Public Works/Hydrology

A14/D4A6

0000 0000 1233

A14/D4A6

25×10 32×10

0000 0000 1234

CITY OF
Albuquerque

October 5,1998

Mark Goodwin
D. Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: ENGINEER CERTIFICATION FOR CORRALES MINI-STORAGE (A14-D4A6)
CERTIFICATION STATEMENT DATED 8/26/98

Dear Mr. Goodwin:

Based on the information provided on your August 26,1998 submittal, Engineer Certification for the above referenced site is acceptable.

If I can be of further assistance, please feel free to contact me at 924-3986.

C: Andrew Garcia
File

Sincerely

Bernie J. Montoya

Bernie J. Montoya CE
Associate Engineer

Good for You, Albuquerque!

25×10 32×10

0000 0000 1235

## DRAINAGE INFORMATION SHEET

PROJECT TITLE: Corrales Mini Storage ZONE ATLAS/DRNG.FILE#: A-14/D4A6

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Parcel H-6 Riverview

CITY ADDRESS: Corrales Road & Calle Cuervo

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Mark Goodwin, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Larry La Plat CONTACT: _____

ADDRESS: 7801 Academy NE PHONE: 828-9611

ARCHITECT: De la Torre - Rainhart CONTACT: Jorge De la Torre

ADDRESS: 7801 Acadmey NE PHONE: 828-9611

SURVEYOR: Surv-Tek CONTACT: Rusty Hug

ADDRESS: 5643 Paradise Blvd NW PHONE: 897-3366

CONTRACTOR: Cameron CONTACT: Bill Gard

ADDRESS: _____ PHONE: _____

**TYPE OF SUBMITTAL:**

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- X ENGINEER'S CERTIFICATION
- ____ OTHER

**PRE-DESIGN MEETING:**

- ____ YES
- X NO
- ____ COPY PROVIDED

**CHECK TYPE OF APPROVAL SOUGHT:**

- ____ SKETCH PLAT APPROVAL
- ____ 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
- X CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 8/26/98

BY: Mark Goodwin

Mark Goodwin, P.E.

RECEIVED AUG 26 1998 HYDROLOGY SECTION

25×10 32×10

0000 0000 1236

## DRAINAGE INFORMATION SHEET

PROJECT TITLE: Corrales Mini Storage ZONE ATLAS/DRNG.FILE#: A-14 & A6

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: Corrales Road & Calle Cuervo 3300 Calle Cuervo NW.

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Mark Goodwin, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Larry La Plat CONTACT: _____

ADDRESS: 7801 Academy NE PHONE: 828-9611

ARCHITECT: De la Torre - Rainhart CONTACT: Jorge De la Torre

ADDRESS: 7801 Acadmey NE PHONE: 828-9611

SURVEYOR: Surv-Tek CONTACT: Rusty Hug

ADDRESS: 5643 Paradise Blvd NW PHONE: 897-3366

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

**TYPE OF SUBMITTAL:**

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

**PRE-DESIGN MEETING:**

- ____ YES
- X NO
- ____ COPY PROVIDED

**CHECK TYPE OF APPROVAL SOUGHT:**

- ____ SKETCH PLAT APPROVAL
- ____ 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
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 8/1/97

BY: Mark Goodwin

Mark Goodwin, P

RECEIVED AUG 01 1997 HYDROLOGY SECTION

25×10 32×10

0000 0000 1237

CITY OF
Albuquerque

Martin J. Chávez, Mayor

August 12, 1997

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

***RE: CORRALES MINI STORAGE (A14/D4A6). GRADING AND DRAINAGE PLAN FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED JULY 31, 1997.***

Dear Mr. Goodwin:

Based on your submittal dated August 1, 1997 the above referenced project is approved for Building Permit.

While this drawing was previously approved in May of 1996, due to the time lapse, it may be necessary to go back to DRB. You will be required to contribute to the storm drain and sidewalk along Corrales Road based on your frontage.

Prior to Certificate of Occupancy, an Engineer's Certification will be required.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill, P.E.
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!

25×10 32×10

0000 0000 1238

CITY OF
Albuquerque

May 9, 1996

Martin J. Chávez, Mayor

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

***RE: CORRALES MINI STORAGE (A14/D4A6). ENGINEER'S STAMP DATED APRIL 16, 1996.***

Dear Mr. Goodwin:

Based on your submittal dated April 16, 1996, the above referenced project is approved for Site Development Plan for Building Permit and Building Permit.

Prior to Certificate of Occupancy, an Engineer's Certification will be required along with a copy of the plat. The plat must show that the pond is located within a drainage easement.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Andrew Garcia
File

Good for You, Albuquerque!

