DRAINAGE REPORT

For

CEJA VISTA SUBDIVISION

Prepared for
Albuquerque Rio Bravo Partners, LLC
6330 Riverside Plaza Lane NW, Suite 220
Albuquerque, NM 87120

Prepared by

Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199
(505) 828-2200

ALVIN S. MEDINA
NEW MEXICO
16454
1/9/07
LICENSED PROFESSIONAL ENGINEER

January 9, 2007

Rio Bravo Basin

TABLE OF CONTENTS

I. INTRODUCTION

This conceptual drainage design report presents the proposed drainage solutions for the Ceja Vista subdivision. The drainage area comprises approximately 190 acres and is bounded by Dennis Chavez to the North, Albuquerque Public School property to the west, and private landowners to the south and east. The drainage master plan will address developed storm water conditions from the proposed development and future conditions for the south side of Dennis-Chavez. The developed storm water flows will be collected by a local storm drain network and discharged into the Hubbell Channel. Off-site storm water flows will be conveyed via existing surface drainage, utilizing a combination of existing drainage pathways, proposed storm drain, and proposed grading.

II. PURPOSE

The purpose of this report is to present the drainage management plan for the development of the Ceja Vista Subdivision and obtain Preliminary Plat Approval. The proposed drainage plan will also require approval from AMAFCA prior to the completion of construction plans. The proposed drainage management plan is in accordance with the Amole-Hubbell Drainage Management Plan and the design Analysis Report for the Borrega Dam and North Borrega Channel. The drainage concepts within the proposed subdivision will include drainage improvements along Dennis Chavez, storm water ponds, storm drain improvements, and a connection to the Hubbell Channel.

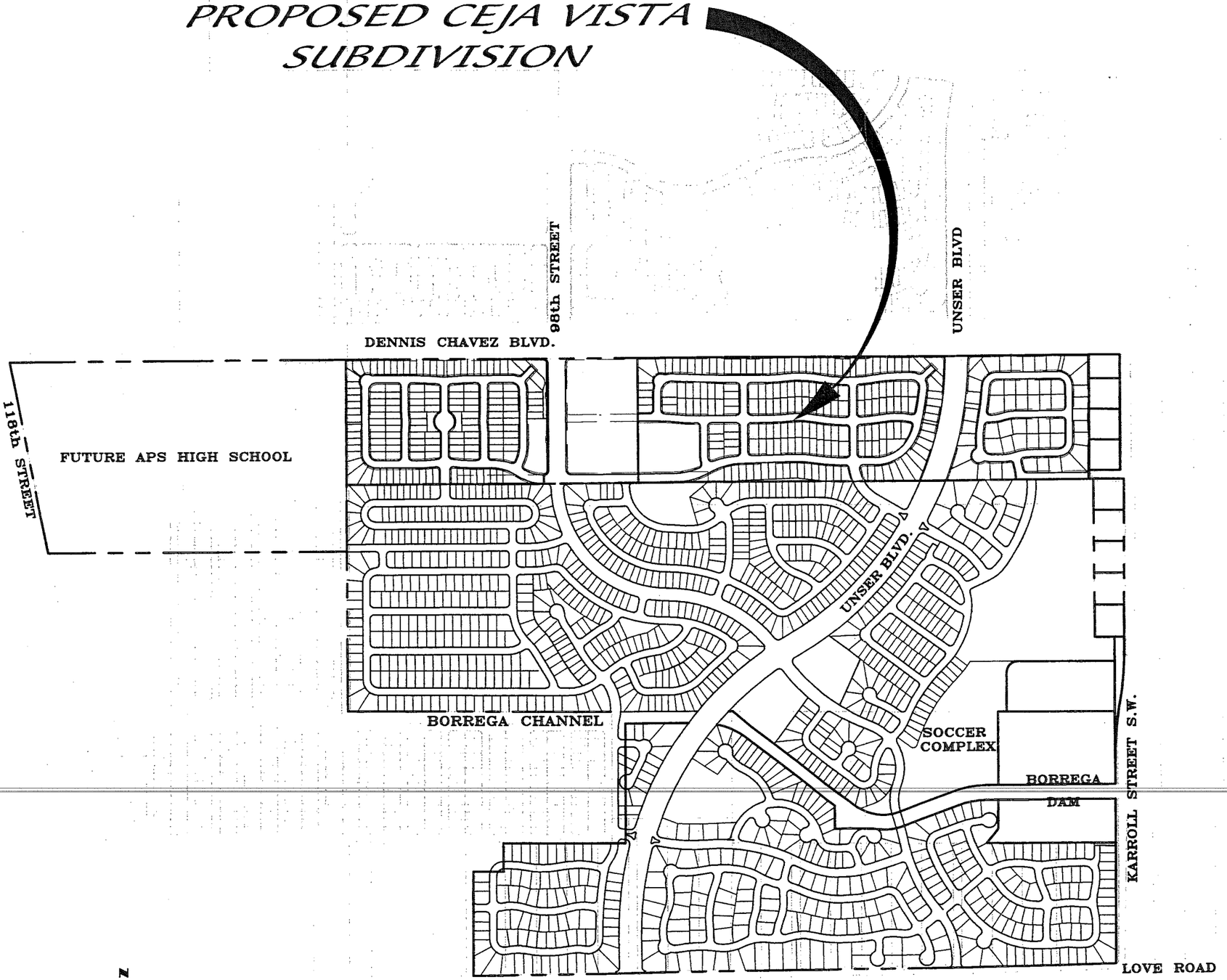
III. HYDROLOGY

The proposed site and surrounding drainage areas consist of approximately 190 acres within the Rio Bravo Basin as identified in the Borrega Detention Dam & North Borrega Channel Design Analysis Report by Wilson & Company. The proposed Ceja Vista development consists of 99 acres. Currently the storm water runoff drains east through the proposed development site and discharges along Meade Road and various private properties, eventually discharging into the Amole Channel through an existing culvert under the Gun Club lateral. In addition, a Zone X FEMA floodplain will be remove with the construction of the proposed development, see Appendix A for current FEMA map.

The off-site drainage area consists of 26 acres within the Dennis-Chavez right-of-way and a 65 acre APS site along the western boundary. Currently this area along Dennis-Chavez drains east along the existing roadside ditch and discharges into the Rio Bravo channel immediately upstream of the existing box culvert.

Existing and proposed site hydrological conditions were analyzed for the 100-year, 6-hour storm event. The existing conditions model includes all the off-site basins in their existing conditions and the proposed development in the existing conditions. The existing conditions AHYMO from the Borrega Detention Dam & North Borrega Channel Design Analysis Report in included in Appendix B. This developed conditions model will provide the analysis utilizing future conditions for the off-site property and developed conditions for the proposed subdivision. All analysis and calculations supporting this report are located in Appendix B. The Arid-lands Hydrologic Model (AHYMO) was utilized for determination of existing condition peak flows and developed condition peak flows.

PROPOSED CEJA VISTA SUBDIVISION



SCALE: 1" = 750'

CEJA VISTA SUBDIVISION
FUTURE DEVELOPED CONDITIONS

VICINITY MAP

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

A04jobs\A4095ANS\EXHIBIT\A4095-VICMAP.dwg\08-10-06\DER

IV. PROPOSED DEVELOPED CONDITIONS

There are two (2) major drainage management components presented in this report. First, the on-site developed conditions consisting of all on-site storm water collected within the proposed subdivision. The second component is the off-site drainage consisting of Dennis-Chavez and the Albuquerque Public School site.

A. On-Site Drainage

The overall drainage concept for the Ceja Vista Subdivision includes grading Units 1 to drain towards the northeast corner of the site discharging to the Hubbell Channel, and grading Units 2 and 3 to drain to the south adventually discharging to the Borrega Dam. The proposed drainage plan for the proposed site includes collecting storm water in a storm drain system located in within their respective sites. The north-south streets have an average slope ranging from 0.5% to 1.0%, and the east-west streets have an average slope ranging from 2.0% to 3.3%. The street capacities and grate capacities are shown in Appendix D.

1. Unit 1

The proposed grading for Unit 1 consists of draining the site towards the northeast (intersection of Pita Verde and Lunaria) into a permanent detention pond. All storm water will be collected into a storm water detention pond (maintained by the City of Albuquerque) in order to reduce peak flow rates and reduce the storm drain size discharging into the Hubbell Channel. The detention pond will be sized to accommodate additional volume from future phases. The inlets at this location will be in a sump condition. The capacity for these inlets was determine utilizing the weir equation with 15 cfs for single grate and 22.5 cfs for double grate. The street and pond will allow excess storm water to discharge into Dennis-Chavez.

2. Unit 2 & Unit 3

The proposed grading for Unit 2 and Unit 3 consists of draining the development towards the southeast corner of the site. The interim condition will consist of collecting the storm water into a temporary retention pond with a volume equivalent to the 100-yr, 10 day storm event. The permanent solution will include constructing a storm drain outfall into the Borrega Dam during Phase II of the Ceja Vista subdivision. Unit 2 will utilize the land reclaimed from temporary retention pond for additional residential lots. Unit 3 will utilize the land reclaimed fro a future park & ride. The capacity for inlets located in sump conditions were determine utilizing the weir equation with 15 cfs for single grate and 22.5 cfs for double grate. The street profile will be designed to allow for excessive flows to discharge into Unser Blvd. The calculations for the temporary pond volumes are shown in Appendix D.

Unit 3 will also include a temporary storm water retention pond equivalent to the 100-yr, 10 day storm event for the APS site. The pond will be located in the southwest corner of Unit 3, and will be removed with the construction of the new APS high school. The new APS high school is projected to be built concurrently with Phase II of the Ceja Vista Subdivision.

Developed Conditions Time to Peak

Basin	Description	Length (ft)	Slope (ft/ft)	K	V (fps)	Tp (hr)
104	APS	2200	0.03	2.50	3.95	0.13
103	Unit 3	1800	0.022	2.50	3.71	0.13
103B	Dennis-Chavez	3500	0.030	2.50	4.33	0.13
102	Unit2	2300	0.028	2.75	4.60	0.13
102A	98th St/Comm.	830	0.020	3.00	4.24	0.13
102B	Dennis-Chavez	2700	0.024	2.50	3.87	0.13
102C	Open Space	400	0.009	3.00	2.85	0.13
102D	Unser Blvd.	820	0.009	3.00	2.85	0.13
101	Unit 1	1200	0.015	2.75	3.37	0.13
101B	Dennis-Chavez	1000	0.024	2.50	3.87	0.13

*Minimum Tp value was substituted

B. *Off-Site Drainage*

The upstream drainage area, shown in Figure 2, consists of approximately 65 acres located west of the proposed Ceja Vista development. The proposed development will grade the existing APS site to drain towards the southeast corner to the site. This grading and drainage scheme follows the existing drainage easements and the Borrega Detention Dam and Upstream Borrega Arroyo Channel Agreement between AMAFCA and the adjacent property owners. These requirements are present in the Borrega Detention Dam & North Borrega Channel Design Analysis Report by Wilson & Company. The report was followed by the Borrega Detention Dam and Upstream Borrega Arroyo Channel Agreement between AMAFCA and the adjacent property owners.

1. *Dennis-Chavez*

In addition to the APS property, the proposed storm drain will also collect storm water from the Southside of Dennis Chavez. Currently, the south side of Dennis Chavez is collected in the Rio Bravo channel.

Developed Conditions Drainage Basins

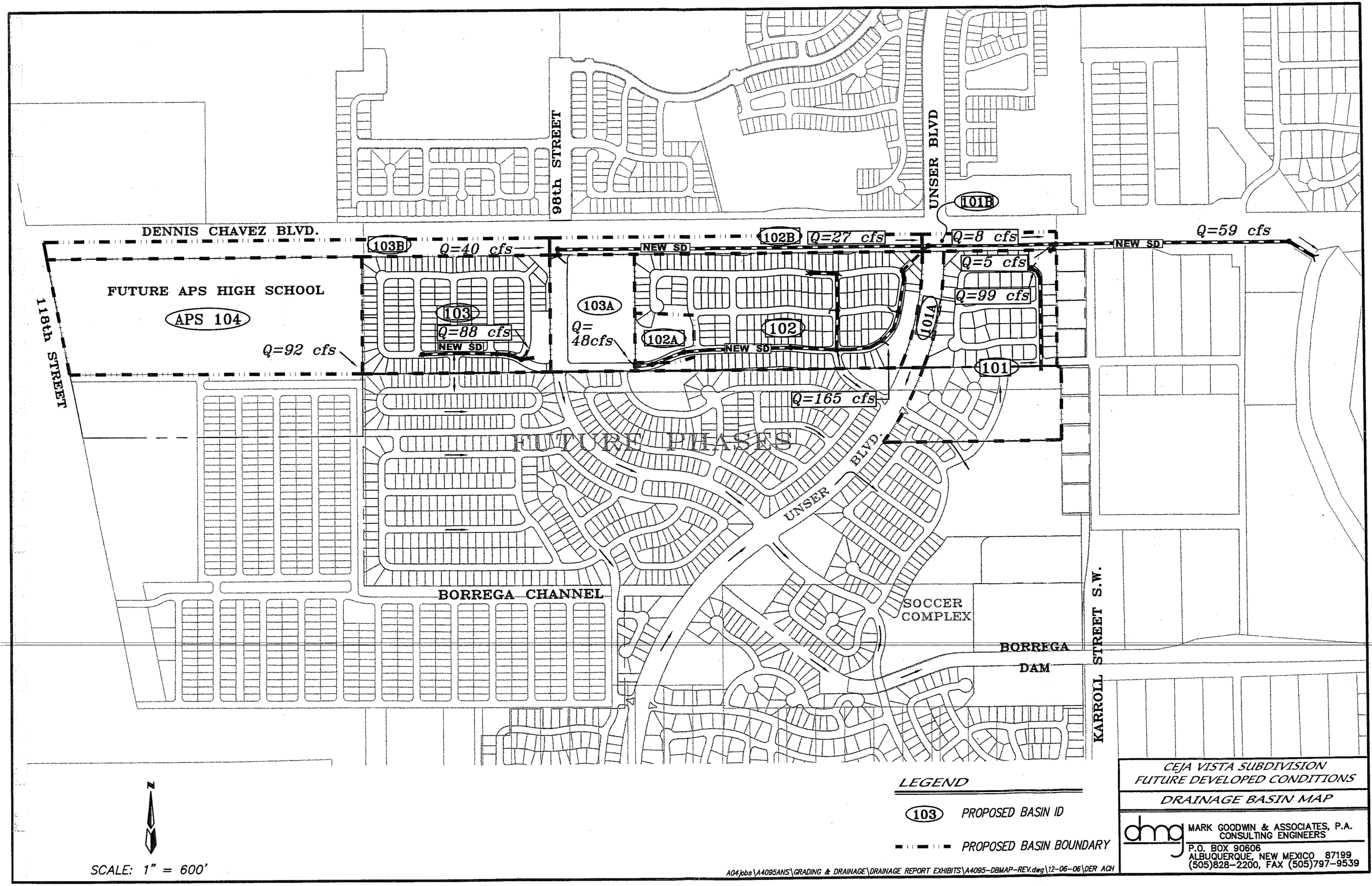
Basin	Area (ac)	Area (mi^2)	Land Treatment A	B	C	D
APS	65	0.102	95%	5.0%	0.0%	0.0%
Unit 3	26.88	0.042	0%	28.3%	28.3%	43.5%
Unit 2	36.46	0.057	0%	29.3%	29.3%	41.4%
Unit 1	32.47	0.027	0%	33.6%	33.6%	32.7%
Comm. 2	12.10	0.019	0%	7.5%	7.5%	85.0%
Open Sp	2.92	0.005	100%	0.0%	0.0%	0.0%
Unser	3.10	0.005	0%	17.2%	17.2%	65.7%
Dennis-Chavez (118th to 98th)	12.16	0.019	0%	40.0%	40.0%	20.0%
Dennis-Chavez (98th to Unser)	8.15	0.013	0%	40.0%	40.0%	20.0%
Dennis-Chavez (Unser to Condershire)	2.21	0.003	0%	40.0%	40.0%	20.0%

V. CONCLUSIONS

The proposed drainage management plan provides conceptual solutions for the regional drainage issues associated with the Ceja Vista Subdivision. The describe drainage manage plan will allow additional capacity within the Borrega Dam for future development within the adjacent properties. All proposed storm water improvements will be constructed in accordance with City standards and the improvements to the Amole Channel will be in accordance with AMAFCA requirements.

APPENDIX A

BASIN MAP/FEMA MAP

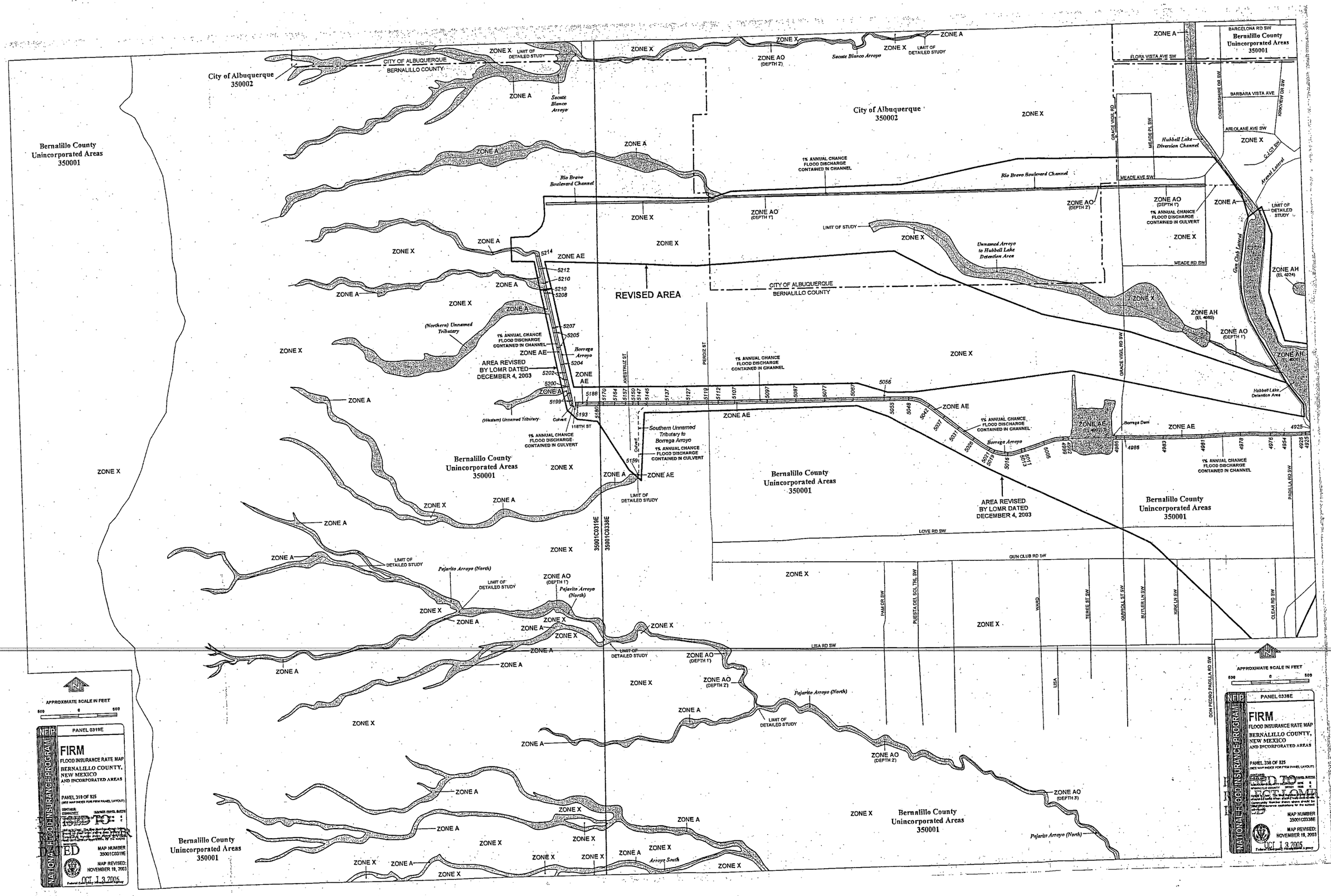


CEJA VISTA SUBDIVISION
FUTURE DEVELOPED CONDITIONS

DRAINAGE BASIN MAP

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

A04\jobs\A4095ANS\GRADING & DRAINAGE\DRAINAGE REPORT EXHIBITS\A4095-DBMAP-REV.dwg\12-06-06\DER ACH


City of Albuquerque
350002
Bernalillo County
Unincorporated Areas
350001
CITY OF ALBUQUERQUE
BERNALILLO COUNTY
LIMIT OF DETAILED STUDY
Sacate Blanco Arroyo
ZONE X
ZONE A
ZONE AO
(DEPTH 2)
ZONE AO
(DEPTH 1')
ZONE AE
ZONE AH
(EL 4924)
ZONE AH
(EL 4985)
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CHANNEL
1% ANNUAL CHANCE FLOOD DISCHARGE CONTAINED IN CULVERT
Rio Bravo Boulevard Channel
Hubbell Lake Diversion Channel
Arenal Lateral
Gun Club Lateral
Unnamed Arroyo to Hubbell Lake Detention Area
Hubbell Lake Detention Area
(Northern) Unnamed Tributary
(Western) Unnamed Tributary
Borrego Arroyo
Southern Unnamed Tributary to Borrego Arroyo
Pajarito Arroyo (North)
Arroyo South
Borrego Dam
REVISED AREA
AREA REVISED BY LOMR DATED DECEMBER 4, 2003
AREA REVISED BY LOMR DATED DECEMBER 4, 2003
LIMIT OF STUDY
Culvert
118TH ST
FLORA VISTA AVE SW
BARCELONA RD SW
BARBARA VISTA AVE
ARLOLANE AVE SW
CONDERSHIRE DR SW
RORKVIEW DR SW
GRACE VIGIL RD
MEADE PL SW
MEADE AVE SW
MEADE RD SW
AVESTRUZ ST
PEROZ ST
LOVE RD SW
GUN CLUB RD SW
LISA RD SW
PAM DR SW
PUESTA DEL SOL TRL SW
WARD
TERES ST SW
MARBOLL ST SW
BUTLER LN SW
KIRK LN SW
CLEAR RD SW
DON PEDRO PADILLA RD SW
PADILLA RD SW
35001C0319E
35001C0338E
APPROXIMATE SCALE IN FEET
500 0 500
PANEL 0319E
FIRM
FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS
PANEL 319 OF 825
MAP NUMBER 35001C0319E
MAP REVISED: NOVEMBER 19, 2003
OCT 1 3 2005
PANEL 0338E
PANEL 338 OF 825
MAP NUMBER 35001C0338E
MAP REVISED: NOVEMBER 19, 2003
OCT 1 3 2005
NATIONAL FLOOD INSURANCE PROGRAM

