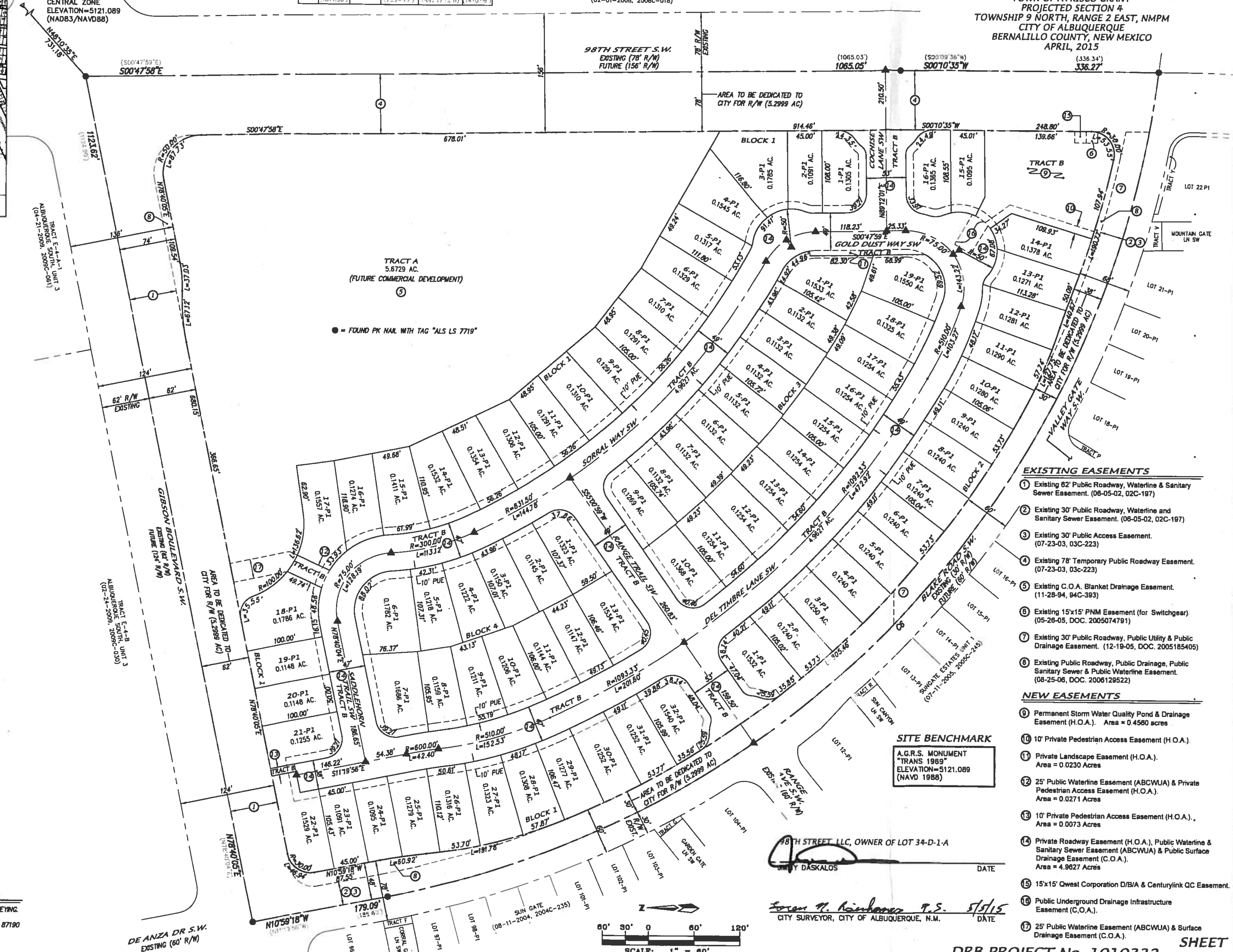
ENGINEERS
D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505) 828-2200

SURVEYOR
ALDRICH LAND SURVEYING
P.O. BOX 30701
ALBUQUERQUE, N.M. 87190
(505) 884-1990

AGRS MONUMENT "TRANS"
N=1471885.503
E=1495145.466
G-G=0.999683154
Δα=-00°16'43.33"
CENTRAL ZONE
ELEVATION=5121.089
(NAD83/NAVD88)

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	1578.54' (1571.30')	1252.00'	72°14'21" (72°24'13")	S47°06'29"E (S47°17'5"W)	1476.04' (1470.09')



EXISTING EASEMENTS

1. Existing 62' Public Roadway, Waterline & Sanitary Sewer Easement. (06-05-02, 02C-197)
2. Existing 30' Public Roadway, Waterline and Sanitary Sewer Easement. (06-05-02, 02C-197)
3. Existing 30' Public Access Easement. (07-23-03, 03C-223)
4. Existing 78' Temporary Public Roadway Easement. (07-23-03, 03c-223)
5. Existing C.O.A. Blanket Drainage Easement. (11-28-94, 94C-393)
6. Existing 15'x15' PNM Easement (for Switchgear) (05-26-05, DOC. 2005074791)
7. Existing 30' Public Roadway, Public Utility & Public Drainage Easement. (12-19-05, DOC. 2005185405)
8. Existing Public Roadway, Public Drainage, Public Sanitary Sewer & Public Waterline Easement. (08-25-06, DOC. 2006129522)

NEW EASEMENTS

9. Permanent Storm Water Quality Pond & Drainage Easement (H.O.A.). Area = 0.4560 acres
10. 10' Private Pedestrian Access Easement (H.O.A.)
11. Private Landscape Easement (H.O.A.). Area = 0.0230 Acres
12. 25' Public Waterline Easement (ABCWUA) & Private Pedestrian Access Easement (H.O.A.). Area = 0.0271 Acres
13. 10' Private Pedestrian Access Easement (H.O.A.). Area = 0.0073 Acres
14. Private Roadway Easement (H.O.A.), Public Waterline & Sanitary Sewer Easement (ABCWUA) & Public Surface Drainage Easement (C.O.A.). Area = 4.9627 Acres
15. 15'x15' Qwest Corporation D/B/A & Centurylink QC Easement.
16. Public Underground Drainage Infrastructure Easement (C.O.A.).
17. 25' Public Waterline Easement (ABCWUA) & Surface Drainage Easement (C.O.A.).

SITE BENCHMARK

A.G.R.S. MONUMENT
"TRANS 1989"
ELEVATION=5121.089
(NAVD 1988)

98TH STREET LLC, OWNER OF LOT 34-D-1-A
[signature] DATE
JIMMY DASKALOS

[signature] 5/5/15
CITY SURVEYOR, CITY OF ALBUQUERQUE, N.M. DATE

DRB PROJECT No. 1010332 SHEET 1 OF 1

F:\A14JOBS\A14031 Los Diamantes\PLATS\PRELIMINARY PLATS\REVISED PPLAT (4-22-15)\A14031_PPLAT.dwg. Last saved by: Dwayne, 4/27/15

Current DRC
Project Number:_____

FIGURE 12

Date Submitted: 6/5/2015
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1010332
DRB Application No.:_____

INFRASTRUCTURE LIST

EXHIBIT "A"

TO SUBDIVISION IMPROVEMENTS AGREEMENT

DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Los Diamantes Subdivision & Site Plan for Building Permit

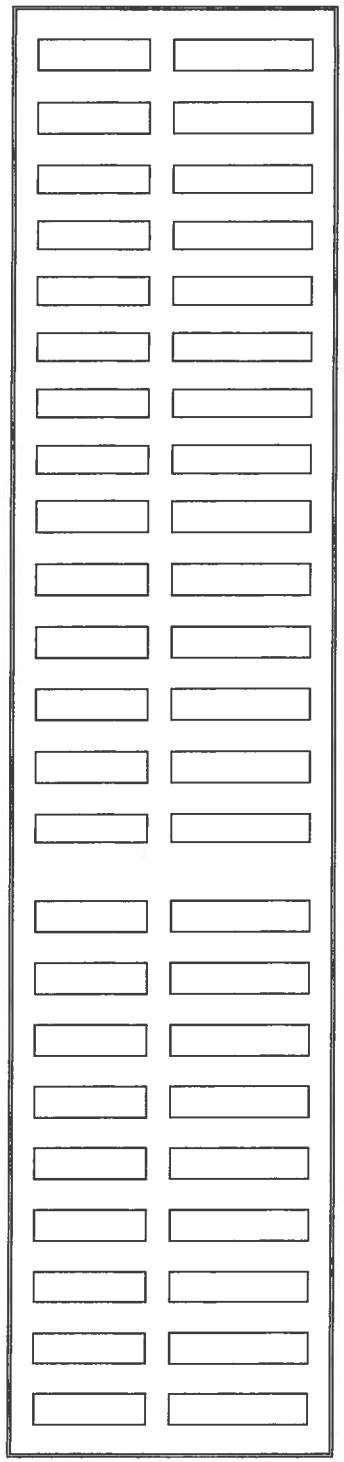
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Tract 34D-1-A, LANDS OF SALAZAR FAMILY TRUST,JSJ,INVESTMENT COMPANY AND FALBA HANNETT AND LANDS OF CURB INC.

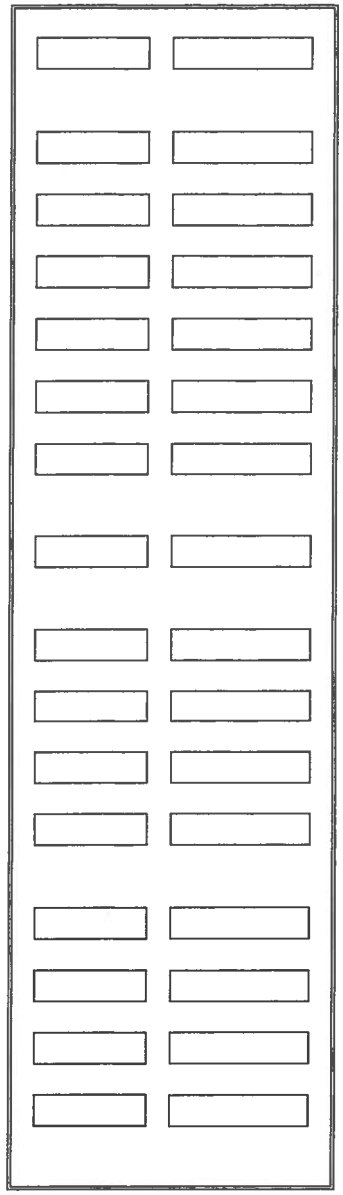
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			PAVING						
		26' FF	Perm Pvmt	Del Timbre Lane SW	End stub Road	Saddlehorn Trail SW	/	/	/
			C&G (both sides)		Lot 22, Block 1				
		4'	Sidewalk (west side only)				/	/	/
		26' FF	Perm Pvmt	Del Timbre Lane SW	Saddlehorn Trail SW	Range Trail SW	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		28' FF	Perm Pvmt	Del Timbre Lane SW	Range Trail SW	Gold Dust Way SW	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both sides) (1)				/	/	/
		28' FF	Perm Pvmt	Gold Dust Way SW	Del Timbre Lane SW	Sorral Way SW	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both side) (1)				/	/	/
		28' FF	Perm Pvmt	Sorral Way SW	Gold Dust Way SW	Range Trail SW	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both side) (1)				/	/	/
		26' FF	Perm Pvmt	Sorral Way SW	Range Trail SW	Saddlehorn Trail SW	/	/	/
			C&G (both sides)						
		4'	Sidewalk (both side) (1)				/	/	/



PAVING					
26' FF	Perm Pvmt C&G (both sides)	Saddlehorn Trail SW	Sorral Way SW	Del Timbre Lane SW	/ / /
4'	Sidewalk (both side) (1)				/ / /
28' FF	Perm Pvmt C&G (both side)	Range Trail SW	Sorral Way SW	Del Timbre Lane SW	/ / /
4'	Sidewalk (both side) (1)				/ / /
32' FF	Perm Pvmt C&G (both side)	Range Trail SW	Del Timbre Lane SW	Blake Road	/ / /
6'	Sidewalk (both side) (1)				/ / /
32' FF	Perm Pvmt C&G (both side)	Cochise Lane SW	98th Street SW	Gold Dust Way SW	/ / /
6'	Sidewalk (both side) (1)				/ / /
6'	Sidewalk	Blake Road	Gibson Blvd.	98th street	/ / /
6'	Sidewalk	98th Street	Blake Road	Gibson Blvd	/ / /
6'	Sidewalk	Gibson Blvd	Blake Road	98th Street	/ / /
6'	Sidewalk Connection	Tract B	Gold Dust Way SW	Blake Road	/ / /
6'	Sidewalk Connection	Lot 22, Block 1	Del Timbre Lane SW	Gibson Blvd.	/ / /
6'	Sidewalk Connection	Tract B Easement	Saddlehorn Trail SW	Tract A	/ / /
WATER (2WR Zone)					
8"	Waterline	Blake Road	Range Trail	Exist 12" WL (140 ft SE)	/ / /
8"	Waterline	Del Timbre Lane SW	Range Trail SW	Gold Dust Way SW	/ / /
4"	Waterline	Del Timbre Lane SW	Range Trail SW	Lot 31 & 32	/ / /
8"	Waterline	Gold Dust Way SW	Del Timebre	Sorral Way SW	/ / /
8"	Waterline	Cochise Lane SW	Gold Dust Way SW	Existing 12" WL in 98th Street	/ / /
8"	Waterline	Sorral Way SW	Gold Dust Way SW	Tract B Easement	/ / /
8"	Waterline	Tract B Easement	Sorral Way SW	Tract A Easement	/ / /
8"	Waterline	Tract A Easement	Tract B Easement	Gibson Blvd.	/ / /
12"	Waterline	Gibson Blvd.	Tract A Easement	Existing 12" WL 98th Street	/ / /



WATER (2W Zone)					
8"	Waterline	Range Trail SW	Existing 12" WL at Blake Road	Del Timbre Lane SW	/ / /
8"	Waterline	Del Timbre Lane SW	Range Trail SW	Saddlehorn	/ / /
4"	Waterline	Del Timbre Lane SW	Saddlehorn Trail SW	End Stub Lot 22, Block 1	/ / /
8"	Waterline	Saddlehorn Trail SW	Del Timbre Lane SW	Tract B Easement	/ / /
8"	Waterline	Tract B Easement	Saddlehorn	Tract A Easement	/ / /
8"	Waterline	Tract A Easement	Tract B Easement	Gibson Blvd	/ / /
12"	Waterline	Gibson Blvd.	Tract A Easement	Existing 20" WL Blake Road	/ / /
SANITARY SEWER					
8"	Sanitary Sewer	Cochise Lane SW	Gold Dust Way SW	Existing 8" SAS at 98th Street	/ / /
8"	Sanitary Sewer	Gold Dust Way SW	Del Timbre Lane SW	Sorral Way SW	/ / /
8"	Sanitary Sewer	Sorral Way SW	Gold Dust Way SW	Saddlehorn Trail SW	/ / /
8"	Sanitary Sewer	Saddlehorn Trail SW	Sorral Way SW	Del Timbre Lane SW	/ / /
8"	Sanitary Sewer	Del Timbre Lane SW	Gold Dust Way SW	Lot 22 Block 1, End Del Timbre Lane SW	/ / /
DRAINAGE					
Per design	Inlet	Gold Dust Way SW			/ / /
30"	Storm Drain	Tract B Easement	Gold Dust Way SW	Pond	/ / /
Per design	Outfall Structure	Pond			/ / /
30"	Storm Drain	Tract B Easement	Pond	Exist 30" Storm Drain at Blake Road	/ / /

The items listed below are on the CCIP and approved for Impact Fee credits. Signatures from the Impact Fee Administrator and the City User Department is required prior to DRB approval of

Financially Guaranteed DRC #	Constructed Under DRC #	Size	Type of Improvement	Location	From	To

Construction Certification

Private Inspector P.E.		City Cnst Engineer
/	/	/
/	/	/

Approval of Creditable Items:

Impact Fee Admistrator Signature Date

Approval of Creditable Items:

City User Dept. Signature Date

1 Deferred sidewalk to comply with approved sidewalk exhibit
2 Waterline Infrastructure to include valves, fittings, service connections and fire hydrants
3 Storm Drain Infrastructure to include manholes and inlets
4 Grading & Drainage Certification required per DPM (Prior to release of Financial Guaranty) to include retaining walls as defined on the approved Grading Plan
5 SAS Infrastructure include manholes and service connections.
6

AGENT / OWNER

Diane Hoelzer, PE
NAME (print)

MARK GOODWIN & ASSOCIATES
FIRM

Diane Hoelzer 6-5-15
SIGNATURE - date

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

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Appendix A

Pond Design

First Flush Calculations

AHYMO printout

LOS DIAMANTES SUBUDIVISION

FIRST FLUSH HYDROLOGY CALCULATIONS

N-value = UNITS/ACRE = 80/14.1907 = 5.64

For N-value less than 6 =} Treatment D = 7*((N)**2+(5*N))**0.5 = 54

Use Land treatment D = 54

Land treatment C = 23

Land treatment B = 23

AHYMO: Zone Atlas: N-9 =} P(60)=1.90", P(36)=2.25", P(24)= 2.70"

RESULTS: Q(100)= 51.61 cfs (100 year 6 hour)

FIRST FLUSH: (0.34 inches)(618,147 SF)(.54))/(12 inches per foot) = 9,458 cu.ft.

