CITY OF ALBUQUERQUE

Planning Department
David S. Campbell, Director

Timothy M. Keller, Mayor

August 20, 2018

Diane Hoelzer, PE
Mark Goodwin & Associates, PA.
PO Box 90606
Albuquerque, NM 87199

Re: Shops @ the 24s
32424 Louisiana Blvd NE
Grading and Drainage Plan
Engineer's Stamp dated: 8/14/2018 (H19D001)

Dear Mr. Goodwin,

Based upon the information provided in the submittal received on 8/15/2018 the above-referenced plan can't be approved for Building Permit and/or Grading Permit until the following comments are addressed.

1. Add a general statement of the Drainage History to the G&D Plan. The history should mention that this 3.05 acre site was approved in about 1978 for one building with runoff detained on the roof, and asphalt parking lots on the west, south, and east sides of the building also used to detain runoff. Recently the parking lot on the east side of the existing building was converted into an underground parking lot and the detention there was replaced by retention. Two existing parking lot ponds on the south side of the existing building drain to sump inlets with 6" diameter orifice plates located 2" below the surface of the grates. The three existing parking lot ponds on the west side of the building have fallen into a state of disrepair the east inlet orifice plate has become loose inside the inlet, the middle inlet has been modified and the orifice plate is missing, and the west inlet orifice plate rusted through. The three inlets on the west side of the building are of a different type than the two on the south but they seem to have about the same capacity.
2. The Drainage Management Plan should say that this project will repair/replace the ponds on the west side of the existing building so that the detained volume will be equal to or greater than that originally planned and the runoff rate will be equal to or less than that originally planned. The Management Plan and History should show up on both the G&D Plan and on the Maintenance Covenant.
3. A Drainage Covenant is required for the detention/retention ponds and private storm drains on this lot. The original notarized covenant, pond exhibits (legible on 8.5x11 paper), and recording fee ($25, payable to City of Albuquerque) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie

PO Box 1293

Albuquerque

NM 87103

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(clabadie@cabq.gov, 924-3996) or Madeline Carruthers (mtafoya@cabq.gov, 924-3997) regarding the routing and recording process for covenants.

4. The contours and spot elevations do not agree, for example the existing 5292 contour goes thru the existing 5222.91 spot elevation. The topography must be fixed before an estimate of the parking lot detention volume can be made. The new detention volume should be equal to or greater than the originally designed volume and there should not be any bypass flows from areas that previously flowed to detention ponds, so the new building must drain to a detention pond.

5. Additionally each first flush pond must be designed for the required volume of the area draining to it. The area draining to each first flush pond must be identified on the basin map. Calculations of the required volume and the provided volume must be presented on the plan and on the exhibits to be recorded with the maintenance covenant (multiple pages may be needed for clarity).

6. The hydraulic calculations of the drainage structures are incomplete. The capacity of the inlets & orifice plates must be checked using both the orifice equation and the weir equation and the more limiting of the two should be used. The overflow spillway of each pond must be identified on a cross section detail on the plans and the 100 year elevation determined by the weir equation. The first flush elevation and 100 year elevation of each pond must be shown on the plan and on the exhibits to be recorded with the maintenance covenant.

7. The grading plan is still difficult to read. It is cluttered with unnecessary lines such as the outline of the tree drip lines. Please delete unnecessary lines and hatch patterns. Consider adding a separate demolition plan to show all of the existing improvements, trees, signs, light poles, curbs, asphalt, inlets, and storm drains be removed, or include removal notes on the Grading Plan.

8. Please add the line type that looks like a wall to the legend and add more spot elevations along the west side of the new building. Show the wall or whatever it is in a typical section showing existing and proposed grades and dimensions on the west from the curb on Louisiana to the building including the wall. The line type appears on the west side of the building and around two planters on the east side of the building. The spots next the patio in the northwest corner of the building indicate a 2' plus retaining wall but the limits of the wall are not clear.

9. A valley gutter is recommended in the swale on the east side of the new building to get drainage from the south side of the new parking lot to the inlet. The swale must be shown with flow arrows and as a grade hinge line if not shown as a valley gutter. Similarly show the flow path from the northwest corner of the site to the inlet. An additional inlet may be needed to drain the northwest corner which currently drains to the inlet under the building.

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10. Provide a detail showing finished contours in the proposed parking lot pond at the same elevations that are used in the AHYMO pond routing input file up to elevation 5223.0

11. Show contours inside pond #2 and provide volume calculations separate from pond #1. Is the line inside the pond supposed to be indicating a flat bottom at elevation 5222.37? If so, the line is not clearly identified as such and it is too close to the curb, particularly at the south end where the TC is 20" above the pond invert. Similarly show the contour at the first flush elevation 5222.75. Show additional finished contours at 5223.0 and 5223.5 in the parking lot around the pond. Show a section through the edge of pond 2 with dimensions. Add a section through the overflow spillway for pond 2 with weir calculation to determine 100 year elevation, unless it is a retention pond that spreads out into the parking lot. Provide a separate basin on the basin map for pond 2. If pond 2 is a retention pond, the 10 year volume should be contained in the pond and the limits of the 100 year 6 hour storm should be shown on the plan.