25×10 32×10

0000 0000 1239

## DRAINAGE INFORMATION SHEET

PROJECT TITLE: Corrales Mini Storage ZONE ATLAS/DRNG.FILE#: A-14/W46

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: Corrales Road & Calle Cuervo

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Mark Goodwin, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Larry La Plat CONTACT: _____

ADDRESS: 7801 Academy NE PHONE: 828-9611

ARCHITECT: De la Torre - Rainhart CONTACT: Jorge De la Torre

ADDRESS: 7801 Acadmey NE PHONE: 828-9611

SURVEYOR: Surv-Tek CONTACT: Rusty Hug

ADDRESS: 5643 Paradise Blvd NW PHONE: 897-3366

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

**TYPE OF SUBMITTAL:**

- ____ DRAINAGE REPORT
- X DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- X GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

**PRE-DESIGN MEETING:**

- ____ YES
- X NO
- ____ COPY PROVIDED

Per phone conversation on 5-9-96 - Mark said pond is on this property & no easement.

**CHECK TYPE OF APPROVAL SOUGHT:**

- ____ SKETCH PLAT APPROVAL
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- X S. DEV. PLAN FOR BLDG PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- X BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 4/16/96

BY: Mark Goodwin
Mark Goodwin, P.E.

RECEIVED APR 16 1996

25×10 32×10

0000 0000 1240

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 345-2010

*April 16, 1996*

*Ms. Lisa Manwill*
*Hydrology Division*
*City of Albuquerque*
*P.O. Box 1293*
*Albuquerque, NM 87103*

***Re: Corrales Mini Storage***

*Dear Ms. Manwill:*

*Attached, please find an updated plan and calculations for the referenced project. In addition, we offer the following:*

- *Off-site flows on the order of 35 cfs meander along the east boundary of this project. These flows are generated by the Corrales Shopping Center to the south. As demonstrated at several meetings with the City staff, these flows historically crossed this site and continued downstream. This project has off-set its' improvements sufficiently to the west to allow this historic pattern to continue.*
- *Historically, this site contributed 3 cfs to the flows along Corrales Road. This plan proposes to drain back to the west into a ponding area. This will help the situation along Corrales.*
- *As agreed, this site will contribute to the cost of the future storm drain in Corrales Road based upon its' frontage. This storm drain was determined by Easterling and Associates to be a 30" storm drain. We are attaching an infrastructure list which we propose to attach to the Site Plan for Building Permit approval at DRB.*
- *Per attached map, site does not lie within a Flood Hazard Zone.*

*With this response, we would appreciate approval for Site Plan for Building Permit at a minimum and approval for Building Permit if possible.*

*Thank you for your time and consideration. Please contact our office if you have any questions.*

*Sincerely,*

*MARK GOODWIN & ASSOCIATES, P.A.*

*Mark Goodwin, P.E.*
*President*

*DMG/sr*

*b:\corrales.str\comments*

APR 16 1996
HYDROLOGY

25× 32×

0000 0000 1241

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT Corrales Mini
SUBJECT Drainage
BY MG DATE 4/15/96
CHECKED _____ DATE _____
SHEET 1 OF ____

This site drains to an existing pond masterplanned w/ Home Base. The pond has an existing 36" outlet to a storm drain in Calle Cuervo. The allowable discharge rate is 39.71 cfs from the pond.

We will route the shopping center + the Mini Storage through an enlarged pond to insure adequacy.

## Enlarged Pond

| Elev. | Δ | Area | Avg. Area | Vol. | Accum. Vol. |
|---|---|---|---|---|---|
| 5008.0 | | 0 | | | |
| | .2 | | 9100 | 1820 | 1820 |
| 5008.20 | | 18,200 | | | |
| | 1 | | 19,900 | 19,900 | 21,720 |
| 5009 | | 21,600 | | | |
| | 1 | | 23,338 | 23,338 | 45,058 |
| 5010 | | 25,075 | | | |
| | 1 | | 27,025 | 27,025 | 72,083 |
| 5011 | | 28,975 | | | |
| | 1 | | 34,488 | 34,488 | 106,571 |
| 5012 | | 40,000 | | | |

25×10 32×10

0000 0000 1242

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT Carrolls Mini
SUBJECT Drainage
BY MG DATE 4/15/96
CHECKED _____ DATE _____
SHEET 2 OF ____

36" Pond outfall will act as an orifice:

$Q = CA\sqrt{2gH}$

$C = 0.6$

$A = 7.0686$ S.F.

| | | |
|---|---|---|
| @ H = | .2 | Q = 15.22 |
| | 1.2 | = 37.28 |
| | 2.2 | = 50.48 |
| | 3.2 | = 60.88 |
| | 4.2 | = 69.75 |

Per the attached AHYMO Run:

MAX Q = 39.54 cfs

Max. Elev. = 5009.17

We would like to raise pond but the inlet from HomeBase is fixed.