DLH 6-2-15 (dmg project 14031)

D. Mark Goodwin & Associates, P.A.
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PROJECT Los Diamantes
SUBJECT Pond Volume Calcs.
BY DLH DATE 6-5-15
CHECKED ____ DATE ____
SHEET 1 OF 2

LOS DIAMANTES POND

ELEV.	AREA	VOLUME	Σ VOL.	ΣAc.Ft.
108.	13286.5	12529.3	47,766.1	1.0965
107.	11787.1	11028.3	35,236.8	0.8089
106.	10286.5	9535.9	24208.5	0.5558
105.	8804.5	8062.6	14672.6	0.3368
104.	7342.8	6610.0	6610.0	0.1517
103.	5903.4	0	0	0

$VOL = \frac{1}{3} D(A_1 + A_2 + \sqrt{A_1 A_2})$

FIRST FLUSH VOLUME REQ'D = 9458 cu.ft. = 0.21713 AcFt.

CALCULATE DEPTH TO F.F. VOLUME IN POND:

$$\frac{9458 - 6610}{14672.6 - 6610} = \frac{2848.}{8062.6} = 0.35$$

POND ELEVATION TO FIRST FLUSH VOLUME = 104.35

CALCULATE WEIR SPILLWAY OUTFALL:

$$Q = C \cdot L \cdot H^{3/2}$$
$$= 3(11) H^{3/2}$$

17.29cfs = .65 (@ 105.0)
69.94cfs = 1.65 (@ 106.0)

RATING TABLE IN AHYMO

DISCHARGE	ACFT	ELE.
0	0	103.
0.01	.21713	104.35
17.29	.3368	105.
69.94	.5558	106.

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PROJECT Los Diamantes
SUBJECT
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SHEET 2 OF 2

AHYMO RESULTS

Q(100) = 54.34cfs (from Project Site)

POND RESULTS:

Q(100) = 48.74cfs (to 30" SD)

Max WSEL = 105.6'

Max Stor. Volume = 0.4676 ACFT

Stor. Volume design = 0.8089 ACFT.

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    AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
         RUN DATE (MON/DAY/YR) = 06/03/2015
         START TIME (HR:MIN:SEC) = 16:31:59     USER NO.= M-GoodwinNMSiteA90075759
         INPUT FILE = C:\Program Files (x86)\AHYMO-S4\LASDIA_9.DAT

*S*********************************************************
*S
*S                  Los DIAMONTES
*S                  100 YEAR 6 HOUR STORM EVENT
*S
*S                  FILE: LASDIA_9.DAT
*S                  LAST REVISED: 6-3-15
*S                  NOAA ATLAS 2, VOL IV ZONE N 9
START               TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION            ALBUQUERQUE
     City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.
     Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
          A             0.65                  1.67
          B             0.50                  1.25
          C             0.35                  0.83
          D             0.10                  0.04

RAINFALL            TYPE=1 RAIN QUARTER=0.0
                    RAIN ONE=1.90 IN RAIN SIX=2.23 IN
                    RAIN DAY=2.70 IN DT=0.01 HRS

               6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
               DT =   0.010000 HOURS       END TIME =     6.000000 HOURS
                 0.0000  0.0004  0.0009  0.0013  0.0018  0.0022  0.0026
                 0.0031  0.0035  0.0040  0.0045  0.0050  0.0055  0.0059
                 0.0064  0.0069  0.0074  0.0079  0.0085  0.0090  0.0096
                 0.0101  0.0107  0.0112  0.0118  0.0123  0.0129  0.0136
                 0.0142  0.0148  0.0154  0.0160  0.0167  0.0173  0.0184
                 0.0197  0.0211  0.0224  0.0237  0.0251  0.0264  0.0277
                 0.0291  0.0306  0.0321  0.0336  0.0351  0.0367  0.0382
                 0.0397  0.0412  0.0428  0.0445  0.0461  0.0477  0.0494
                 0.0510  0.0527  0.0543  0.0560  0.0577  0.0595  0.0612
                 0.0629  0.0647  0.0664  0.0681  0.0699  0.0717  0.0735
                 0.0753  0.0771  0.0790  0.0808  0.0826  0.0844  0.0864
                 0.0885  0.0905  0.0926  0.0946  0.0966  0.0987  0.1007
                 0.1029  0.1052  0.1076  0.1099  0.1122  0.1145  0.1168
                 0.1191  0.1225  0.1280  0.1335  0.1390  0.1445  0.1500
                 0.1555  0.1610  0.1665  0.1738  0.1812  0.1886  0.1959
                 0.2033  0.2107  0.2180  0.2254  0.2347  0.2450  0.2553
                 0.2656  0.2759  0.2862  0.2965  0.3068  0.3189  0.3343
                 0.3498  0.3653  0.3807  0.3962  0.4117  0.4271  0.4426
                 0.4693  0.4960  0.5227  0.5494  0.5761  0.6029  0.6296
                 0.6563  0.7126  0.7837  0.8549  0.9260  0.9972  1.0683
                 1.1395  1.2106  1.2712  1.3106  1.3501  1.3895  1.4289
                 1.4684  1.5078  1.5472  1.5867  1.6065  1.6263  1.6461
                 1.6659  1.6858  1.7056  1.7254  1.7452  1.7601  1.7726
                 1.7851  1.7976  1.8101  1.8225  1.8350  1.8475  1.8587
                 1.8674  1.8760  1.8847  1.8933  1.9020  1.9106  1.9193
                 1.9279  1.9343  1.9406  1.9469  1.9533  1.9596  1.9659
                 1.9723  1.9786  1.9839  1.9887  1.9935  1.9983  2.0031
                 2.0079  2.0127  2.0175  2.0214  2.0236  2.0257  2.0279
```

2.0301	2.0322	2.0344	2.0366	2.0387	2.0407	2.0426
2.0445	2.0464	2.0483	2.0503	2.0522	2.0541	2.0558
2.0574	2.0589	2.0605	2.0621	2.0637	2.0652	2.0668
2.0683	2.0698	2.0712	2.0726	2.0741	2.0755	2.0770
2.0784	2.0799	2.0812	2.0826	2.0840	2.0854	2.0868
2.0882	2.0896	2.0910	2.0919	2.0925	2.0932	2.0939
2.0946	2.0952	2.0959	2.0966	2.0972	2.0979	2.0985
2.0992	2.0998	2.1005	2.1011	2.1018	2.1024	2.1030
2.1036	2.1042	2.1048	2.1054	2.1060	2.1066	2.1072
2.1078	2.1084	2.1090	2.1096	2.1102	2.1107	2.1113
2.1119	2.1125	2.1131	2.1136	2.1142	2.1147	2.1153
2.1159	2.1164	2.1170	2.1175	2.1181	2.1186	2.1191
2.1197	2.1202	2.1207	2.1213	2.1218	2.1223	2.1228
2.1233	2.1238	2.1244	2.1249	2.1254	2.1259	2.1264
2.1269	2.1274	2.1279	2.1284	2.1289	2.1294	2.1299
2.1304	2.1309	2.1313	2.1318	2.1323	2.1328	2.1332
2.1337	2.1342	2.1346	2.1351	2.1356	2.1360	2.1365
2.1370	2.1374	2.1379	2.1383	2.1388	2.1392	2.1397
2.1401	2.1406	2.1410	2.1415	2.1419	2.1424	2.1428
2.1432	2.1436	2.1441	2.1445	2.1449	2.1454	2.1458
2.1462	2.1466	2.1470	2.1475	2.1479	2.1483	2.1487
2.1491	2.1495	2.1500	2.1504	2.1508	2.1512	2.1516
2.1520	2.1524	2.1528	2.1532	2.1536	2.1540	2.1544
2.1548	2.1552	2.1556	2.1560	2.1564	2.1568	2.1572
2.1576	2.1580	2.1584	2.1588	2.1591	2.1595	2.1599
2.1603	2.1607	2.1611	2.1614	2.1618	2.1622	2.1626
2.1630	2.1633	2.1637	2.1641	2.1645	2.1648	2.1652
2.1656	2.1660	2.1663	2.1667	2.1671	2.1674	2.1678
2.1682	2.1685	2.1689	2.1693	2.1696	2.1700	2.1703
2.1707	2.1711	2.1714	2.1718	2.1721	2.1725	2.1728
2.1732	2.1736	2.1739	2.1743	2.1746	2.1750	2.1753
2.1757	2.1760	2.1763	2.1767	2.1770	2.1774	2.1777
2.1781	2.1784	2.1788	2.1791	2.1794	2.1798	2.1801
2.1805	2.1808	2.1811	2.1815	2.1818	2.1821	2.1825
2.1828	2.1831	2.1835	2.1838	2.1841	2.1844	2.1848
2.1851	2.1854	2.1858	2.1861	2.1864	2.1867	2.1871
2.1874	2.1877	2.1880	2.1883	2.1887	2.1890	2.1893
2.1896	2.1899	2.1903	2.1906	2.1909	2.1912	2.1915
2.1918	2.1921	2.1925	2.1928	2.1931	2.1934	2.1937
2.1940	2.1943	2.1946	2.1949	2.1952	2.1955	2.1959
2.1962	2.1965	2.1968	2.1971	2.1974	2.1977	2.1980
2.1983	2.1986	2.1989	2.1992	2.1995	2.1998	2.2001
2.2004	2.2007	2.2010	2.2013	2.2015	2.2018	2.2021
2.2024	2.2027	2.2030	2.2033	2.2036	2.2039	2.2042
2.2045	2.2047	2.2050	2.2053	2.2056	2.2059	2.2062
2.2065	2.2068	2.2070	2.2073	2.2076	2.2079	2.2082
2.2085	2.2087	2.2090	2.2093	2.2096	2.2099	2.2101
2.2104	2.2107	2.2110	2.2112	2.2115	2.2118	2.2121
2.2123	2.2126	2.2129	2.2132	2.2134	2.2137	2.2140
2.2143	2.2145	2.2148	2.2151	2.2153	2.2156	2.2159
2.2161	2.2164	2.2167	2.2170	2.2172	2.2175	2.2177
2.2180	2.2183	2.2185	2.2188	2.2191	2.2193	2.2196
2.2199	2.2201	2.2204	2.2206	2.2209	2.2212	2.2214
2.2217	2.2219	2.2222	2.2225	2.2227	2.2230	2.2232
2.2235	2.2237	2.2240	2.2242	2.2245	2.2248	2.2250
2.2253	2.2255	2.2258	2.2260	2.2263	2.2265	2.2268

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                2.2270  2.2273  2.2275  2.2278  2.2280  2.2283  2.2285
                2.2288  2.2290  2.2293  2.2295  2.2298  2.2300

*S*********************************************************
*** ******************
*S  LOS DIAMONTES SUBDIVISION
*** ******************
*** AREA = 14.1907 ACRES
*** AREA = 618,147 SF
*** ******************
COMPUTE NM HYD       ID=1  HYD NO=100 AREA= 0.022173 SQ MI
                     PER A=0   PER B=23   PER C=23   PER D=54
                     TP=-.1333 HR   MASS RAIN=-1

     K =  0.072649HR    TP =  0.133300HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   47.272    CFS   UNIT VOLUME =   0.9997       B =   526.28      P60 = 1.9000
     AREA =     0.011973 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000


     K =  0.118483HR    TP =  0.133300HR    K/TP RATIO =  0.888844     SHAPE CONSTANT, N =  3.990415
     UNIT PEAK =   27.128    CFS   UNIT VOLUME =   0.9995       B =   354.53      P60 = 1.9000
     AREA =     0.010200 SQ MI    IA =   0.42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

PRINT HYD            ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   100.00


    RUNOFF VOLUME =     1.52432 INCHES     =       1.8026 ACRE-FEET
    PEAK DISCHARGE RATE =      54.34 CFS  AT   1.530 HOURS   BASIN AREA =  0.0222 SQ. MI.



*s********************
*s* ROUTE THRU SE POND
*s*********************************************************************
*S* OUTFALL CIRCUMFERENCE = 11 FT.
*S*********************************************************************
ROUTE RESERVOIR      ID=12  HYD=POND.12   INFLOW=1   CODE=100
                     OUTFLOW(CFS)   STORAGE(ACFT)     ELEV(FT)
                     0.00         0.0000         103.00
                     0.01         0.21713        104.35
                     17.29        0.33680        105.00
                     69.94        0.55580        106.00

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

    TIME       INFLOW     ELEV       VOLUME     OUTFLOW
    (HRS)      (CFS)      (FEET)     (AC-FT)    (CFS)

     0.00        0.00     103.00       0.000       0.00
     0.24        0.00     103.00       0.000       0.00
     0.48        0.00     103.00       0.000       0.00
     0.72        0.00     103.00       0.000       0.00
```