12. Clearly identify the area draining into first flush ponds 1, 3, & 4. What portion of the roof drains into each? Show contours and sections thru the edge of each pond and a section thru the spillway of each pond with weir calculations of 100 year elevation on the G&D Plan. Label both the 100 year and first flush elevation of each pond on the G&D Plan and on the Maintenance Covenant.

For Information. Hydrology and Transportation files are available online through the City's GIS Viewer 2.0: https://www.cabq.gov/gis/advanced-map-viewer. Turn on the *HydroTrans* layer: *Operational Layers* > *Albuquerque Layers* > *Sites* > *HydroTrans*. Select the desired polygon from the map and click *Link to Project Documents*.

If you have any questions, please contact me at 924-3986 or e-mail at jhughes@cabq.gov .

Sincerely,

James D. Hughes, P.E.
Principal Engineer, Hydrology
Planning Department

City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: Shops @ The 24s **Building Permit #:** _____ **Hydrology File #:** H19D001

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: Lot 3-A-1, Block C

City Address: 2424 Louisiana BLVD N.E.

Applicant: Sun Vista **Contact:** Irwin Harms

Address: 6801 Jefferson, Ste 100, Albuquerque, NM 87109

Phone#: (505) 798-9800 **Fax#:** _____ **E-mail:** irwin@sunvista.net

Other Contact: Mark Goodwin + Associates, PA **Contact:** Cory Pierce

Address: P.O. Box 90606, Albuquerque, NM 87199

Phone#: 828-2200 **Fax#:** _____ **E-mail:** cory@goodwinengineers.com

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE ✓ ADMIN SITE

IS THIS A RESUBMITTAL? ✓ Yes _____ No

DEPARTMENT _____ TRANSPORTATION ✓ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- ____ ENGINEER/ARCHITECT CERTIFICATION
- ____ PAD CERTIFICATION
- ____ CONCEPTUAL G & D PLAN
- ✓ GRADING PLAN
- ____ DRAINAGE REPORT
- ____ DRAINAGE MASTER PLAN
- ____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- ____ ELEVATION CERTIFICATE
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ TRAFFIC IMPACT STUDY (TIS)
- ____ STREET LIGHT LAYOUT
- ____ OTHER (SPECIFY) _____
- ____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ✓ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY
- ____ PRELIMINARY PLAT APPROVAL
- ____ SITE PLAN FOR SUB'D APPROVAL
- ____ SITE PLAN FOR BLDG. PERMIT APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ SIA/ RELEASE OF FINANCIAL GUARANTEE
- ____ FOUNDATION PERMIT APPROVAL
- ____ GRADING PERMIT APPROVAL
- ____ SO-19 APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ GRADING/ PAD CERTIFICATION
- ____ WORK ORDER APPROVAL
- ____ CLOMR/LOMR
- ____ FLOODPLAIN DEVELOPMENT PERMIT
- ____ OTHER (SPECIFY) _____

DATE SUBMITTED: 8/14/2018 **By:** Cory Pierce

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

The Shops @ the 24's
Drainage Analysis Report

Prepared For:

Sun Vista
6801 Jefferson
Suite 100
Albuquerque, NM 87109
(505) 798-9800

Prepared By:

Mark Goodwin & Associates, PA
PO BOX 90606
Albuquerque, NM 87199
(505) 828-2200

Table of Contents

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

~ 2012 ACEC/NM Award Winner for Engineering Excellence ~
~ 2008 ACEC/NM Award Winner for Engineering Excellence ~
~ 2017 ENR Landscape/Urban Development Award of Merit~

August 14, 2018

James A. Hughes, PE
City of Albuquerque
600 2nd Street SW
Albuquerque, NM 87102

RE: Shops @ the 24s
2424 Louisiana Blvd NE
Grading and Drainage Plan
Engineers Stamp Dated 7/23/2018 (H19D001)

Dear Mr. Hughes,

In response to correspondence dated July 27, 2018, please find enclosed submittal. The submittal is revised per comments as follows:

1. The calculations are bound in report with engineer's stamp. The report includes AHYMO input and output files, along with the source precipitation used (NOAA Atlas 14).
2. Drainage basin maps are included and show all offsite basins surface flowing into the area of construction.
3. A drainage covenant is included for the detention pond and storm drain in the parking lot constructed with this construction project.
4. The grading plan legibility is changed with revised proposed pavement hatching.
5. A detention pond is proposed with this project that detains 6 inches of water within the parking lot from the 100 yr. storm. Detention is created from two inlets equipped with orifice plates. Additionally, separate first flush capture ponds are included to meet City of Albuquerque requirements for reconstruction development. The first flush ponds and inlets are detailed.
6. More detail is included for the first flush ponds, and detail is included for the detention pond in the bound report along with calculations.
7. Thank you for the instruction to the internet access of the Hydrology and Transportation files. The hydrology files were accessed for the design. The hydrology file of the 2002 drainage report, by Larry Read and Associates, and the conceptual drainage plan prepared by Bohannan Huston, Inc. are additionally included in the appendices of the bound report.