Peak $Q_{100}$ for Emergency Spillway = 69.69 cfs

25×10 32×10

CRALSMS.DAT

```
START                TIME=0.0

*****   HYDROGRAPH FOR CORRALES MINI STORAGE
*****   IN THE HOMEBASE SHOPPING CENTER ON CALLE CUERVO

RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.66 IN DT=0.03333 HR

*HYDROGRAPH FOR EXISTING HOMEBASE SHOPPING CENTER
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.02304 SQ MI
                     PER A=0.0 PER B=15.0 PER C=5.0 PER D=80.0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1

*HYDROGRAPH FOR PROPOSED MINI STORAGE
COMPUTE NM HYD       ID=2 HYD NO=101.2 AREA=0.00563 SQ MI
                     PER A=16.0 PER B=15.0 PER C=19.0 PER D=50.0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1

*ADDING HYDROGRAPHS FOR TOTAL FLOW INTO POND
ADD HYD              ID=3 HYD NO=101.3 ID=1 ID=2
PRINT HYD            ID=3 CODE=1

*RESERVOIR ROUTE THE ADDITIONAL FLOW FROM THE STORAGE FACILITY
*THROUGH THE ENLARGED EXISTING POND THROUGH THE 36" STORM DRAIN
*IN CALLE CUERVO.
ROUTE RESERVOIR      ID=4  HYD NO=101.4  INFLOW ID=3 CODE=24
                     OUTFLOW (CFS)  STORAGE(AC-FT)  ELEVATION(FT)
                       0.00            0.0000         5008.00
                      15.22            0.0418         5008.20
                      37.28            0.4986         5009.00
                      50.48            1.0344         5010.00
                      60.88            1.6548         5011.00
                      69.75            2.4465         5012.00
PRINT HYD            ID=4 CODE=1
```



25×10 32×10

CRALSMS.OUT

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 04/15/1996
     START TIME (HR:MIN:SEC) = 08:18:11     USER NO.= M_GOODWN.I01
     INPUT FILE = CRALSMS.DAT

START              TIME=0.0


*****   HYDROGRAPH FOR CORRALES MINI STORAGE

*****   IN THE HOMEBASE SHOPPING CENTER ON CALLE CUERVO


RAINFALL           TYPE=1 RAIN QUARTER=0.0 IN

                   RAIN ONE=1.87 IN RAIN SIX=2.20 IN

                   RAIN DAY=2.66 IN DT=0.03333 HR


                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS
2 - PEAK AT 1.40 HR.
                DT =     .033330 HOURS       END TIME =     5.999400 HOURS
                   .0000   .0016   .0033   .0050   .0067   .0085   .0103
                   .0122   .0141   .0160   .0180   .0201   .0222   .0243
                   .0266   .0289   .0312   .0337   .0362   .0388   .0415
                   .0443   .0472   .0502   .0534   .0567   .0601   .0637
                   .0675   .0715   .0758   .0809   .0865   .0924   .1050
                   .1334   .1771   .2398   .3254   .4379   .5814   .7600
                   .9780  1.1804  1.2649  1.3363  1.3997  1.4575  1.5106
                  1.5600  1.6061  1.6493  1.6900  1.7284  1.7646  1.7989
                  1.8314  1.8623  1.8915  1.9193  1.9456  1.9518  1.9576
```



25×10 32×10

```
1.9630  1.9682  1.9732  1.9780  1.9825  1.9869  1.9912
1.9953  1.9993  2.0031  2.0068  2.0104  2.0140  2.0174
2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
2.0420  2.0448  2.0475  2.0502  2.0528  2.0554  2.0580
2.0605  2.0629  2.0653  2.0677  2.0700  2.0723  2.0746
2.0768  2.0790  2.0812  2.0833  2.0855  2.0875  2.0896
2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
2.1051  2.1070  2.1088  2.1106  2.1124  2.1141  2.1159
2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
2.1401  2.1416  2.1431  2.1446  2.1460  2.1475  2.1489
2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
2.1600  2.1614  2.1627  2.1640  2.1654  2.1667  2.1680
2.1692  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
2.1780  2.1792  2.1804  2.1817  2.1829  2.1840  2.1852
2.1864  2.1876  2.1887  2.1899  2.1910  2.1922  2.1933
2.1944  2.1956  2.1967  2.1978  2.1989  2.2000

*HYDROGRAPH FOR EXISTING HOMEBASE SHOPPING CENTER

COMPUTE NM HYD      ID=1 HYD NO=101.1 AREA=0.02304 SQ MI

                    PER A=0.0 PER B=15.0 PER C=5.0 PER D=80.0

                    TP=0.1333 HR MASS RAINFALL=-1


        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHA
PE CONSTANT, N =  7.106420
        UNIT PEAK =   72.771    CFS   UNIT VOLUME =    .9992       B =   526.
28      P60 = 1.8700
        AREA =      .018432 SQ MI    IA =    .10000 INCHES    INF =    .04000
 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - D
T =   .033330