APPENDIX B

AHYMO OUTPUT
EXISTING CONDITIONS

Design Analysis Report for

Borrega Detention Dam and North Borrega Channel

in
Bernalillo County, NM

Prepared for

AMAFCA

Albuquerque Metropolitan Arroyo
Flood Control Authority
Albuquerque, NM

Submitted by

Wilson & Company, Engineers & Architects
4900 Lang Avenue N.E.
Albuquerque, New Mexico 87109
(505) 348-4000

WCEA File No: 99-210-099

April 2000

WILSON &COMPANY

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =04/09/2000
INPUT FILE = X:\PUBLIC\PROJECTS\99099\AHYM\FUTURE\BOR_FUTU.DAT                        USER NO.= AHYMO-I-9702a01000C05-AH

                                 FROM  TO                    PEAK          RUNOFF                  TIME TO    CFS       PAGE =    1
                    HYDROGRAPH    ID    ID         AREA     DISCHARGE      VOLUME      RUNOFF        PEAK      PER
COMMAND         IDENTIFICATION    NO.   NO.      (SQ MI)     (CFS)        (AC-FT)    (INCHES)     (HOURS)    ACRE      NOTATION

START                                                                                                          TIME=        .00
*S << WILSON&COMPANY (WCEA) AHYMO ANALYSIS FOR DESIGN OF THE BORREGA DAM.
*S   BASED ON LEEDSHILL AHYMO MODEL FOR THE '99 AMOLE-HUBBELL DMP (A-H DMP).
*S   THE LEEDSHILL MODEL WAS BASED ON THE '92 BHI AHYMO MODEL.
*S
*S  FILENAME: BOR_FUTU.DAT
*S   BORREGA DAM PHASE "B", FUTURE CONDITIONS, FULL DEVELOPMENT, UNBULKED.
*S
*S  1. BORREGA WATERSHED FULLY DEVELOPED
*S  2. AM SW HOMES (BELL PROPERTY) IS DEVELOPED & ADDED TO BORREGA DAM.
*S  3. BASIN 50201 IS DEVELOPED & ADDED TO BORREGA DAM.
*S
*S*****************************************************************************
*S
*S*****************************************************************************
*S
*S      BORREGA WATERSHED
*S
*S
*S 100 YEAR 24HR STORM DEVELOPED CONDITION
RAINFALL  TYPE= 2                                                                                              RAIN24=    2.660
*S*****************************************************************************
*S
*S COMPUTE FLOWS FROM SUB-BASIN B-2 OF RIO BRAVO
*S <<A-H AREA WAS 0.0754. WCEA REDUCED AREA TO 0.0445 BECAUSE THE RIO BRAVO
*S   BLVD EXTENSION DIVIDES THE BASIN >>
COMPUTE NM HYD        202.00   -     1        .04450       87.36       3.236      1.36343    1.500    3.067 PER IMP=   34.00
*S
*S ROUTE FLOWS TO POND 8
ROUTE MCUNGE          202.50   1    11        .04450       87.31       3.246      1.36779    1.600    3.066 CCODE =      .2
*S
*S COMPUTE HYDROGRAPH FOR B-4 (WEST) FROM RIO BRAVO REDUCE AREA TO 41 AC
COMPUTE NM HYD        204.00   -     1        .06410      125.84       4.661      1.36343    1.500    3.067 PER IMP=   34.00
*S
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 202.5 TO THE FLOWS FROM SUB-BASIN 204
ADD HYD               204.10  1&11  11        .10860      196.42       7.907      1.36521    1.550    2.826
*S
*S ROUTE FLOWS THROUGH POND 8
ROUTE RESERVOIR    POND8.OUT   11   80        .10860       42.96       7.907      1.36520    2.000     .618 AC-FT=     4.100
*S
*S ROUTE FLOWS TO JUNCTION
*S << FLOW TO CULVERT CROSSING UNDER RIO BRAVO BLVD/118TH ST TO NE
*S   GETS ADDED TO RIO BRAVO CHAN N SIDE OF RIO BRAVO BLVD EXTENSION>>
ROUTE MCUNGE          RB_CULV  80   11        .10860       42.98       7.907      1.36521    2.000     .618 CCODE =      .2
*S
*S*****************************************************************************
*S
*S COMPUTE FLOWS FROM SUB-BASIN 50104 FROM BORREGA (7B)
COMPUTE NM HYD        104.00   -     1        .03930       72.17       2.667      1.27251    1.500    2.869 PER IMP=   32.00
*S
*S ROUTE FLOWS TO POND 7
ROUTE MCUNGE          103.50   1    12        .03930       71.63       2.674      1.27559    1.550    2.848 CCODE =      .2
*S
*S COMPUTE FLOWS FROM SUB-BASIN 50103 FROM BORREGA (7K)
COMPUTE NM HYD        103.00   -     1        .05400      102.13       3.834      1.33141    1.500    2.955 PER IMP=   35.00
```

```
*S
*S ROUTE FLOWS TO POND 7

                                  FROM  TO                    PEAK          RUNOFF                TIME TO   CFS       PAGE =   2
                    HYDROGRAPH     ID   ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK     PER
COMMAND          IDENTIFICATION    NO.  NO.     (SQ MI)       (CFS)       (AC-FT)    (INCHES)    (HOURS)  ACRE      NOTATION

ROUTE MCUNGE          104.50       1   13        .05400        101.60       3.831      1.33030     1.600   2.940 CCODE =       .1
*S
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 50103.5 TO THE ROUTED FLOWS
ADD HYD               104.60 12&13  12        .09330        171.56       6.505      1.30724     1.600   2.873
*S
*S COMPUTE FLOWS FROM SUB-BASIN 50105 (WEST) FROM BORREGA
COMPUTE NM HYD         105W   -     1        .14130        270.97      12.038      1.59742     1.500   2.996 PER IMP=   49.00
*S
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 50105 (WEST) TO THE ROUTED FLOWS
ADD HYD             POND7.IN  1&12  12        .23460        428.46      18.543      1.48201     1.550   2.854
*S
*S ROUTE FLOWS THROUGH POND 7
ROUTE RESERVOIR    POND7.OUT   12   70        .23460        146.29      18.433      1.47323     1.850    .974 AC-FT=     8.314
*S
*S ROUTE FLOWS IN 118TH ST CHAN TO N BORREGA CHAN INTAKE UNDER 118TH ST
ROUTE MCUNGE          106.05   70   12        .23460        145.75      18.401      1.47068     1.950    .971 CCODE =       .1
*S
*S  BASIN NO. 50106
*S << BASIN CUT OFF AT 118TH/POWERLINE TO DIVERT SOUTH, CALCED NEW AREA & TP
COMPUTE NM HYD        106.00   -     3        .08560        170.83       7.293      1.59741     1.500   3.118 PER IMP=   49.00
*S
*S ADD THE FLOW FROM SUB-BASIN 106 TO THE FLOW FROM POND7
ADD HYD               106.10  3&12   3        .32020        198.12      25.694      1.50456     1.800    .967
*S
*S ROUTE FLOW THU PROPOSED N BORREGA CHAN TO 48" PIPE UPSTRM OF AVESTRUZ ST
*S <<ASSUMED CONC CHANNEL SECTION, 2:1 SIDE SLOPES, 10' BOTTOM>>
ROUTE MCUNGE          106.30    3   14        .32020        198.10      25.681      1.50382     1.800    .967 CCODE =       .1
*S  << PAAKWEREE BASIN C >>
SEDIMENT BULK                                                                                                PK BF =     1.00
COMPUTE NM HYD       BASIN_C    -    1        .01380         26.52        .946      1.28597     1.500   3.003 PER IMP=   28.00
*S <<TOTAL FLOW IN CHAN UPSTRM OF 48" PIPE, AT AVESTRUZ ST
ADD HYD               106.31  1&14  14        .33400        205.93      26.628      1.49482     1.800    .963
*S  << PAAKWEREE BASIN A >>
COMPUTE NM HYD       BASIN_A    -    1        .05130         84.88       2.517       .91999     1.500   2.585 PER IMP=    5.00
*S <<TOTAL FLOW IN CHAN DNSTRM OF 48" PIPE, AT AVESTRUZ ST
ADD HYD               105E.1  1&14  14        .38530        275.04      29.145      1.41828     1.550   1.115
ROUTE MCUNGE          106.33   14   13        .38530        275.04      29.145      1.41828     1.550   1.115 CCODE =       .0
*S  LH BASIN NO. 50101
SEDIMENT BULK                                                                                                PK BF =     1.00
COMPUTE NM HYD        101.10   -    1        .15400        271.03      12.024      1.46394     1.550   2.750 PER IMP=   42.00
ROUTE MCUNGE          201.10    1   10        .15400        259.78      11.953      1.45535     1.800   2.636 CCODE =       .1
*S  LH BASIN NO. 50102
*S  << BASIN DIVIDED AT PAAKWEREE BNDRY, OLD AREA WAS 0.182 SQ MI >>
COMPUTE NM HYD        102.10   -    1        .12770        271.99      10.879      1.59742     1.500   3.328 PER IMP=   49.00
*S <<FLOW INTO THE UPSTREAM END OF THE CULVERT UNDER PAVO ST. >>
ADD HYD              S_CULV  1&10   5        .28170        345.75      22.833      1.51974     1.800   1.918
*S  << PAAKWEREE BASIN D >>
SEDIMENT BULK                                                                                                PK BF =     1.00
COMPUTE NM HYD       BASIN_D    -    1        .01440         30.68       1.227      1.59741     1.500   3.329 PER IMP=   49.00
ADD HYD                  D1   5& 1  15        .29610        355.46      24.059      1.52352     1.800   1.876
*S <<FLOW IN CHAN DNSTRM OF 8X4 CBC>>
ADD HYD               106.35 15&13  15        .68140        583.55      53.204      1.46402     1.800   1.338
ROUTE MCUNGE          106.40   15    3        .68140        583.55      53.204      1.46402     1.800   1.338 CCODE =       .0
*S  << PAAKWEREE BASIN E >>
COMPUTE NM HYD       BASIN_E    -    1        .01440         30.68       1.227      1.59741     1.500   3.329 PER IMP=   49.00
ADD HYD               106.50  3& 1  15        .69580        593.25      54.431      1.46678     1.800   1.332
```

```
                                                                Bor_futu
ROUTE MCUNGE          106.60   15    3         .69580        593.25        54.431       1.46678     1.800     1.332 CCODE =       .0
*S  << PAAKWEREE BASIN B >>

                              FROM  TO                        PEAK          RUNOFF                    TIME TO    CFS       PAGE =   3
                   HYDROGRAPH   ID    ID          AREA      DISCHARGE      VOLUME       RUNOFF         PEAK      PER
COMMAND        IDENTIFICATION   NO.   NO.       (SQ MI)       (CFS)       (AC-FT)    (INCHES)      (HOURS)    ACRE      NOTATION

COMPUTE NM HYD       BASIN_B    -     1         .06410        136.51         5.461       1.59742     1.500     3.328 PER IMP=  49.00
*S  TOTAL FLOW IN PROPOSED N BORREGA CHANNEL AT PERDIZ ST>>
ADD HYD              107.10  1& 3   2         .75990        727.59        59.892       1.47780     1.500     1.496
ROUTE MCUNGE         107.20    2    3         .75990        719.42        59.898       1.47793     1.550     1.479 CCODE =       .2
*S  << PAAKWEREE BASIN F >>
COMPUTE NM HYD       BASIN_F    -     1         .03360         71.56         2.863       1.59741     1.500     3.328 PER IMP=  49.00
ADD HYD              107.30  1& 3   2         .79350        787.47        62.760       1.48299     1.500     1.551
ROUTE MCUNGE         107.40    2    3         .79350        786.79        62.706       1.48170     1.550     1.549 CCODE =       .1
*S  << PAAKWEREE BASIN G >>
COMPUTE NM HYD       BASIN_G    -     1         .03520         74.97         2.999       1.59742     1.500     3.328 PER IMP=  49.00
*S  TOTAL FLOW IN PROPOSED N BORREGA CHANNEL AT PARDAL ST>>
ADD HYD              107.50  1& 3   2         .82870        853.67        65.704       1.48661     1.550     1.610
ROUTE MCUNGE         107.60    2    3         .82870        853.67        65.704       1.48661     1.550     1.610 CCODE =       .0
*S  LH BASIN NO, 50108
*S   << HALF RESIDENTIAL/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>
SEDIMENT BULK                                                                                                 PK BF =    1.00
COMPUTE NM HYD       108.00    -     1         .08130         99.90         4.982       1.14903     1.600     1.920 PER IMP=  25.00
*S << TOTAL FLOW DNSTREAM OF PAAKWEREE IN PROPOSED N BORREGA CHANNEL>>
ADD HYD              108.30  1& 3   2         .91000        946.37        70.687       1.45645     1.550     1.625
ROUTE MCUNGE         108.40    2    3         .91000        943.74        70.646       1.45563     1.600     1.620 CCODE =       .1
*S  LH BASIN NO. 50109
COMPUTE NM HYD       109.10    -     1         .23440        391.32        19.970       1.59742     1.550     2.609 PER IMP=  49.00
*S << FLOW IN PROPOSED N BORREGA ARROYO CHANNEL AT AP 109
ADD HYD              109.30  1& 3   3        1.14440       1332.23        90.616       1.48467     1.600     1.819
*S ROUTE FLOW ABOVE AP109 TO CONFLUENCE WITH BASIN 50201
*S <<ASSUMED CONC CHANNEL SECTION, 2:1 SIDE SLOPES, 12' BOTTOM
ROUTE MCUNGE         109.50    3    4        1.14440       1323.51        90.625       1.48481     1.600     1.807 CCODE =       .2
*S  LH BASIN NO. 50110
*S <<CHANGED TO HALF RESID/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>
COMPUTE NM HYD       110.00    -     1         .10180        177.08         6.238       1.14904     1.500     2.718 PER IMP=  25.00
*S  <<ADD 50110 TO CHANNEL.  TOTAL CHANNEL FLOW TO DAM>>
ADD HYD              110.10  1& 4   2        1.24620       1452.14        96.863       1.45738     1.600     1.821
*S LH BASIN 50201
COMPUTE NM HYD       201.00    -     1         .14730        229.72        12.549       1.59741     1.600     2.437 PER IMP=  49.00
*S << BORREGA DIVERSION STORM DRAIN >>
DIVIDE HYD           201DIV1     1    1         .14730        229.72        12.549       1.59741     1.600     2.437
                     201DIV2   and   21         .00000          .00          .000        .00000     -.050      .000
*S  ADD 50201 TO DAM
ADD HYD              110.15  1& 2   4        1.39350       1681.86       109.413       1.47219     1.600     1.886
*S  <<BASIN NO. 70102 (B-4 EAST)  44 ACRES>>
COMPUTE NM HYD       B4EAST     -     6         .06770        109.76         4.288       1.18751     1.550     2.533 PER IMP=  16.00
*S <<ROUTE B-4 EAST THROUGH B-6>>
ROUTE MCUNGE          B4E.1     6     5         .06770        105.13         4.260       1.17984     1.850     2.426 CCODE =       .1
*S  <<BASIN NO. 70103 (B-6)  >>
*S  <<HALF RESID/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>
COMPUTE NM HYD            B6    -     1         .28690        357.99        17.582       1.14903     1.600     1.950 PER IMP=  25.00
*S <<TOTAL B-4 EAST AND B-6>>
ADD HYD                 B6.1  1& 5   7         .35460        363.95        21.842       1.15491     1.650     1.604
*S << PROPOSED FUTURE STORM DRAIN FROM BELL PROPERTY TO DAM >>
DIVIDE HYD          B6.1DIV1     7    7         .35460        363.95        21.842       1.15491     1.650     1.604
                    B6.1DIV2   and   22         .00000          .00          .000        .00000     -.050      .000
*S << TOTAL INTO BORREGA DAM >>
ADD HYD              110.20  7& 4   4        1.74810       2045.39       131.254       1.40783     1.600     1.828
*S
*S
*S ******************************************************
```

```
*S  BORREGA DAM PHASE "B' PER WCEA DESIGN
*S                      OUTFLOW      STORAGE      ELEV
*S                            0            0      4985
*S                          0.4         2.02      4986
```


COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
*S	4		7.94	4987							
*S	8		14.10	4988							
*S	14		20.51	4989							
*S	24		27.17	4990							
*S	36		34.08	4991							
*S	49		41.78	4992							
*S	69		50.84	4993							
*S	163		61.26	4994							
*S	174		73.20	4995							
*S	184		86.10	4996							
*S	191		99.30	4997							
*S	225		100.64	4997.1							
*S	1252		112.80	4998							
*S	3176		126.55	4999							
*S	5667		140.56	5000							
*S	8620		154.85	5001							
*S	11966		169.29	5002							
*S	15667		184.32	5003							
ROUTE RESERVOIR	BPOND.OUT	4	99	1.74810	184.95	115.283	1.23652	2.700	.165	AC-FT=	87.899
*S HYD=BPOND.OUT IS *****AP 51*****											
ROUTE MCUNGE	110.50	99	4	1.74810	184.94	115.091	1.23446	2.800	.165	CCODE =	.2
*S LH BASIN NO. 50111											
COMPUTE NM HYD	111.00	-	2	.03790	75.78	3.006	1.48691	1.500	3.124	PER IMP=	45.00
ADD HYD	BR_DMP1.HYD	4& 2	2	1.78600	186.15	118.097	1.23982	2.650	.163		
*S HYD=BR_DMP1.HYD IS *****AP 52*****											

```
 FINISH
(s10H
```

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =04/09/2000
INPUT FILE = X:\PUBLIC\PROJECTS\99099\AHYM\FUTURE\BOR_FUTU.DAT                        USER NO.= AHYMO-I-9702a01000C05-AH

                                FROM  TO                      PEAK          RUNOFF                TIME TO    CFS       PAGE =    1
                     HYDROGRAPH   ID    ID          AREA     DISCHARGE      VOLUME       RUNOFF      PEAK      PER
COMMAND        IDENTIFICATION     NO.   NO.       (SQ MI)     (CFS)        (AC-FT)     (INCHES)   (HOURS)    ACRE      NOTATION

START                                                                                                          TIME=        .00
*S << WILSON&COMPANY (WCEA) AHYMO ANALYSIS FOR DESIGN OF THE BORREGA DAM.
*S   BASED ON LEEDSHILL AHYMO MODEL FOR THE '99 AMOLE-HUBBELL DMP (A-H DMP).
*S   THE LEEDSHILL MODEL WAS BASED ON THE '92 BHI AHYMO MODEL.
*S
*S  FILENAME: BOR_FUTU.DAT
*S   BORREGA DAM PHASE "B", FUTURE CONDITIONS, FULL DEVELOPMENT, UNBULKED.
*S
*S  1. BORREGA WATERSHED FULLY DEVELOPED
*S  2. AM SW HOMES (BELL PROPERTY) IS DEVELOPED & ADDED TO BORREGA DAM.
*S  3. BASIN 50201 IS DEVELOPED & ADDED TO BORREGA DAM.
*S
*S*****************************************************************************
*S
*S*****************************************************************************
*S
*S      BORREGA WATERSHED
*S
*S
*S PMP LOCAL STORM
RAINFALL  TYPE= 3                                                                                              RAIN6=   16.000
*S*****************************************************************************
*S
*S COMPUTE FLOWS FROM SUB-BASIN B-2 OF RIO BRAVO
*S <<A-H AREA WAS 0.0754. WCEA REDUCED AREA TO 0.0445 BECAUSE THE RIO BRAVO
*S   BLVD EXTENSION DIVIDES THE BASIN >>
COMPUTE NM HYD        202.00   -     1        .04450       901.25       30.735      12.95028    2.250   31.645 PER IMP=  34.00
*S
*S ROUTE FLOWS TO POND 8
ROUTE MCUNGE          202.50    1   11        .04450       897.22       30.780      12.96923    2.300   31.504 CCODE =       .2
*S
*S COMPUTE HYDROGRAPH FOR B-4 (WEST) FROM RIO BRAVO REDUCE AREA TO 41 AC
COMPUTE NM HYD        204.00   -     1        .06410      1298.08       44.273      12.95027    2.250   31.642 PER IMP=  34.00
*S
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 202.5 TO THE FLOWS FROM SUB-BASIN 204
ADD HYD               204.10  1&11  11        .10860      2098.52       75.053      12.95803    2.250   30.193
*S
*S ROUTE FLOWS THROUGH POND 8
ROUTE RESERVOIR    POND8.OUT   11    80        .10860       221.17       75.053      12.95804    2.900    3.182 AC-FT=   91.185
*S
*S ROUTE FLOWS TO JUNCTION
*S << FLOW TO CULVERT CROSSING UNDER RIO BRAVO BLVD/118TH ST TO NE
*S   GETS ADDED TO RIO BRAVO CHAN N SIDE OF RIO BRAVO BLVD EXTENSION>>
ROUTE MCUNGE          RB_CULV   80   11        .10860       220.38       75.007      12.95010    3.000    3.171 CCODE =       .2
*S
*S*****************************************************************************
*S
*S COMPUTE FLOWS FROM SUB-BASIN 50104 FROM BORREGA (7B)
COMPUTE NM HYD        104.00   -     1        .03930       790.91       26.636      12.70823    2.250   31.445 PER IMP=  32.00
*S
*S ROUTE FLOWS TO POND 7
ROUTE MCUNGE          103.50    1   12        .03930       781.01       26.681      12.72932    2.300   31.052 CCODE =       .2
*S
*S COMPUTE FLOWS FROM SUB-BASIN 50103 FROM BORREGA (7K)
COMPUTE NM HYD        103.00   -     1        .05400      1089.89       37.044      12.86259    2.250   31.536 PER IMP=  35.00
```

```
*S
*S ROUTE FLOWS TO POND 7
```