Please review and approve the submittal for grading permit and construction permit for the new building.

Sincerely,
MARK GOODWIN & ASSOCIATES, PA

Cory D. Pierce, PE

Cory D. Pierce, PE
Staff Engineer

F:\1-Projects\2018\A18018 - Shops @ The 24's\Outgoing\2018-08-13 Grading to COA_2\Response Ltr_J_Hughes.docx

CITY OF ALBUQUERQUE

Planning Department
David S. Campbell, Director

Timothy M. Keller, Mayor

July 27, 2018

Mark Goodwin, PE
Mark Goodwin & Associates, PA.
PO Box 90606
Albuquerque, NM 87199

Re: Shops @ the 24s
32424 Louisiana Blvd NE
Grading and Drainage Plan
Engineer's Stamp dated: 7/23/2018 (H19D001)

Dear Mr. Goodwin,

Based upon the information provided in the submittal received on 7/16/2018 the above-referenced plan can't be approved for Building Permit and/or Grading Permit until the following comments are addressed.

1. All calculations must be in a bound report with an Engineer's stamp and signature on it. Input, output and summary output from AHYMO are required. Identify the source of precipitation values used.
2. A drainage basin map is required and must show this entire lot and all upstream off site basins draining into this lot if any.
3. A Drainage Covenant is required for the detention/retention ponds and private storm drains on this lot. The original notarized form, pond exhibits (legible on 8.5x11 paper), and recording fee ($25, payable to City of Albuquerque) must be turned into DRC (4th, Plaza del Sol) for routing. Please contact Charlotte LaBadie (clabadie@cabq.gov, 924-3996) or Madeline Carruthers (mtafoya@cabq.gov, 924-3997) regarding the routing and recording process for covenants.
4. Drainage Covenants are required for the detention/retention ponds and private storm drains on this lot.
5. The grading plan is not legible. The proposed pavement hatching obscures existing topography, storm drains, and drainage basin boundaries.
6. Both detention and first flush retention are required. The capacity of the existing storm drain in Louisiana Blvd has been exceeded so the allowable 100-year discharge is 0.1 cfs/acre. The outlet structures on the existing parking lot ponds must be repaired and/or replaced as part of this permit. Include details and construction notes.
7. More detail is needed for all of the ponds including grading details, typical sections, volume calculations, and hydraulic structure details with calculations.

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8. For Information. Hydrology and Transportation files are available online through the City's GIS Viewer 2.0: https://www.cabq.gov/gis/advanced-map-viewer. Turn on the *HydroTrans* layer: *Operational Layers* > *Albuquerque Layers* > *Sites* > *HydroTrans*. Select the desired polygon from the map and click *Link to Project Documents*.

If you have any questions, please contact me at 924-3986 or e-mail at jhughes@cabq.gov .

Sincerely,

James D. Hughes, P.E.
Principal Engineer, Hydrology
Planning Department

PO Box 1293

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The Shops @ The 24s

Supplemental Information

I. Project Description:

The Shops @ the 24s involves the construction of a new building in an existing parking lot. The building footprint is over an existing storm drain. The storm drain is to be reconstructed to the north and west of the building. The proposed impervious area to the existing is essentially the same. The area of construction is approximately 20085 SF (0.46 AC).