        K =   .124711HR    TP =   .133300HR    K/TP RATIO =   .935564     SHA
```

```
PE CONSTANT, N =  3.780327
        UNIT PEAK =   11.762    CFS   UNIT VOLUME =    .9991       B =   340.
25      P60 = 1.8700
        AREA =       .004608 SQ MI    IA =    .46250 INCHES    INF =   1.14500
 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - D
T =   .033330

     PRINT HYD           ID=1 CODE=1


                                        PARTIAL HYDROGRAPH   101.10


        RUNOFF VOLUME =     1.72002 INCHES     =       2.1135 ACRE-FEET
        PEAK DISCHARGE RATE =      58.12 CFS  AT   1.500 HOURS   BASIN AREA =
   .0230 SQ. MI.




     *HYDROGRAPH FOR PROPOSED MINI STORAGE

     COMPUTE NM HYD      ID=2 HYD NO=101.2 AREA=0.00563 SQ MI

                         PER A=16.0 PER B=15.0 PER C=19.0 PER D=50.0

                         TP=0.1333 HR MASS RAINFALL=-1


        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHA
PE CONSTANT, N =  7.106420
        UNIT PEAK =   11.114    CFS   UNIT VOLUME =    .9984       B =   526.
28      P60 = 1.8700
        AREA =       .002815 SQ MI    IA =    .10000 INCHES    INF =    .04000
 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - D
```



25×10 32×10

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```
T =   .033330

        K =   .131906HR    TP =   .133300HR    K/TP RATIO =   .989541     SHA
PE CONSTANT, N =  3.568112
        UNIT PEAK =   6.8689    CFS   UNIT VOLUME =    .9983       B =   325.
27      P60 = 1.8700
        AREA =      .002815 SQ MI    IA =    .49100 INCHES    INF =   1.22480
 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - D
T =   .033330

    PRINT HYD           ID=2 CODE=1

                                PARTIAL HYDROGRAPH   101.20

       RUNOFF VOLUME =     1.32451 INCHES     =        .3977 ACRE-FEET
       PEAK DISCHARGE RATE =      11.57 CFS  AT   1.500 HOURS   BASIN AREA =
 .0056 SQ. MI.


   *ADDING HYDROGRAPHS FOR TOTAL FLOW INTO POND

   ADD HYD             ID=3 HYD NO=101.3 ID=1 ID=2

   PRINT HYD           ID=3 CODE=1

                                PARTIAL HYDROGRAPH   101.30

      RUNOFF VOLUME =     1.64233 INCHES     =       2.5112 ACRE-FEET
      PEAK DISCHARGE RATE =      69.69 CFS  AT   1.500 HOURS   BASIN AREA =
```



25×10 32×10

```
        3.20        .56   5008.01       .002       .59
        4.00        .35   5008.00       .001       .35
        4.80        .35   5008.00       .001       .34
        5.60        .39   5008.01       .001       .39
        6.40        .04   5008.00       .000       .04
     PEAK DISCHARGE =       39.537 CFS - PEAK OCCURS AT HOUR    1.63
     MAXIMUM WATER SURFACE ELEVATION =     5009.171
     MAXIMUM STORAGE =         .5902 AC-FT      INCREMENTAL TIME=     .033330
HRS

    PRINT HYD          ID=4 CODE=1

                                    PARTIAL HYDROGRAPH   101.40

        RUNOFF VOLUME =     1.64233 INCHES     =       2.5112 ACRE-FEET
        PEAK DISCHARGE RATE =      39.54 CFS  AT   1.633 HOURS   BASIN AREA =
  .0287 SQ. MI.



    FINISH

        NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:18:12
```



25×10 32×10

0000 0000 1249

500-Year Flood Bounda

Base Flood Elevation L
with Elevation In Feet*

Base Flood Elevation in
Where Uniform Within 2

Elevation Reference Ma

River Mile

**Referenced to the Na

*EXPLANATIO

ZONE

| | |
|---|---|
| A | Areas of 1 flood hazard |
| AO | Areas of 1 are between of inundatio are determin |
| AH | Areas of 1 are between elevations a are determin |
| A1-A30 | Areas of 1 flood hazard |
| A99 | Areas of 1 protection elevations a |
| E | Areas betwe year flood; ing with ave the contribu mile; or area (Medium sha |
| C | Areas of min |
| D | Areas of un |
| V | Areas of 1 action); base not determin |
| V1-V30 | Areas of 1 action base determined |

Certain areas not in the s may be protected by floo

This map is for flood ins sarily show all areas sub all planimetric features ou

For adjoining map pane Panels.