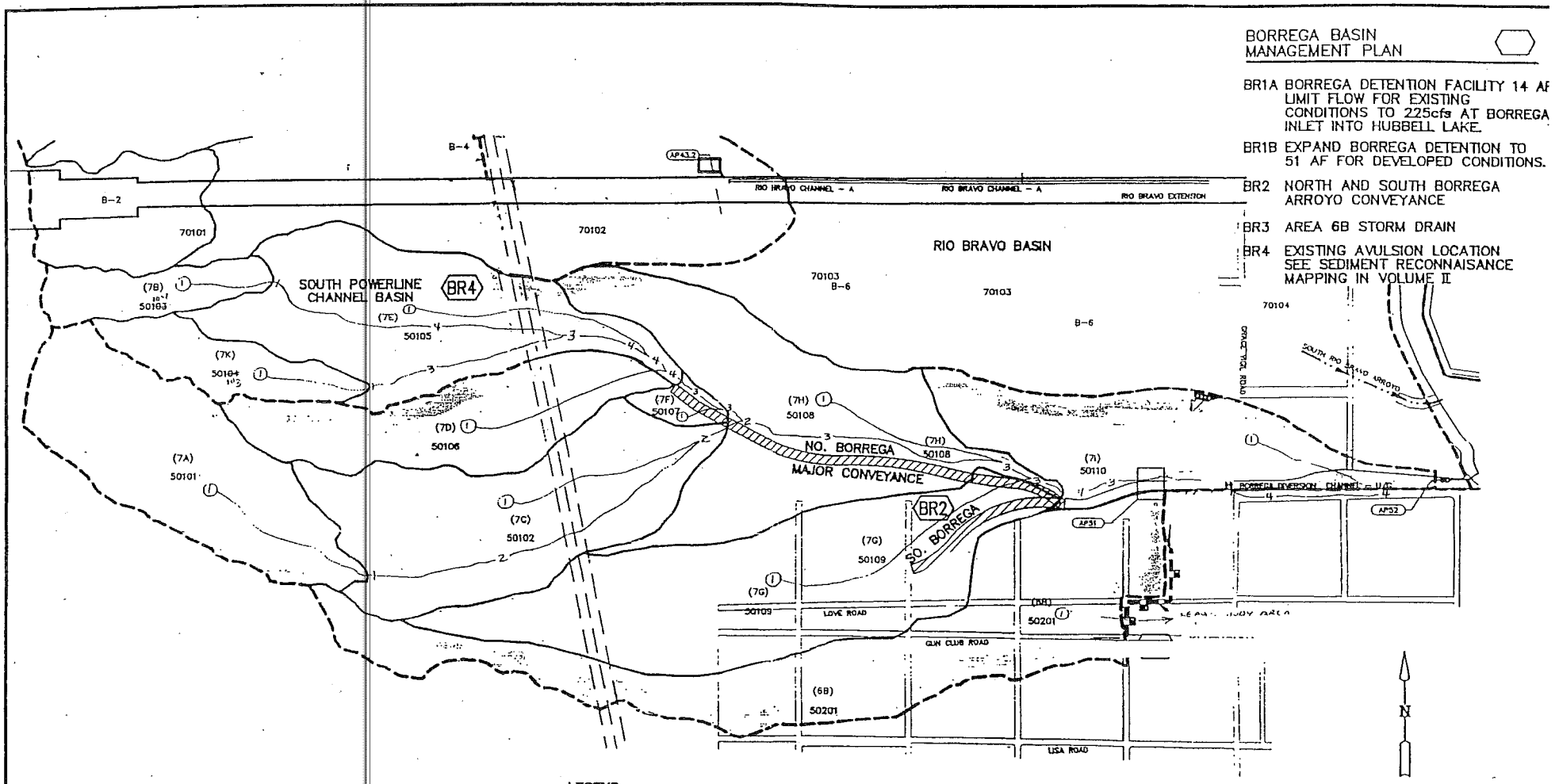
COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE MCUNGE	104.50	1	13	.05400	1049.28	37.084	12.87646	2.300	30.361	CCODE = .2
*S										
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 50103.5 TO THE ROUTED FLOWS										
ADD HYD	104.60	12&13	12	.09330	1830.29	63.765	12.81447	2.300	30.652	
*S										
*S COMPUTE FLOWS FROM SUB-BASIN 50105 (WEST) FROM BORREGA										
COMPUTE NM HYD	105W	-	1	.14130	2592.08	102.202	13.56188	2.250	28.663	PER IMP= 49.00
*S										
*S ADD THE ROUTED FLOWS FROM SUB-BASIN 50105 (WEST) TO THE ROUTED FLOWS										
ADD HYD	POND7.IN	1&12	12	.23460	4383.68	165.967	13.26463	2.300	29.197	
*S										
*S ROUTE FLOWS THROUGH POND 7										
ROUTE RESERVOIR	POND7.OUT	12	70	.23460	1341.27	165.960	13.26406	2.550	8.933	AC-FT= 68.063
*S										
*S ROUTE FLOWS IN 118TH ST CHAN TO N BORREGA CHAN INTAKE UNDER 118TH ST										
ROUTE MCUNGE	106.05	70	12	.23460	1339.51	165.956	13.26378	2.550	8.922	CCODE = .2
*S										
*S BASIN NO. 50106										
*S << BASIN CUT OFF AT 118TH/POWERLINE TO DIVERT SOUTH, CALCED NEW AREA & TP										
COMPUTE NM HYD	106.00	-	3	.08560	1640.71	61.914	13.56188	2.250	29.949	PER IMP= 49.00
*S										
*S ADD THE FLOW FROM SUB-BASIN 106 TO THE FLOW FROM POND7										
ADD HYD	106.10	3&12	3	.32020	2268.01	227.871	13.34347	2.300	11.067	
*S										
*S ROUTE FLOW THU PROPOSED N BORREGA CHAN TO 48" PIPE UPSTRM OF AVESTRUZ ST										
*S <<ASSUMED CONC CHANNEL SECTION, 2:1 SIDE SLOPES, 10' BOTTOM>>										
ROUTE MCUNGE	106.30	3	14	.32020	2268.01	227.871	13.34347	2.300	11.067	CCODE = .0
*S << PAAKWEREE BASIN C >>										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	BASIN_C	-	1	.01380	278.89	9.384	12.75063	2.250	31.578	PER IMP= 28.00
*S <<TOTAL FLOW IN CHAN UPSTRM OF 48" PIPE, AT AVESTRUZ ST										
ADD HYD	106.31	1&14	14	.33400	2507.40	237.255	13.31897	2.300	11.730	
*S << PAAKWEREE BASIN A >>										
COMPUTE NM HYD	BASIN_A	-	1	.05130	1020.90	32.264	11.79246	2.250	31.095	PER IMP= 5.00
*S <<TOTAL FLOW IN CHAN DNSTRM OF 48" PIPE, AT AVESTRUZ ST										
ADD HYD	105E.1	1&14	14	.38530	3385.87	269.520	13.11573	2.300	13.731	
ROUTE MCUNGE	106.33	14	13	.38530	3385.87	269.520	13.11573	2.300	13.731	CCODE = .0
*S LH BASIN NO. 50101										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	101.10	-	1	.15400	2726.09	108.509	13.21138	2.300	27.659	PER IMP= 42.00
ROUTE MCUNGE	201.10	1	10	.15400	2612.64	107.991	13.14820	2.400	26.508	CCODE = .1
*S LH BASIN NO. 50102										
*S << BASIN DIVIDED AT PAAKWEREE BNDRY, OLD AREA WAS 0.182 SQ MI >>										
COMPUTE NM HYD	102.10	-	1	.12770	2603.30	92.365	13.56187	2.250	31.853	PER IMP= 49.00
*S <<FLOW INTO THE UPSTREAM END OF THE CULVERT UNDER PAVO ST. >>										
ADD HYD	S_CULV	1&10	5	.28170	3853.85	200.356	13.33572	2.400	21.376	
*S << PAAKWEREE BASIN D >>										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	BASIN_D	-	1	.01440	294.45	10.416	13.56188	2.250	31.950	PER IMP= 49.00
ADD HYD	D1	5& 1	15	.29610	3993.71	210.771	13.34673	2.400	21.075	
*S <<FLOW IN CHAN DNSTRM OF 8X4 CBC>>										
ADD HYD	106.35	15&13	15	.68140	6968.10	480.291	13.21610	2.300	15.978	
ROUTE MCUNGE	106.40	15	3	.68140	6968.10	480.291	13.21610	2.300	15.978	CCODE = .0
*S << PAAKWEREE BASIN E >>										
COMPUTE NM HYD	BASIN_E	-	1	.01440	294.45	10.416	13.56188	2.250	31.950	PER IMP= 49.00
ADD HYD	106.50	3& 1	15	.69580	7220.36	490.706	13.22325	2.300	16.214	

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ROUTE MCUNGE	106.60	15	3	.69580	7220.36	490.706	13.22325	2.300	16.214	CCODE = .0
*S << PAAKWEREE BASIN B >>										
COMPUTE NM HYD	BASIN_B	-	1	.06410	1310.22	46.364	13.56187	2.250	31.938	PER IMP= 49.00
*S TOTAL FLOW IN PROPOSED N BORREGA CHANNEL AT PERDIZ ST>>										
ADD HYD	107.10	1& 3	2	.75990	8342.90	537.070	13.25182	2.300	17.155	
ROUTE MCUNGE	107.20	2	3	.75990	8342.90	537.070	13.25182	2.300	17.155	CCODE = .0
*S << PAAKWEREE BASIN F >>										
COMPUTE NM HYD	BASIN_F	-	1	.03360	686.89	24.303	13.56187	2.250	31.942	PER IMP= 49.00
ADD HYD	107.30	1& 3	2	.79350	8931.37	561.373	13.26495	2.300	17.587	
ROUTE MCUNGE	107.40	2	3	.79350	8931.37	561.373	13.26495	2.300	17.587	CCODE = .0
*S << PAAKWEREE BASIN G >>										
COMPUTE NM HYD	BASIN_G	-	1	.03520	719.60	25.460	13.56188	2.250	31.942	PER IMP= 49.00
*S TOTAL FLOW IN PROPOSED N BORREGA CHANNEL AT PARDAL ST>>										
ADD HYD	107.50	1& 3	2	.82870	9639.13	586.833	13.27755	2.250	18.174	
ROUTE MCUNGE	107.60	2	3	.82870	9639.13	586.833	13.27755	2.250	18.174	CCODE = .0
*S LH BASIN NO. 50108										
*S << HALF RESIDENTIAL/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	108.00	-	1	.08130	1192.66	53.700	12.38461	2.350	22.922	PER IMP= 25.00
*S << TOTAL FLOW DNSTREAM OF PAAKWEREE IN PROPOSED N BORREGA CHANNEL>>										
ADD HYD	108.30	1& 3	2	.91000	10643.19	640.532	13.19778	2.300	18.275	
ROUTE MCUNGE	108.40	2	3	.91000	10509.22	640.114	13.18916	2.350	18.045	CCODE = .1
*S LH BASIN NO. 50109										
COMPUTE NM HYD	109.10	-	1	.23440	3727.68	169.542	13.56187	2.300	24.849	PER IMP= 49.00
*S << FLOW IN PROPOSED N BORREGA ARROYO CHANNEL AT AP 109										
ADD HYD	109.30	1& 3	3	1.14440	14215.45	809.656	13.26551	2.300	19.409	
*S ROUTE FLOW ABOVE AP109 TO CONFLUENCE WITH BASIN 50201										
*S <<ASSUMED CONC CHANNEL SECTION, 2:1 SIDE SLOPES, 12' BOTTOM										
ROUTE MCUNGE	109.50	3	4	1.14440	14215.45	809.656	13.26551	2.300	19.409	CCODE = .0
*S LH BASIN NO. 50110										
*S <<CHANGED TO HALF RESID/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>										
COMPUTE NM HYD	110.00	-	1	.10180	2034.61	67.240	12.38461	2.250	31.229	PER IMP= 25.00
*S <<ADD 50110 TO CHANNEL. TOTAL CHANNEL FLOW TO DAM>>										
ADD HYD	110.10	1& 4	2	1.24620	15965.39	876.896	13.19355	2.300	20.018	
*S LH BASIN 50201										
COMPUTE NM HYD	201.00	-	1	.14730	2197.86	106.542	13.56187	2.350	23.314	PER IMP= 49.00
*S << BORREGA DIVERSION STORM DRAIN >>										
DIVIDE HYD	201DIV1	1	1	.05988	230.00	43.311	13.56188	2.150	6.002	
	201DIV2	and	21	.08742	1967.86	63.231	13.56188	2.350	35.173	
*S ADD 50201 TO DAM										
ADD HYD	110.15	1& 2	4	1.30608	16195.39	920.207	13.21043	2.300	19.375	
*S <<BASIN NO. 70102 (B-4 EAST) 44 ACRES>>										
COMPUTE NM HYD	B4EAST	-	6	.06770	1175.35	45.171	12.51057	2.300	27.127	PER IMP= 16.00
*S <<ROUTE B-4 EAST THROUGH B-6>>										
ROUTE MCUNGE	B4E.1	6	5	.06770	1169.13	45.262	12.53560	2.350	26.983	CCODE = .2
*S <<BASIN NO. 70103 (B-6) >>										
*S <<HALF RESID/HALF GOLF COURSE PROPOSED (BELL PROPERTY) >>										
COMPUTE NM HYD	B6	-	1	.28690	4168.26	189.501	12.38461	2.350	22.701	PER IMP= 25.00
*S <<TOTAL B-4 EAST AND B-6>>										
ADD HYD	B6.1	1& 5	7	.35460	5337.39	234.763	12.41344	2.350	23.519	
*S << PROPOSED FUTURE STORM DRAIN FROM BELL PROPERTY TO DAM >>										
DIVIDE HYD	B6.1DIV1	7	7	.11826	450.00	78.293	12.41344	2.150	5.946	
	B6.1DIV2	and	22	.23634	4887.39	156.470	12.41344	2.350	32.312	
*S << TOTAL INTO BORREGA DAM >>										
ADD HYD	110.20	7& 4	4	1.42434	16645.39	998.500	13.14426	2.300	18.260	
*S										
*S										
*S **********										

```
*S  BORREGA DAM PHASE "B' PER WCEA DESIGN
*S                      OUTFLOW      STORAGE      ELEV
*S                            0            0      4985
*S                          0.4         2.02      4986

                                  FROM  TO                    PEAK        RUNOFF                 TIME TO   CFS       PAGE =    4
                       HYDROGRAPH   ID   ID        AREA      DISCHARGE    VOLUME      RUNOFF       PEAK     PER
COMMAND          IDENTIFICATION    NO.  NO.     (SQ MI)      (CFS)      (AC-FT)    (INCHES)    (HOURS)   ACRE      NOTATION

*S                             4            7.94      4987
*S                             8           14.10      4988
*S                            14           20.51      4989
*S                            24           27.17      4990
*S                            36           34.08      4991
*S                            49           41.78      4992
*S                            69           50.84      4993
*S                           163           61.26      4994
*S                           174           73.20      4995
*S                           184           86.10      4996
*S                           191           99.30      4997
*S                           225          100.64      4997.1
*S                          1252          112.80      4998
*S                          3176          126.55      4999
*S                          5667          140.56      5000
*S                          8620          154.85      5001
*S                         11966          169.29      5002
*S                         15667          184.32      5003
ROUTE RESERVOIR      BPOND.OUT     4   99       1.42434     14948.60     984.919     12.96548     2.400    16.399 AC-FT=  181.403
*S HYD=BPOND.OUT IS *****AP 51*****
ROUTE MCUNGE             110.50    99    4       1.42434     14571.53     985.346     12.97110     2.450    15.985 CCODE =       .2
*S  LH BASIN NO. 50111
COMPUTE NM HYD           111.00    -     2        .03790       769.73      26.826     13.27138     2.250    31.733 PER IMP=  45.00
ADD HYD            BR_DMP1.HYD   4& 2   2       1.46224     14858.95    1012.172     12.97888     2.450    15.878
*S HYD=BR_DMP1.HYD IS *****AP 52*****
FINISH
(s10H
```



AMOLE-HUBBELL D.M.P.

BORREGA BASIN MANAGEMENT PLAN

FIGURE NO. III-12

PAAKWEREE VILLAGE DRAINAGE REPORT

AHYMO MAP
EXISTING CONDITIONS

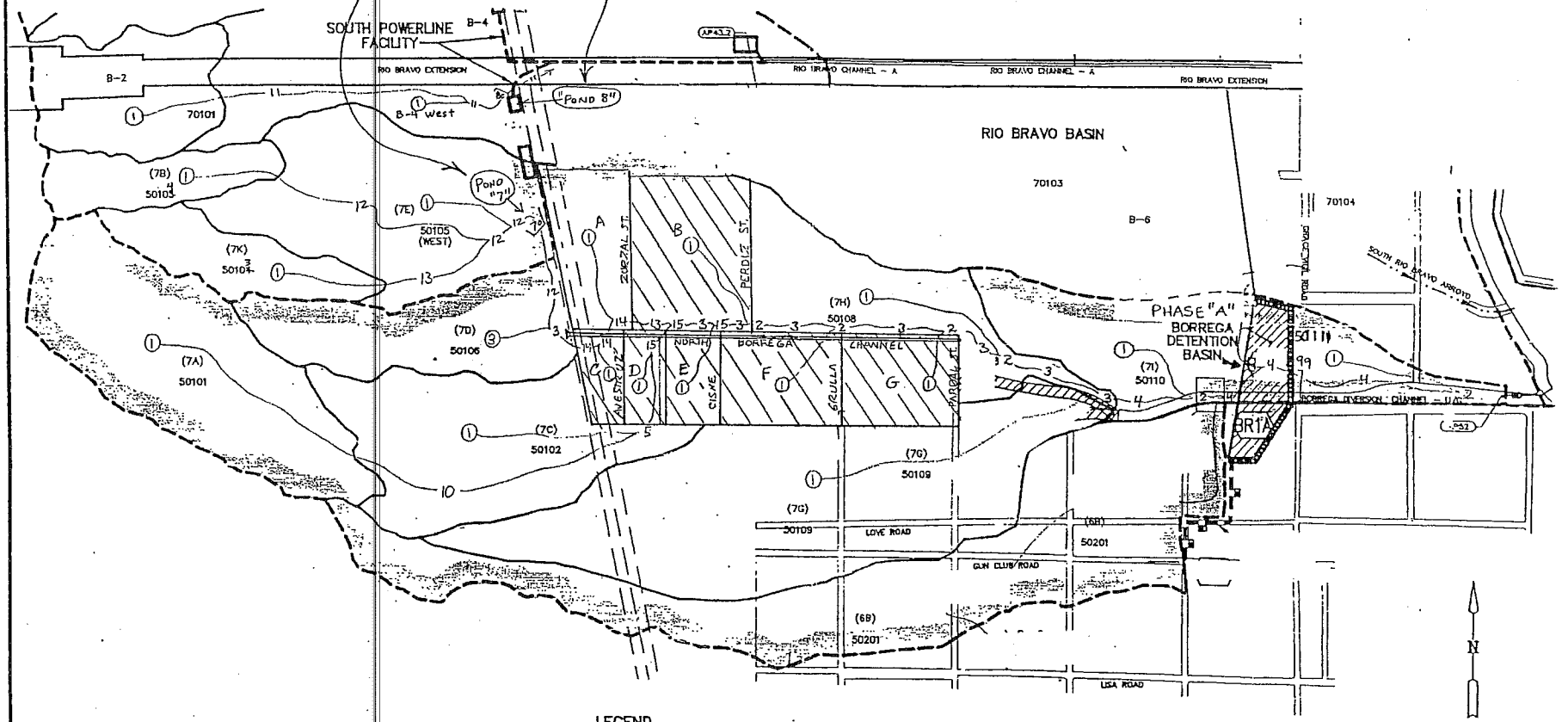
DESIGN	DRAWN	DATE
NM	NM	AUG 1999
FILE NO		
98088		

WILSON & COMPANY
4775 INDIAN SCHOOL ROAD NE
SUITE 200
ALBUQUERQUE, NEW MEXICO
87110
(505) 254-4000

LEEDSHILL-HERKENHOFF, INC.

P:\95043\95043_32\DWG\BORREGA-BASIN.dwg

NOTE: POST-PROJECT CONDITIONS PRECEDE INTERIM CONDITIONS, WITH SAME RUNOFF DIRECTIONS.
HOWEVER, IN POST-PROJECT CONDITIONS, THE ONLY FULLY DEVELOPED BASINS ARE PAAKWEREE, SHOWN AS ▨.
POND 7 AND POND 8 ARE NOT BUILT.