II. Design Criteria:

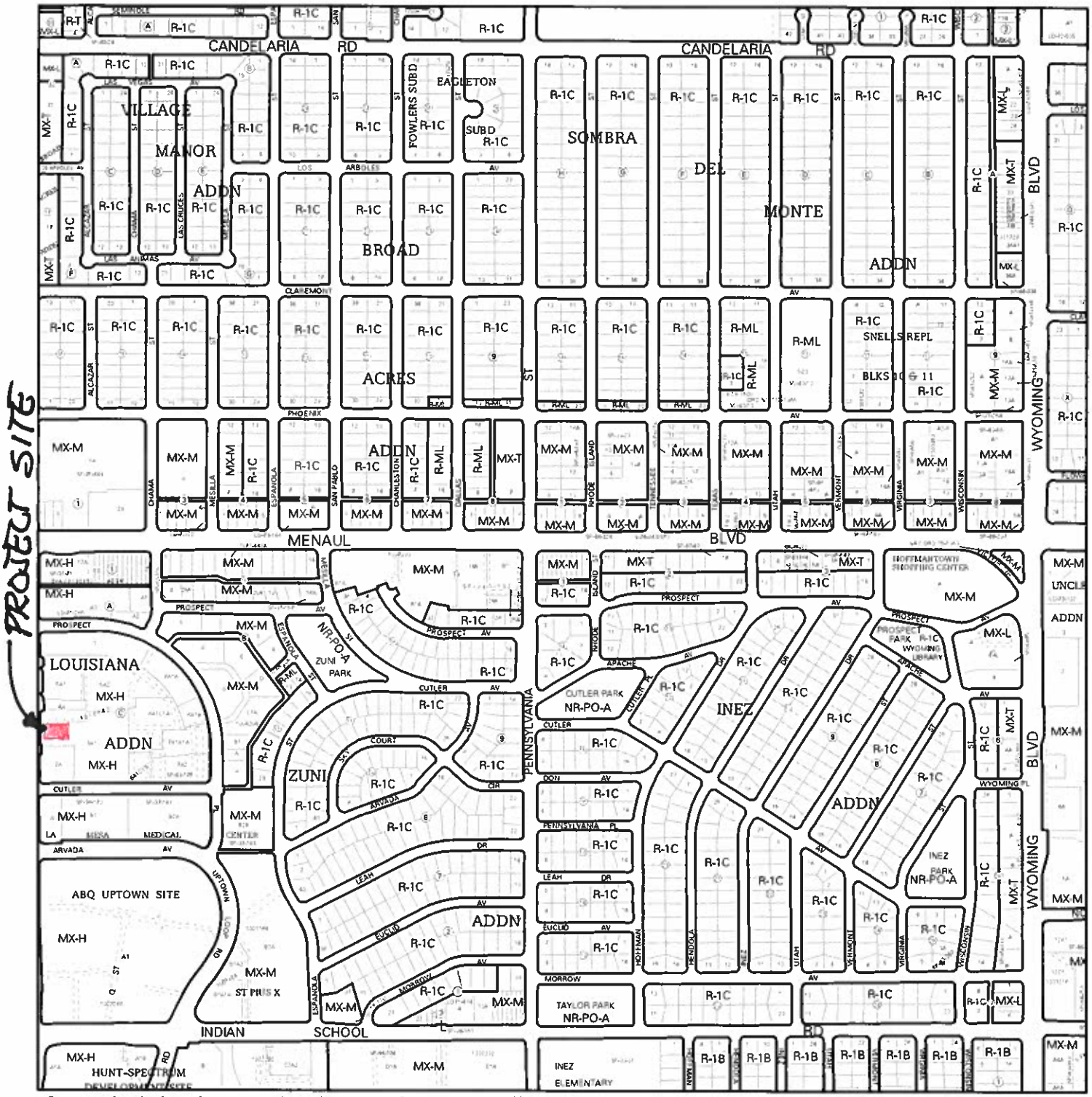
The design criteria used in this report is in accordance with Section 22.2, Hydrology of the Development Process Manual, Volume 2. The 100 year 6-hour storm event is analyzed with AHYMO to determine discharge into an existing storm drain system. Discharge into the existing storm drain system is required to be reduced by the City of Albuquerque hydrology department in order to reduce storm discharge into the Louisiana storm drain.

III. Drainage conditions:

Existing site runoff is not changed significantly from existing conditions to proposed; the 100 yr peak Q = 3.69 CFS for existing conditions, the 100 yr peak Q = 3.59 CFS for proposed conditions. Discharge is reduced by 1.89 CFS due to the new inlets equipped with 6" orifice plates and detention of the 100 yr storm. The roof (Basin 101) drains into Basin 100 to the new inlets for the combined flow to be limited from 3.46 cfs to 1.57 cfs. The orifice plates are set at elevation 5222.13 and a discharge rating curve was assembled from elevation 5222.35 to 5223.50. The discharge was evaluated with the orifice equation with orifice coefficient of 0.6 (Standard Handbook for Civil Engineers, Third Edition, Frederick S Merritt). The discharge for one orifice was doubled for two as they are set at the same elevation. This is an approximate approach as the north inlet chamber will fill to a higher elevation before the south orifice basin, thereby discharging at a higher rate than the south orifice before the peak of the 100 yr discharge hydrograph.

IV. First flush

The new grades will capture first flush runoff from the new construction area and existing offsite paved area. First flush ponds 1+2 will capture from the east side of basin 100, first flush pond 3 will capture from a downspout from the building roof, and first flush pond 4 will capture from basin 102. The required first flush volume generated by the new construction area is calculated at 362 cf (0.26" first flush depth). Collecting first flush from offsite areas is not required, however, because the offsite basins are available from existing elevations, offsite basin discharge is collected and credited towards the construction area required first flush volume. The first flush ponds collect flow thru curb openings at upstream sides and release volume in excess of first flush thru downstream curb openings that are 1/2" lower in elevation.



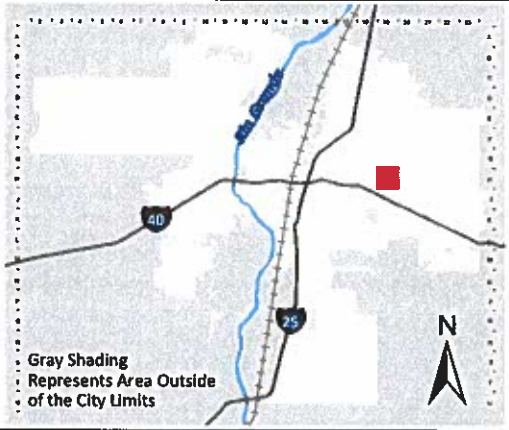
For more details about the Integrated Development Ordinance visit: http://www.cabq.gov/planning/codes-policies-regulations/integrated-development-ordinance

IDO Zone Atlas
May 2018

AGIS
Albuquerque Geographic Information System

IDO Zoning information as of May 17, 2018

The Zone Districts and Overlay Zones are established by the Integrated Development Ordinance (IDO).