INITIA

FLOOD HAZARD

FLOOD INSUR

FLOOD INSUR

0000. 0000 1250

D.R.B. Case No. _____
D.R.C. Project No. _____
Date Submitted _____
Prelim. Plat Approved _____
Prelim. Plat Expires _____

Figure 12

EXHIBIT "A"
To Subdivision Improvements Agreement
DEVELOPMENT REVIEW BOARD (DRB) REQUIRED INFRASTRUCTURE LISTING
for Corrales Storage

Following is a summary of Public/Private Infrastructure required to be constructed or financially guaranteed to be constructed for the above development. This summary is not necessarily a complete listing. During the design process, if the City determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider responsibility. In addition, any unforseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City.

| Size | Type Improvement | Location | From | To |
|---|---|---|---|---|
| 6' | Sidewalk | Corrales Road | NE Property corner | SE Property corner |
| 30" | Storm Drain | Corrales Road | NE Property corner | SE Property corner |

Prepared By: Mark Goodwin

Print Name: Mark Goodwin, PE

Firm: Mark Goodwin & Associates, PA

Page 1 of 1

Development Review Board Member Approvals

Transportation Dev. _____ Date

Utility Dev. _____ Date

Parks & General Services _____ Date

Engineer/AMAFCA _____ Date

DRB Chairman _____ Date

25×10 32×10

0000 0000 1251



# Easterling & Associates, Inc.

10131 Coors Rd., NW, Suite H-7
Albuquerque, New Mexico 87114
(505) 898-8021
FAX (505) 898-8501

March 7, 1996

| Post-it® Fax Note 7671 | Date 4/16/96 | # of pages ▶ 2 |
|---|---|---|
| To Mark Goodwin | From Chuck Easterling | |
| Co./Dept. Mark Goodwin | Co. Easterling & Assoc. | |
| Phone # as discussed | Phone # 898-8021 | |
| Fax # 345-2010 | Fax # 898-8501 | |

Fred Aguirre, P.E.
Hydrology Division
Public Works Department
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

**RE: Storm Drain Size in Corrales Road**

Dear Fred:

The Cabezon Channel project anticipated the collection of storm water runoff from the Corrales Shopping Center/Calle Cuervo Road area. As a result a 30" storm drain was stubbed out southward on the west side of Corrales Road. There is adequate grade available to carry most, if not all, runoff currently flowing northward from Corrales Center in a 30" RCP equivalent line.

Please find attached an excerpt from the Cabezon Channel Record Drawings.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Charles M. Easterling, P.E.

CME/das
Job No. 4110

Attachment

cc: John Black, Las Colinas Realty & Development
Ken Baca, Diamond Shamrock
Larry Parker, Galloway, Romero & Associates

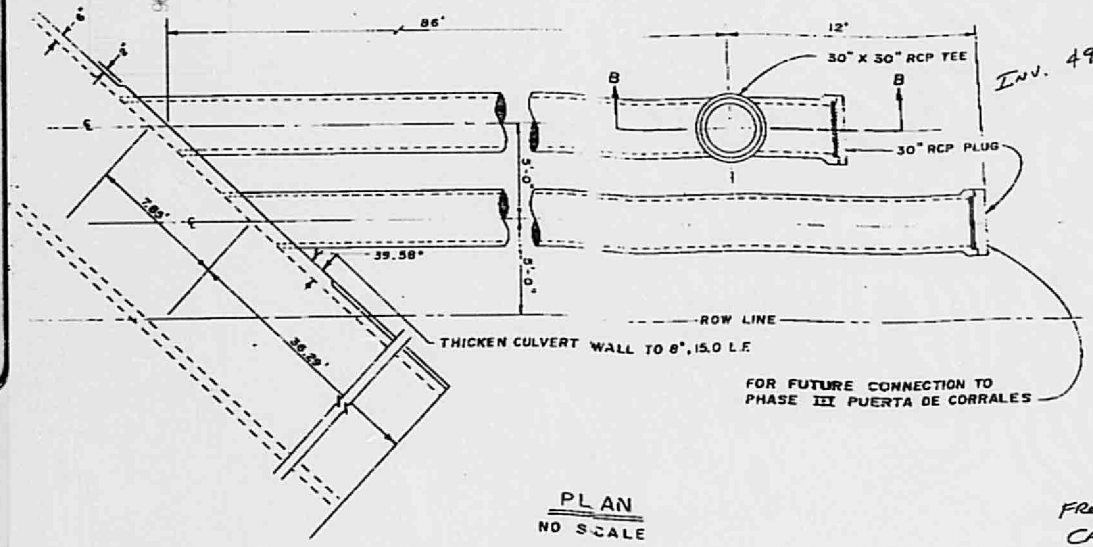
APR 1 6 1996
DROLOGY



25×10 32×10

STORM SEWER CONNECTION TO CULVERT

NO SCALE




PLAN

NO SCALE

From
CABEZON
CHANNEL PLANS.
CME 3-6-96

25X
32X
2521 0000 0000

0000 0000 1253

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 345-2010

*May 9, 1996*

*Ms. Lisa Manwill*
*Hydrology Division*
*City of Albuquerque*
*P.O. Box 1293*
*Albuquerque, NM 87103*