LEGEND
- DMP IMPROVEMENTS
- BASIN BOUNDARIES
- PLATTED EASEMENT/ROW
- SUBBASIN BOUNDARIES
- (AP43) HYDROLOGIC ANALYSIS POINT
- BASIN BOUNDARY THIS SHEET
- 60110 SUBBASIN ID NUMBER
- (SYX) PROJECT ID NUMBER

0 500' 1000' 2000'
1" = 1000'±

AMOLE-HUBBELL D.M.P.

BORREGA BASIN MANAGEMENT PLAN

FIGURE NO. III-12

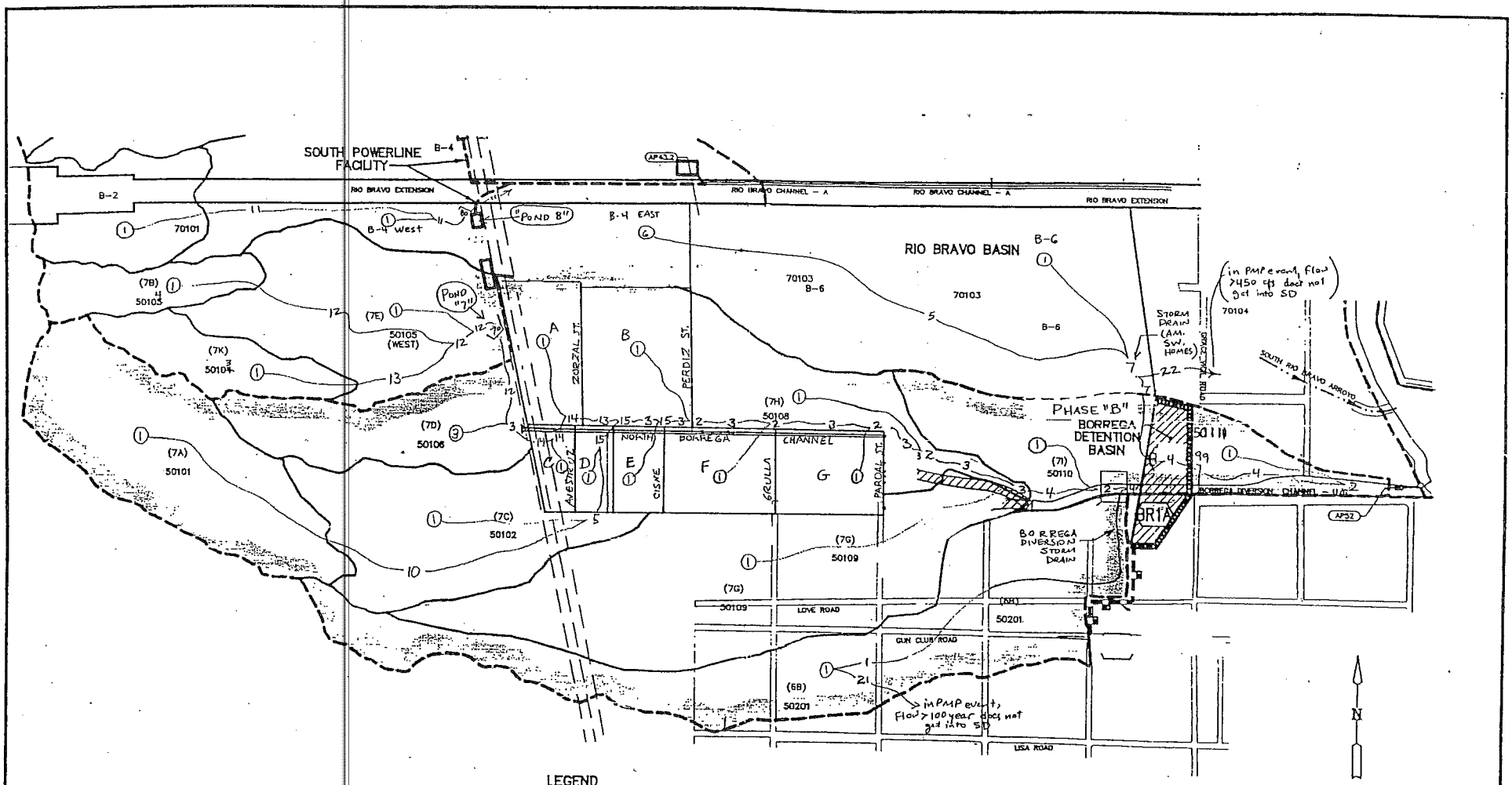
LEEDSHILL-HERKENHOFF, INC.

P: \95043\95043_32\DWG\C\BR-BASIN.dwg\12-17-98 KHK

PAAKWEREE VILLAGE DRAINAGE REPORT

AHYMO MAP
INTERIM CONDITIONS

DESIGN	DRAWN		DATE
NM	NM	WILSON & COMPANY 4775 INDIAN SCHOOL ROAD NE SUITE 200 ALBUQUERQUE, NEW MEXICO 87110 (505) 254-4000	AUG 1999
FILE NO. 98088			2 OF 3



LEGEND

- DMP IMPROVEMENTS
- BASIN BOUNDARIES
- PLATTED EASEMENT/ROW
- SUBBASIN BOUNDARIES
- (AP52) HYDROLOGIC ANALYSIS POINT
- BASIN BOUNDARY THIS SHEET
- 60110 SUBBASIN ID NUMBER
- (SY1) PROJECT ID NUMBER

0 500' 1000' 2000'

1" = 1000'±

AMOLE–HUBBELL D.M.P.

BORREGA BASIN MANAGEMENT PLAN

FIGURE NO. III–12

LEEDSHILL–HERKENHOFF, INC.

P:\95043\95043_32\DWG\C\BR-BASIN.dwg 12-17-98 KHK

PAAKWEREE VILLAGE DRAINAGE REPORT

AHYMO MAP
FUTURE CONDITIONS

DESIGN	DRAWN		DATE
NM	NM	WILSON & COMPANY	AUG 1999
FILE NO.		4775 INDIAN SCHOOL ROAD NE SUITE 200 ALBUQUERQUE, NEW MEXICO 87110 (505) 254-4000	3 OF 3
98088			

APPENDIX C

AHYMO OUTPUT
DEVELOPED CONDITIONS

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02d RUN DATE (MON/DAY/YR) =01/08/2007
INPUT FILE = D:\MYDOCU~1\CEJAVI~1\CEJAVI~1\CV6.DAT USER NO.= AHYMO-I-9702dGoodwinM-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
*S										
*S CEJA VISTA SUBDIVISION CITY PORTION										
*S										
*S										
*S 100-YR, 24-HR STORM WITH SEDIMENT										
*S FILE NAME: CEJA VISTA DEV.DAT (DEVELOPED CONDITIONS)										
*S BY: SCOTT MEDINA										
*S LAST REVISION: 10-02-06										
*S**********										
*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM THE CEJA VISTA										
*S SUBDIVISION FOR USE IN DETERMINATION OF DRAINAGE REQUIREMENTS FOR THE DEVELOP										
*S FLOW FROM THIS BASIN IS CONVEYED TO THE AMOLE DETENTION FACILITY										
*S VIA THE AMOLE ARROYO.										
*S										
*S**********										
*S ANALYSIS ASSUMPTIONS:										
*S**********										
*S 1. A BULKING FACTOR HAS BEEN ADDED TO EACH UNDEVELOPED SUB-BASIN. THE BULKIN										
*S FACTOR IS BASED ON LAND TREATMENT AND SLOPE.										
*S										
*S100 YEAR 24HR STORM EXISTING CONDITION										
RAINFALL TYPE= 2										RAIN24= 2.660
*S CALCULATE THE FLOW FROM BASIN APS 104.										
*S BASIN 104 IS MODELED AS UNDEVELOPED, BULK FLOWS 6.0%										
SEDIMENT BULK										PK BF = 1.06
COMPUTE NM HYD	APS104	-	1	.10150	92.63	2.573	.47533	1.500	1.426	PER IMP= .00
*S CALCULATE THE FLOW FROM BASIN 103 (UNIT 3).										
*S BASIN 103 MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	103.00	-	2	.04200	87.56	3.415	1.52461	1.500	3.257	PER IMP= 44.00
*S BASIN 103A (WESTSIDE OF 98TH) MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	101.00	-	3	.00020	.51	.022	2.10488	1.500	4.053	PER IMP= 80.00
*S ADD BASINS 103 AND 103A.										
ADD HYD	103.20	3& 2	4	.04220	88.07	3.437	1.52728	1.500	3.261	
*S**********										
*S BASIN 102A (EASTSIDE 98th/COMMERCIAL) MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	103.10	-	5	.01695	42.62	1.903	2.10487	1.500	3.929	PER IMP= 80.00
*S BASIN 102C(OPEN SPACE) MODELED AS UNDEVELOPED, BULK FLOWS 6%										
SEDIMENT BULK										PK BF = 1.06
COMPUTE NM HYD	102.00	-	6	.00600	5.74	.162	.50684	1.500	1.495	PER IMP= .00
*S ADD BASIN 102A TO BASIN 102C.										
ADD HYD	102.10	6& 5	7	.02295	48.36	2.065	1.68707	1.500	3.292	
*S CALCULATE THE FLOW FROM BASIN 102 (UNIT 2).										
*S BASIN 102 MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	102.00	-	8	.05700	117.47	4.537	1.49238	1.500	3.220	PER IMP= 42.00
*S ADD BASIN 102A TO BASIN 102.										
ADD HYD	102.10	7& 8	9	.07995	165.83	6.602	1.54826	1.500	3.241	
*S CALCULATE THE FLOW FROM BASIN 102D.										
*S BASIN 102D (UNSER BLVD) MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	101.00	-	10	.00049	1.24	.055	2.10488	1.500	3.973	PER IMP= 80.00
*S ADD BASIN 102D TO BASIN 102.										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 2 NOTATION
ADD HYD	102.10	10& 9	11	.08044	167.06	6.656	1.55162	1.500	3.245	
*S**********										
*S BASIN 103B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS, BULK FLOWS 6%										
SEDIMENT BULK										PK BF = 1.06
COMPUTE NM HYD	103.30	-	12	.01900	40.35	1.742	1.71860	1.500	3.318	PER IMP= 50.00
*S ROUTE FLOW FROM BASIN 103B THROUGH 24" RCP THROUGH UNIT 2.										
ROUTE	103.20	12	13	.01900	35.90	1.742	1.71863	1.650	2.952	
*S BASIN 102B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	102.30	-	14	.01270	27.39	1.098	1.62133	1.500	3.370	PER IMP= 50.00
*S ADD BASIN 102B TO BASIN 103B.										
ADD HYD	102.10	14&13	15	.03170	55.60	2.840	1.67962	1.550	2.741	
*S ROUTE FLOW FROM BASIN 102 COMBINED FLOW THROUGH 24" RCP THROUGH UNIT 1.										
ROUTE	102.20	15	16	.03170	53.92	2.840	1.67964	1.600	2.658	
*S**********										
*S BASIN 101 (UNIT 1) MODELED AS DEVELOPED										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	101.10	-	17	.05074	99.12	3.646	1.34731	1.500	3.052	PER IMP= 33.00
ROUTE RESERVOIR	POND.101	17	18	.05074	4.99	3.414	1.26172	2.250	.154	AC-FT= 2.742
*S ADD BASIN 101 TO DENNIS-CHAVEZ BASINS.										
ADD HYD	101.20	18&16	19	.08244	56.69	6.254	1.42241	1.600	1.074	
*S ROUTE FLOW FROM BASIN 101.1 COMBINED FLOW THROUGH 30" RCP THROUGH UNIT 1.										
ROUTE	102.20	19	20	.08244	54.54	6.249	1.42135	1.650	1.034	
*S BASIN 101B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS										
SEDIMENT BULK										PK BF = 1.00
COMPUTE NM HYD	101.30	-	21	.00346	7.47	.299	1.62133	1.500	3.375	PER IMP= 50.00
*S ADD BASIN 101B TO BASIN 101.										
ADD HYD	101.40	21&20	22	.08590	58.64	6.549	1.42940	1.650	1.067	
FINISH										

```
START                0.0 HOURS   PC=0  PL=-1
*S
*S      CEJA VISTA SUBDIVISION CITY PORTION
*S
*S
*S 100-YR, 24-HR STORM WITH SEDIMENT
*S FILE NAME: CEJA VISTA DEV.DAT  (DEVELOPED CONDITIONS)
*S BY: SCOTT MEDINA
*S LAST REVISION: 10-02-06
*S*************************************************************************
*S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM THE CEJA VISTA
*S SUBDIVISION FOR USE IN DETERMINATION OF DRAINAGE REQUIREMENTS FOR THE DEVELOPMENT.
*S FLOW FROM THIS BASIN IS CONVEYED TO THE AMOLE DETENTION FACILITY
*S VIA THE AMOLE ARROYO.
*S
*S*************************************************************************
*S ANALYSIS ASSUMPTIONS:
*S*************************************************************************
*S 1. A BULKING FACTOR HAS BEEN ADDED TO EACH UNDEVELOPED SUB-BASIN.  THE BULKING
*S    FACTOR IS BASED ON LAND TREATMENT AND SLOPE.
*S
*************************************************************************  6 HR ?
*************************************************************************
*S100 YEAR 24HR STORM EXISTING CONDITION
RAINFALL             TYPE=2  0.0  1.87  2.20  2.66    DT=0.05
** 10 YEAR 24HR STORM EXISTING CONDITION
**RAINFALL           TYPE=2  0.0  1.25  1.47  1.77    DT=0.05
**  2 YEAR 24HR STORM EXISTING CONDITION
**RAINFALL           TYPE=2  0.0  0.74  0.95  1.15    DT=0.05
*************************************************************************

*S CALCULATE THE FLOW FROM BASIN APS 104.
*S BASIN 104 IS MODELED AS UNDEVELOPED, BULK FLOWS 6.0%
SEDIMENT BULK            CODE=1  BF=1.06
COMPUTE NM HYD           ID=1  HYD=APS104  AREA=0.1015 SQ MI
                         A=95  B=5  C=0  D=0
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=1  CODE=1
*S CALCULATE THE FLOW FROM BASIN 103 (UNIT 3).
*S BASIN 103 MODELED AS DEVELOPED
SEDIMENT BULK            CODE=1  BF=1.00
COMPUTE NM HYD           ID=2  HYD=103  AREA=0.042 SQ MI
                         A=0  B=28  C=28  D=44
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=2  CODE=1
*S BASIN 103A (WESTSIDE OF 98TH) MODELED AS DEVELOPED
SEDIMENT BULK            CODE=1  BF=1.00
COMPUTE NM HYD           ID=3  HYD=101  AREA=0.0.00195 SQ MI
                         A=0  B=10  C=10  D=80
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=3  CODE=1
*S ADD BASINS 103 AND 103A.
ADD HYD                  ID=4  HYD=103.2  I=3  II=2
PRINT HYD                ID=4  CODE=1
*S*************************************************************
*S BASIN 102A (EASTSIDE 98th/COMMERCIAL) MODELED AS DEVELOPED
SEDIMENT BULK            CODE=1  BF=1.00
COMPUTE NM HYD           ID=5  HYD=103.1  AREA=0.01695 SQ MI
                         A=0  B=10  C=10  D=80
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=5  CODE=1
*S BASIN 102C(OPEN SPACE) MODELED AS UNDEVELOPED, BULK FLOWS 6%
SEDIMENT BULK            CODE=1  BF=1.06
COMPUTE NM HYD           ID=6  HYD=102  AREA=0.006 SQ MI
                         A=90  B=0  C=10  D=0
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=6  CODE=1
*S ADD BASIN 102A TO BASIN 102C.
ADD HYD                  ID=7  HYD=102.1  I=6  II=5
PRINT HYD                ID=7  CODE=1
*S CALCULATE THE FLOW FROM BASIN 102 (UNIT 2).
*S BASIN 102 MODELED AS DEVELOPED
SEDIMENT BULK            CODE=1  BF=1.00
COMPUTE NM HYD           ID=8  HYD=102  AREA=0.057 SQ MI
                         A=0  B=29  C=29  D=42
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=8  CODE=1
*S ADD BASIN 102A TO BASIN 102.
ADD HYD                  ID=9  HYD=102.1  I=7  II=8
PRINT HYD                ID=9  CODE=1
*S CALCULATE THE FLOW FROM BASIN 102D.
*S BASIN 102D (UNSER BLVD) MODELED AS DEVELOPED
SEDIMENT BULK            CODE=1  BF=1.00
COMPUTE NM HYD           ID=10  HYD=101  AREA=0.0.00486 SQ MI
                         A=0  B=10  C=10  D=80
                         TP=0.133   MASSRAIN=-1
PRINT HYD                ID=10  CODE=1
*S ADD BASIN 102D TO BASIN 102.
ADD HYD                  ID=11  HYD=102.1  I=10  II=9
PRINT HYD                ID=11  CODE=1
*S*************************************************************
*S BASIN 103B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS, BULK FLOWS 6%
```

APS 104, 1

U3 = 103, 2

98W = 101, 3

FLOW @ U3] U3 + 98W = 103.2 (4)

98E = 103.1, 5

0.6 = 102, 6

98E + OS = 102.1, (7)

U2 = 102, 8. (HYD # CHANGED AS OPENED 6A.)

U2 + 98E + OS = 102.1 (9)

UNSER 101, 10

U2 + 98E + OS + UNSER (11)

```
SEDIMENT BULK             CODE=1  BF=1.06
COMPUTE NM HYD            ID=12  HYD=103.3  AREA=0.019 SQ MI
                          A=0  B=25  C=25  D=50
                          TP=0.15   MASSRAIN=-1
PRINT HYD                 ID=12  CODE=1
*S ROUTE FLOW FROM BASIN 103B THROUGH 24" RCP THROUGH UNIT 2.
COMPUTE RATING CURVE      CID=1  VN=1  CODE=-1  S=0.02 D=24 N=0.014
COMPUTE TRAVEL TIME       ID=13  RN=1  NVS=1  L=2800  S=0.02
ROUTE                     ID=13  HYD=103.2  INFLOW ID=12  DT=0.0
PRINT HYD                 ID=13  CODE=1
*S BASIN 102B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS
SEDIMENT BULK             CODE=1  BF=1.00
COMPUTE NM HYD            ID=14  HYD=102.3  AREA=0.0127 SQ MI
                          A=0  B=25  C=25  D=50
                          TP=0.133   MASSRAIN=-1
PRINT HYD                 ID=14  CODE=1
*S ADD BASIN 102B TO BASIN 103B.
ADD HYD                   ID=15  HYD=102.1  I=14  II=13
PRINT HYD                 ID=15  CODE=1
*S ROUTE FLOW FROM BASIN 102 COMBINED FLOW THROUGH 24" RCP THROUGH UNIT 1.
COMPUTE RATING CURVE      CID=1  VN=1  CODE=-1  S=0.02 D=24 N=0.014
COMPUTE TRAVEL TIME       ID=16  RN=1  NVS=1  L=900  S=0.02
ROUTE                     ID=16  HYD=102.2  INFLOW ID=15  DT=0.0
PRINT HYD                 ID=16  CODE=1
*S*********************************************************
*S BASIN 101 (UNIT 1) MODELED AS DEVELOPED
SEDIMENT BULK             CODE=1  BF=1.00
COMPUTE NM HYD            ID=17  HYD=101.1  AREA=0.05074 SQ MI
                          A=0  B=33.5  C=33.5  D=33
                          TP=0.133   MASSRAIN=-1
PRINT HYD                 ID=17  CODE=1
ROUTE RESERVOIR           ID=18 HYD NO=POND.101 INFLOW ID=17  CODE=10

                          OUTFLOW(CFS)    STORAGE(AC-FT)   DEPTH(FT)

                               0.00            0.00           90.00
                               0.50            0.46           91.00
                               1.50            0.96           92.00
                               2.50            1.51           93.00
                               3.75            2.10           94.00
                               4.75            2.59           94.75
                               5.00            2.75           95.00
                              50.00            3.09           95.50

PRINT HYD                 ID=18 CODE=10
*S ADD BASIN 101 TO DENNIS-CHAVEZ BASINS.
ADD HYD                   ID=19  HYD=101.2  I=18  II=16
PRINT HYD                 ID=19  CODE=1
*S ROUTE FLOW FROM BASIN 101.1 COMBINED FLOW THROUGH 30" RCP THROUGH UNIT 1.
COMPUTE RATING CURVE      CID=1  VN=1  CODE=-1  S=0.015 D=30 N=0.014
COMPUTE TRAVEL TIME       ID=20  RN=1  NVS=1  L=2000  S=0.025
ROUTE                     ID=20  HYD=102.2  INFLOW ID=19  DT=0.0
PRINT HYD                 ID=20  CODE=1
*S BASIN 101B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS
SEDIMENT BULK             CODE=1  BF=1.00
COMPUTE NM HYD            ID=21  HYD=101.3  AREA=0.00346 SQ MI
                          A=0  B=25  C=25  D=50
                          TP=0.133   MASSRAIN=-1
PRINT HYD                 ID=21  CODE=1
*S ADD BASIN 101B TO BASIN 101.
ADD HYD                   ID=22  HYD=101.4  I=21  II=20
PRINT HYD                 ID=22  CODE=1

PUNCH HYD                 ID=22
FINISH
```

DEN. CHV. @ 103.3, 12
DC SD, NOT U2
DC (12) ROUTED INTO 103.2 DC SD (13)
DC E 102.3 14
D.C. FLOWS COMBINED (15)
COMBINED DC FLOWS (15) ROUTED THROUGH U1 INTO ??? TR. S. (16)
U1
DC. SD NOT U1
ONLY U1 TO POND
ADDS COMB. DC FLOW w/ RESERVOIR ??
TRACK S