Zone Atlas Page:
H-19-Z

- Easement
- Escarpment
- Petroglyph National Monument
- Areas Outside of City Limits
- Airport Protection Overlay (APO) Zone
- Character Protection Overlay (CPO) Zone
- Historic Protection Overlay (HPO) Zone
- View Protection Overlay (VPO) Zone

Feet
0 250 500 1,000

PROJECT SITE
LOUISIANA BLVD.
Cutler Ave NE

The Shops @ 24s

Existing Conditions:

Basin 200:

	SF	AC	SQ MI
Total Basin Area:	26594	0.6105	0.000954
Non-Impervious	2251	0.0517	
Impervious	24343	0.5588	

A	B	C	D
	4%	4%	92%

Basin 201:

	SF	AC	SQ MI
Total Basin Area:	8069	0.1852	0.000289
Non-Impervious	677	0.0155	
Impervious	7392	0.1697	

A	B	C	D
	4%	4%	92%

Proposed Conditions:

Basin 100:

	SF	AC	SQ MI
Total Basin Area:	27020	0.6203	0.000969
Non-Impervious	2355	0.0541	
Impervious	24665	0.5662	

A	B	C	D
	5%	4%	91%

Basin 101:

	SF	AC	SQ MI
Total Basin Area:	5578	0.1281	0.000200
Non-Impervious	0	0.0000	
Impervious	5578	0.1281	

A	B	C	D
	0%	0%	100%

Parking Lot Pond Volume Rating Table:

Orfice Dia (in)	6		
Orifice Invert	5222.13	C=	0.6

Elevation	Area	Incriment Depth	Incriment Volume	Cumulative Volume	Cumulative Volume (AF)	Head	Discharge (Both inlets)
5,222.35	214	0	9.1	9.1	0.0002	0.22	0.89
5,222.55	550	0.20	25.04	83.13	0.0019	0.42	1.23
5,222.80	4334	0.25	1083.50	1166.63	0.0268	0.67	1.55
5,223.00	12700	0.20	2539.96	3706.59	0.0851	0.87	1.76
5,223.25	12700	0.25	3174.96	6881.55	0.1580	1.12	2.00
5,223.50	12700	0.25	3174.96	10056.51	0.2309	1.37	2.21

Basin 102:

	SF	AC	SQ MI
Total Basin Area:	1149	0.0264	0.000041
Non-Impervious	179	0.0041	
Impervious	970	0.0223	

A	B	C	D
	8%	8%	84%

Shops at the 24s

First Flush Pond Design Details

Area of Construction:	SF	AC	SQ MI
	20085	0.4611	0.00072

Proposed (SF)	
Impervious	Landscape
16709	3376

First Flush depth: (inches)	0.26
Required First Flush Volume based on Design: (CF)	362
Proposed Design First Flush Capacity	
PONDS 1 & 2	
Depth (FT):	0.38
Bottom (SF)	305
Top (SF)	403
Volume (CF)	134.52
Two Ponds (1&2)	269.04
POND 3	
Depth (FT):	0.38
Bottom (SF)	111
Top (SF)	161
Volume (CF)	52
POND 4	
Depth (FT):	0.38
Bottom (SF)	85
Top (SF)	133
Volume (CF)	41
First Flush Captured Volume (CF)=	362