***Re: Corrales Mini-Storage***

*Dear Ms. Manwill:*

*Attached, you will find our analysis of the effects of routing the off-site flows through the on-site depression. This analysis shows that the depression retains 15,400 Cu. Ft. of the off-site volumes of:*

| | |
|---|---|
| *10 Year* | *= 23,266 Cu. Ft.* |
| *100 Year* | *= 46,250 Cu. Ft.* |

*The remaining flows currently flow across Corrales Road and then into the Corrales Main Canal, approximately 300 feet north of this project.*

*While construction of this project will remove the depression, the project also removes 12,275 Cu. Ft. of on-site generated runoff by virtue of the fact that we are removing this site from the basin by draining west into the existing ponding area.*

*We feel that we have shown there will be no adverse impact to historical patterns with this project. We hope that you concur. Please contact our office if you have any questions.*

*Sincerely,*

*MARK GOODWIN & ASSOCIATES, P.A.*

*Mark Goodwin, P.E.*
*President*

*DMG/sr*

*Attachment*

25×10 32×10

0000 0000 1254

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT Carroll's
SUBJECT Drainage
BY MG DATE 5/8/06
CHECKED _____ DATE _____
SHEET 1 OF 1

Per Mtg. w/ COA this date, we will determine effects of off-site flows as they enter & leave the existing on-site depression.

High Point @ Corner = 7.60 Need vol. below this elev.

| Elev. | Δ | Area | Avg Area | Vol. | Accum Vol. |
|---|---|---|---|---|---|
| 6.82 | | 0 | | | |
| | 0.37' | | 3300 | 1221 | 1221 |
| 7.19 | | 6600 | | | |
| | 0.14' | | 18,975 | 2657 | 3878 |
| 7.33 | | 31,350 | | | |
| | 0.27' | | 42,675 | 11,522 | 15,400 |
| 7.60 | | 54,000 | | | |

Depression has an available capacity of 15,400 cu.ft.

Vol. from off-site for 100 Year = 46,250
10 Year = 25,266

All storms from 10 Year and above have a minimum of 2 times the available volume.

25×10 32×10

0000 0000 1255

# City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 3, 1995

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

***RE: CORRALES MINI STORAGE (A14/D4A6). ENGINEER'S STAMP DATED JUNE 29, 1995.***

Dear Mr. Goodwin:

Based on a site investigation by Fred Aguirre and myself, it appears that the above referenced site has a large amount of offsite flow from adjacent property to the south. For this reason, your Site Development Plan for Building Permit is hereby rescinded.

Because you did not mention offsite flows in your conceptual Grading and Drainage plan, it was not caught prior to Site Development Approval. Please submit a detailed grading plan with narrative explaining all pertinent drainage concerns and plans to deal with these drainage issues. Be sure to address offsite flow, downstream capacity, easements, flood hazard zone, and developed and historical flow quantities and paths. You will want to look at and reference the master plan (A14/D4) for this area, with respect to offsite flows from the existing Corrales Center.

Also, on your plan, show construction of new curb and gutter along Corrales Road.

If I can be of further assistance, please feel free to contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Fred Aguirre
Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

25×10 32×10

0000 0000 1256

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

July 26, 1995

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

**RE: CORRALES MINI STORAGE CONCEPTUAL GRADING AND DRAINAGE PLAN FOR SITE DEVELOPMENT PLAN FOR BUILDING PERMIT APPROVAL (A14/D4A6). ENGINEER'S STAMP DATED 6-29-95.**

Dear Mr. Goodwin:

Based on the information provided on your June 30, 1995 submittal, the above referenced site is approved for Site Development Plan for Building Permit.

Please note, the following issues should be addressed prior to Building Permit Approval:

1. Show, on plan sheet, the 20,000 cf pond in landscaped area northeast of building.
2. There appears to be a ponding potential at entrance along Calle Cuervo and behind proposed building.
3. Parking lot seems flat in spots and more elevations need to be shown.
4. It appears that the gravel parking lot, southeast of the proposed building, drains toward the building.
5. Specify flood hazard zone.