□(s16.66H

```
      AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02d
           RUN DATE (MON/DAY/YR) = 01/08/2007
           START TIME (HR:MIN:SEC) = 07:40:12     USER NO.= AHYMO-I-9702dGoodwinM-AH
           INPUT FILE = D:\MYDOCU~1\CEJAVI~1\CEJAVI~1\CV6.DAT

   START              0.0 HOURS   PC=0  PL=-1
   *S
   *S      CEJA VISTA SUBDIVISION CITY PORTION
   *S
   *S
   *S 100-YR, 24-HR STORM WITH SEDIMENT
   *S FILE NAME: CEJA VISTA DEV.DAT  (DEVELOPED CONDITIONS)
   *S BY: SCOTT MEDINA
   *S LAST REVISION: 10-02-06
   *S*************************************************************************
   *S THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF FROM THE CEJA VISTA
   *S SUBDIVISION FOR USE IN DETERMINATION OF DRAINAGE REQUIREMENTS FOR THE DEVELOP
   *S FLOW FROM THIS BASIN IS CONVEYED TO THE AMOLE DETENTION FACILITY
   *S VIA THE AMOLE ARROYO.
   *S
   *S*************************************************************************
   *S ANALYSIS ASSUMPTIONS:
   *S*************************************************************************
   *S 1. A BULKING FACTOR HAS BEEN ADDED TO EACH UNDEVELOPED SUB-BASIN.  THE BULKIN
   *S    FACTOR IS BASED ON LAND TREATMENT AND SLOPE.
   *S
   ************************************************************************
   ************************************************************************
   *S100 YEAR 24HR STORM EXISTING CONDITION
   RAINFALL             TYPE=2  0.0  1.87  2.20  2.66    DT=0.05

                  COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =    .050000 HOURS       END TIME =    24.000000 HOURS
                     .0000   .0025   .0050   .0076   .0103   .0131   .0160
                     .0190   .0222   .0254   .0289   .0324   .0362   .0401
                     .0443   .0487   .0534   .0584   .0637   .0695   .0758
                     .0837   .0924   .1176   .1773   .2798   .4384   .6668
                     .9790  1.2253  1.3366  1.4295  1.5109  1.5836  1.6495
                    1.7096  1.7648  1.8156  1.8624  1.9057  1.9458  1.9548
                    1.9631  1.9708  1.9780  1.9848  1.9912  1.9973  2.0031
                    2.0087  2.0140  2.0191  2.0240  2.0287  2.0333  2.0377
                    2.0420  2.0462  2.0502  2.0542  2.0580  2.0617  2.0653
                    2.0689  2.0724  2.0757  2.0791  2.0823  2.0855  2.0886
                    2.0916  2.0946  2.0976  2.1005  2.1033  2.1061  2.1088
                    2.1115  2.1142  2.1168  2.1193  2.1219  2.1244  2.1268
                    2.1293  2.1316  2.1340  2.1363  2.1386  2.1409  2.1431
                    2.1453  2.1475  2.1497  2.1518  2.1539  2.1560  2.1580
                    2.1601  2.1621  2.1641  2.1660  2.1680  2.1699  2.1718
                    2.1737  2.1756  2.1774  2.1793  2.1811  2.1829  2.1847
                    2.1864  2.1882  2.1899  2.1916  2.1933  2.1950  2.1967
                    2.1984  2.2000  2.2020  2.2039  2.2059  2.2078  2.2097
                    2.2117  2.2136  2.2155  2.2174  2.2193  2.2212  2.2231
                    2.2249  2.2268  2.2287  2.2305  2.2324  2.2342  2.2361
                    2.2379  2.2398  2.2416  2.2434  2.2452  2.2470  2.2488
                    2.2506  2.2524  2.2542  2.2559  2.2577  2.2595  2.2612
                    2.2630  2.2647  2.2665  2.2682  2.2700  2.2717  2.2734
                    2.2751  2.2768  2.2785  2.2802  2.2819  2.2836  2.2853
                    2.2870  2.2887  2.2903  2.2920  2.2937  2.2953  2.2970
                    2.2986  2.3002  2.3019  2.3035  2.3051  2.3068  2.3084
                    2.3100  2.3116  2.3132  2.3148  2.3164  2.3180  2.3196
                    2.3212  2.3227  2.3243  2.3259  2.3274  2.3290  2.3305
                    2.3321  2.3336  2.3352  2.3367  2.3383  2.3398  2.3413
                    2.3428  2.3444  2.3459  2.3474  2.3489  2.3504  2.3519
                    2.3534  2.3549  2.3563  2.3578  2.3593  2.3608  2.3622
                    2.3637  2.3652  2.3666  2.3681  2.3695  2.3710  2.3724
                    2.3739  2.3753  2.3767  2.3782  2.3796  2.3810  2.3824
                    2.3839  2.3853  2.3867  2.3881  2.3895  2.3909  2.3923
                    2.3937  2.3951  2.3965  2.3978  2.3992  2.4006  2.4020
                    2.4033  2.4047  2.4061  2.4074  2.4088  2.4101  2.4115
                    2.4128  2.4142  2.4155  2.4168  2.4182  2.4195  2.4208
                    2.4222  2.4235  2.4248  2.4261  2.4274  2.4287  2.4300
                    2.4314  2.4327  2.4340  2.4352  2.4365  2.4378  2.4391
                    2.4404  2.4417  2.4430  2.4442  2.4455  2.4468  2.4480
                    2.4493  2.4506  2.4518  2.4531  2.4543  2.4556  2.4568
                    2.4581  2.4593  2.4606  2.4618  2.4630  2.4643  2.4655
                    2.4667  2.4680  2.4692  2.4704  2.4716  2.4728  2.4740
                    2.4753  2.4765  2.4777  2.4789  2.4801  2.4813  2.4825
                    2.4837  2.4849  2.4860  2.4872  2.4884  2.4896  2.4908
                    2.4919  2.4931  2.4943  2.4955  2.4966  2.4978  2.4990
                    2.5001  2.5013  2.5024  2.5036  2.5047  2.5059  2.5070
                    2.5082  2.5093  2.5105  2.5116  2.5127  2.5139  2.5150
                    2.5161  2.5172  2.5184  2.5195  2.5206  2.5217  2.5229
                    2.5240  2.5251  2.5262  2.5273  2.5284  2.5295  2.5306
                    2.5317  2.5328  2.5339  2.5350  2.5361  2.5372  2.5383
                    2.5394  2.5404  2.5415  2.5426  2.5437  2.5448  2.5458
                    2.5469  2.5480  2.5490  2.5501  2.5512  2.5522  2.5533
                    2.5544  2.5554  2.5565  2.5575  2.5586  2.5596  2.5607
                    2.5617  2.5628  2.5638  2.5649  2.5659  2.5669  2.5680
                    2.5690  2.5700  2.5711  2.5721  2.5731  2.5741  2.5752
                    2.5762  2.5772  2.5782  2.5792  2.5803  2.5813  2.5823
```

```
2.5833  2.5843  2.5853  2.5863  2.5873  2.5883  2.5893
2.5903  2.5913  2.5923  2.5933  2.5943  2.5953  2.5963
2.5973  2.5982  2.5992  2.6002  2.6012  2.6022  2.6031
2.6041  2.6051  2.6061  2.6070  2.6080  2.6090  2.6099
2.6109  2.6119  2.6128  2.6138  2.6148  2.6157  2.6167
2.6176  2.6186  2.6195  2.6205  2.6214  2.6224  2.6233
2.6243  2.6252  2.6261  2.6271  2.6280  2.6290  2.6299
2.6308  2.6318  2.6327  2.6336  2.6346  2.6355  2.6364
2.6373  2.6383  2.6392  2.6401  2.6410  2.6419  2.6428
2.6438  2.6447  2.6456  2.6465  2.6474  2.6483  2.6492
2.6501  2.6510  2.6519  2.6528  2.6537  2.6546  2.6555
2.6564  2.6573  2.6582  2.6591  2.6600

** 10 YEAR 24HR STORM EXISTING CONDITION
**RAINFALL            TYPE=2  0.0  1.25  1.47  1.77    DT=0.05
**  2 YEAR 24HR STORM EXISTING CONDITION
**RAINFALL            TYPE=2  0.0  0.74  0.95  1.15    DT=0.05
*******************************************************************************

*S CALCULATE THE FLOW FROM BASIN APS 104.
*S BASIN 104 IS MODELED AS UNDEVELOPED, BULK FLOWS 6.0%
SEDIMENT BULK           CODE=1  BF=1.06
COMPUTE NM HYD          ID=1  HYD=APS104  AREA=0.1015 SQ MI
                        A=95  B=5  C=0  D=0
                        TP=0.133   MASSRAIN=-1

     K =   .157169HR    TP =   .133000HR    K/TP RATIO =  1.181723     SHAPE CONSTANT, N =  3.003365
     UNIT PEAK =   215.28    CFS   UNIT VOLUME =    .9989       B =   282.10      P60 = 1.8700
     AREA =      .101500 SQ MI    IA =    .64250 INCHES    INF =   1.64900 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.06000 AT PEAK FLOW.

PRINT HYD               ID=1  CODE=1

                                    HYDROGRAPH FROM AREA APS104


    RUNOFF VOLUME =      .47533 INCHES     =       2.5731 ACRE-FEET
    PEAK DISCHARGE RATE =      92.63 CFS  AT   1.500 HOURS   BASIN AREA =   .1015 SQ. MI.


*S CALCULATE THE FLOW FROM BASIN 103 (UNIT 3).
*S BASIN 103 MODELED AS DEVELOPED
SEDIMENT BULK           CODE=1  BF=1.00
COMPUTE NM HYD          ID=2  HYD=103  AREA=0.042 SQ MI
                        A=0  B=28  C=28  D=44
                        TP=0.133   MASSRAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   73.125    CFS   UNIT VOLUME =    .9990       B =   526.28      P60 = 1.8700
     AREA =      .018480 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .118163HR    TP =   .133000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   62.720    CFS   UNIT VOLUME =    1.001       B =   354.67      P60 = 1.8700
     AREA =      .023520 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD               ID=2  CODE=1

                                  PARTIAL HYDROGRAPH   103.00


    RUNOFF VOLUME =     1.52461 INCHES     =       3.4151 ACRE-FEET
    PEAK DISCHARGE RATE =      87.56 CFS  AT   1.500 HOURS   BASIN AREA =   .0420 SQ. MI.


*S BASIN 103A (WESTSIDE OF 98TH) MODELED AS DEVELOPED
SEDIMENT BULK           CODE=1  BF=1.00
COMPUTE NM HYD          ID=3  HYD=101  AREA=0.0.00195 SQ MI
                        A=0  B=10  C=10  D=80
                        TP=0.133   MASSRAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   .61729    CFS   UNIT VOLUME =    .9834       B =   526.28      P60 = 1.8700
     AREA =      .000156 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .118163HR    TP =   .133000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   .10400    CFS   UNIT VOLUME =    .8745       B =   354.67      P60 = 1.8700
     AREA =      .000039 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD               ID=3  CODE=1

                                  PARTIAL HYDROGRAPH   101.00
```

```
    RUNOFF VOLUME =      2.10488 INCHES     =         .0219 ACRE-FEET
    PEAK DISCHARGE RATE =         .51 CFS  AT   1.500 HOURS   BASIN AREA =    .0002 SQ. MI.


*S ADD BASINS 103 AND 103A.
ADD HYD                 ID=4  HYD=103.2  I=3  II=2
PRINT HYD               ID=4  CODE=1

                                  PARTIAL HYDROGRAPH   103.20

    RUNOFF VOLUME =      1.52728 INCHES     =        3.4370 ACRE-FEET
    PEAK DISCHARGE RATE =       88.07 CFS  AT   1.500 HOURS   BASIN AREA =    .0422 SQ. MI.


*S*******************************************************
*S BASIN 102A (EASTSIDE 98th/COMMERCIAL) MODELED AS DEVELOPED
SEDIMENT BULK           CODE=1  BF=1.00
COMPUTE NM HYD          ID=5  HYD=103.1  AREA=0.01695 SQ MI
                        A=0  B=10  C=10  D=80
                        TP=0.133   MASSRAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   53.656    CFS   UNIT VOLUME =     .9989       B =   526.28       P60 = 1.8700
     AREA =       .013560 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000


     K =   .118163HR    TP =   .133000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   9.0400    CFS   UNIT VOLUME =     .9999       B =   354.67       P60 = 1.8700
     AREA =       .003390 SQ MI    IA =     .42500 INCHES    INF =    1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

PRINT HYD               ID=5  CODE=1

                                  PARTIAL HYDROGRAPH   103.10

    RUNOFF VOLUME =      2.10487 INCHES     =        1.9028 ACRE-FEET
    PEAK DISCHARGE RATE =       42.62 CFS  AT   1.500 HOURS   BASIN AREA =    .0170 SQ. MI.


*S BASIN 102C(OPEN SPACE) MODELED AS UNDEVELOPED, BULK FLOWS 6%
SEDIMENT BULK           CODE=1  BF=1.06
COMPUTE NM HYD          ID=6  HYD=102  AREA=0.006 SQ MI
                        A=90  B=0  C=10  D=0
                        TP=0.133   MASSRAIN=-1

     K =   .157547HR    TP =   .133000HR    K/TP RATIO =  1.184562     SHAPE CONSTANT, N =  2.996709
     UNIT PEAK =   12.702    CFS   UNIT VOLUME =     .9978       B =   281.55       P60 = 1.8700
     AREA =       .006000 SQ MI    IA =     .62000 INCHES    INF =    1.58600 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.06000 AT PEAK FLOW.

PRINT HYD               ID=6  CODE=1

                                  PARTIAL HYDROGRAPH   102.00

    RUNOFF VOLUME =       .50684 INCHES     =         .1622 ACRE-FEET
    PEAK DISCHARGE RATE =        5.74 CFS  AT   1.500 HOURS   BASIN AREA =    .0060 SQ. MI.


*S ADD BASIN 102A TO BASIN 102C.
ADD HYD                 ID=7  HYD=102.1  I=6  II=5
PRINT HYD               ID=7  CODE=1

                                  PARTIAL HYDROGRAPH   102.10

    RUNOFF VOLUME =      1.68707 INCHES     =        2.0650 ACRE-FEET
    PEAK DISCHARGE RATE =       48.36 CFS  AT   1.500 HOURS   BASIN AREA =    .0230 SQ. MI.


*S CALCULATE THE FLOW FROM BASIN 102 (UNIT 2).
*S BASIN 102 MODELED AS DEVELOPED
SEDIMENT BULK           CODE=1  BF=1.00
COMPUTE NM HYD          ID=8  HYD=102  AREA=0.057 SQ MI
                        A=0  B=29  C=29  D=42
                        TP=0.133   MASSRAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   94.730    CFS   UNIT VOLUME =     .9990       B =   526.28       P60 = 1.8700
     AREA =       .023940 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000
```

```
     K =   .118163HR    TP =   .133000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   88.160    CFS   UNIT VOLUME =    1.001       B =   354.67      P60 = 1.8700
     AREA =      .033060 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD               ID=8  CODE=1

                                  PARTIAL HYDROGRAPH   102.00


    RUNOFF VOLUME =     1.49238 INCHES     =       4.5368 ACRE-FEET
    PEAK DISCHARGE RATE =     117.47 CFS  AT   1.500 HOURS   BASIN AREA =   .0570 SQ. MI.


*S ADD BASIN 102A TO BASIN 102.
ADD HYD                 ID=9  HYD=102.1  I=7  II=8
PRINT HYD               ID=9  CODE=1

                                  PARTIAL HYDROGRAPH   102.10


    RUNOFF VOLUME =     1.54826 INCHES     =       6.6017 ACRE-FEET
    PEAK DISCHARGE RATE =     165.83 CFS  AT   1.500 HOURS   BASIN AREA =   .0800 SQ. MI.


*S CALCULATE THE FLOW FROM BASIN 102D.
*S BASIN 102D (UNSER BLVD) MODELED AS DEVELOPED
SEDIMENT BULK           CODE=1  BF=1.00
COMPUTE NM HYD          ID=10  HYD=101  AREA=0.0.00486 SQ MI
                        A=0  B=10  C=10  D=80
                        TP=0.133   MASSRAIN=-1

     K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   1.5385    CFS   UNIT VOLUME =    .9928       B =   526.28      P60 = 1.8700
     AREA =      .000389 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .118163HR    TP =   .133000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   .25920    CFS   UNIT VOLUME =    .9540       B =   354.67      P60 = 1.8700
     AREA =      .000097 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD               ID=10  CODE=1

                                  PARTIAL HYDROGRAPH   101.00


    RUNOFF VOLUME =     2.10488 INCHES     =        .0546 ACRE-FEET
    PEAK DISCHARGE RATE =       1.24 CFS  AT   1.500 HOURS   BASIN AREA =   .0005 SQ. MI.


*S ADD BASIN 102D TO BASIN 102.
ADD HYD                 ID=11  HYD=102.1  I=10  II=9
PRINT HYD               ID=11  CODE=1

                                  PARTIAL HYDROGRAPH   102.10


    RUNOFF VOLUME =     1.55162 INCHES     =       6.6563 ACRE-FEET
    PEAK DISCHARGE RATE =     167.06 CFS  AT   1.500 HOURS   BASIN AREA =   .0804 SQ. MI.


*S*********************************************************
*S BASIN 103B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS, BULK FLOWS 6%
SEDIMENT BULK           CODE=1  BF=1.06
COMPUTE NM HYD          ID=12  HYD=103.3  AREA=0.019 SQ MI
                        A=0  B=25  C=25  D=50
                        TP=0.15   MASSRAIN=-1

     K =   .081750HR    TP =   .150000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   33.331    CFS   UNIT VOLUME =    1.000       B =   526.28      P60 = 1.8700
     AREA =      .009500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


     K =   .133266HR    TP =   .150000HR    K/TP RATIO =   .888442     SHAPE CONSTANT, N =  3.992480
     UNIT PEAK =   22.462    CFS   UNIT VOLUME =    .9999       B =   354.67      P60 = 1.8700
     AREA =      .009500 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.06000 AT PEAK FLOW.

PRINT HYD               ID=12  CODE=1

                                  PARTIAL HYDROGRAPH   103.30
```

RUNOFF VOLUME = 1.71860 INCHES = 1.7415 ACRE-FEET
PEAK DISCHARGE RATE = 40.35 CFS AT 1.500 HOURS BASIN AREA = .0190 SQ. MI.

*S ROUTE FLOW FROM BASIN 103B THROUGH 24" RCP THROUGH UNIT 2.
COMPUTE RATING CURVE CID=1 VN=1 CODE=-1 S=0.02 D=24 N=0.014

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.16	.89
.21	.17	.68	1.22
.31	.31	1.57	1.45
.42	.47	2.83	1.62
.52	.65	4.42	1.76
.63	.84	6.30	1.85
.73	1.04	8.44	1.93
.83	1.24	10.79	1.97
.94	1.45	13.31	2.00
1.04	1.66	15.92	2.00
1.15	1.86	18.59	2.00
1.25	2.07	21.24	2.00
1.35	2.27	23.81	2.00
1.46	2.46	26.21	2.00
1.56	2.63	28.36	2.00
1.67	2.80	30.15	2.00
1.77	2.94	31.43	2.00
1.88	3.06	31.96	2.00
2.00	3.14	31.96	2.00

COMPUTE TRAVEL TIME ID=13 RN=1 NVS=1 L=2800 S=0.02

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.16	.3117
.208	.174	.68	.1997
.313	.314	1.57	.1552
.417	.475	2.83	.1305
.521	.651	4.42	.1147
.625	.839	6.30	.1036
.730	1.037	8.44	.0955
.834	1.240	10.79	.0893
.938	1.447	13.31	.0846
1.042	1.655	15.92	.0808
1.146	1.863	18.59	.0779
1.251	2.067	21.24	.0757
1.355	2.265	23.81	.0740
1.459	2.456	26.21	.0729
1.563	2.635	28.36	.0723
1.668	2.799	30.15	.0722
1.772	2.943	31.43	.0728
1.876	3.061	31.96	.0745
2.000	3.142	31.96	.0765

ROUTE ID=13 HYD=103.2 INFLOW ID=12 DT=0.0
TRAVEL TIME TABLE EXCEEDED
PRINT HYD ID=13 CODE=1

PARTIAL HYDROGRAPH 103.20

RUNOFF VOLUME = 1.71863 INCHES = 1.7415 ACRE-FEET
PEAK DISCHARGE RATE = 35.90 CFS AT 1.650 HOURS BASIN AREA = .0190 SQ. MI.

*S BASIN 102B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS
SEDIMENT BULK CODE=1 BF=1.00
COMPUTE NM HYD ID=14 HYD=102.3 AREA=0.0127 SQ MI
A=0 B=25 C=25 D=50
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 25.127 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.8700
AREA = .006350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 16.933 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .006350 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=14 CODE=1

PARTIAL HYDROGRAPH 102.30

RUNOFF VOLUME = 1.62133 INCHES = 1.0982 ACRE-FEET
PEAK DISCHARGE RATE = 27.39 CFS AT 1.500 HOURS BASIN AREA = .0127 SQ. MI.

*S ADD BASIN 102B TO BASIN 103B.
ADD HYD ID=15 HYD=102.1 I=14 II=13
PRINT HYD ID=15 CODE=1

PARTIAL HYDROGRAPH 102.10

RUNOFF VOLUME = 1.67962 INCHES = 2.8397 ACRE-FEET
PEAK DISCHARGE RATE = 55.60 CFS AT 1.550 HOURS BASIN AREA = .0317 SQ. MI.