APPENDIX A

AHYMO Input, Summary, Output, and Rainfall

```
START          0.0 HOURS   PC=0  PL=-1
LOCATION            ALBUQUERQUE
*S SHOPS AT 24S-18018
*S ONSITE AND OFFSITE PROPERTY RUNOFF for 6" ORFICE PLATE
*S By Cory Pierce
RAINFALL            TYPE=1  0.0  1.84  2.38  2.77    DT=0.01
SEDIMENT BULK         CODE=1   BULK FACTOR = 1.06
*Basin to Reconstructed Inlet
COMPUTE NM HYD        ID=1  HYD=100 AREA=0.00096 SQ MI
                A B C D 0 5 4 91
                TP=0.13333  MASSRAIN=-1
PRINT HYD             ID=1  CODE=1
*Roof Drain Basin
COMPUTE NM HYD        ID=2  HYD=101 AREA=0.0002 SQ MI
                A B C D 0 0 0 100
                TP=0.13333  MASSRAIN=-1
PRINT HYD             ID=2  CODE=1
ADD HYD             ID=3 HYD=201 I=1   I=2
PRINT HYD             ID=3 CODE=1
*sPARKING LOT POND DESIGN WITH 100-YR DEVELOPED FLOWS TO DISCHARGE ORFICES AT ELEVATION
ROUTE RESERVOIR       ID=5  HYD NO=POND.OT  INFLOW=3 CODE=24
                                    OUTFLOW (CFS)    STORAGE(AF)    ELEV(FT)
                              0.89                0.00021              5222.35
                                    1.23                0.00191              5222.55
                                    1.55                0.02678              5222.80
                                    1.76                0.08509   5223.00
                                    2.00                0.1579               5223.25
                                    2.21                0.2308               5223.5
PRINT HYD                   ID=5 CODE 1
*First Flush Basin Pond 4
COMPUTE NM HYD        ID=8  HYD=102 AREA=0.00004 SQ MI
                A B C D 0 8 8 84
                TP=0.13333  MASSRAIN=-1
PRINT HYD             ID=8  CODE=1
*Existing Basin to Inlet
COMPUTE NM HYD        ID=10  HYD=200 AREA=0.00095 SQ MI
                A B C D 0 4 4 92
                TP=0.13333  MASSRAIN=-1
PRINT HYD             ID=10  CODE=1
*Existing Basin to inlet removed at building
COMPUTE NM HYD        ID=11  HYD=201 AREA=0.000289 SQ MI
                A B C D 0 4 4 92
                TP=0.13333  MASSRAIN=-1
PRINT HYD             ID=11  CODE=1
ADD HYD             ID=12 HYD=201 I=10   I=11
PRINT HYD             ID=12 CODE=1
FINISH
```

```
←(s16.66H
   AHYMO PROGRAM SUMMARY TABLE (AHYMO-S4)                    - Ver. S4.01a, Rel: 01a      RUN DATE (MON/DAY/YR) =08/09/2018
   INPUT FILE = ts\2018\A18018 - Shops @ The 24's\Drainage\ahymo_Shops_at_24s_IN_6_6DPTH.txt USER NO.= M-GoodwinNMSiteA90075759

                                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=       0.00
   LOCATION                      ALBUQUERQUE
   *S SHOPS AT 24S -18018
   *S ONSITE AND OFFSITE PROPERTY RUNOFF for 6" ORFICE PLATE
   *S By Cory Pierce
   RAINFALL  TYPE= 1 NOAA 14                                                                            RAIN6=      2.380
   SEDIMENT BULK                                                                                        PK BF =     1.06
   COMPUTE NM HYD        100.00   -     1       0.00096      2.84       0.110      2.14036    1.530    4.618 PER IMP=   91.00
   COMPUTE NM HYD        101.00   -     2       0.00020      0.62       0.024      2.25280    1.520    4.825 PER IMP=  100.00
   ADD HYD               201.00  1& 2   3       0.00116      3.45       0.134      2.15933    1.530    4.653
   *sPARKING LOT POND DESIGN WITH 100-YR DEVELOPED FLOWS TO DISCHARGE ORFICES AT EL
   ROUTE RESERVOIR      POND.OT    3     5       0.00116      1.57       2.979     48.14673    1.720    2.114 AC-FT=     0.032
   COMPUTE NM HYD        102.00   -     8       0.00004      0.13       0.004      2.05520    1.530    4.905 PER IMP=   84.00
   COMPUTE NM HYD        200.00   -     10      0.00095      2.82       0.109      2.15400    1.530    4.640 PER IMP=   92.00
   COMPUTE NM HYD        201.00   -     11      0.00029      0.87       0.033      2.15400    1.530    4.695 PER IMP=   92.00
   ADD HYD               201.00 10&11  12      0.00124      3.69       0.142      2.15359    1.530    4.653
   FINISH
←(s10H
```

```
←(s16.66H

        AHYMO PROGRAM (AHYMO-S4)                    - Version: S4.01a - Rel: 01a
             RUN DATE (MON/DAY/YR) = 08/09/2018
             START TIME (HR:MIN:SEC) = 18:09:45     USER NO.= M-GoodwinNMSiteA90075759
             INPUT FILE = ojects\2018\A18018 - Shops @ The 24's\Drainage\ahymo_Shops_at_24s_IN_6_6DPTH.txt

    START               0.0 HOURS   PC=0  PL=-1
    LOCATION                ALBUQUERQUE
         City of Albuquerque soil infiltration values (LAND FACTORS) used for computations.
         Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
               A            0.65                  1.67
               B            0.50                  1.25
               C            0.35                  0.83
               D            0.10                  0.04

    *S SHOPS AT 24S -18018
    *S ONSITE AND OFFSITE PROPERTY RUNOFF for 6" ORFICE PLATE
    *S By Cory Pierce
    RAINFALL                TYPE=1  0.0  1.84  2.38  2.77    DT=0.01

                  6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1
                  DT =   0.010000 HOURS       END TIME =     6.000000 HOURS
                    0.0000  0.0007  0.0014  0.0022  0.0029  0.0036  0.0043
                    0.0050  0.0057  0.0065  0.0073  0.0081  0.0089  0.0097
                    0.0105  0.0113  0.0121  0.0129  0.0138  0.0147  0.0155
                    0.0164  0.0173  0.0182  0.0191  0.0200  0.0210  0.0220
                    0.0230  0.0240  0.0250  0.0260  0.0270  0.0280  0.0298
                    0.0321  0.0343  0.0366  0.0388  0.0410  0.0433  0.0455
                    0.0479  0.0504  0.0529  0.0553  0.0578  0.0603  0.0628
                    0.0653  0.0678  0.0705  0.0733  0.0760  0.0787  0.0814
                    0.0841  0.0868  0.0895  0.0923  0.0951  0.0980  0.1008
                    0.1036  0.1065  0.1093  0.1121  0.1150  0.1180  0.1209
                    0.1239  0.1269  0.1298  0.1328  0.1358  0.1387  0.1420
                    0.1453  0.1486  0.1519  0.1552  0.1585  0.1617  0.1650
                    0.1686  0.1723  0.1760  0.1797  0.1834  0.1871  0.1908
                    0.1945  0.1987  0.2040  0.2093  0.2147  0.2200  0.2253
                    0.2306  0.2359  0.2413  0.2484  0.2555  0.2627  0.2698
                    0.2769  0.2841  0.2912  0.2983  0.3073  0.3173  0.3273
                    0.3373  0.3473  0.3572  0.3672  0.3772  0.3888  0.4038
                    0.4188  0.4338  0.4488  0.4637  0.4787  0.4937  0.5087
                    0.5346  0.5604  0.5863  0.6121  0.6380  0.6639  0.6897
                    0.7156  0.7701  0.8390  0.9079  0.9768  1.0457  1.1146
                    1.1835  1.2524  1.3111  1.3493  1.3875  1.4257  1.4639
                    1.5021  1.5402  1.5784  1.6166  1.6358  1.6550  1.6742
                    1.6934  1.7126  1.7318  1.7510  1.7702  1.7846  1.7967
                    1.8088  1.8209  1.8330  1.8450  1.8571  1.8692  1.8801
                    1.8884  1.8968  1.9052  1.9136  1.9220  1.9303  1.9387
                    1.9471  1.9532  1.9594  1.9655  1.9716  1.9778  1.9839
```