0.96	0.54	103.01	0.001	0.00
1.20	5.00	103.33	0.054	0.00
1.44	34.60	104.76	0.292	10.85
1.68	30.65	105.41	0.426	38.74
1.92	9.67	104.86	0.311	13.55
2.16	3.72	104.56	0.255	5.53
2.40	1.83	104.44	0.234	2.43
2.64	0.70	104.39	0.224	1.02
2.88	0.35	104.37	0.220	0.47
3.12	0.18	104.36	0.219	0.23
3.36	0.11	104.35	0.218	0.13
3.60	0.08	104.35	0.218	0.09
3.84	0.07	104.35	0.218	0.07
4.08	0.07	104.35	0.218	0.07
4.32	0.08	104.35	0.218	0.07
4.56	0.09	104.35	0.218	0.08
4.80	0.10	104.35	0.218	0.10
5.04	0.11	104.35	0.218	0.11
5.28	0.13	104.35	0.218	0.12
5.52	0.14	104.35	0.218	0.14
5.76	0.16	104.36	0.218	0.15
6.00	0.18	104.36	0.218	0.17
6.24	0.04	104.35	0.218	0.09
6.48	0.01	104.35	0.217	0.02
6.72	0.00	104.35	0.217	0.01
6.96	0.00	104.35	0.217	0.01
7.20	0.00	104.35	0.217	0.01
7.44	0.00	104.35	0.217	0.01
7.68	0.00	104.35	0.216	0.01
7.92	0.00	104.34	0.216	0.01
8.16	0.00	104.34	0.216	0.01
8.40	0.00	104.34	0.216	0.01
8.64	0.00	104.34	0.216	0.01
8.88	0.00	104.34	0.215	0.01
9.12	0.00	104.34	0.215	0.01
9.36	0.00	104.34	0.215	0.01
9.60	0.00	104.34	0.215	0.01
9.84	0.00	104.33	0.215	0.01
10.08	0.00	104.33	0.214	0.01
10.32	0.00	104.33	0.214	0.01
10.56	0.00	104.33	0.214	0.01
10.80	0.00	104.33	0.214	0.01
11.04	0.00	104.33	0.214	0.01
11.28	0.00	104.33	0.213	0.01
11.52	0.00	104.33	0.213	0.01
11.76	0.00	104.32	0.213	0.01
12.00	0.00	104.32	0.213	0.01
12.24	0.00	104.32	0.213	0.01
12.48	0.00	104.32	0.212	0.01
12.72	0.00	104.32	0.212	0.01
12.96	0.00	104.32	0.212	0.01
13.20	0.00	104.32	0.212	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)

13.44	0.00	104.32	0.212	0.01
13.68	0.00	104.31	0.211	0.01
13.92	0.00	104.31	0.211	0.01
14.16	0.00	104.31	0.211	0.01
14.40	0.00	104.31	0.211	0.01
14.64	0.00	104.31	0.211	0.01
14.88	0.00	104.31	0.210	0.01
15.12	0.00	104.31	0.210	0.01
15.36	0.00	104.31	0.210	0.01
15.60	0.00	104.31	0.210	0.01
15.84	0.00	104.30	0.210	0.01
16.08	0.00	104.30	0.210	0.01
16.32	0.00	104.30	0.209	0.01
16.56	0.00	104.30	0.209	0.01
16.80	0.00	104.30	0.209	0.01
17.04	0.00	104.30	0.209	0.01
17.28	0.00	104.30	0.209	0.01
17.52	0.00	104.30	0.208	0.01
17.76	0.00	104.29	0.208	0.01
18.00	0.00	104.29	0.208	0.01
18.24	0.00	104.29	0.208	0.01
18.48	0.00	104.29	0.208	0.01
18.72	0.00	104.29	0.207	0.01
18.96	0.00	104.29	0.207	0.01
19.20	0.00	104.29	0.207	0.01
19.44	0.00	104.29	0.207	0.01
19.68	0.00	104.28	0.207	0.01
19.92	0.00	104.28	0.206	0.01
20.16	0.00	104.28	0.206	0.01
20.40	0.00	104.28	0.206	0.01
20.64	0.00	104.28	0.206	0.01
20.88	0.00	104.28	0.206	0.01
21.12	0.00	104.28	0.206	0.01
21.36	0.00	104.28	0.205	0.01
21.60	0.00	104.28	0.205	0.01
21.84	0.00	104.27	0.205	0.01
22.08	0.00	104.27	0.205	0.01
22.32	0.00	104.27	0.205	0.01
22.56	0.00	104.27	0.204	0.01
22.80	0.00	104.27	0.204	0.01
23.04	0.00	104.27	0.204	0.01
23.28	0.00	104.27	0.204	0.01
23.52	0.00	104.27	0.204	0.01
23.76	0.00	104.27	0.203	0.01
24.00	0.00	104.26	0.203	0.01
24.24	0.00	104.26	0.203	0.01
24.48	0.00	104.26	0.203	0.01
24.72	0.00	104.26	0.203	0.01
24.96	0.00	104.26	0.203	0.01
25.20	0.00	104.26	0.202	0.01
25.44	0.00	104.26	0.202	0.01
25.68	0.00	104.26	0.202	0.01
25.92	0.00	104.25	0.202	0.01
26.16	0.00	104.25	0.202	0.01
26.40	0.00	104.25	0.201	0.01
26.64	0.00	104.25	0.201	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
26.88	0.00	104.25	0.201	0.01
27.12	0.00	104.25	0.201	0.01
27.36	0.00	104.25	0.201	0.01
27.60	0.00	104.25	0.201	0.01
27.84	0.00	104.25	0.200	0.01
28.08	0.00	104.24	0.200	0.01
28.32	0.00	104.24	0.200	0.01
28.56	0.00	104.24	0.200	0.01
28.80	0.00	104.24	0.200	0.01
29.04	0.00	104.24	0.199	0.01
29.28	0.00	104.24	0.199	0.01
29.52	0.00	104.24	0.199	0.01
29.76	0.00	104.24	0.199	0.01
30.00	0.00	104.24	0.199	0.01
30.24	0.00	104.23	0.199	0.01
30.48	0.00	104.23	0.198	0.01
30.72	0.00	104.23	0.198	0.01
30.96	0.00	104.23	0.198	0.01
31.20	0.00	104.23	0.198	0.01
31.44	0.00	104.23	0.198	0.01
31.68	0.00	104.23	0.197	0.01
31.92	0.00	104.23	0.197	0.01
32.16	0.00	104.23	0.197	0.01
32.40	0.00	104.22	0.197	0.01
32.64	0.00	104.22	0.197	0.01
32.88	0.00	104.22	0.197	0.01
33.12	0.00	104.22	0.196	0.01
33.36	0.00	104.22	0.196	0.01
33.60	0.00	104.22	0.196	0.01
33.84	0.00	104.22	0.196	0.01
34.08	0.00	104.22	0.196	0.01
34.32	0.00	104.22	0.195	0.01
34.56	0.00	104.21	0.195	0.01
34.80	0.00	104.21	0.195	0.01
35.04	0.00	104.21	0.195	0.01
35.28	0.00	104.21	0.195	0.01
35.52	0.00	104.21	0.195	0.01
35.76	0.00	104.21	0.194	0.01
36.00	0.00	104.21	0.194	0.01
36.24	0.00	104.21	0.194	0.01
36.48	0.00	104.21	0.194	0.01
36.72	0.00	104.20	0.194	0.01
36.96	0.00	104.20	0.194	0.01
37.20	0.00	104.20	0.193	0.01
37.44	0.00	104.20	0.193	0.01
37.68	0.00	104.20	0.193	0.01
37.92	0.00	104.20	0.193	0.01
38.16	0.00	104.20	0.193	0.01
38.40	0.00	104.20	0.192	0.01
38.64	0.00	104.20	0.192	0.01
38.88	0.00	104.19	0.192	0.01
39.12	0.00	104.19	0.192	0.01

```
    39.36        0.00     104.19       0.192       0.01
    39.60        0.00     104.19       0.192       0.01
    39.84        0.00     104.19       0.191       0.01
 PEAK DISCHARGE =        48.743 CFS - PEAK OCCURS AT HOUR     1.58
 MAXIMUM WATER SURFACE ELEVATION =       105.597
 MAXIMUM STORAGE =         0.4676 AC-FT       INCREMENTAL TIME=     0.010000HRS

PRINT HYD             ID=12 CODE=1

                                        HYDROGRAPH FROM AREA POND.12


    RUNOFF VOLUME =      1.36254 INCHES      =        1.6113 ACRE-FEET
    PEAK DISCHARGE RATE =       48.74 CFS  AT    1.580 HOURS    BASIN AREA =  0.0222 SQ. MI.

FINISH
    NORMAL PROGRAM FINISH           END TIME (HR:MIN:SEC) = 16:31:59
```

```
    AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
         RUN DATE (MON/DAY/YR) = 06/05/2015
         START TIME (HR:MIN:SEC) = 09:34:03     USER NO.= M-GoodwinNMSiteA90075759
         INPUT FILE = C:\Program Files (x86)\AHYMO-S4\LASDIA_1.DAT

*S*********************************************************
*S
*S                  Los DIAMONTES
*S                  100 YEAR 6 HOUR STORM EVENT
*S
*S                  FILE: LASDIA_1.DAT
*S                  LAST REVISED: 6-5-15
*S                  NOAA ATLAS 2, VOL IV ZONE N 9
START               TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
LOCATION            ALBUQUERQUE
     City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.
     Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
          A             0.65                  1.67
          B             0.50                  1.25
          C             0.35                  0.83
          D             0.10                  0.04

RAINFALL            TYPE=1 RAIN QUARTER=0.0
                    RAIN ONE=1.90 IN RAIN SIX=2.23 IN
                    RAIN DAY=2.70 IN DT=0.01 HRS

               6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
               DT =   0.010000 HOURS       END TIME =     6.000000 HOURS
                 0.0000  0.0004  0.0009  0.0013  0.0018  0.0022  0.0026
                 0.0031  0.0035  0.0040  0.0045  0.0050  0.0055  0.0059
                 0.0064  0.0069  0.0074  0.0079  0.0085  0.0090  0.0096
                 0.0101  0.0107  0.0112  0.0118  0.0123  0.0129  0.0136
                 0.0142  0.0148  0.0154  0.0160  0.0167  0.0173  0.0184
                 0.0197  0.0211  0.0224  0.0237  0.0251  0.0264  0.0277
                 0.0291  0.0306  0.0321  0.0336  0.0351  0.0367  0.0382
                 0.0397  0.0412  0.0428  0.0445  0.0461  0.0477  0.0494
                 0.0510  0.0527  0.0543  0.0560  0.0577  0.0595  0.0612
                 0.0629  0.0647  0.0664  0.0681  0.0699  0.0717  0.0735
                 0.0753  0.0771  0.0790  0.0808  0.0826  0.0844  0.0864
                 0.0885  0.0905  0.0926  0.0946  0.0966  0.0987  0.1007
                 0.1029  0.1052  0.1076  0.1099  0.1122  0.1145  0.1168
                 0.1191  0.1225  0.1280  0.1335  0.1390  0.1445  0.1500
                 0.1555  0.1610  0.1665  0.1738  0.1812  0.1886  0.1959
                 0.2033  0.2107  0.2180  0.2254  0.2347  0.2450  0.2553
                 0.2656  0.2759  0.2862  0.2965  0.3068  0.3189  0.3343
                 0.3498  0.3653  0.3807  0.3962  0.4117  0.4271  0.4426
                 0.4693  0.4960  0.5227  0.5494  0.5761  0.6029  0.6296
                 0.6563  0.7126  0.7837  0.8549  0.9260  0.9972  1.0683
                 1.1395  1.2106  1.2712  1.3106  1.3501  1.3895  1.4289
```

1.4684	1.5078	1.5472	1.5867	1.6065	1.6263	1.6461
1.6659	1.6858	1.7056	1.7254	1.7452	1.7601	1.7726
1.7851	1.7976	1.8101	1.8225	1.8350	1.8475	1.8587
1.8674	1.8760	1.8847	1.8933	1.9020	1.9106	1.9193
1.9279	1.9343	1.9406	1.9469	1.9533	1.9596	1.9659
1.9723	1.9786	1.9839	1.9887	1.9935	1.9983	2.0031
2.0079	2.0127	2.0175	2.0214	2.0236	2.0257	2.0279
2.0301	2.0322	2.0344	2.0366	2.0387	2.0407	2.0426
2.0445	2.0464	2.0483	2.0503	2.0522	2.0541	2.0558
2.0574	2.0589	2.0605	2.0621	2.0637	2.0652	2.0668
2.0683	2.0698	2.0712	2.0726	2.0741	2.0755	2.0770
2.0784	2.0799	2.0812	2.0826	2.0840	2.0854	2.0868
2.0882	2.0896	2.0910	2.0919	2.0925	2.0932	2.0939
2.0946	2.0952	2.0959	2.0966	2.0972	2.0979	2.0985
2.0992	2.0998	2.1005	2.1011	2.1018	2.1024	2.1030
2.1036	2.1042	2.1048	2.1054	2.1060	2.1066	2.1072
2.1078	2.1084	2.1090	2.1096	2.1102	2.1107	2.1113
2.1119	2.1125	2.1131	2.1136	2.1142	2.1147	2.1153
2.1159	2.1164	2.1170	2.1175	2.1181	2.1186	2.1191
2.1197	2.1202	2.1207	2.1213	2.1218	2.1223	2.1228
2.1233	2.1238	2.1244	2.1249	2.1254	2.1259	2.1264
2.1269	2.1274	2.1279	2.1284	2.1289	2.1294	2.1299
2.1304	2.1309	2.1313	2.1318	2.1323	2.1328	2.1332
2.1337	2.1342	2.1346	2.1351	2.1356	2.1360	2.1365
2.1370	2.1374	2.1379	2.1383	2.1388	2.1392	2.1397
2.1401	2.1406	2.1410	2.1415	2.1419	2.1424	2.1428
2.1432	2.1436	2.1441	2.1445	2.1449	2.1454	2.1458
2.1462	2.1466	2.1470	2.1475	2.1479	2.1483	2.1487
2.1491	2.1495	2.1500	2.1504	2.1508	2.1512	2.1516
2.1520	2.1524	2.1528	2.1532	2.1536	2.1540	2.1544
2.1548	2.1552	2.1556	2.1560	2.1564	2.1568	2.1572
2.1576	2.1580	2.1584	2.1588	2.1591	2.1595	2.1599
2.1603	2.1607	2.1611	2.1614	2.1618	2.1622	2.1626
2.1630	2.1633	2.1637	2.1641	2.1645	2.1648	2.1652
2.1656	2.1660	2.1663	2.1667	2.1671	2.1674	2.1678
2.1682	2.1685	2.1689	2.1693	2.1696	2.1700	2.1703
2.1707	2.1711	2.1714	2.1718	2.1721	2.1725	2.1728
2.1732	2.1736	2.1739	2.1743	2.1746	2.1750	2.1753
2.1757	2.1760	2.1763	2.1767	2.1770	2.1774	2.1777
2.1781	2.1784	2.1788	2.1791	2.1794	2.1798	2.1801
2.1805	2.1808	2.1811	2.1815	2.1818	2.1821	2.1825
2.1828	2.1831	2.1835	2.1838	2.1841	2.1844	2.1848
2.1851	2.1854	2.1858	2.1861	2.1864	2.1867	2.1871
2.1874	2.1877	2.1880	2.1883	2.1887	2.1890	2.1893
2.1896	2.1899	2.1903	2.1906	2.1909	2.1912	2.1915
2.1918	2.1921	2.1925	2.1928	2.1931	2.1934	2.1937
2.1940	2.1943	2.1946	2.1949	2.1952	2.1955	2.1959
2.1962	2.1965	2.1968	2.1971	2.1974	2.1977	2.1980
2.1983	2.1986	2.1989	2.1992	2.1995	2.1998	2.2001
2.2004	2.2007	2.2010	2.2013	2.2015	2.2018	2.2021
2.2024	2.2027	2.2030	2.2033	2.2036	2.2039	2.2042

```
                2.2045  2.2047  2.2050  2.2053  2.2056  2.2059  2.2062
                2.2065  2.2068  2.2070  2.2073  2.2076  2.2079  2.2082
                2.2085  2.2087  2.2090  2.2093  2.2096  2.2099  2.2101
                2.2104  2.2107  2.2110  2.2112  2.2115  2.2118  2.2121
                2.2123  2.2126  2.2129  2.2132  2.2134  2.2137  2.2140
                2.2143  2.2145  2.2148  2.2151  2.2153  2.2156  2.2159
                2.2161  2.2164  2.2167  2.2170  2.2172  2.2175  2.2177
                2.2180  2.2183  2.2185  2.2188  2.2191  2.2193  2.2196
                2.2199  2.2201  2.2204  2.2206  2.2209  2.2212  2.2214
                2.2217  2.2219  2.2222  2.2225  2.2227  2.2230  2.2232
                2.2235  2.2237  2.2240  2.2242  2.2245  2.2248  2.2250
                2.2253  2.2255  2.2258  2.2260  2.2263  2.2265  2.2268
                2.2270  2.2273  2.2275  2.2278  2.2280  2.2283  2.2285
                2.2288  2.2290  2.2293  2.2295  2.2298  2.2300

*S************************************************************
*** ******************
*S  LOS DIAMONTES Tract A (UNDEVELOPED)
*** ******************
*** AREA = 5.6729 ACRES
*** AREA = 247,111 SF
*** ******************
COMPUTE NM HYD       ID=1  HYD NO=100 AREA= 0.008864 SQ MI
                     PER A=100  PER B=0  PER C=0  PER D=0
                     TP=-.1333 HR  MASS RAIN=-1

     K =  0.162928HR    TP =  0.133300HR    K/TP RATIO =  1.222262     SHAPE CONSTANT, N =  2.911823
     UNIT PEAK =   18.257    CFS   UNIT VOLUME =   0.9992       B =   274.56      P60 = 1.9000
     AREA =     0.008864 SQ MI    IA =   0.65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

PRINT HYD            ID=1 CODE=1

                                  PARTIAL HYDROGRAPH   100.00


    RUNOFF VOLUME =     0.67376 INCHES     =       0.3185 ACRE-FEET
    PEAK DISCHARGE RATE =      10.60 CFS  AT   1.540 HOURS   BASIN AREA =  0.0089 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:34:03
```