*S ROUTE FLOW FROM BASIN 102 COMBINED FLOW THROUGH 24" RCP THROUGH UNIT 1.
COMPUTE RATING CURVE CID=1 VN=1 CODE=-1 S=0.02 D=24 N=0.014

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.10	.06	.16	.89
.21	.17	.68	1.22
.31	.31	1.57	1.45
.42	.47	2.83	1.62
.52	.65	4.42	1.76
.63	.84	6.30	1.85
.73	1.04	8.44	1.93
.83	1.24	10.79	1.97
.94	1.45	13.31	2.00
1.04	1.66	15.92	2.00
1.15	1.86	18.59	2.00
1.25	2.07	21.24	2.00
1.35	2.27	23.81	2.00
1.46	2.46	26.21	2.00
1.56	2.63	28.36	2.00
1.67	2.80	30.15	2.00
1.77	2.94	31.43	2.00
1.88	3.06	31.96	2.00
2.00	3.14	31.96	2.00

COMPUTE TRAVEL TIME ID=16 RN=1 NVS=1 L=900 S=0.02

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.104	.062	.16	.1002
.208	.174	.68	.0642
.313	.314	1.57	.0499
.417	.475	2.83	.0419
.521	.651	4.42	.0369
.625	.839	6.30	.0333
.730	1.037	8.44	.0307
.834	1.240	10.79	.0287
.938	1.447	13.31	.0272
1.042	1.655	15.92	.0260
1.146	1.863	18.59	.0250
1.251	2.067	21.24	.0243
1.355	2.265	23.81	.0238
1.459	2.456	26.21	.0234
1.563	2.635	28.36	.0232
1.668	2.799	30.15	.0232
1.772	2.943	31.43	.0234
1.876	3.061	31.96	.0239
2.000	3.142	31.96	.0246

ROUTE ID=16 HYD=102.2 INFLOW ID=15 DT=0.0
TRAVEL TIME TABLE EXCEEDED
PRINT HYD ID=16 CODE=1

PARTIAL HYDROGRAPH 102.20

RUNOFF VOLUME = 1.67964 INCHES = 2.8397 ACRE-FEET
PEAK DISCHARGE RATE = 53.92 CFS AT 1.600 HOURS BASIN AREA = .0317 SQ. MI.

*S**********
*S BASIN 101 (UNIT 1) MODELED AS DEVELOPED
SEDIMENT BULK CODE=1 BF=1.00
COMPUTE NM HYD ID=17 HYD=101.1 AREA=0.05074 SQ MI
A=0 B=33.5 C=33.5 D=33
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 66.256 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8700
AREA = .016744 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 90.656 CFS UNIT VOLUME = 1.001 B = 354.67 P60 = 1.8700
AREA = .033996 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=17 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.34731 INCHES = 3.6460 ACRE-FEET
PEAK DISCHARGE RATE = 99.12 CFS AT 1.500 HOURS BASIN AREA = .0507 SQ. MI.

ROUTE RESERVOIR ID=18 HYD NO=POND.101 INFLOW ID=17 CODE=10

OUTFLOW(CFS)	STORAGE(AC-FT)	DEPTH(FT)
0.00	0.00	90.00
0.50	0.46	91.00
1.50	0.96	92.00
2.50	1.51	93.00
3.75	2.10	94.00
4.75	2.59	94.75
5.00	2.75	95.00
50.00	3.09	95.50

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	90.00	.000	.00
.50	.00	90.00	.000	.00
1.00	.00	90.00	.000	.00
1.50	99.12	91.95	.937	1.45
2.00	16.39	94.81	2.630	4.81
2.50	2.58	94.95	2.717	4.95
3.00	.81	94.73	2.578	4.73
3.50	.40	94.48	2.413	4.39
4.00	.30	94.23	2.252	4.06
4.50	.27	94.00	2.102	3.75
5.00	.29	93.77	1.965	3.46
5.50	.32	93.56	1.840	3.20
6.00	.35	93.37	1.726	2.96
6.50	.41	93.19	1.625	2.74
7.00	.40	93.04	1.532	2.55
7.50	.39	92.89	1.447	2.39
8.00	.38	92.74	1.367	2.24
8.50	.37	92.60	1.293	2.10
9.00	.35	92.48	1.223	1.98
9.50	.35	92.36	1.158	1.86
10.00	.34	92.25	1.098	1.75
10.50	.33	92.15	1.041	1.65
11.00	.32	92.05	.988	1.55
11.50	.31	91.96	.939	1.46
12.00	.30	91.87	.893	1.37
12.50	.29	91.78	.851	1.28
13.00	.29	91.70	.812	1.20
13.50	.28	91.63	.775	1.13
14.00	.27	91.56	.741	1.06
14.50	.27	91.50	.710	1.00
15.00	.26	91.44	.681	.94
15.50	.26	91.39	.654	.89
16.00	.25	91.34	.629	.84
16.50	.25	91.29	.606	.79
17.00	.25	91.25	.584	.75
17.50	.24	91.21	.564	.71
18.00	.23	91.17	.545	.67
18.50	.23	91.14	.528	.64
19.00	.23	91.10	.512	.60
19.50	.22	91.07	.497	.57
20.00	.22	91.05	.483	.55
20.50	.22	91.02	.470	.52
21.00	.21	90.99	.457	.50

21.50	.21	90.97	.446	.48
22.00	.21	90.94	.435	.47
22.50	.20	90.92	.424	.46
23.00	.20	90.90	.413	.45
23.50	.19	90.88	.403	.44
24.00	.19	90.85	.393	.43
24.50	.01	90.82	.379	.41
25.00	.00	90.79	.362	.39
25.50	.00	90.75	.346	.38
26.00	.00	90.72	.331	.36
26.50	.00	90.69	.316	.34
27.00	.00	90.66	.303	.33
27.50	.00	90.63	.289	.31

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	.00	90.60	.277	.30
28.50	.00	90.57	.264	.29
29.00	.00	90.55	.253	.27
29.50	.00	90.53	.242	.26

PEAK DISCHARGE = 4.987 CFS - PEAK OCCURS AT HOUR 2.25
MAXIMUM WATER SURFACE ELEVATION = 94.987
MAXIMUM STORAGE = 2.7419 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=18 CODE=10

HYDROGRAPH FROM AREA POND.101

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.0	12.000	1.4	18.000	.7
.500	.0	6.500	2.7	12.500	1.3	18.500	.6
1.000	.0	7.000	2.5	13.000	1.2	19.000	.6
1.500	1.5	7.500	2.4	13.500	1.1	19.500	.6
2.000	4.8	8.000	2.2	14.000	1.1	20.000	.5
2.500	4.9	8.500	2.1	14.500	1.0	20.500	.5
3.000	4.7	9.000	2.0	15.000	.9	21.000	.5
3.500	4.4	9.500	1.9	15.500	.9	21.500	.5
4.000	4.1	10.000	1.8	16.000	.8	22.000	.5
4.500	3.8	10.500	1.6	16.500	.8	22.500	.5
5.000	3.5	11.000	1.6	17.000	.7	23.000	.4
5.500	3.2	11.500	1.5	17.500	.7	23.500	.4

RUNOFF VOLUME = 1.26172 INCHES = 3.4144 ACRE-FEET
PEAK DISCHARGE RATE = 4.99 CFS AT 2.250 HOURS BASIN AREA = .0507 SQ. MI.

*S ADD BASIN 101 TO DENNIS-CHAVEZ BASINS.
ADD HYD ID=19 HYD=101.2 I=18 II=16
PRINT HYD ID=19 CODE=1

PARTIAL HYDROGRAPH 101.20

RUNOFF VOLUME = 1.42241 INCHES = 6.2540 ACRE-FEET
PEAK DISCHARGE RATE = 56.69 CFS AT 1.600 HOURS BASIN AREA = .0824 SQ. MI.

*S ROUTE FLOW FROM BASIN 101.1 COMBINED FLOW THROUGH 30" RCP THROUGH UNIT 1.
COMPUTE RATING CURVE CID=1 VN=1 CODE=-1 S=0.015 D=30 N=0.014

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.13	.10	.24	1.11
.26	.27	1.06	1.53
.39	.49	2.47	1.82
.52	.74	4.44	2.03
.65	1.02	6.93	2.19
.78	1.31	9.89	2.32
.91	1.62	13.26	2.41
1.04	1.94	16.95	2.47
1.17	2.26	20.89	2.50

1.30	2.59	25.00	2.50
1.43	2.91	29.19	2.50
1.56	3.23	33.35	2.50
1.69	3.54	37.38	2.50
1.82	3.84	41.16	2.50
1.95	4.12	44.53	2.50
2.08	4.37	47.34	2.50
2.21	4.60	49.35	2.50
2.35	4.78	50.18	2.50
2.50	4.91	50.18	2.50

COMPUTE TRAVEL TIME ID=20 RN=1 NVS=1 L=2000 S=0.025

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.130	.098	.24	.2215
.261	.271	1.06	.1420
.391	.490	2.47	.1103
.521	.741	4.44	.0927
.651	1.017	6.93	.0815
.782	1.312	9.89	.0736
.912	1.620	13.26	.0679
1.042	1.937	16.95	.0635
1.173	2.261	20.89	.0601
1.303	2.586	25.00	.0575
1.433	2.910	29.19	.0554
1.563	3.229	33.35	.0538
1.694	3.540	37.38	.0526
1.824	3.837	41.16	.0518
1.954	4.117	44.53	.0514
2.084	4.373	47.34	.0513
2.215	4.599	49.35	.0518
2.345	4.783	50.18	.0529
2.500	4.909	50.18	.0543

ROUTE ID=20 HYD=102.2 INFLOW ID=19 DT=0.0
TRAVEL TIME TABLE EXCEEDED
PRINT HYD ID=20 CODE=1

PARTIAL HYDROGRAPH 102.20

RUNOFF VOLUME = 1.42135 INCHES = 6.2493 ACRE-FEET
PEAK DISCHARGE RATE = 54.54 CFS AT 1.650 HOURS BASIN AREA = .0824 SQ. MI.

*S BASIN 101B (SOUTH DENNIS-CHAVEZ) MODELED AS FUTURE CONDITIONS
SEDIMENT BULK CODE=1 BF=1.00
COMPUTE NM HYD ID=21 HYD=101.3 AREA=0.00346 SQ MI
A=0 B=25 C=25 D=50
TP=0.133 MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.8455 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.8700
AREA = .001730 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118163HR TP = .133000HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 4.6134 CFS UNIT VOLUME = .9985 B = 354.67 P60 = 1.8700
AREA = .001730 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=21 CODE=1

PARTIAL HYDROGRAPH 101.30

RUNOFF VOLUME = 1.62133 INCHES = .2992 ACRE-FEET
PEAK DISCHARGE RATE = 7.47 CFS AT 1.500 HOURS BASIN AREA = .0035 SQ. MI.

*S ADD BASIN 101B TO BASIN 101.
ADD HYD ID=22 HYD=101.4 I=21 II=20
PRINT HYD ID=22 CODE=1

PARTIAL HYDROGRAPH 101.40

RUNOFF VOLUME = 1.42940 INCHES = 6.5485 ACRE-FEET
PEAK DISCHARGE RATE = 58.64 CFS AT 1.650 HOURS BASIN AREA = .0859 SQ. MI.

PUNCH HYD ID=22
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 07:40:13

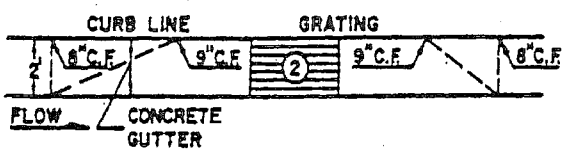
□(s10H

APPENDIX D

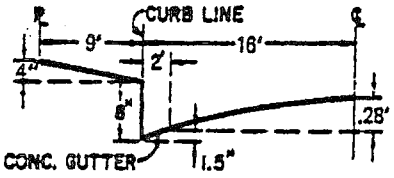
STREET & GRATE CAPACITIES

Ceja Vista - Unit 1

GRATING CAPACITIES FOR TYPE 'A' , 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

PLATE 22.3 D-5

STREET CAPACITY

Ceja Vista - Unit 1

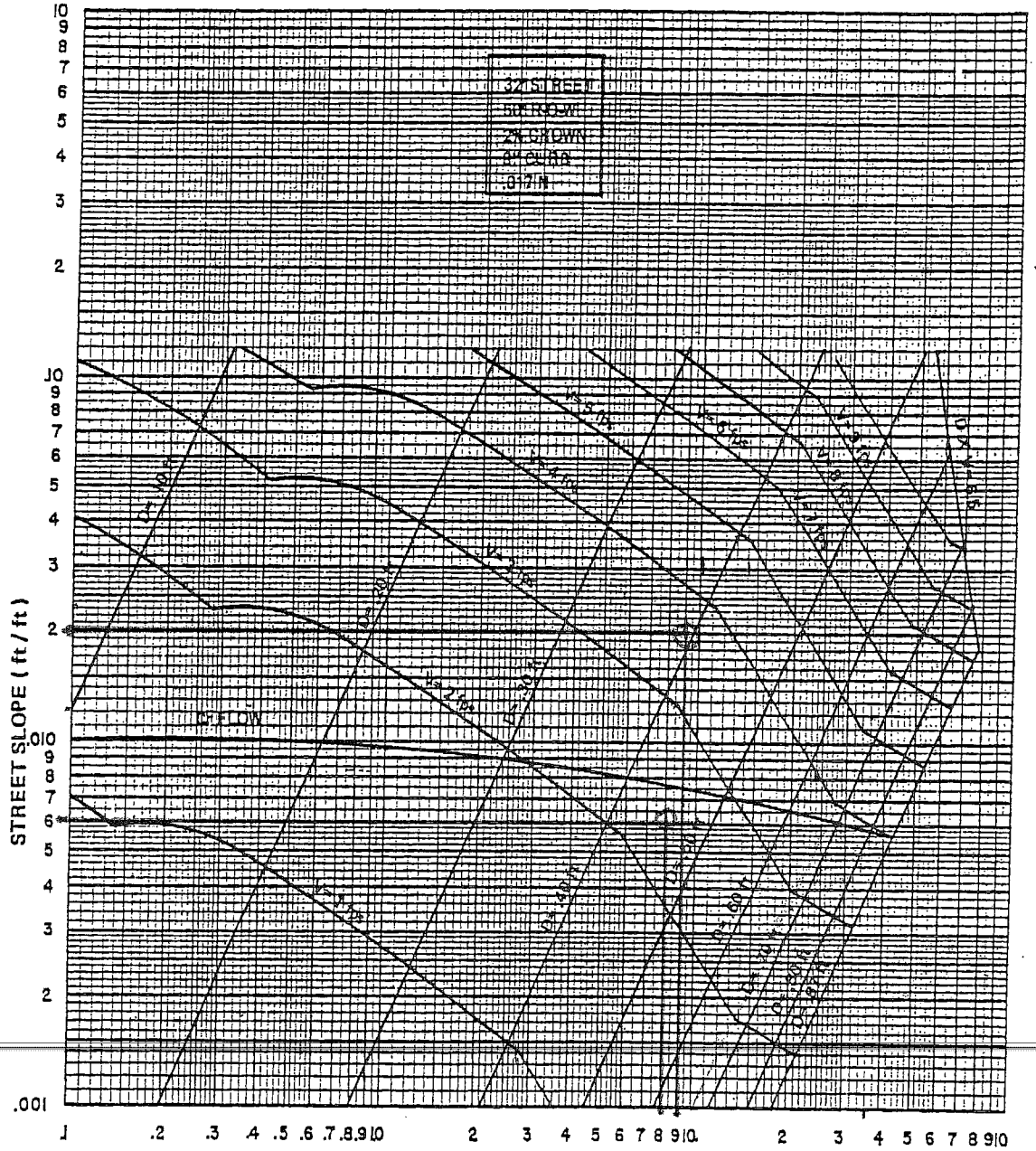
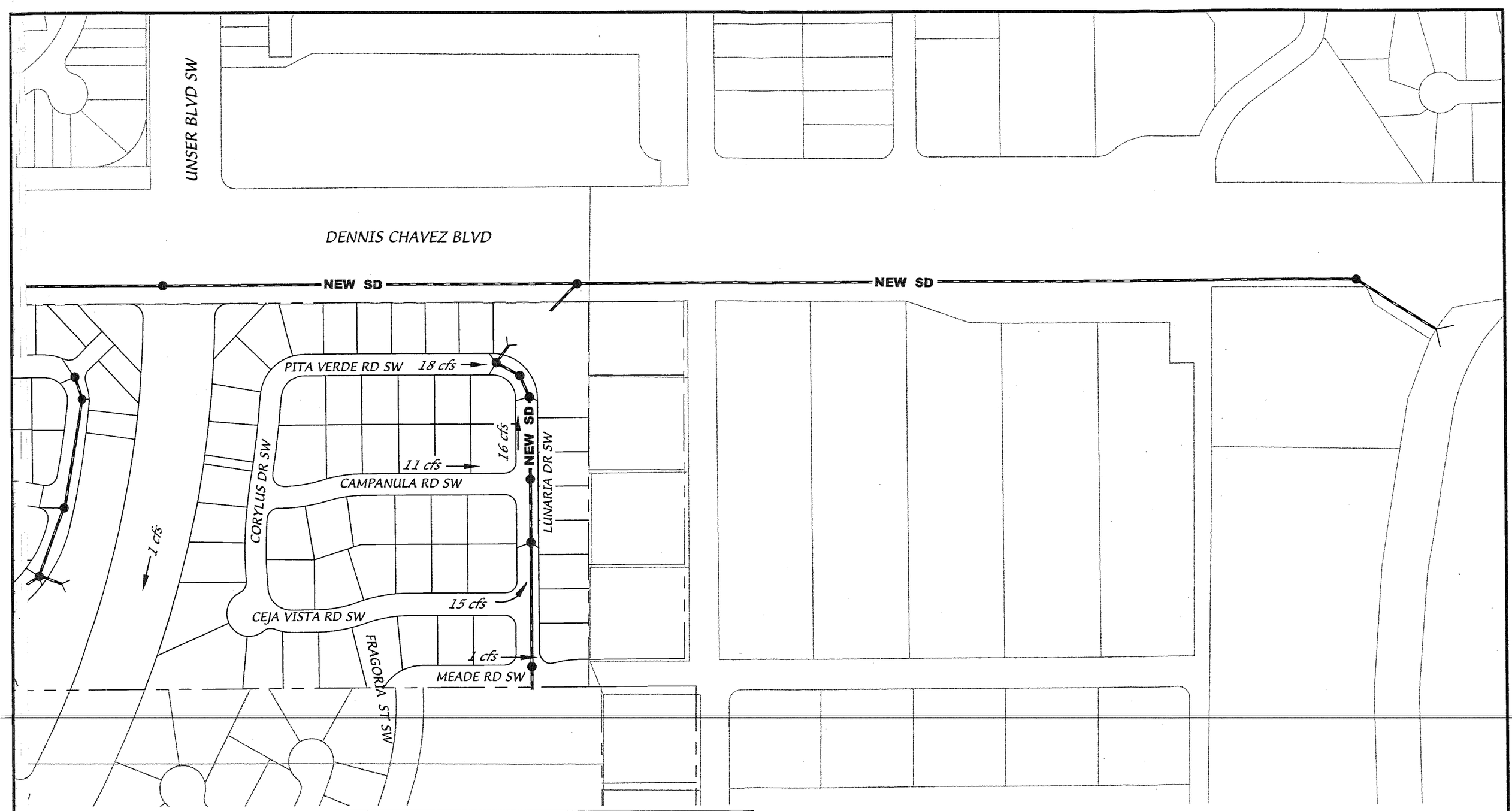


PLATE 22.3 D-1



Unit 1 Street Flows				
	Slope	Total Flow	Depth of Flow	Grating Capacity
Pita Verde (Sump)	2.00%	18 cfs	0.39 ft	39 cfs
Campanula	1.75%	11 cfs	0.35 ft	None
Lunaria	0.60%	30cfs	0.47 ft	15 cfs
Lunaria (Sump)	0.00%		0.87 ft	30cfs
Total		51 cfs		84 cfs

N

SCALE: 1" = 200'

LEGEND

PROPOSED STORM FLOW

PROPOSED STORMDRAIN

A04\jobs\A4095ANS\EXHIBIT\A4095-ST-FLOW.dwg\09-26-06\DER

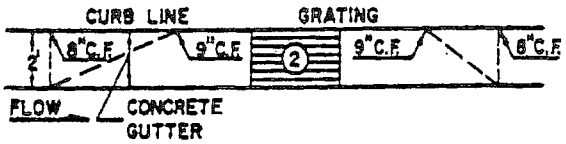
CEJA VISTA SUBDIVISION
FUTURE DEVELOPED CONDITIONS

DRAINAGE BASIN MAP

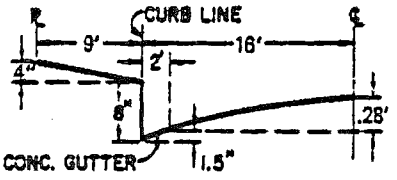
MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Ceja Vista - Unit 2

GRATING CAPACITIES FOR TYPE "A" , "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