If I can be of further assistance, please call me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd

c: Andrew Garcia
File

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

25×10 32×10

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## DRAINAGE INFORMATION SHEET

PROJECT TITLE: Corrales Mini Storage ZONE ATLAS/DRNG,FILE#: A-14/D46

DRB #: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: Corrales Road & Calle Cuervo

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: Mark Goodwin, PE

ADDRESS: PO Box 90606 PHONE: 345-2010

OWNER: Larry La Plat CONTACT: _____

ADDRESS: 7801 Academy NE PHONE: 828-9611

ARCHITECT: De la Torre - Rainhart CONTACT: Jorge De la Torre

ADDRESS: 7801 Acadmey NE PHONE: 828-9611

SURVEYOR: Surv-Tek CONTACT: Rusty Hug

ADDRESS: 5643 Paradise Blvd NW PHONE: 897-3366

CONTRACTOR: N/A CONTACT: _____

ADDRESS: _____ PHONE: _____

**TYPE OF SUBMITTAL:**

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- X CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION
- ____ OTHER

**PRE-DESIGN MEETING:**

- ____ YES
- X NO
- ____ COPY PROVIDED

**CHECK TYPE OF APPROVAL SOUGHT:**

- ____ SKETCH PLAT APPROVAL
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D APPROVAL
- X S. DEV. PLAN FOR BLDG PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATION OF OCCUPANCY APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ S.A.D. DRAINAGE REPORT
- ____ DRAINAGE REQUIREMENTS
- ____ OTHER _____ (Specify)

DATE SUBMITTED: 6/30/95

BY: Mark Goodwin
Mark Goodwin, PE

JUN 30 1995

25× 32×

0000 0000 1258

```
START                TIME=0.0

*****   HYDROGRAPH FOR CORRALES MINI STORAGE
*****   IN THE HOMEBASE SHOPPING CENTER ON      CUERVO

RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.87 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.66 IN DT=0.03333 HR

*HYDROGRAPH FOR EXISTING HOMEBASE SHOPPING CENTER
COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.02304 SQ MI
                     PER A=0.0 PER B=15.0 PER C=5.0 PER D=80.0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=1 CODE=1

*HYDROGRAPH FOR PROPOSED MINI STORAGE
COMPUTE NM HYD       ID=2 HYD NO=101.2 AREA=0.00563 SQ MI
                     PER A=16.0 PER B=15.0 PER C=19.0 PER D=50.0
                     TP=0.1333 HR MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1

*ADDING HYDROGRAPHS FOR TOTAL FLOW INTO POND
ADD HYD              ID=3 HYD NO=101.3 ID=1 ID=2
PRINT HYD            ID=3 CODE=1

FINISH
```

25×10 32×10

0000 0000 1259

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 06/12/1995
     START TIME (HR:MIN:SEC) = 15:49:18      USER NO.= M_GOODWN.I01
     INPUT FILE = cralsms.dat

START                TIME=0.0

*****   HYDROGRAPH FOR CORRALES MINI STORAGE

*****   IN THE HOMEBASE SHOPPING CENTER ON CALLE CUERVO

RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN

                     RAIN ONE=1.87 IN RAIN SIX=2.20 IN

                     RAIN DAY=2.66 IN DT=0.03333 HR

                COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
- PEAK AT 1.40 HR.
                DT =     .033330 HOURS        END TIME =      5.999400 HOURS
                   .0000   .0016   .0033   .0050   .0067   .0085   .0103
                   .0122   .0141   .0160   .0180   .0201   .0222   .0243
                   .0266   .0289   .0312   .0337   .0362   .0388   .0415
                   .0443   .0472   .0502   .0534   .0567   .0601   .0637
                   .0675   .0715   .0758   .0809   .0865   .0924   .1050
                   .1334   .1771   .2398   .3254   .4379   .5814   .7600
                   .9780  1.1804  1.2649  1.3363  1.3997  1.4575  1.5106
                  1.5600  1.6061  1.6493  1.6900  1.7284  1.7646  1.7989
                  1.8314  1.8623  1.8915  1.9193  1.9456  1.9518  1.9576
                  1.9630  1.9682  1.9732  1.9780  1.9825  1.9869  1.9912
                  1.9953  1.9993  2.0031  2.0068  2.0104  2.0140  2.0174
                  2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
                  2.0420  2.0448  2.0475  2.0502  2.0528  2.0554  2.0580
                  2.0605  2.0629  2.0653  2.0677  2.0700  2.0723  2.0746
                  2.0768  2.0790  2.0812  2.0833  2.0855  2.0875  2.0896
                  2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
                  2.1051  2.1070  2.1088  2.1106  2.1124  2.1141  2.1159
                  2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
                  2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
                  2.1401  2.1416  2.1431  2.1446  2.1460  2.1475  2.1489
                  2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
                  2.1600  2.1614  2.1627  2.1640  2.1654  2.1667  2.1680
                  2.1692  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
                  2.1780  2.1792  2.1804  2.1817  2.1829  2.1840  2.1852
                  2.1864  2.1876  2.1887  2.1899  2.1910  2.1922  2.1933
                  2.1944  2.1956  2.1967  2.1978  2.1989  2.2000