1.9900	1.9962	2.0013	2.0060	2.0106	2.0153	2.0199
2.0245	2.0292	2.0338	2.0381	2.0416	2.0450	2.0485
2.0520	2.0555	2.0590	2.0624	2.0659	2.0690	2.0722
2.0753	2.0784	2.0815	2.0846	2.0877	2.0909	2.0936
2.0962	2.0988	2.1014	2.1040	2.1066	2.1092	2.1118
2.1144	2.1168	2.1192	2.1216	2.1240	2.1264	2.1288
2.1312	2.1336	2.1359	2.1382	2.1406	2.1429	2.1452
2.1475	2.1498	2.1522	2.1536	2.1547	2.1558	2.1569
2.1580	2.1590	2.1601	2.1612	2.1623	2.1633	2.1643
2.1654	2.1664	2.1675	2.1685	2.1695	2.1706	2.1715
2.1725	2.1735	2.1745	2.1754	2.1764	2.1774	2.1783
2.1793	2.1802	2.1812	2.1821	2.1831	2.1840	2.1849
2.1859	2.1868	2.1877	2.1886	2.1896	2.1905	2.1914
2.1923	2.1932	2.1941	2.1950	2.1958	2.1967	2.1976
2.1984	2.1993	2.2001	2.2010	2.2018	2.2027	2.2035
2.2044	2.2052	2.2060	2.2069	2.2077	2.2085	2.2093
2.2102	2.2110	2.2118	2.2126	2.2134	2.2142	2.2150
2.2158	2.2166	2.2174	2.2181	2.2189	2.2197	2.2204
2.2212	2.2220	2.2227	2.2235	2.2242	2.2250	2.2257
2.2265	2.2273	2.2280	2.2287	2.2295	2.2302	2.2309
2.2317	2.2324	2.2332	2.2339	2.2346	2.2353	2.2360
2.2367	2.2374	2.2381	2.2388	2.2395	2.2402	2.2409
2.2416	2.2423	2.2429	2.2436	2.2443	2.2450	2.2457
2.2464	2.2470	2.2477	2.2484	2.2490	2.2497	2.2504
2.2511	2.2517	2.2524	2.2530	2.2537	2.2544	2.2550
2.2557	2.2563	2.2570	2.2576	2.2583	2.2589	2.2595
2.2602	2.2608	2.2615	2.2621	2.2628	2.2634	2.2640
2.2646	2.2653	2.2659	2.2665	2.2672	2.2678	2.2684
2.2690	2.2696	2.2703	2.2709	2.2715	2.2721	2.2727
2.2733	2.2739	2.2745	2.2752	2.2758	2.2764	2.2770
2.2776	2.2782	2.2788	2.2794	2.2800	2.2806	2.2811
2.2817	2.2823	2.2829	2.2835	2.2841	2.2847	2.2853
2.2858	2.2864	2.2870	2.2876	2.2882	2.2887	2.2893
2.2899	2.2905	2.2910	2.2916	2.2922	2.2927	2.2933
2.2939	2.2944	2.2950	2.2956	2.2961	2.2967	2.2972
2.2978	2.2983	2.2989	2.2995	2.3000	2.3006	2.3011
2.3017	2.3022	2.3027	2.3033	2.3038	2.3044	2.3049
2.3055	2.3060	2.3065	2.3071	2.3076	2.3081	2.3087
2.3092	2.3098	2.3103	2.3108	2.3113	2.3119	2.3124
2.3129	2.3134	2.3140	2.3145	2.3150	2.3155	2.3161
2.3166	2.3171	2.3176	2.3181	2.3186	2.3192	2.3197
2.3202	2.3207	2.3212	2.3217	2.3222	2.3227	2.3232
2.3237	2.3242	2.3247	2.3252	2.3257	2.3262	2.3267
2.3272	2.3277	2.3282	2.3287	2.3292	2.3297	2.3302
2.3307	2.3312	2.3317	2.3322	2.3327	2.3331	2.3336
2.3341	2.3346	2.3351	2.3356	2.3361	2.3365	2.3370
2.3375	2.3380	2.3385	2.3389	2.3394	2.3399	2.3404
2.3408	2.3413	2.3418	2.3422	2.3427	2.3432	2.3437
2.3441	2.3446	2.3451	2.3455	2.3460	2.3465	2.3469
2.3474	2.3478	2.3483	2.3488	2.3492	2.3497	2.3501