PLATE 22.3 D-5

STREET CAPACITY

Ceja Vista - Unit 2

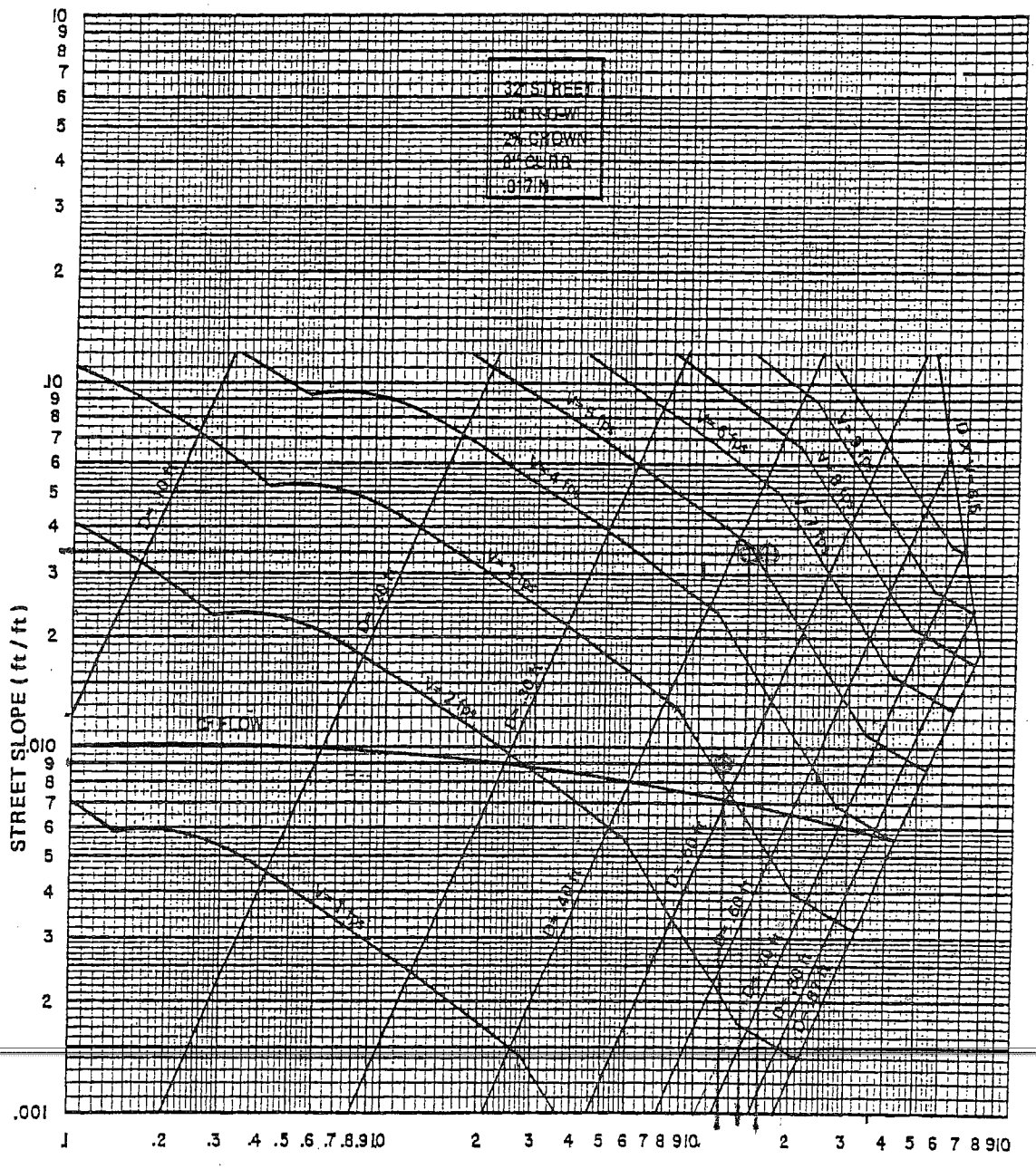
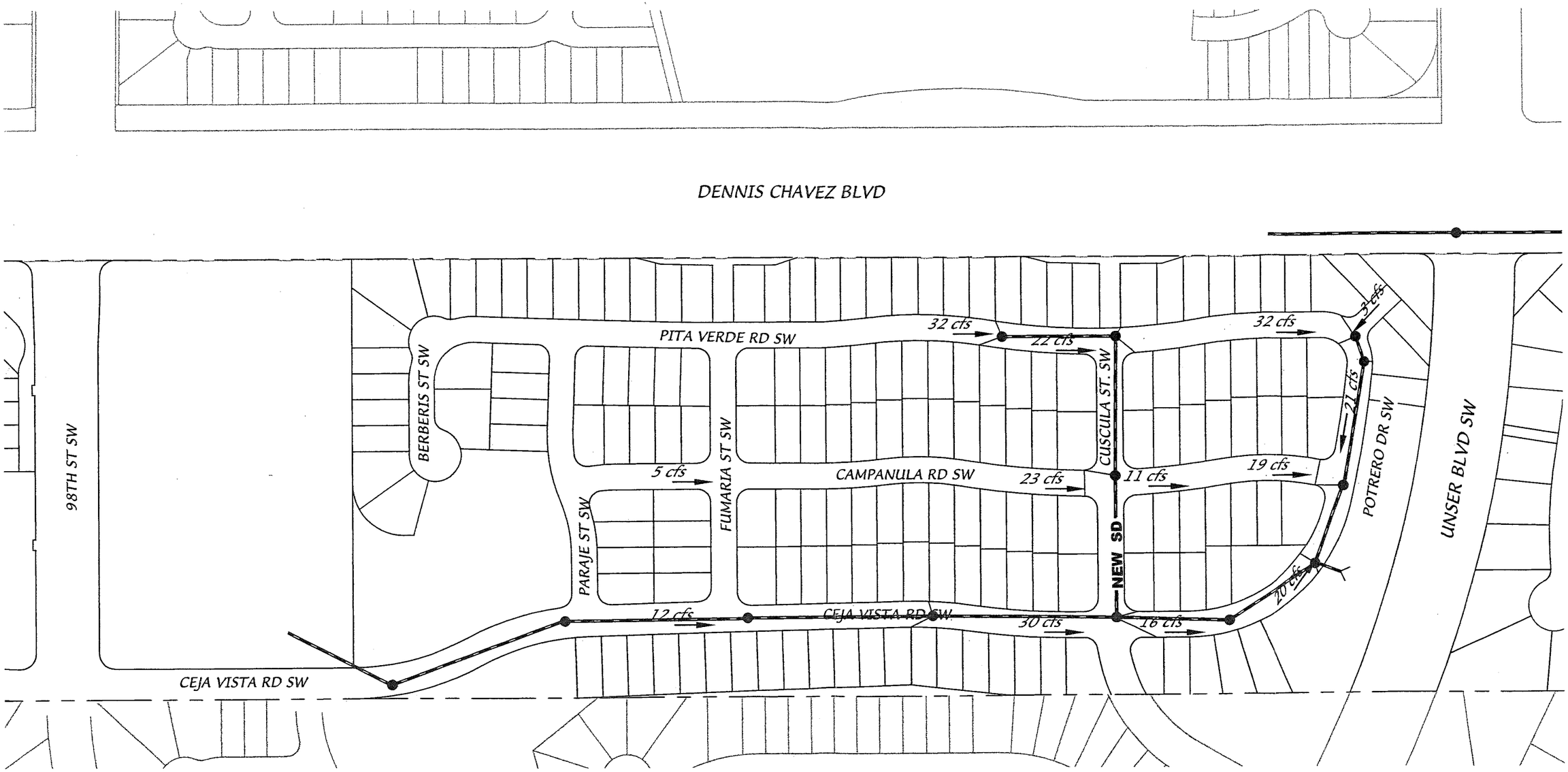


PLATE 22.3 D-1



Unit 2 Street Flows				
	Slope	Flow	Depth of Flow	Grating Capacity
Ceja Vista Rd	3.10%	47 cfs	0.43 ft	27 cfs
Ceja Vista (Sump)	0.00%		0.87 ft	32 cfs
Campanula	3.10%	35cfs	0.41 ft	25 cfs
Pita Verde	3.20%	28 cfs	0.30 ft	14 cfs
Potrero	0.60%	8 cfs	0.41 ft	9 cfs
Potrero (Sump)	0.00%		0.87 ft	32 cfs
Total		118 cfs		139 cfs

N

SCALE: 1" = 200'

LEGEND

PROPOSED STORM FLOW

PROPOSED STORMDRAIN

CEJA VISTA SUBDIVISION
FUTURE DEVELOPED CONDITIONS

DRAINAGE BASIN MAP

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

A04jobs\A4095ANS\EXHIBIT\A4095-DBMAP-REV.dwg\09-14-06\DER ACH

STREET CAPACITY

Ceja Vista - Unit 3

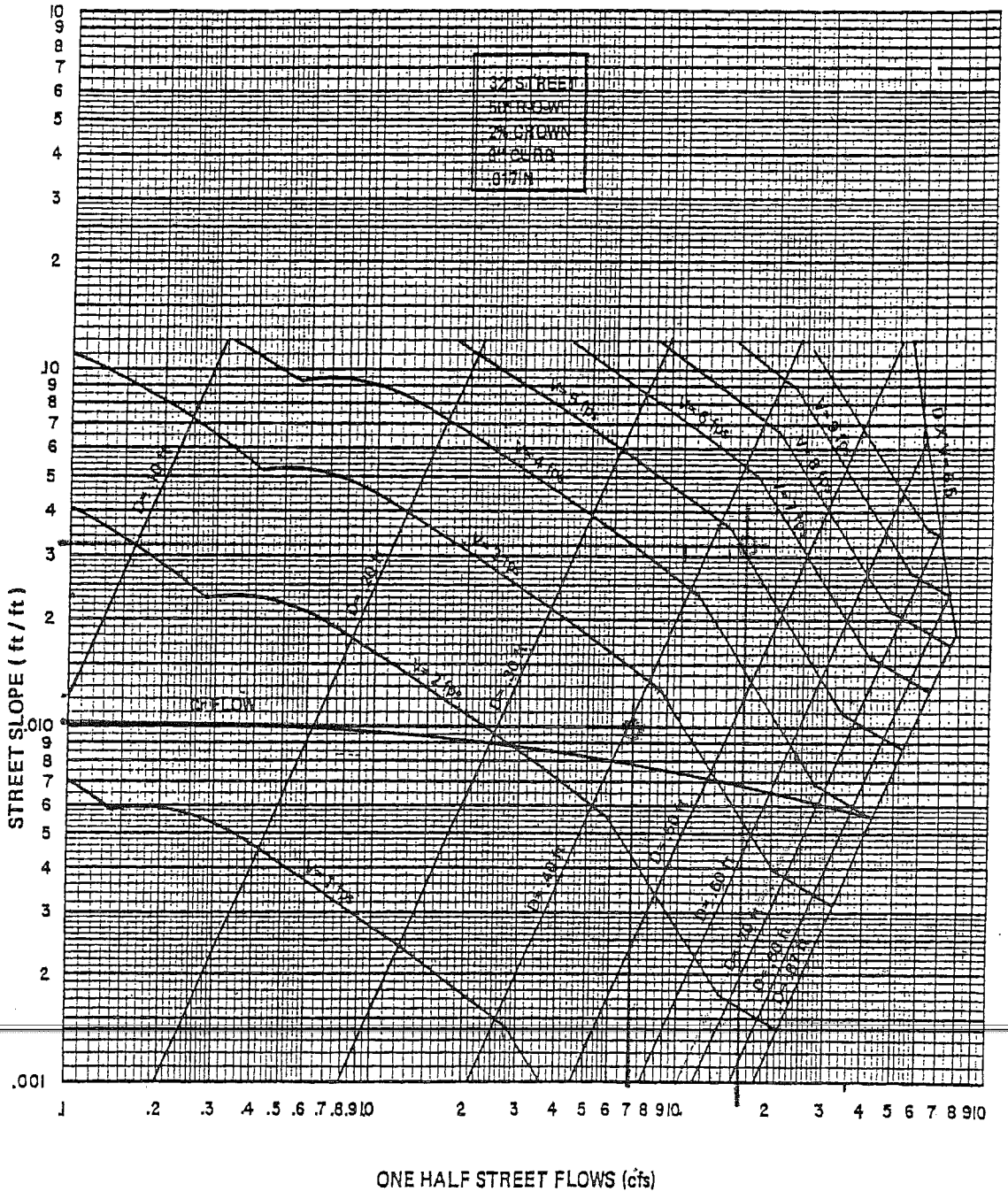
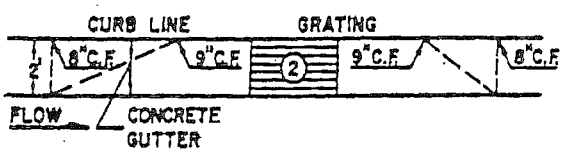


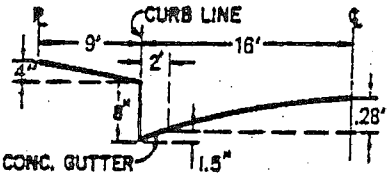
PLATE 22.3 D-1

Ceja Vista - Unit 3

GRATING CAPACITIES FOR TYPE "A" , "C" and "D"

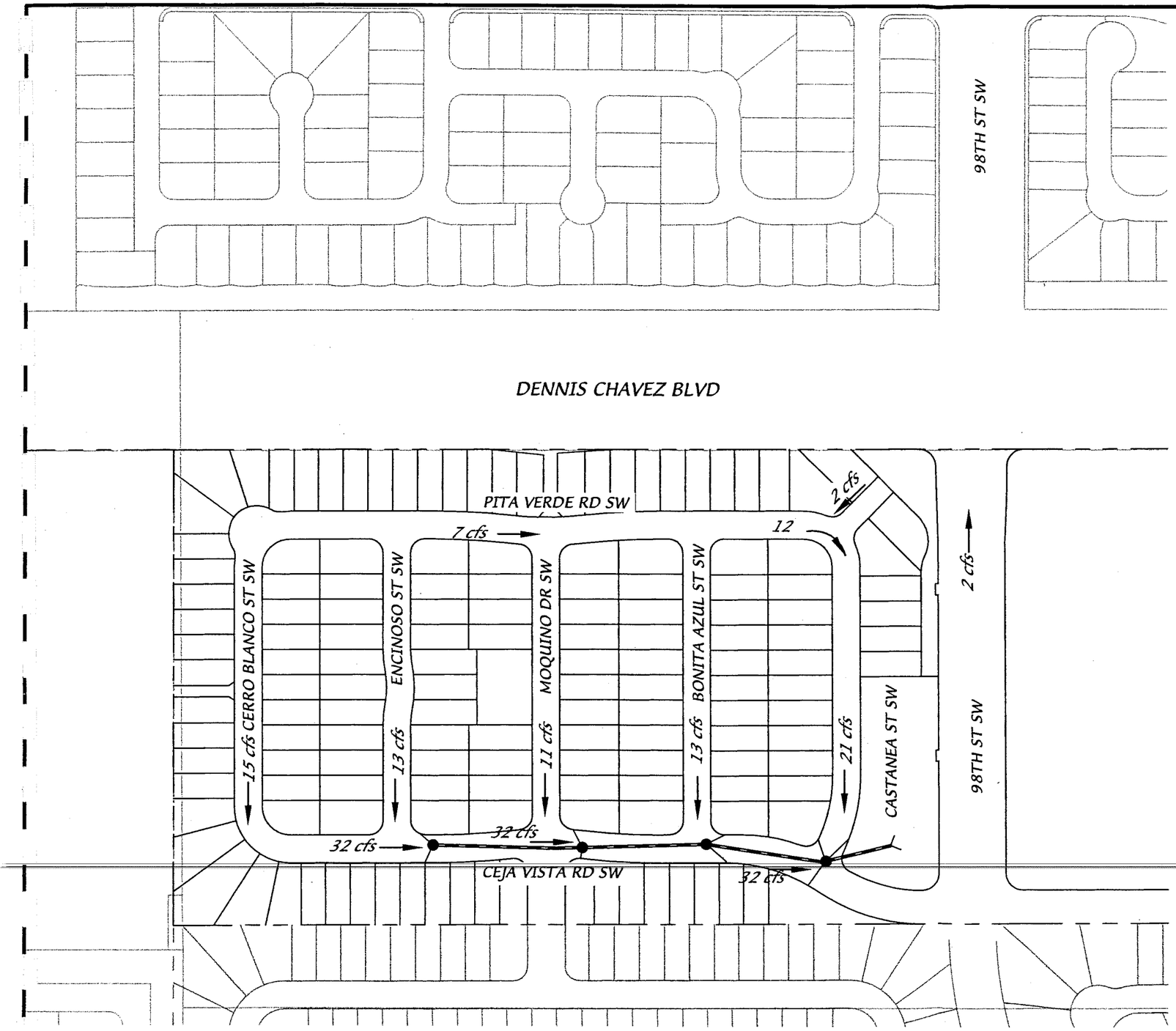


GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

PLATE 22.3 D-5



Unit 3 Street Flows				
	Slope	Flow	Depth of Flow	Grating Capacity
Ceja Vista Rd	3.30%	15 cfs	0.43 ft	42 cfs
Ceja Vista (Sump)	0.00%		0.87 ft	55 cfs
Bonita Azul	0.90%	13cfs	0.40 ft	
Moquino	0.90%	11 cfs	0.38 ft	
Encinoso St	1.20%	13 cfs	0.40 ft	
Cerro Blanco	1.20%	15 cfs	0.41 ft	
Castanea	1.00%	9 cfs	0.45 ft	
Pita Verde	3.30%	12 cfs	0.40 ft	
Total		88 cfs		97 cfs

N

SCALE: 1" = 200'

LEGEND

PROPOSED STORM FLOW

PROPOSED STORMDRAIN

CEJA VISTA SUBDIVISION
FUTURE DEVELOPED CONDITIONS

DRAINAGE BASIN MAP

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

A04jobs\A4095ANS\EXHIBIT\A4095-DBMAP-REV.dwg\09-14-06\DER ACH

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Ceja Vista Unit 3
DRB #: 1004428 EPC#:_____

ZONE MAP/DRG. FILE #: P-9 / D002
WORK ORDER#:_____

LEGAL DESCRIPTION: Town of Artrisco Grant, Tracts RR-3A, RR-3-B, RR-3-C, RR-3-D, RR-3-E
CITY ADDRESS:_____

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: Scott Medina
PHONE: 828-2200
ZIP CODE: 87199

OWNER: Albuquerque Rio Bravo Partners, LLC
ADDRESS: 6330 Riverside Plaza Lane NW, Suite220
CITY, STATE: Albuquerque, NM

CONTACT: Bill Allen/Mike Adams
PHONE: 440-7262
ZIP CODE: 87120

ARCHITECT: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE:
ZIP CODE: _____

SURVEYOR: _____
ADDRESS: _____
CITY, STATE: Albuquerque, NM

CONTACT: _____
PHONE: _____
ZIP CODE: 87107

CONTRACTOR: _____
ADDRESS: _____
CITY, STATE: _____

CONTACT: _____
PHONE: _____
ZIP CODE: _____

RECEIVED
AUG 14 2007
HYDROLOGY SECTION

CHECK TYPE OF SUBMITTAL:

- ☐ DRAINAGE REPORT
- ☐ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ☒ DRAINAGE PLAN RESUBMITTAL
- ☐ CONCEPTUAL GRADING & DRAINAGE PLAN
- ☐ GRADING PLAN
- ☐ EROSION CONTROL PLAN
- ☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)
- ☐ ENGINEERS CERTIFICATION (TCL)
- ☐ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ☐ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☒ GRADING PERMIT APPROVAL
- ☐ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

- information for BZAD 8/14-07

DATE SUBMITTED: 8/14/2007 BY: Scott Medina

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature , location and scope ot the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report**: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

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

August 14, 2007

Mr. Brad Bingham, City Hydrologist
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Ceja Vista Unit 3

Dear Mr. Bingham:

On behalf of Albuquerque Rio Bravo Partners, LLC, we are submitting a revised grading plan for Ceja Vista Unit 3. The Drainage and Grading plan has been revised to accommodate offsite flows from the adjacent Albuquerque Public School site (APS). The design allows for the 10-day, 100-yr storm event for existing conditions for off-site flows and developed conditions for Ceja Vista Unit 3. The storm drain is designed to accept a peak flow of 25 cfs from the APS site for developed conditions. This flow rate was agreed upon with AMAFCA and APS. The Ceja Vista Unit 3 storm drain system will not accommodate developed flows until the outfall has been constructed in Ceja Vista Phase II, currently being processed through Bernalillo County for special use permit. The Southwest Mesa High School is schedule to be completed in the fall of 2009.

Attached is a copy of the Bernalillo County approved grading plan for the APS site. The approved grading plan identifies a temporary retention pond designed to accommodate their interim condition flow rates.

Please contact if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

Scott Medina, PE
Project Engineer

ASM/la

Attachments

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority
2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214

Post-it® Fax Note 7671	Date 12-11	# of pages ▶ 1
To Brad Bingham	From Lynn Mazur	
Co./Dept. Hydrology	Co. AMAFCA	
Phone #	Phone #	
Fax #	Fax #	

December 11, 2006

Mr. Scott Medina, P.E.
D. Mark Goodwin & Associates, P.A.
P.O. Box 90606
Albuquerque, NM 87199

Re: Ceja Vista Subdivision Drainage Report, ZAP P-9
Engineer's Stamp Dated December 6, 2006

Dear Mr. Medina:

AMAFCA has reviewed the referenced report and approves the Grading and Drainage Plan for Preliminary Platting action. I would like to point out that, per our previous discussion, AMAFCA will accept free discharge from Unit 1 of Phase I, which is located at the southeast corner of Unser and Dennis Chavez. The total combined flow rate from the Dennis Chavez right-of-way and Unit 1 will be approximately 126 cfs to the Hubbell Channel and Dam system. Onsite detention will not be required for Unit 1.

AMAFCA will review and sign the work order plans. A water quality manhole to treat the first flush of debris and pollutants will be required for the Unit 1 storm drain system. The connection to the Hubbell Channel will also require a three-party license among the developer (builder), the City (for maintenance) and AMAFCA (licensor). This document is prepared by AMAFCA staff.

If you have any questions, please call me at 884-2215.