Appendix B

Summary of Street Capacity Calculations

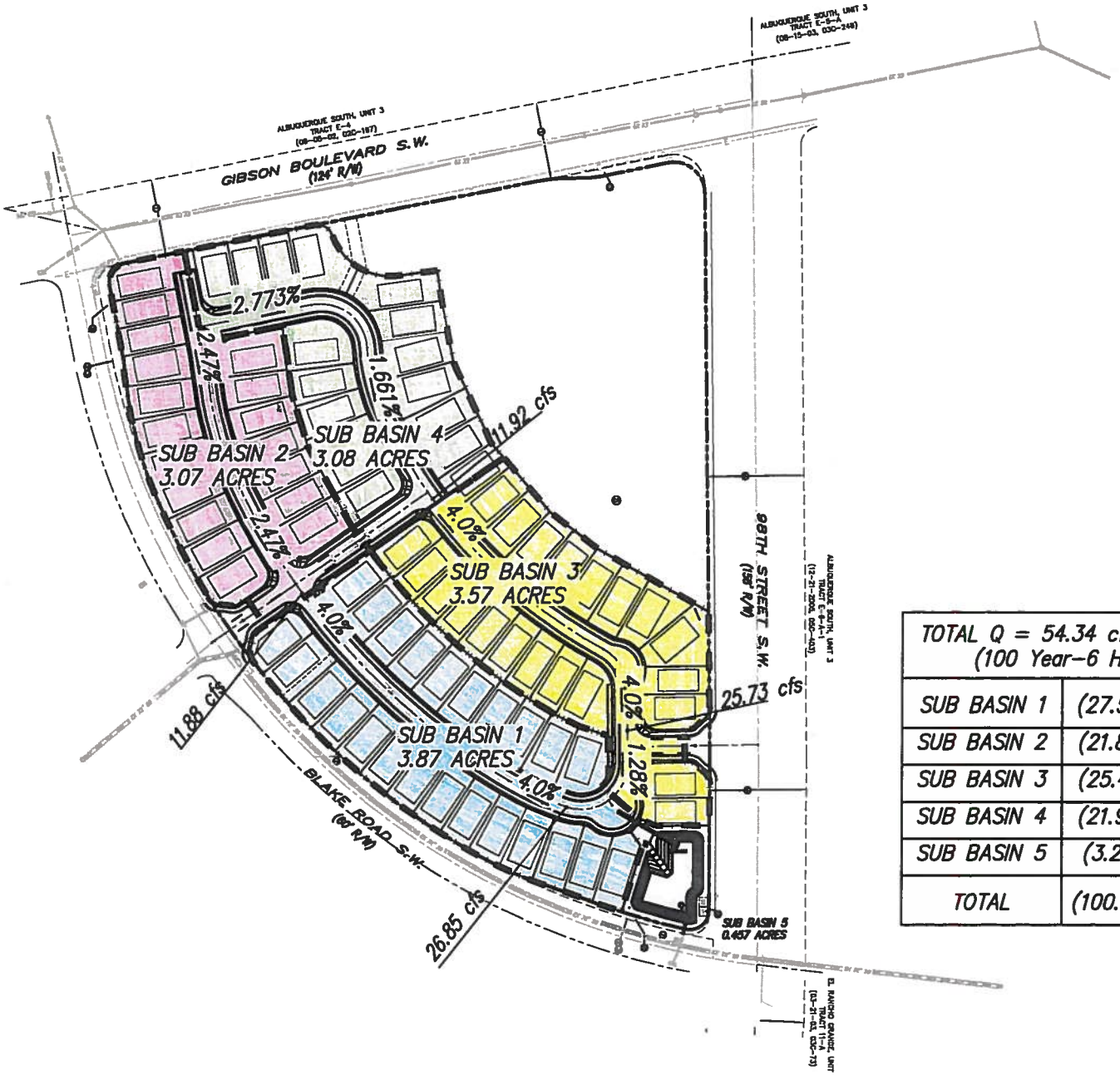
Street Capacity Exhibit / Sub basin Boundaries

HEC-2 Printouts

Los Diamantes Subdivision

Summary of Street Capacity Calculations									
LOCATION	**WIDTH**	**CROWN**	**STD or MTB**	**SLOPE %**	**Q cfs**	**DEPTH ft.**	**EG (ft)**	**INLET Q cfs**	**TYPE INLET**
SORRAL WAY	26	Y	MTB	1.66	11.92	0.36	0.50	n/a	
DEL TIMBRE LANE	26	Y	MTB	2.47	11.88	0.34	0.52	n/a	
DEL TIMBRE LANE	28	Y	STD	4.00	26.85	0.39	0.85		
SORRAL WAY	28	Y	STD	4.00	25.73	0.39	0.83		
DEL TIMBRE LANE	28	Y	STD	1.00	26.85	0.49	0.68	26.85	Sump Inlet
SORRAL WAY	28	Y	STD	1.00	25.73	0.48	0.67	25.73	Sump Inlet

(DLH 6-5-15)



TOTAL Q = 54.34 cfs (from AHYMO results) (100 Year–6 Hour storm event)		
SUB BASIN 1	(27.55%)	14.97 cfs
SUB BASIN 2	(21.86%)	11.88 cfs
SUB BASIN 3	(25.41%)	13.81 cfs
SUB BASIN 4	(21.93%)	11.92 cfs
SUB BASIN 5	(3.25%)	1.76 cfs
TOTAL	(100.00%)	54.34 cfs

LOS DIAMANTES SUBDIVISION
STREET CAPACITY EXHIBIT

(Mark Goodwin & Associates, DLH 6–5–15)

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    04JUN15    TIME   09:52:05  *
 *****************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*           (916) 756-1104              *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                   X
X     X  X        X     X             X
```

```
THIS RUN EXECUTED 04JUN15    09:52:05
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          LOS DIAMANTES - STREET CAPACITY CALCULATIONS
 T2          47'ROW 26'F-F MTB CURB AND GUTTER WITH CROWN
 T3          6-5-15

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         1    .01661         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017        .1        .3
 QT       2     11.92     11.88
 X1       1         9         0        47         0         0         0         0         0         0
 GR     .53         0       .33      9.87         0     11.47      .125      12.5      .345      23.5
 GR    .125      34.5         0     35.53       .33     37.13       .53        47

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000      .36       .36       .40       .00       .50       .14       .00       .00       .53
       11.9       .0      11.9        .0        .0       4.0        .0        .0        .0       .53
        .00      .00      2.96       .00      .000      .017      .000      .000       .00      8.39
    .016866       0.        0.        0.         0        14         7       .00     30.22     38.61

 T1
```

```
T2
T3 26' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1      .0247

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2         0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000       .34       .34       .40       .00       .52       .18       .00       .00       .53
      11.9        .0      11.9        .0        .0       3.5        .0        .0        .0       .53
       .00       .00      3.44       .00      .000      .017      .000      .000       .00      9.37
   .025116        0.        0.        0.         0        14         7       .00     27.77     37.63

THIS RUN EXECUTED 04JUN15    09:52:05
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

    6-5-15

SUMMARY PRINTOUT

      SECNO       Q       CWSEL     CRIWS      VCH      TOPWID     FRCH       EG

       1.000     11.92       .36       .40      2.96      30.22      1.43       .50
       1.000     11.88       .34       .40      3.44      27.77      1.74       .52
 SUMMARY OF ERRORS AND SPECIAL NOTES
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES           *
 *                                         *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    04JUN15    TIME   09:52:34  *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
```

```
THIS RUN EXECUTED 04JUN15    09:52:34
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 T1          LOS DIAMANTES - STREET CAPACITY CALCULATIONS
 T2          49'ROW 28'F-F STD CURB AND GUTTER WITH CROWN
 T3

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        2         0         1       .040         0         0         0         0         0

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43         1         2        26         4        68         3

 NC     .017      .017      .017       .1        .3
 QT        2     26.85     25.73
 X1        1         9         0       49         0         0         0         0         0         0
 GR      .87         0       .67    10.33         0      10.5      .125      12.5      .365      24.5
 GR     .125      36.5         0     38.5       .67     38.67      .87        49

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=     .100 CEHV=     .300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000      .39       .39       .52       .00       .85       .45       .00       .00       .87
       26.9       .0      26.8        .0        .0       5.0        .0        .0        .0       .87
```

```
       .00        .00       5.40        .00       .000       .017       .000       .000        .00      10.40
   .039821         0.         0.         0.          0         11          5        .00      28.20      38.60

T1
T2
T3 28' FF

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0          3          0          1        .040

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2          0         -1          0          0          0          0          0          0          0

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000       .39        .39        .51        .00        .83        .44        .00        .00        .87
       25.7         .0       25.7         .0         .0        4.8         .0         .0         .0        .87
        .00        .00       5.31        .00       .000       .017       .000       .000        .00      10.40
    .039762         0.         0.         0.          0         11          5        .00      28.20      38.60

THIS RUN EXECUTED 04JUN15    09:52:34
 ************************************
  HEC-2 WATER SURFACE PROFILES
  Version   4.6.2;  May 1991
 ************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 SUMMARY PRINTOUT

       SECNO        Q        CWSEL      CRIWS       VCH      TOPWID      FRCH        EG

        1.000     26.85         .39        .52       5.40     28.20       2.27         .85
        1.000     25.73         .39        .51       5.31     28.20       2.26         .83


  SUMMARY OF ERRORS AND SPECIAL NOTES
```

```
1*****************************************                    ***************************************
*  HEC-2 WATER SURFACE PROFILES             *                *  U.S. ARMY CORPS OF ENGINEERS         *
*                                           *                *  HYDROLOGIC ENGINEERING CENTER        *
*  Version   4.6.2;  May 1991               *                *  609 SECOND STREET, SUITE D           *
*                                           *                *  DAVIS, CALIFORNIA 95616-4687         *
*  RUN DATE    04JUN15    TIME   09:53:20   *                *           (916) 756-1104              *
*****************************************                    ***************************************

                                    X     X  XXXXXXX   XXXXX              XXXXX
                                    X     X  X        X     X            X     X
                                    X     X  X        X                        X
                                    XXXXXXX  XXXX     X          XXXXX    XXXXX
                                    X     X  X        X                   X
                                    X     X  X        X     X             X
                                    X     X  XXXXXXX   XXXXX             XXXXXXX
                                                                  THIS RUN EXECUTED 04JUN15    09:53:20
************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
************************************

T1          LOS DIAMANTES - STREET CAPACITY CALCULATIONS
T2          49'ROW 28'F-F STD CURB AND GUTTER WITH CROWN
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         1      .010         0         0         0         0         0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2        26         4        68         3

NC     .017      .017      .017        .1        .3
QT        2     26.85     25.73
X1        1         9         0        49         0         0         0         0         0         0
GR      .87         0       .67     10.33         0      10.5      .125      12.5      .365      24.5
GR     .125      36.5         0      38.5       .67     38.67       .87        49

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
```

```
     1.000       .49       .49       .52       .00       .68       .19       .00       .00       .87
      26.9        .0      26.8        .0        .0       7.6        .0        .0        .0       .87
       .00       .00      3.54       .00      .000      .017      .000      .000       .00     10.38
    .009814        0.        0.        0.         0        11         5       .00     28.25     38.62

T1
T2
T3 28' FF

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         1       .010

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2          0        -1         0         0         0         0         0         0         0

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=      .100 CEHV=      .300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000       .48       .48       .51       .00       .67       .19       .00       .00       .87
      25.7        .0      25.7        .0        .0       7.4        .0        .0        .0       .87
       .00       .00      3.48       .00      .000      .017      .000      .000       .00     10.38
   .009853        0.        0.        0.         0        11         5       .00     28.24     38.62
 THIS RUN EXECUTED 04JUN15    09:53:20
************************************
 HEC-2 WATER SURFACE PROFILES
 Version   4.6.2;  May 1991
************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT

      SECNO       Q       CWSEL     CRIWS      VCH      TOPWID     FRCH       EG

       1.000     26.85       .49       .52      3.54     28.25      1.20       .68
       1.000     25.73       .48       .51      3.48     28.24      1.20       .67