*HYDROGRAPH FOR EXISTING HOMEBASE SHOPPING CENTER

COMPUTE NM HYD       ID=1 HYD NO=101.1 AREA=0.02304 SQ MI

                     PER A=0.0 PER B=15.0 PER C=5.0 PER D=80.0
```

25×10 32×10

```
                    TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE
 CONSTANT, N =  7.106420
        UNIT PEAK =   72.771    CFS   UNIT VOLUME =    .9992       B =   526.28
     P60 = 1.8700
        AREA =      .018432 SQ MI    IA =    .10000 INCHES    INF =    .04000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033330

        K =   .124711HR    TP =   .133300HR    K/TP RATIO =   .935564     SHAPE
 CONSTANT, N =  3.780327
        UNIT PEAK =   11.762    CFS   UNIT VOLUME =    .9991       B =   340.25
     P60 = 1.8700
        AREA =      .004608 SQ MI    IA =    .46250 INCHES    INF =   1.14500 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033330

    PRINT HYD           ID=1 CODE=1

                                     PARTIAL HYDROGRAPH   101.10

        RUNOFF VOLUME =     1.72002 INCHES     =       2.1135 ACRE-FEET
        PEAK DISCHARGE RATE =      58.12 CFS  AT   1.500 HOURS   BASIN AREA =
 .0230 SQ. MI.



    *HYDROGRAPH FOR PROPOSED MINI STORAGE

    COMPUTE NM HYD      ID=2 HYD NO=101.2 AREA=0.00563 SQ MI

                        PER A=16.0 PER B=15.0 PER C=19.0 PER D=50.0

                        TP=0.1333 HR MASS RAINFALL=-1

        K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE
 CONSTANT, N =  7.106420
        UNIT PEAK =   11.114    CFS   UNIT VOLUME =    .9984       B =   526.28
     P60 = 1.8700
        AREA =      .002815 SQ MI    IA =    .10000 INCHES    INF =    .04000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033330

        K =   .131906HR    TP =   .133300HR    K/TP RATIO =   .989541     SHAPE
 CONSTANT, N =  3.568112
        UNIT PEAK =    6.8689   CFS   UNIT VOLUME =    .9983       B =   325.27
     P60 = 1.8700
        AREA =      .002815 SQ MI    IA =    .49100 INCHES    INF =   1.22480 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=   .033330

    PRINT HYD           ID=2 CODE=1
```

25×10 32×10

```
                                        PARTIAL HYDROGRAPH   101.20

        RUNOFF VOLUME =      1.32451 INCHES      =         .3977 ACRE-FEET
        PEAK DISCHARGE RATE =       11.57 CFS  AT    1.500 HOURS    BASIN AREA =
.0056 SQ. MI.


    *ADDING HYDROGRAPHS FOR TOTAL FLOW INTO POND

    ADD HYD              ID=3 HYD NO=101.3 ID=1 ID=2

    PRINT HYD            ID=3 CODE=1

                                        PARTIAL HYDROGRAPH   101.30

        RUNOFF VOLUME =      1.64233 INCHES      =        2.5112 ACRE-FEET
        PEAK DISCHARGE RATE =       69.69 CFS  AT    1.500 HOURS    BASIN AREA =
.0287 SQ. MI.


    FINISH

        NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:49:29
```

25×10 32×10

0000 0000 1262

dmg D. Mark Goodwin & Associates, P.A.
Consulting Engineers and Surveyors

PROJECT Cerrolos Mini-Storage
SUBJECT Drainage
BY MG DATE 6/12/95
CHECKED _____ DATE _____
SHEET ___ OF ___

We wish to expand existing pond to provide for additional volume.

Pond Volume

| Elev. | Δ | Area | AVG Area | Vol. |
|---|---|---|---|---|
| 5008 | | 14,300 | | |
| | 1 | | 14,868 | 14,868 |
| 5009 | | 15,436 | | |
| | 1 | | 17,136 | 17,136 |
| 5010 | | 18,836 | | |
| | 1 | | 19,678 | 19,678 |
| 5011 | | 20,520 | | |
| | 1 | | 22,518 | 22,518 |
| 5012 | | 24,516 | | |
| | | | | 74,200 |

Exist. Pond Vol. = 74,200

Per AHYMO Vol. needed = 108,900

Vol. Still needed = 34,700

By expanding pond to N. we can gain 20,000 C.F.

By utilizing landscape area along Calle Cuervo we can gain 15,000 C.F.

25×10 32×10

0000 0000 1263

PLANS/PLATS ON FILE

FILE DESC: A14/D4A6

# PLANS/PLATS 8

25×10 32×10

0000.0000 1264