Sincerely,
AMAFCA

Lynn M. Mazur

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer

Cc: Brad Bingham, City Hydrology
Jerry Lovato, AMAFCA

Ceja Vista
Temporary Pond Volumes

Zone 1

Excess Precip 6-hr

A	B	C	D
0.44	0.67	0.99	1.97

Basin	Area (ac)	Area (mi^2)	Land Treatment A	B	C	D	Qp	Ad
Unit 2	36.46	0.057	0%	29.3%	29.3%	41.4%	47.46	15.09
98th St/Comm.	10.85	0.017	0%	7.5%	7.5%	85.0%	19.52	9.22
Open Space	2.92	0.005	100%	0.0%	0.0%	0.0%	1.28	0.00
Unser	1.55	0.002	0%	3.6%	3.6%	92.9%	2.93	1.44
Total	51.78						71.19	25.75

Weighted E= 1.375

V360= 5.933 ac-ft

V(10 day)= 9.087 ac-ft

Basin	Area (ac)	Area (mi^2)	Land Treatment A	B	C	D	Qp	Ad
Unit 3	26.88	0.042	0%	28.3%	28.3%	43.5%	35.63	11.68

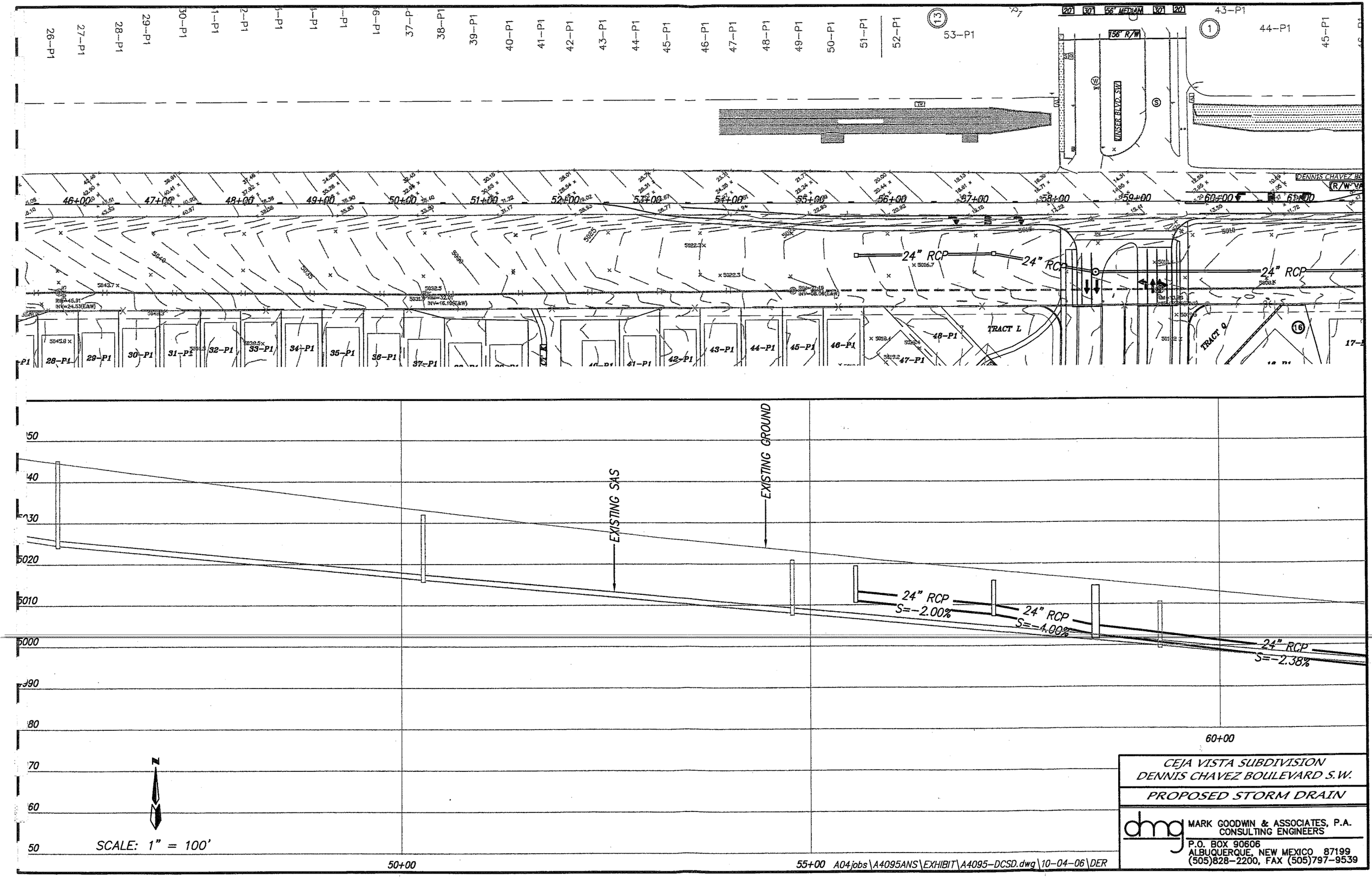
Weighted E= 1.325

V360= 2.969 ac-ft

V(10 day)= 4.400 ac-ft

APPENDIX E

PROPOSED STORM DRAIN PLAN & PROFILE

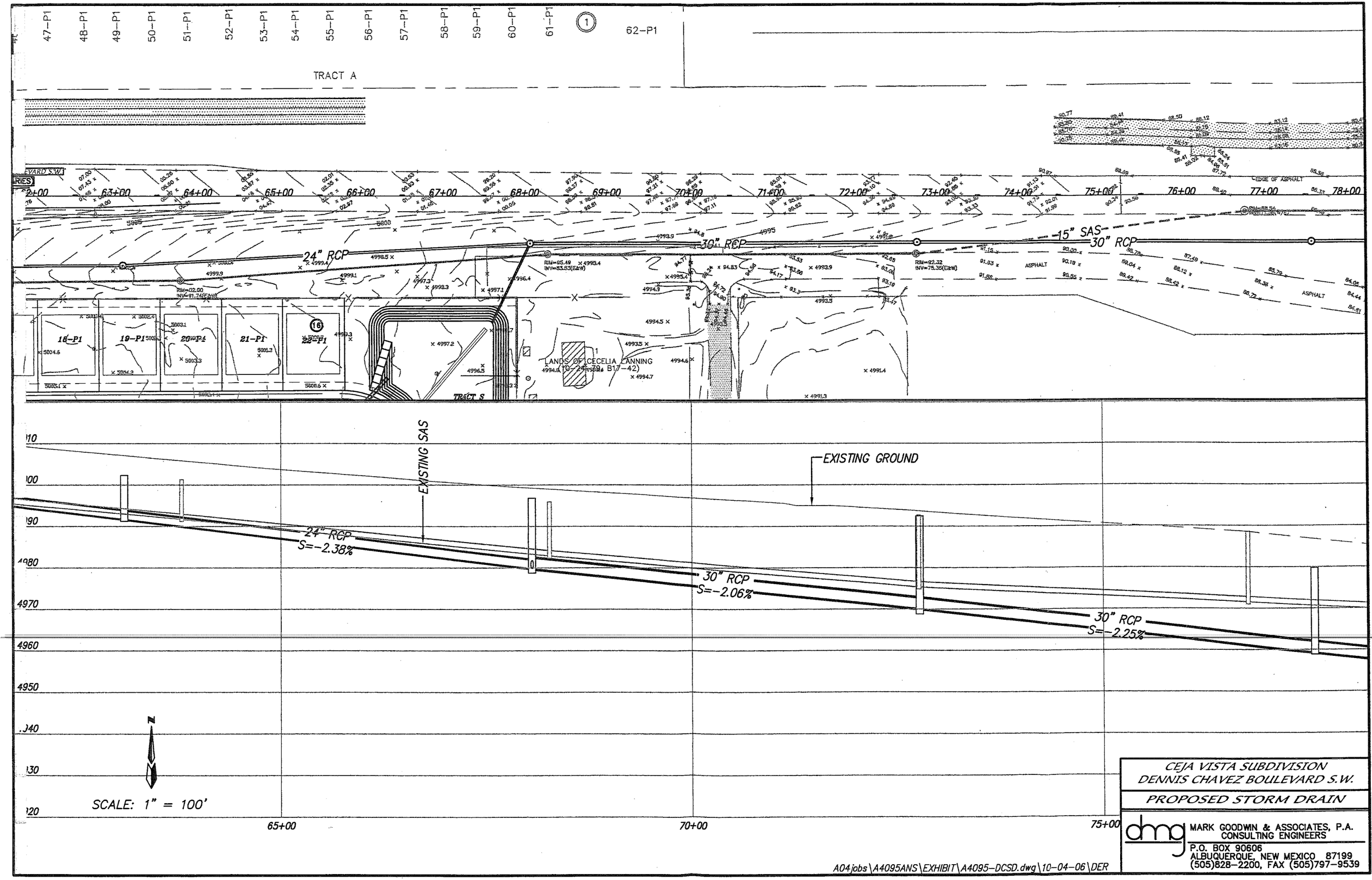


A04jobs\A4095ANS\EXHIBIT\A4095–DCSD.dwg\10–04–06\DER

CEJA VISTA SUBDIVISION
DENNIS CHAVEZ BOULEVARD S.W.

PROPOSED STORM DRAIN

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

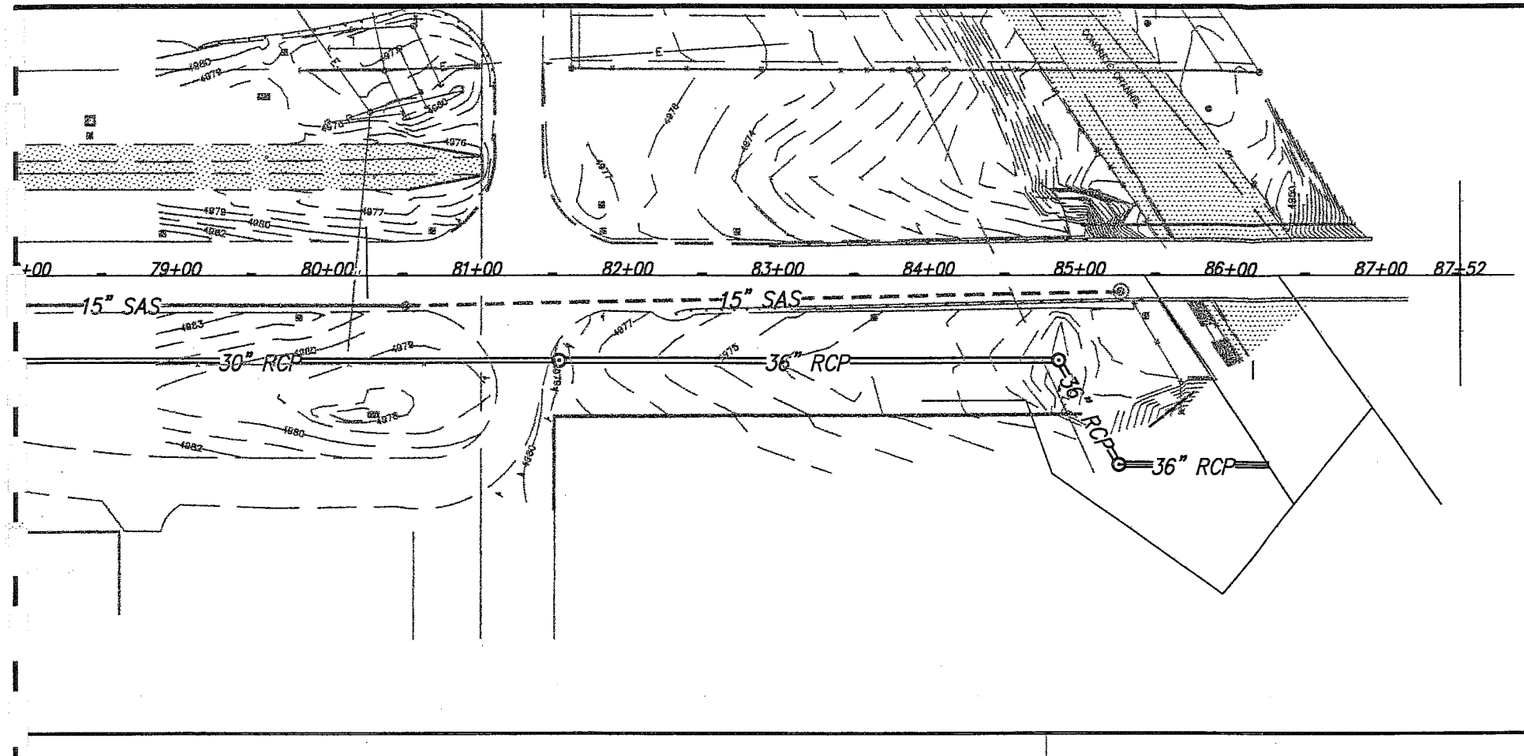


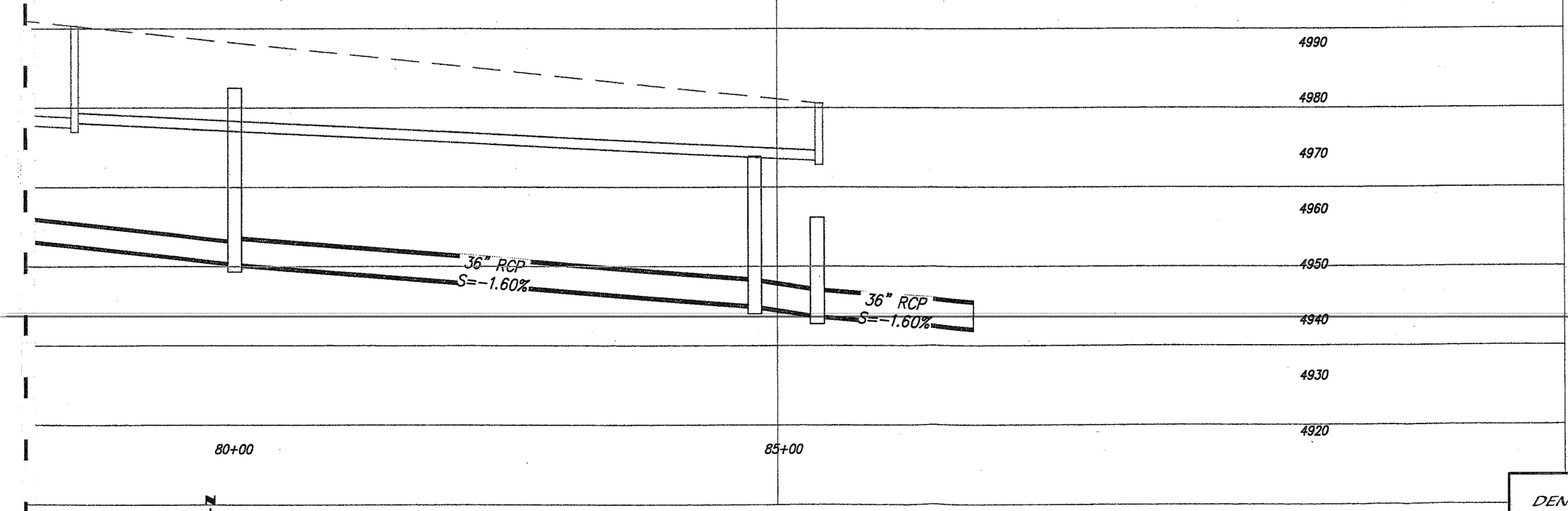
CEJA VISTA SUBDIVISION
DENNIS CHAVEZ BOULEVARD S.W.

PROPOSED STORM DRAIN

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

A04jobs\A4095ANS\EXHIBIT\A4095-DCSD.dwg\10-04-06\DER





SCALE: 1" = 100'

A04\jobs\A4095ANS\EXHIBIT\A4095-DCSD.dwg\10-04-06\DER

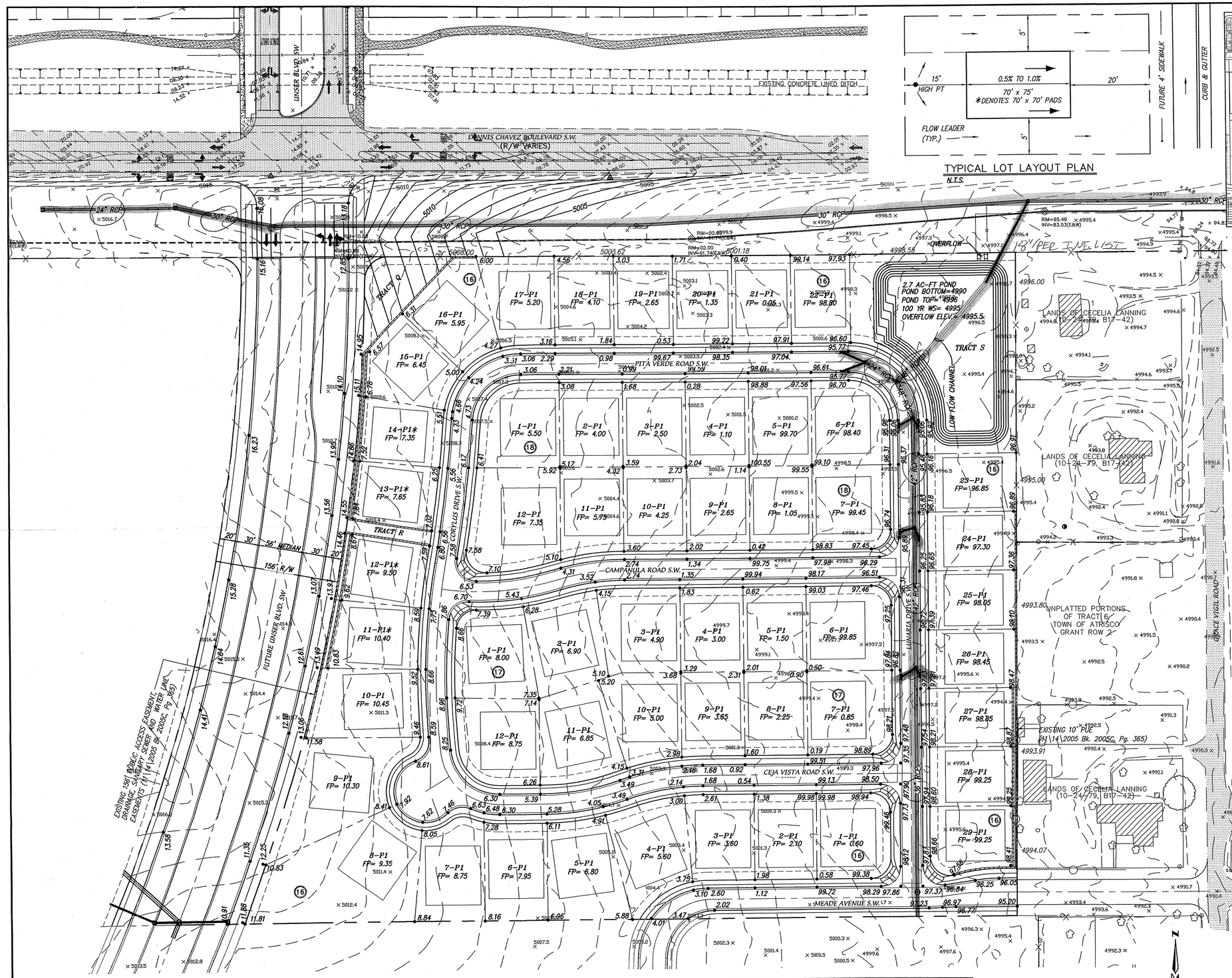
CEJA VISTA SUBDIVISION
DENNIS CHAVEX BOULEVARD S.W.

PROPOSED STORM DRAIN

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

APPENDIX F

MASTER GRADING & DRAINAGE PLAN



EROSION CONTROL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION SHALL GOVERN ALL WORK.
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST CONTROL MEASURES AND REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING
5. THE EARTHWORK CONTRACTOR SHALL STOCKPILE ENOUGH MATERIAL ADJACENT TO RETAINING WALL LOCATIONS TO BE UTILIZED FOR WALL BACKFILL.
6. SITE DOES LIE IN A 100 YEAR FLOOD ZONE.

LEGEND

- 5210 — EXISTING CONTOUR (MAJOR)
- EXISTING CONTOUR (MINOR)
- TC= x 00.0 / FL= — EXISTING SPOT ELEVATION
- EXISTING SANITARY SEWER MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING ELECTRIC TRANSFORMER
- EXISTING FENCE
- PP — EXISTING POWER POLE
- 6"GAS — EXISTING GAS LINE
- 30"SD — EXISTING STORM DRAIN
- 8"SAS — EXISTING SAS LINE
- 10"WL — EXISTING WATER LINE
- NEW MOUNTABLE CURB & GUTTER
- NEW STANDARD CURB & GUTTER
- NEW SIDEWALK
- NEW RIGHT-OF-WAY
- NEW CENTERLINE
- NEW LOT LINES
- NEW EASEMENTS
- NEW RETAINING WALL
- 20.00 — NEW SPOT ELEVATIONS
- NEW FLOW DIRECTION
- NEW SLOPE
- NEW HIGH POINT
- 75 — NEW CONTOUR
- NEW STORM DRAIN INLET

APPROVED ROUGH GRADING ±18" _____ CITY HYDROLOGY DATE

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

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

TITLE: CEJA VISTA SUBDIVISION - UNIT 1
GRADING & DRAINAGE PLAN

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

CITY PROJECT NO. 1004428 | ZONE MAP NO. P-9-Z | SHEET 1 OF 1

AS BUILT INFORMATION
CONTRACTOR — DATE
WORK BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
VERIFICATION BY — DATE
CORRECTED BY — DATE
MICRO-FILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL
ALVIN S. MEDINA
NEW MEXICO
10454
12/07
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	ASM 07/06
		DRAWN BY	DER 07/06
		CHECKED BY	DMG 07/06

A04jobs\A4095ANS\Grading & Drainage\Unit 1\GD-Base-U1-A.dwg\01-08-07\DER