 SUMMARY OF ERRORS AND SPECIAL NOTES
```

Appendix C

Pond Outfall Design Detail

Gold Dust Way Inlet Design Detail

Standard Grate Detail for Inlet

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Los Diamantes
SUBJECT INLET TO POND
BY DLF DATE 6-4-15
CHECKED ____ DATE ____
SHEET ____ OF ____

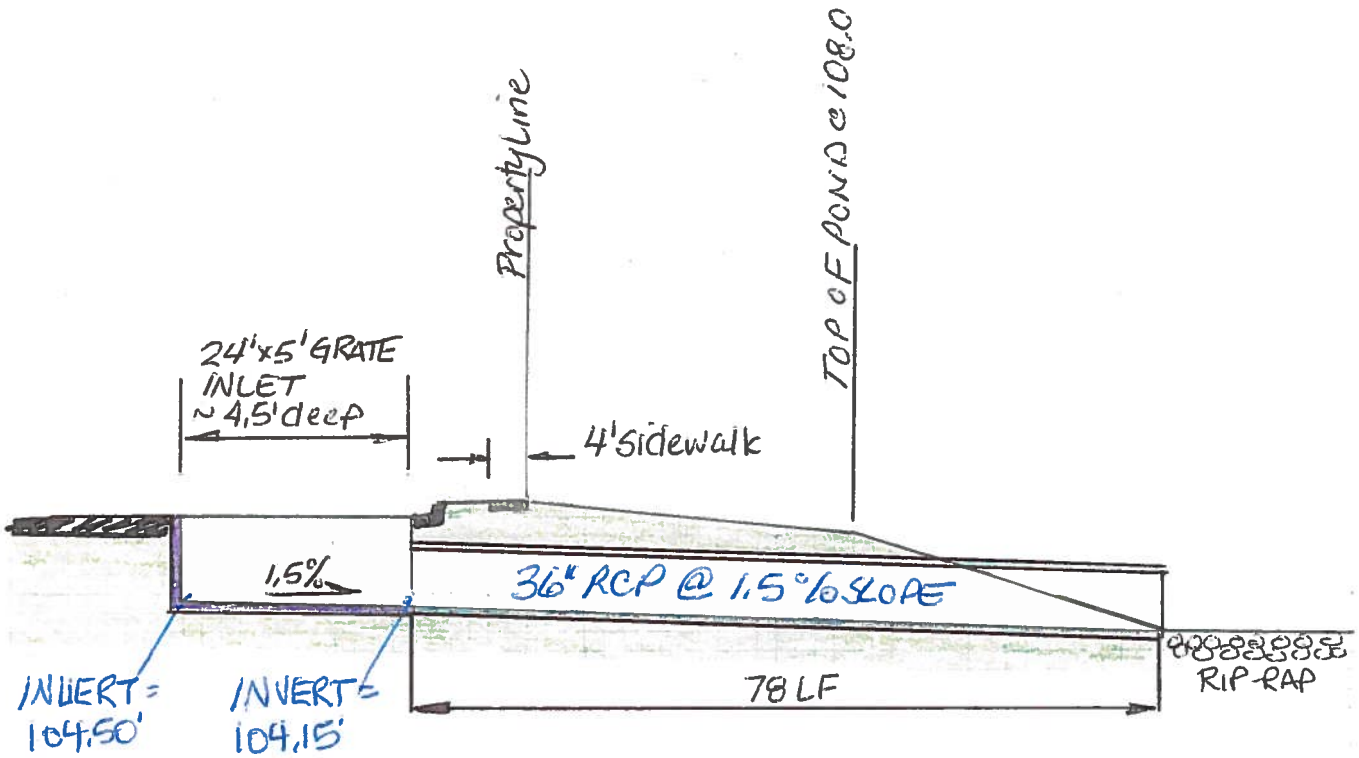
INLET GOOD DUST WAY CULDESAC TO POND

GRATE INLET DESIGN $Q = 54.34$ cfs

$54.34 \text{ cfs} = 3(L)(.5)^{3/2} = L = 51.23$

USE $L = 24' \times 2 = 48'$ (BOTH SIDES)

$54.34 \text{ cfs} = 3(48)(H)^{3/2}$ $H = 0.52'$



115
105
95
0 20 40 60 80 100 120 140 160 180

OUTFALL TO BLAKE ROAD STORM DRAIN 30" STUB

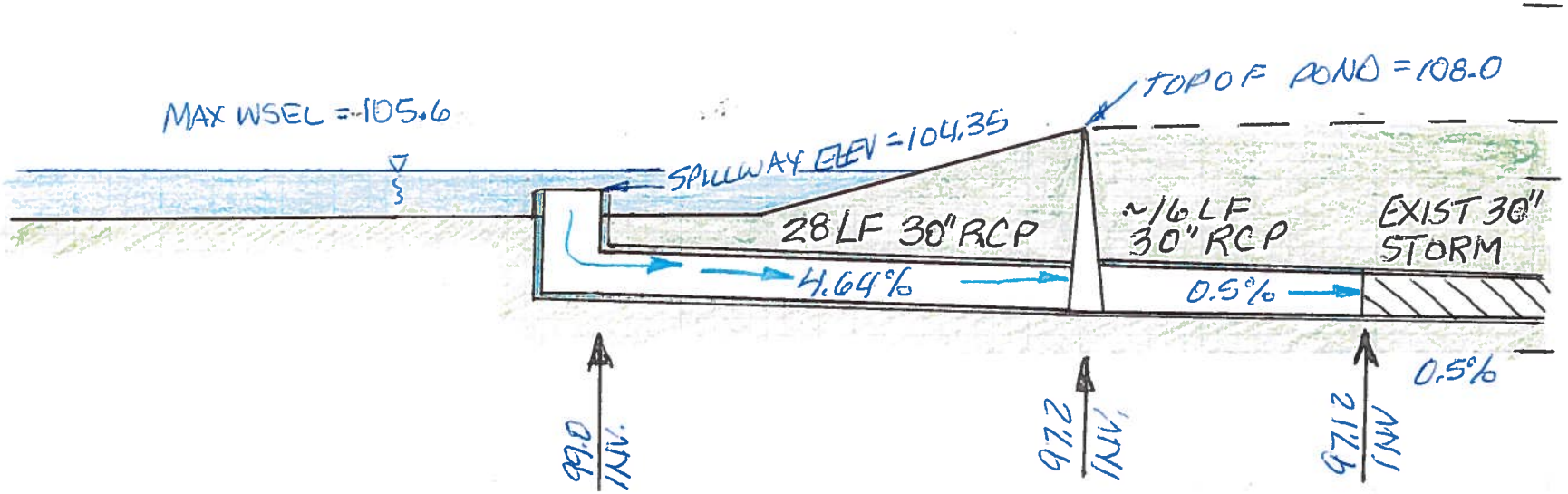
USE A 3.5' DIA. WEIR FOR OUTFALL ON A STD 4' DIA MANHOLE

$L = 2\pi R = 2\pi(1.75) = 11.0$

CALCULATE H: $50 = 3(11)(H)^{3/2}$ $H = 1.32'$ calculated.

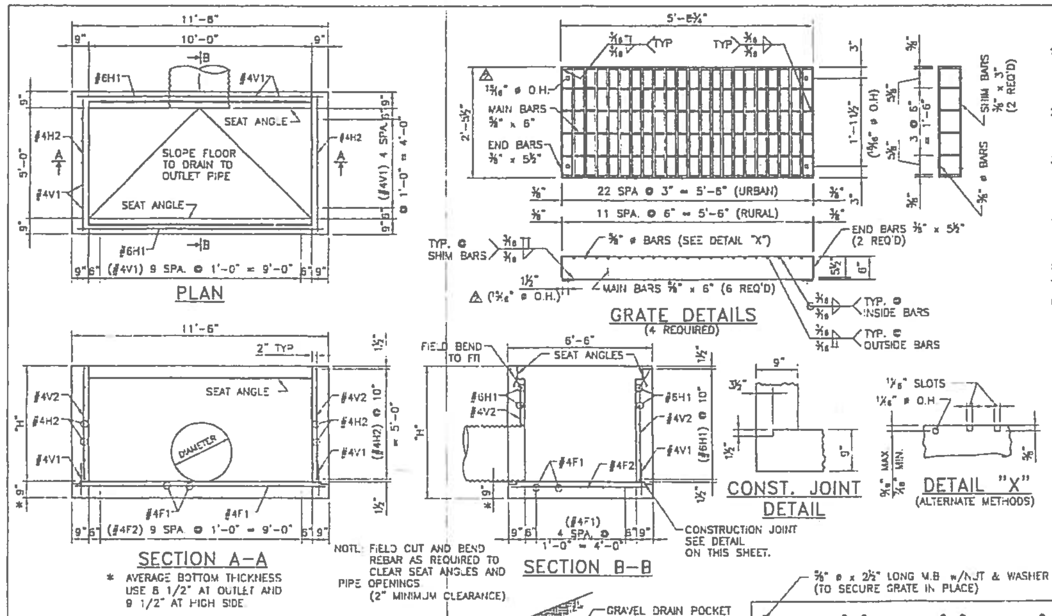
AHYMO Calculated $H = 1.25'$

104.35 + 1.25 = 105.6 (AHYMO results)
104.35 + 1.32 = 105.67 (Weir eqn. calcs) } BOTH WORK



dmg
D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

PROJECT Los Diamantes
SUBJECT Outfall to Blake RdSD
BY DLH DATE 6-4-15
CHECKED ____ DATE ____
SHEET ____ OF ____



* AVERAGE BOTTOM THICKNESS USE 8 1/2" AT OUTLET AND 9 1/2" AT HIGH SIDE

NOTE: FIELD CUT AND BEND REBAR AS REQUIRED TO CLEAR SEAT ANGLES AND PIPE OPENINGS (2" MINIMUM CLEARANCE)

"H"= DIAMETER OR RISE OF PIPE + "Y" MINIMUM, AND 15'-0" MAXIMUM.

"Y"	DIAMETERS AND RISES UP TO AND INCLUDING 48"	DIAMETERS AND RISES GREATER THAN 48".
	1'-3"	2'-0"

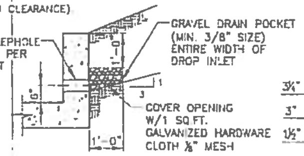
NOTE: IF R.C.P. IS USED, ADD WALL THICKNESS TO DIMENSION "Y".

ESTIMATED QUANTITIES

(FOR CONTRACTOR'S INFORMATION ONLY, NOT A BID ITEM)

CLASS "A" CONCRETE	1.932 + 0.917"H" CU.YDS.
REINFORCING STEEL	151.53 + 70.61"H" LBS.
STRUCTURAL STEEL (URBAN)	2394 LBS.
STRUCTURAL STEEL (RURAL)	2280 LBS.

NOTE: TO OBTAIN CLASS "A" CONCRETE QUANTITY, USE VALUE TABULATED ABOVE AND DEDUCT THE VOLUME OF THE PIPE OPENINGS FROM THE QUANTITY TABULATED.

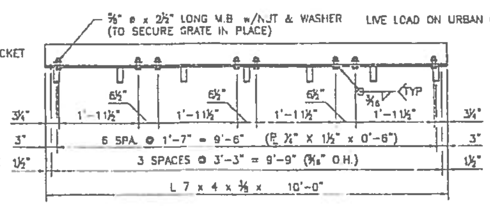


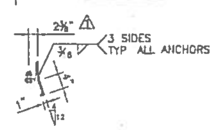
WEEP HOLE DETAIL

REINFORCING BAR SCHEDULE

MARK	LENGTH	NO. REQD
* #6H1	11'-3"	2+2 4"H"
* #4H2	8'-3"	2+2 4"H"
#4V1	1'-9"	30
#4V2	"H"-3"	30
#4F1	11'-3"	5
#4F2	6'-3"	10

* NOTE: ROUND OFF NUMBER REQUIRED TO THE NEAREST EVEN NUMBER.





SEAT ANGLE DETAILS
(2 REQUIRED)

GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT EDITION.
2. ALL CONCRETE SHALL BE CLASS "A." CHAMFER EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED ON THE DETAILS.
3. REINFORCING BARS SHALL CONFORM TO AASHTO SPECIFICATION M 31, GRADE 60. DIMENSIONS REFER TO THE CENTERLINE OF BAR UNLESS OTHERWISE NOTED ON THE DETAILS
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A 36 AND SHALL BE GIVEN A PROTECTIVE COATING IN CONFORMANCE WITH THE SPECIFICATIONS
5. DROP INLETS MAY BE USED WITH EITHER R.C.P. OR C.M.P. C.M.P. IS SHOWN IN THE DETAILS.
6. PIPES MAY BE LOCATED ON ANY WALL AND MAY BE ANY SHAPE. DIAMETER OR SPAN OF THE PIPES WILL BE DETERMINED BY THE SKEW ANGLE AND A REQUIRED MINIMUM CLEARANCE OF 9" TO THE OUTSIDE FACE OF THE WALLS.
7. THE URBAN GRATING DETAIL SHALL BE USED IN ALL CASES UNLESS CALLED OUT ON THE PLANS.

DRAWINGS REQUIRED

ROADWAY DESIGN DRAWINGS: FOR PIPE TYPE, LOCATION, HEIGHT, SKEW ANGLE, AND NUMBER REQUIRED.

DESIGN DATA

DESIGN ACCORDING TO AASHTO SPECIFICATIONS CURRENT EDITION.

DESIGN STRESSES
REINFORCED CONCRETE: f'c= 3,000 psi, fy= 60,000 psi, N= 10.
STRUCTURAL STEEL: fs= 20,000 psi, fy= 36,000 psi.

EARTH PRESSURE: 36 lbs./cu.ft. EQUIV. FLUID PRESSURE 2'-0" SURCHARGE.

LIVE LOAD ON URBAN GRATING: ONE 16,000 lbs. WHEEL PLUS 30% IMPACT, 15% OVERSTRESS

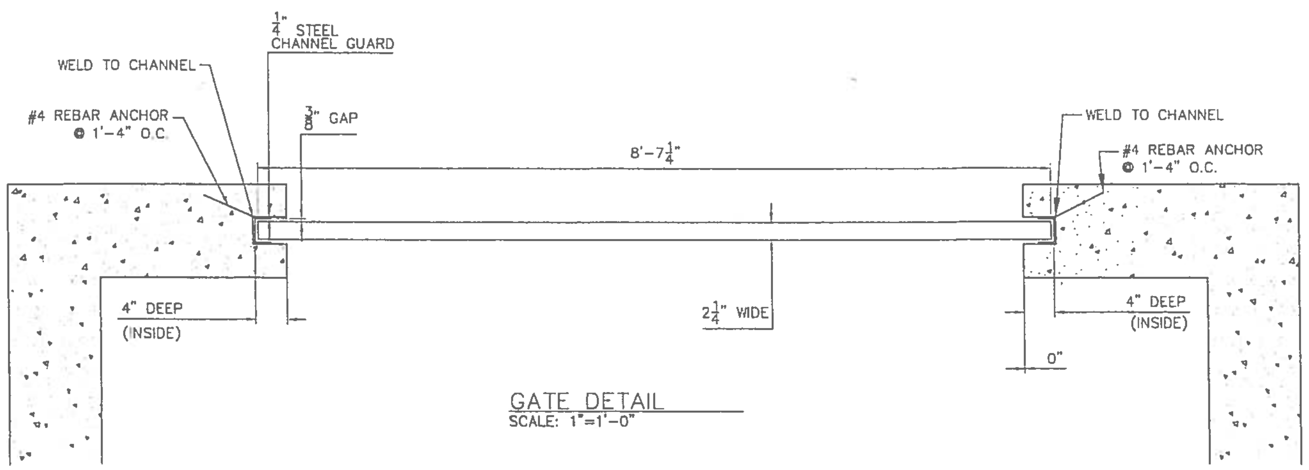
NOTE: MEDIAN DROP INLETS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE UNIT PRICE BID PER EACH.

TIMOTHY A. MARRS NEW MEXICO 14072 REGISTERED PROFESSIONAL ENGINEER 2-23-14

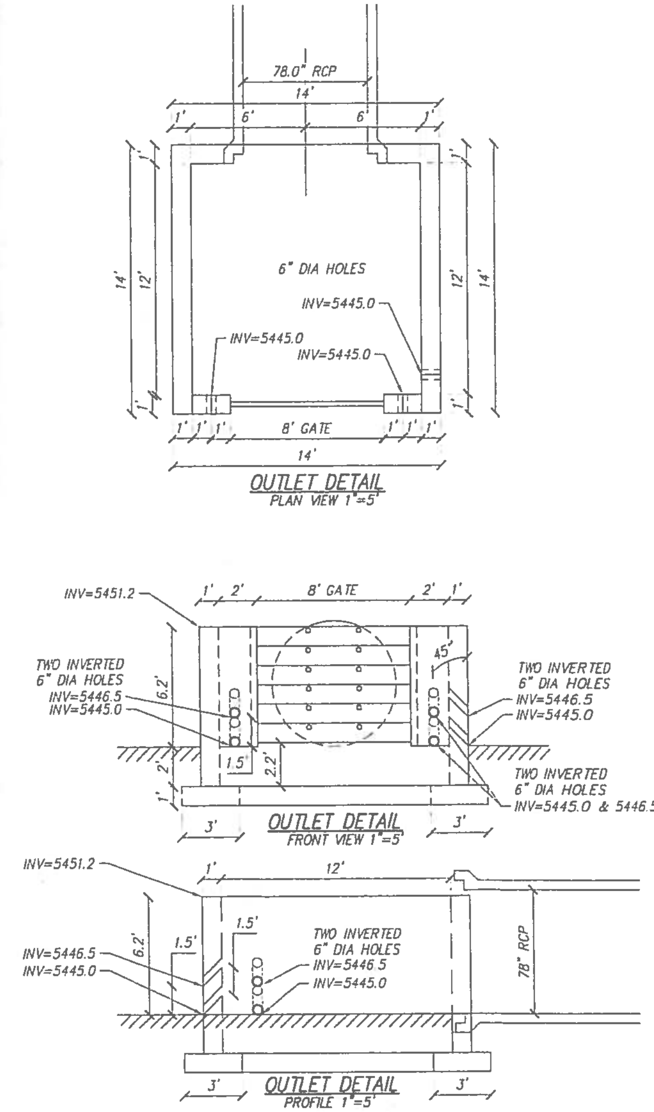
NEW MEXICO DEPARTMENT OF TRANSPORTATION STANDARD DRAWING

MEDIAN DROP INLET 10'-0" x 5'-0" DETAILS AND QUANTITIES

623-05-1/1



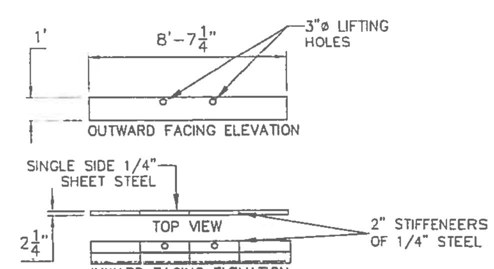
GATE DETAIL
SCALE: 1"=1'-0"



OUTLET DETAIL
PLAN VIEW 1"=5'

OUTLET DETAIL
FRONT VIEW 1"=5'

OUTLET DETAIL
PROFILE 1"=5'



NOTES:
1. 1/4" WELDED AND HOT DIP GALANIZED STEEL ALL COMPONENTS.
2. WELDS ARE 3/16" FILLET.

EXTERIOR WELDS ARE 3/16" SINGLE SIDED FILLET, INTERIOR ARE DUAL SIDED.

PLANK DETAIL
SCALE: 1/4"=1'-0"

City of Rio Rancho

NO.	DESCRIPTION	DATE	BY
7			
6			
5			
4			
3			
2			
1			

REVISIONS (OR CHANGE NOTICES)

OWNER/DEVELOPER
Coal Bank Holdings, Ltd.

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

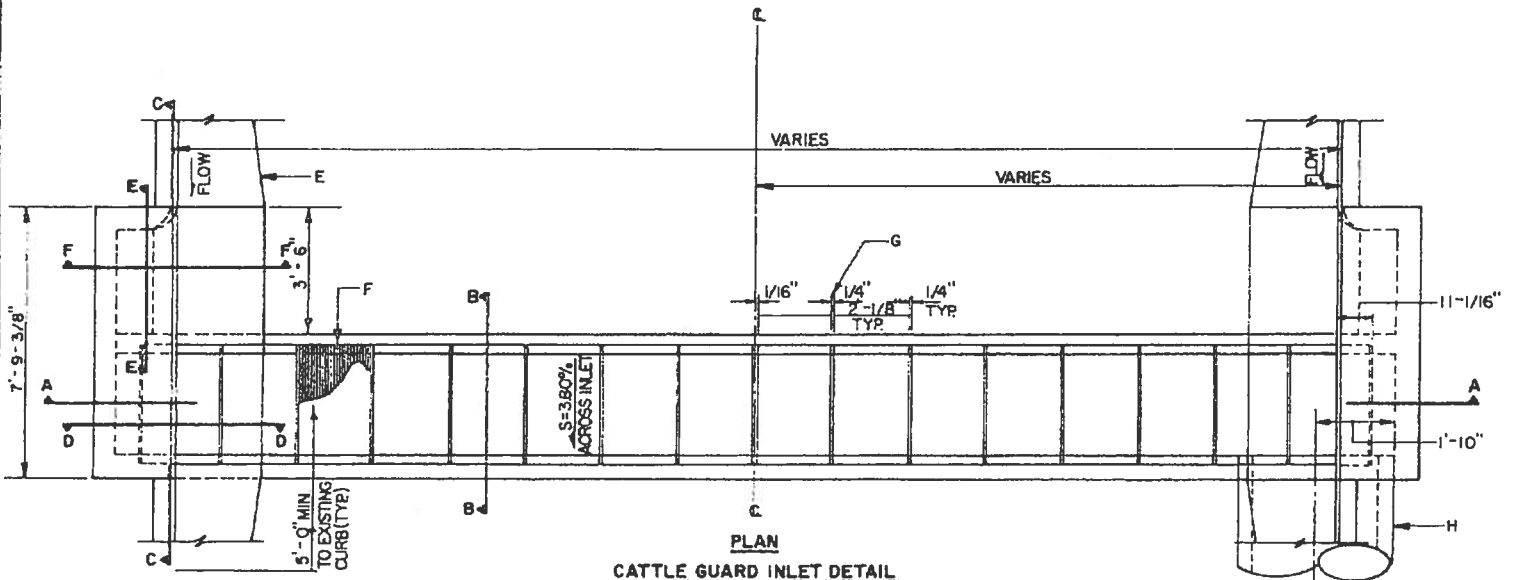
STONEGATE-PHASE I

STORM DRAINAGE DETAILS

ENGINEER'S SEAL

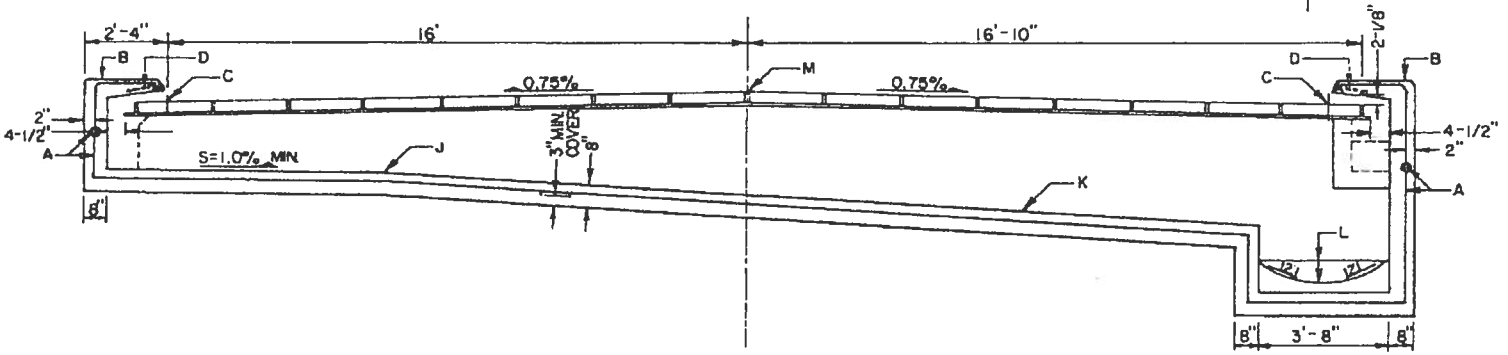
PROJECT NO.	A11013
DESIGNED BY:	JDH
DRAWN BY:	SPS
CHECKED BY:	DMG
DATE:	11/13/14
DPW CHK:	

SHEET:



PLAN

CATTLE GUARD INLET DETAIL



SECTION A-A

NOTE: SEE DWG. 2272 FOR SECTIONS B-B, C-C, D-D, E-E, AND F-F.

GENERAL NOTES

1. ALL EXPOSED METAL PARTS SHALL BE PAINTED PRIOR TO ASSEMBLY. WELDING, MACHINING AND DRILLING SHALL BE DONE PRIOR TO PAINTING. ALL DIMENSIONS ARE FINISH DIMENSIONS.
2. ALL PARTS SHALL BE OF STRUCTURE STEEL, GRADE 36.
3. FOR CLEANING AND PAINTING OF FRAME SEE DWG. 2215, GENERAL NOTE NO. 4.
4. FRAME MAY BE WELDED OR RIVETED.

CONSTRUCTION NOTES

A. NO. 4 BARS AT 6" O.C. EACH WAY.
B. TOP OF CURB.
C. CURB FLOWLINE.
D. ANGLE ANCHOR DETAIL, SEE DWG. 2205.
E. SEE CITY OF ALBUQUERQUE STD. DWG. 2207 FOR STORM INLET GUTTER TRANSITION.
F. GRATE PER CITY OF ALBUQUERQUE STD. DWG. 2220 (TYP.) 16 TOTAL MODIFIED WITH 1" GAP COVER PLATE PER DETAIL THIS SHEET.
G. 1/4" SPACE BETWEEN GRATER (TYP.).
H. OUTLET STORM DRAINAGE HORIZONTAL AND VERTICAL LOCATION MAY VARY PER SPECIFIC PROJECT.
J. GRADE BREAK.
K. GRADE BREAK LOCATIONS AND SLOPE MAY VARY DEPENDING ON LOCATION OF INLET.
L. CONCRETE FILL MINIMUM LONGITUDINAL SLOPE 4:1.
M. CROWN.

CITY OF ALBUQUERQUE

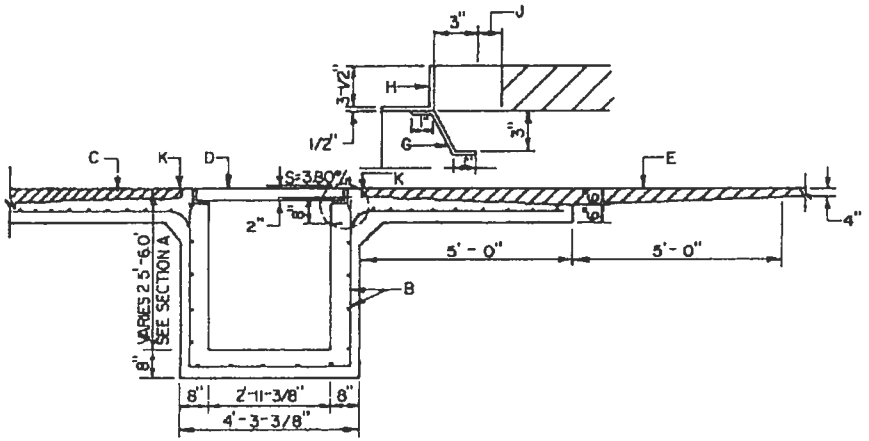
REVISIONS

DRAINAGE

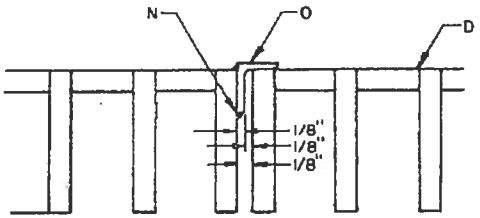
CATTLE GUARD INLET

DWG. 2271

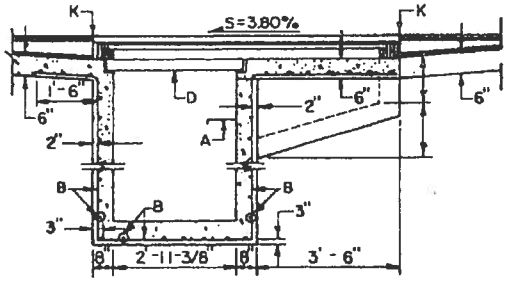
APRIL 1992



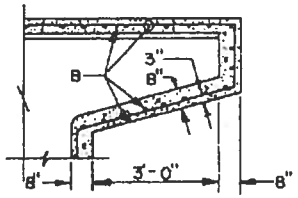
SECTION B-B



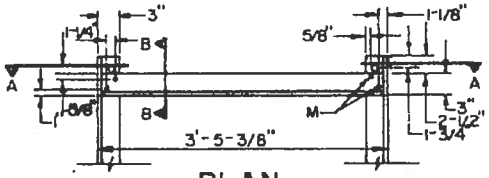
GRATE CAP COVER PLATE DETAIL



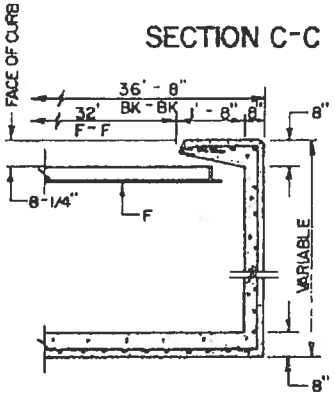
SECTION C-C



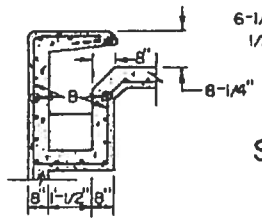
SECTION E-E



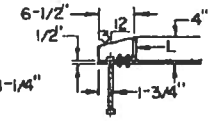
PLAN



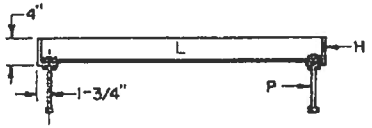
SECTION D-D



SECTION F-F



SECTION B-B



SECTION A-A

GRATE FRAME END DETAIL

NOTE:
SEE DWG. 2271 FOR ADDITIONAL CATTLE GUARD INLET DETAIL

GENERAL NOTES

1. ALL EXPOSED METAL PARTS SHALL BE PAINTED PRIOR TO ASSEMBLY. WELDING, MACHINING AND DRILLING SHALL BE DONE PRIOR TO PAINTING. ALL DIMENSIONS ARE FINISH DIMENSIONS.
2. ALL PARTS SHALL BE OF STRUCTURE STEEL, GRADE 36.
3. FOR CLEANING AND PAINTING OF FRAME SEE DWG. 2215, GENERAL NOTE NO. 4.
4. FRAME MAY BE WELDED OR RIVETED.

CONSTRUCTION NOTES

A. FOR STORM INLET DEPTHS GREATER THAN 4'. INSTALL STD. STEPS, SEE STD. DETAIL.
B. NO. 4 BARS AT 6" O.C. EACH WAY.
C. ROUGH TEXTURE CONCRETE SURFACE (TYP.)
D. GRATE.
E. THICKEN ASPHALT PAVEMENT TO 6" AT EDGE OF APRON BOTH SIDES OF INLET (TYP.)
F. GRATE FRAME.
G. 1" X 1/8" STEEL STRAP-WELD TO ANGLE 6" O.C.
H. 4" X 3" X 1/2".
J. 2" CLEARANCE.
K. SEE PLAN.
L. 3-1/2" X 3" X 3/8" X 3'-4"-3/8".
M. 2-3/8" RIVETS AT EACH CORNER, SEE GENERAL NOTE NO. 4.
N. 1/8" FILLET WELD 2" LONG AT 6" O.C. (TYP.)
O. 1/2" X 1" X 1/8" STEEL ANGLE FULL LENGTH OF GRATE ONE SIDE ONLY EACH GRATE.
P. FOUR (4) EACH 1/2" x 8" BOLTS WITH SQUARE HEADS AND NUTS. ONE BOLT AT EACH CORNER FOR ANCHORING THE FRAME INTO THE CONCRETE WALL.

CITY OF ALBUQUERQUE

REVISIONS

DRAINAGE

CATTLE GUARD INLET

DWG. 2272

APRIL 1992

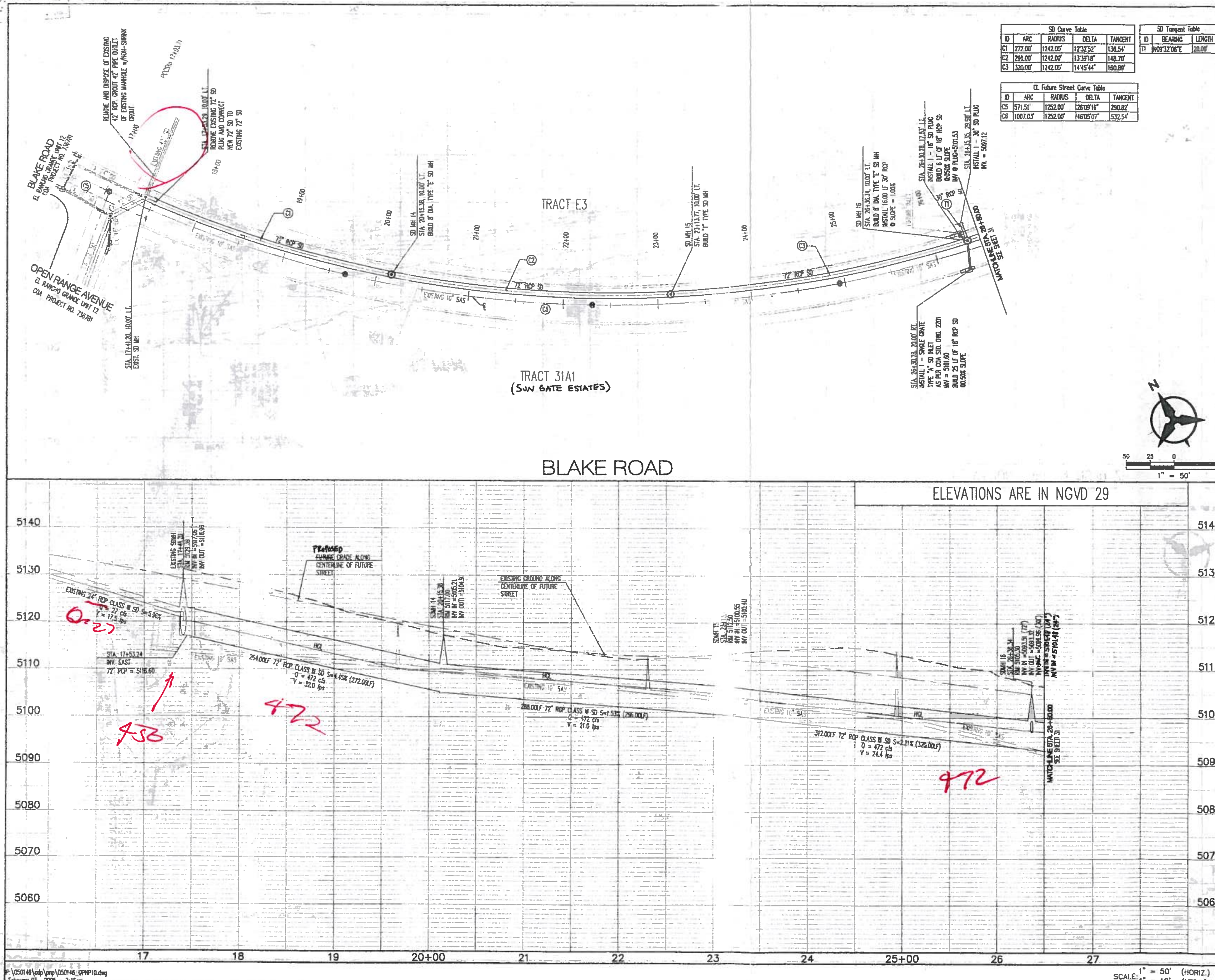
Appendix D

Sun Gate Estates Basin Boundary Exhibit 4

Sun Gate Estates Phase I Utility P&P sheet 30-31

Excerpts from Amole Hubbell 2013 Master Drainage Plan (AMAFCA)

Basin Boundary - Sun Gate Estates
EXHIBIT 4



SCANNED BY

SD Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C1	272.00'	1242.00'	12°32'52"	136.54'
C2	295.00'	1242.00'	13°39'18"	148.70'
C3	320.00'	1242.00'	14°45'44"	160.89'

SD Tangent Table		
ID	BEARING	LENGTH
T1	N09°32'06"E	20.00'

CL Future Street Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C5	571.51'	1252.00'	26°09'16"	290.82'
C6	1007.03'	1252.00'	46°05'07"	532.54'

GENERAL NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. ALL CURVE DATA AND DIMENSIONS ARE CALCULATED FROM CENTERLINE OF PIPE OR MANHOLE. ALL SAS & SD SLOPES ARE CALCULATED TO TRUE PIPE DIMENSIONS FROM INVERT TO INVERT. (PAY ITEMS ARE SHOWN IN PARENTHESES)
3. GRADE ELEVATIONS, WHERE NOTED, ARE FOR FLOWLINE OF STANDARD CURB UNLESS OTHERWISE SPECIFIED.
4. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.
5. CONTRACTOR IS RESPONSIBLE FOR REPAIR AND/OR REPLACEMENT OF ALL UTILITY CONDUITS AND EXISTING LINES.
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9. MH RIMS & CATCH BASIN INLET ELEVATIONS, FIRE HYDRANT & FLANGE ELEVATIONS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY AND ADJUST TO FINAL PAVEMENT GRADES.
10. SAS STATIONING FOLLOWS CL OF ROAD UNLESS OTHERWISE NOTED.
11. STATIONING OF DROP INLET IS TO MIDDLE OF DOWN HILL GRATE AT FACE OF CURB.
12. FLOWLINE ELEVATIONS FOR DROP INLETS ARE PROJECTED FROM FLOWLINE OF STANDARD CURB TO MIDDLE OF DOWNHILL GRATE.
13. FOR STORM DRAIN CONSTRUCTION: ALL RCP JOINTS SHALL NOT BE GROUTED PRIOR TO FINAL INSPECTION. FINAL INSPECTION SHALL DETERMINE WHICH JOINTS ARE TO BE GROUTED FOR FINAL ACCEPTANCE OF THE CONSTRUCTION.

LEGEND

- DOUBLE WATER METER
- SINGLE WATER METER
- WATER LINE SHUTOFF VALVE
- WATER LINE TEE
- SAS LATERAL
- SAS MANHOLE
- STORM DRAIN MANHOLE
- STORM DRAIN INLET
- PROPOSED FIRE HYDRANT
- EXISTING WATER VALVE
- PROPOSED STREET LIGHT

AS-BUILT INFORMATION

CONTRACTOR	New Constructs	DATE
WORK STAKED BY	AIS	DATE
INSPECTOR'S ACCEPTANCE BY	L.C.L.	DATE 10/05
FIELD VERIFICATION BY	AIS	DATE 9/05
DRAWINGS CORRECTED BY	AIS	DATE 9/05

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

BENCH MARKS

ACS BRASS TABLET STAMPED "TRANS"
Geographic Position (NAD 1927)
N.M. State Plane Coordinates (Central Zone)
X= 354,899.45 Y= 1,471,822.67
Ground-to-Grid Factor= 0.99967921(As Published)
$\Delta\alpha$ = -00°16'42"
SLD 1929 Elevation = 5118.370

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

CRISTIAN J. SHIRLEY
NEW MEXICO
16844
LICENSED PROFESSIONAL ENGINEER
2-9-05

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

Designed By: CJS	DATE: 07/27/04
Drawn By: BJG	DATE: 07/27/04
Checked By: CJS	DATE: 08/19/04

Bohannan ▲ Huston Inc.
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

SUN GATE ESTATES PHASE I
UTILITY PLAN AND PROFILE
BLAKE ROAD

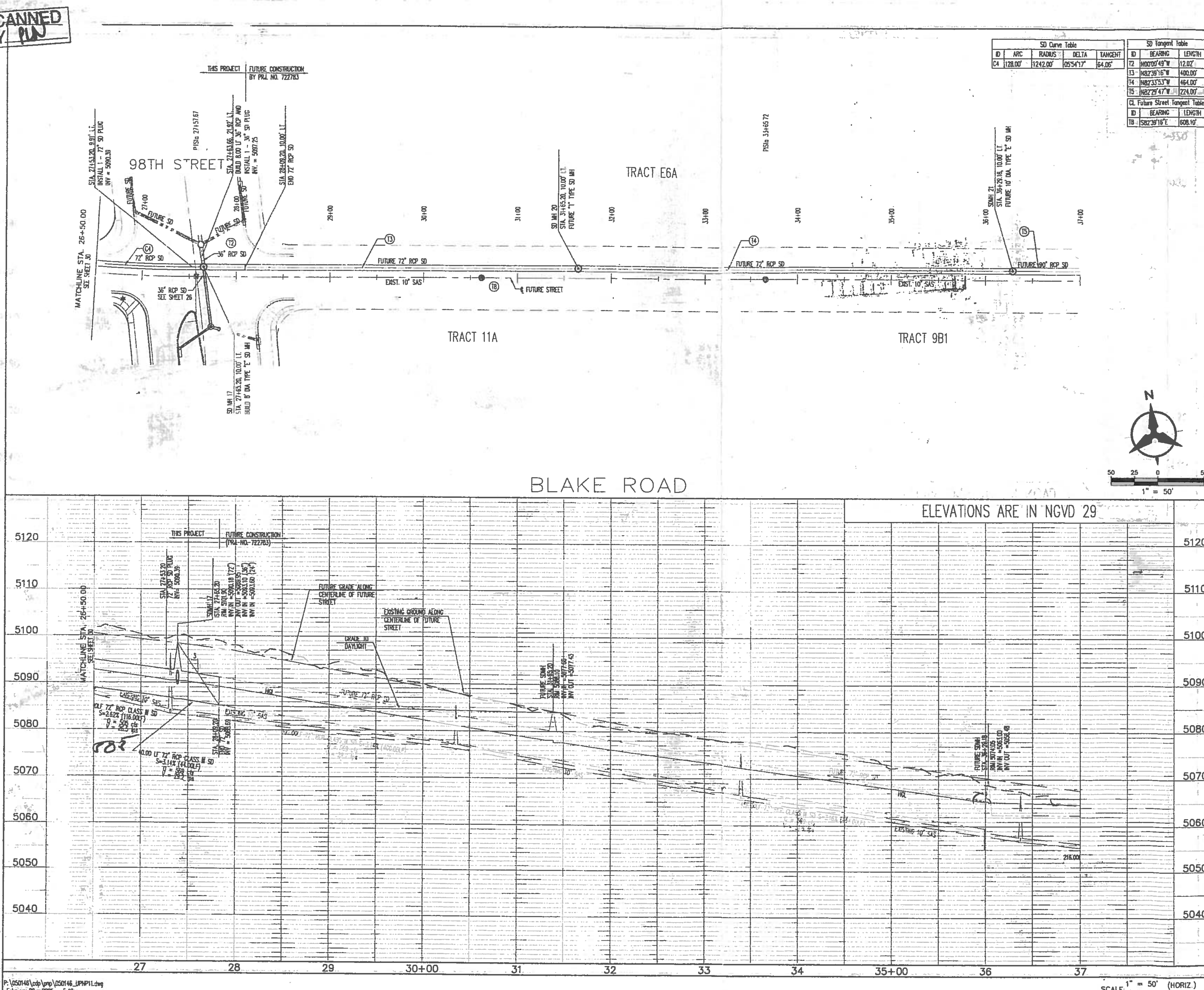
Design Review Committee	City Engineer Approval	Mo./Day/Yr.	Mo./Day/Yr.
APPROVED DESIGN REVIEW COMMITTEE	APPROVED MAR 1 2005 CITY ENGINEER	Last Design Update	

City Project No.	Zone Map No.	Sheet	Of
736782	N-9-Z	30	~~34~~ 37

37
31

SCALE: 1" = 50' (HORIZ.) 1" = 10' (VERT.)

P:\050146\cdp\pnp\050146_UPNP10.dwg
February 03, 2005 - 7:16am



SD Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C4	128.00'	1242.00'	05°54'17"	64.06'

SD Tangent Table		
ID	BEARING	LENGTH
T2	N00°00'49"W	12.02'
T3	N82°39'16"W	400.00'
T4	N82°33'53"W	464.00'
T5	N82°29'47"W	224.00'

CL Future Street Tangent Table		
ID	BEARING	LENGTH
T8	S82°39'16"E	608.10'

GENERAL NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
2. ALL CURVE DATA AND DIMENSIONS ARE CALCULATED FROM CENTERLINE OF PIPE OR MANHOLE. ALL SAS & SD SLOPES ARE CALCULATED TO TRUE PIPE DIMENSIONS FROM INVERT TO INVERT. (PAY ITEMS ARE SHOWN IN PARENTHESES)
3. GRADE ELEVATIONS, WHERE NOTED, ARE FOR FLOWLINE OF STANDARD CURB UNLESS OTHERWISE SPECIFIED.
4. CONTRACTOR IS TO INSTALL A 4" X 4" X 5' POST AND END AT THE END OF EACH SANITARY SEWER SERVICE.
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- PROPOSED STREET LIGHT

AS-BUILT INFORMATION
CONTRACTOR: New Concepts
WORK STAKED BY: BIS — DATE 10/05
INSPECTOR'S ACCEPTANCE BY: L.C.L. — DATE 9/05
FIELD VERIFICATION BY: BIS — DATE 9/05
DRAWINGS CORRECTED BY: BIS — DATE 9/05

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SURVEY INFORMATION — FIELD NOTES — NO. — BY — DATE

ENGINEER'S SEAL — CHRISTIAN J. STARK(?) 16694 REGISTERED PROFESSIONAL ENGINEER — 2-9-05

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	
Designed By: CJS		DATE: 07/27/04	
Drawn By: BJG		DATE: 07/27/04	
Checked By: CJS		DATE: 08/19/04	

Bohannan ▲ Huston Inc.
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ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

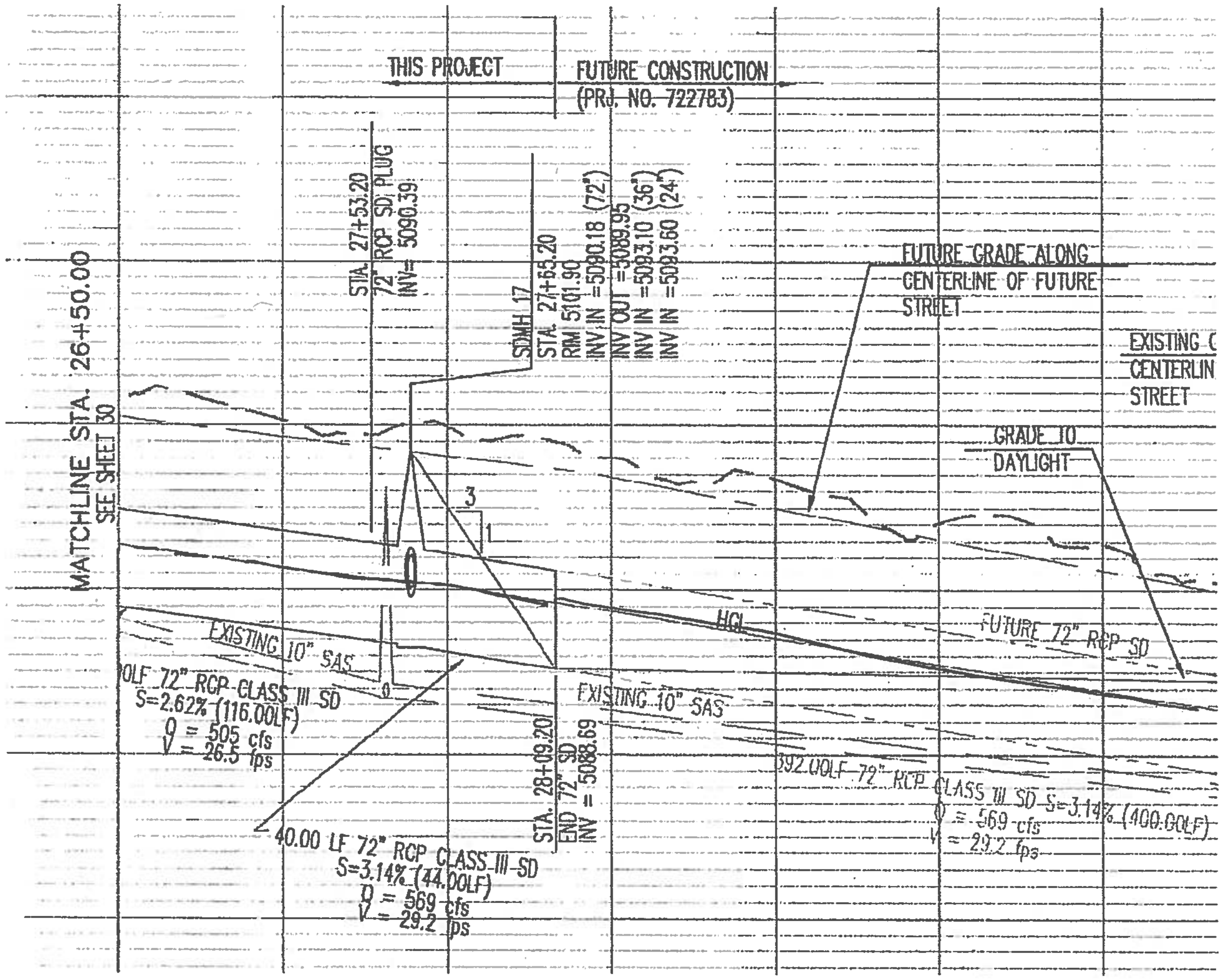
CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

SUN GATE ESTATES PHASE I
UTILITY PLAN AND PROFILE
BLAKE ROAD

Design Review Committee: APPROVED — DESIGN REVIEW COMMITTEE | City Engineer Approval: APPROVED MAR - 1 2005 CITY ENGINEER | Mo./Day/Yr. | Mo./Day/Yr. | Last Design Update

City Project No. 736782 | Zone Map No. N-9-Z | Sheet 31 Of 37

37
31


THIS PROJECT
FUTURE CONSTRUCTION (PRJ. NO. 722783)
MATCHLINE STA. 26+50.00
SEE SHEET 30
STA. 27+53.20
72" RCP SD PLUG
INV= 5090.39
SDMH 17
STA. 27+85.20
RIM 5101.90
INV IN =5090.18 (72")
INV OUT =5089.95
INV IN =5093.10 (36")
INV IN =5093.60 (24")
FUTURE GRADE ALONG CENTERLINE OF FUTURE STREET
EXISTING C CENTERLIN STREET
GRADE TO DAYLIGHT
3
1
HGL
FUTURE 72" RCP SD
EXISTING 10" SAS
0OLF 72" RCP CLASS III SD
S=2.62% (116.00LF)
Q = 505 cfs
V = 26.5 fps
EXISTING 10" SAS
STA. 28+09.20
END 72" SD
INV = 5088.69
392.00LF 72" RCP CLASS III SD S=3.14% (400.00LF)
Q = 569 cfs
V = 29.2 fps
40.00 LF 72" RCP CLASS III SD
S=3.14% (44.00LF)
Q = 569 cfs
V = 29.2 fps

3-11-15

Based on N09/D007 and as-builts from Sun Gate Estates ph 1 736782 we determined the down stream capacity to

472 to 505 at stub
before stub at pond
569 at 98th St
Looks like a ~~pipe~~ storm drain in 98th is required

[signature] 3-11-15

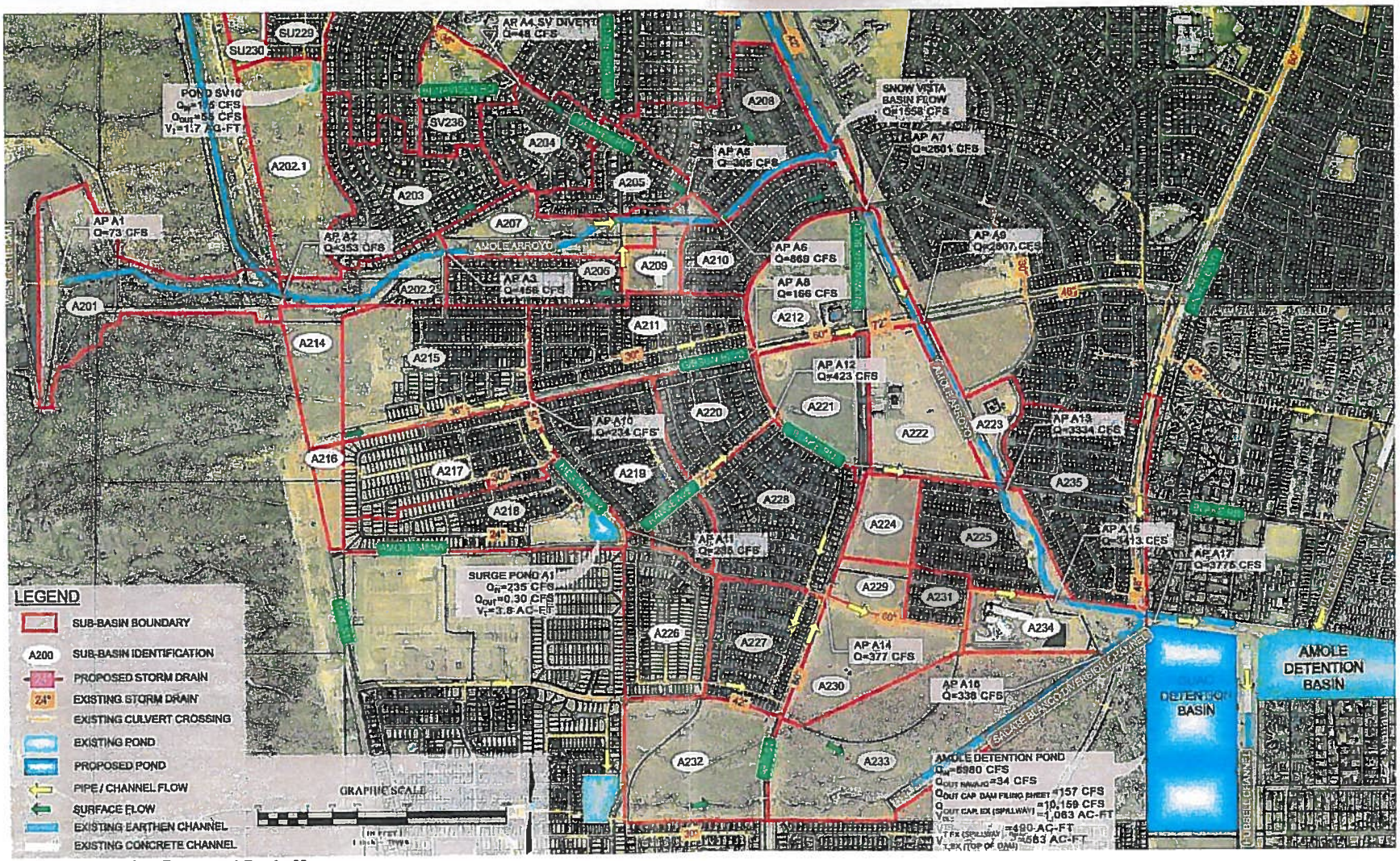


Figure 3-7: Amole Basin - Proposed Basin Map

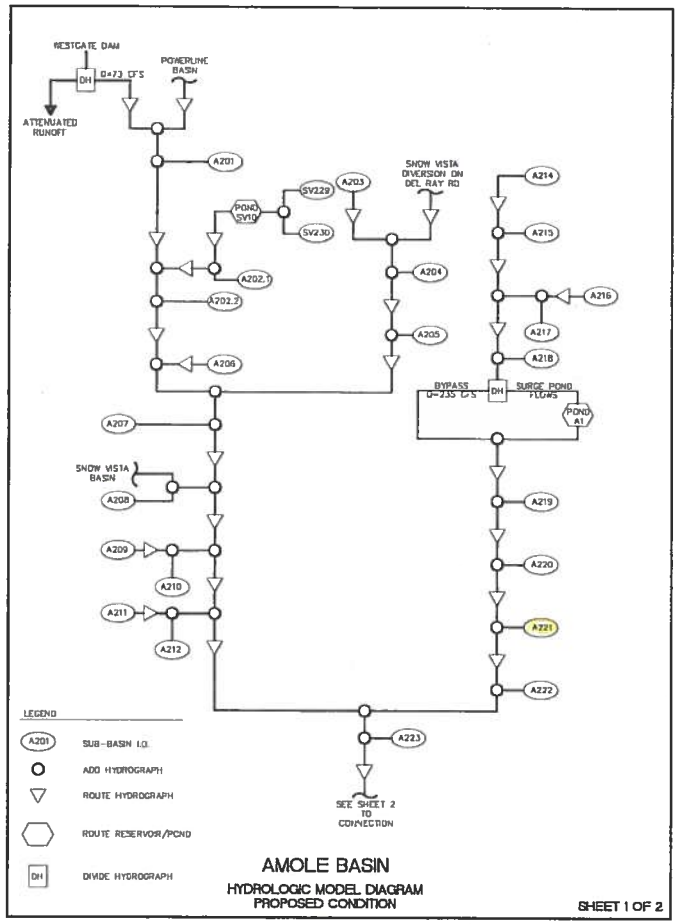


Figure 3-8: Amole Basin - Proposed Hydrologic Model Diagram

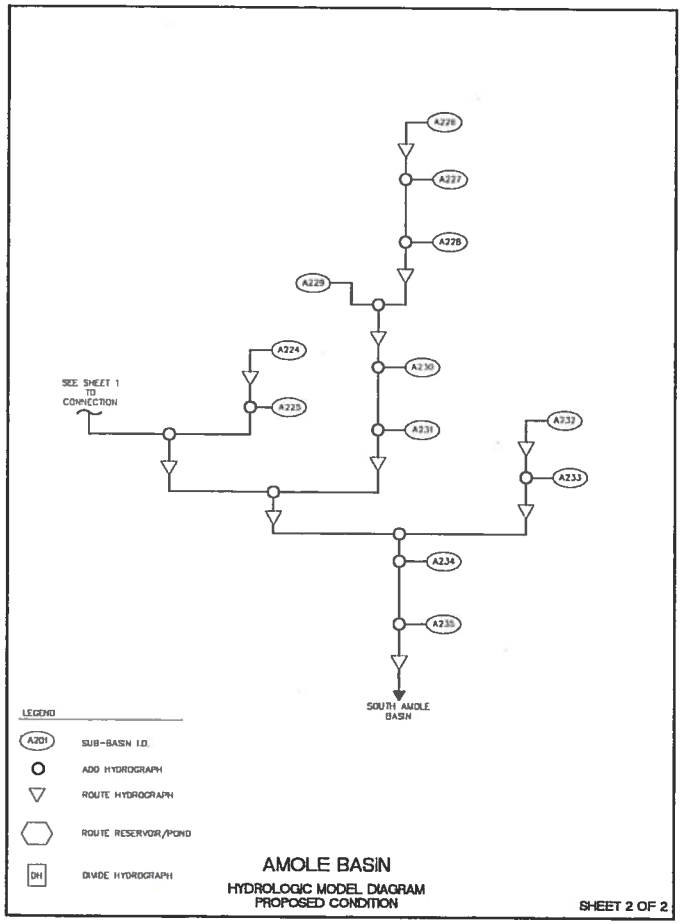


Figure 3-8 Continued: Amole Basin - Proposed Hydrologic Model Diagram

Table 3-8: Amole Basin - Proposed Sub-Basin Peak Discharge and Volumes			
Sub-Basin	Area (ac)	$Q_{100yr\text{-}6hr}$ (cfs)	$V_{100yr\text{-}24hr}$ (ac-ft)
A201	46	122.09	4.373
A202.1	38	60.67	3.969
A202.2	17	53.58	1.938
A203	40	143.75	5.299
A204	22	78.99	2.908
A205	18	61.77	2.435
A206	20	74.47	2.828
A207	26	60.01	1.945
A208	43	164.52	6.375
A209	8	18.08	0.571
A210	28	111.71	4.491
A211	42	165.76	6.637
A212	40	174.78	7.656
A214	16	61.49	2.335
A215	51	191.61	7.261
A216	6	21.87	0.830
A217	37	133.19	4.615
A218	36	128.79	4.429
A219	41	159.68	6.256
A220	23	89.59	3.514
A221	27	118.26	5.098
A222	29	128.19	5.539
A223	13	57.77	2.479
A224	13	48.08	1.826
A225	30	119.33	4.782
A226	31	122.90	4.929
A227	28	104.57	4.474
A228	45	167.59	6.379
A229	9	33.43	1.269
A230	28	112.97	4.625
A231	8	30.23	1.209
A232	42	171.36	7.021
A233	73	245.20	12.206
A234	23	89.40	3.501
A235	52	194.03	7.857

3.5 Amole Del Norte

3.5.1 98th & Central Basin

Existing Conditions

The 98th & Central Basin is approximately 0.81 sq. mi. This sub-area is generally bounded on the east by 98th Street and north by I-40, while on the south by Central Avenue and the west by the Powerline Channel. A two cell pond made up of Pond NE2 and Pond NE3 receives the area's runoff. The land uses in 98th & Central Area are platted undeveloped, industrial, commercial, and low density residential. Cross-lot drainage is the sub-area's main drainage issue due to the large undeveloped land. No off-site runoff enters the sub-area north of I-40.

Pond NE1 was designed to retain Sub-Basin NE105; however, hydrologic analyses concludes this pond is close to overtopping during the 100-year, 24-hour storm event; therefore, runoff will overflow the pond onto Avalon Road. This sub-area lacks drainage conveyance infrastructure. Without the conveyance infrastructure in place, developed and undeveloped lots experience large amounts of cross-lot drainage. There is only one storm drain system in the sub-area, beginning near the intersection of Volcano Road and 98th Street and runs through Pond NE2 outletting into Pond NE3. Since the majority of the sub-area is not conveyed via a sub-surface drainage system, large amounts of runoff spill into the pond. The two-cell pond outlets into a storm drain system located in the Tierra Bayita Area, which ultimately connects to the Tierra Bayita Channel. Refer to Appendix A for hydrologic data and existing hydrologic model diagram.

Proposed Conditions

The proposed land uses in 98th & Central Area are platted mass graded, industrial, commercial, high and low dense residential, and school. Proposed conditions and development have added a sub-surface storm drainage system to collect runoff and convey it to basin ponds to prevent excessive street flow. No off-site runoff enters the sub-area north of I-40.

The proposed conditions assume that the pond NE1 is abandoned and proposed storm drainage is allowed to collect and flow along the surface to Pond NE2 and NE3. As stated above, this surface flow shall be addressed with the residential development plans. A drainage conveyance system shall be installed to collect runoff from the area and convey it to Pond NE2 and NE3. To help alleviate flows to the Coors N-S pond, we recommend the use of an 18" orifice plate at the outlet structures of these ponds. Shallow cross-lot drainage will remain in upstream portions of this basin, although it is the intent of the plan to eliminateas much of the cross-lot drainage as possible with the proposed system. After development, the runoff from the area will be conveyed through drainage conveyance systems eliminating excess flow to the pond. Refer to Table 3-9 for hydrologic data and Figure 3-10 for proposed hydrologic model diagram.

Recommendations:

Below are the recommendations from 1999 Amole-Hubbell DMP for the basin along with the status of the recommendation.

- *Project AD1: Tower Sage Detention Basin and Outfall* – COMPLETED

Additional Recommendations for the basin based on updated basin analysis are below:

- Relocate the spillway for Pond NE2 to discharge to the south onto Central Avenue. Cost $222,800.
- Install storm drain system proposed in 98th & Central Basin per this DMP.
- Install 18" orifice in the outlet structures of ponds NE2 and NE3.