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                2.3506  2.3511  2.3515  2.3520  2.3524  2.3529  2.3533
                2.3538  2.3542  2.3547  2.3551  2.3556  2.3560  2.3565
                2.3569  2.3574  2.3578  2.3582  2.3587  2.3591  2.3596
                2.3600  2.3605  2.3609  2.3613  2.3618  2.3622  2.3627
                2.3631  2.3635  2.3640  2.3644  2.3648  2.3653  2.3657
                2.3661  2.3666  2.3670  2.3674  2.3678  2.3683  2.3687
                2.3691  2.3696  2.3700  2.3704  2.3708  2.3712  2.3717
                2.3721  2.3725  2.3729  2.3734  2.3738  2.3742  2.3746
                2.3750  2.3754  2.3759  2.3763  2.3767  2.3771  2.3775
                2.3779  2.3783  2.3788  2.3792  2.3796  2.3800

SEDIMENT BULK           CODE=1   BULK FACTOR = 1.06
*Basin to Reconstructed Inlet
COMPUTE NM HYD          ID=1  HYD=100 AREA=0.00096 SQ MI
                        A B C D 0 5 4 91
                        TP=0.13333  MASSRAIN=-1

     K =  0.072665HR    TP =  0.133330HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   3.4482    CFS   UNIT VOLUME =   0.9963       B =   526.28      P60 = 1.8400
     AREA =     0.000874 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000


     K =  0.119995HR    TP =  0.133330HR    K/TP RATIO =  0.899985     SHAPE CONSTANT, N =  3.937774
     UNIT PEAK =  0.22746    CFS   UNIT VOLUME =   0.9372       B =   351.00      P60 = 1.8400
     AREA =     0.000086 SQ MI    IA =   0.43333 INCHES    INF =   1.06333 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

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

PRINT HYD               ID=1  CODE=1

                                PARTIAL HYDROGRAPH   100.00


    RUNOFF VOLUME =     2.14036 INCHES     =       0.1096 ACRE-FEET
    PEAK DISCHARGE RATE =       2.84 CFS  AT   1.530 HOURS   BASIN AREA =  0.0010 SQ. MI.


*Roof Drain Basin
COMPUTE NM HYD          ID=2  HYD=101 AREA=0.0002 SQ MI
                        A B C D 0 0 0 100
                        TP=0.13333  MASSRAIN=-1

     K =  0.072665HR    TP =  0.133330HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =  0.78943    CFS   UNIT VOLUME =   0.9841       B =   526.28      P60 = 1.8400
     AREA =     0.000200 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000
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    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.06000 AT PEAK FLOW.

PRINT HYD               ID=2  CODE=1

                                  PARTIAL HYDROGRAPH   101.00

    RUNOFF VOLUME =     2.25280 INCHES     =       0.0240 ACRE-FEET
    PEAK DISCHARGE RATE =       0.62 CFS  AT   1.520 HOURS   BASIN AREA =  0.0002 SQ. MI.


ADD HYD                 ID=3 HYD=201 I=1   I=2
PRINT HYD               ID=3 CODE=1

                                  PARTIAL HYDROGRAPH   201.00

    RUNOFF VOLUME =     2.15933 INCHES     =       0.1336 ACRE-FEET
    PEAK DISCHARGE RATE =       3.45 CFS  AT   1.530 HOURS   BASIN AREA =  0.0012 SQ. MI.


*sPARKING LOT POND DESIGN WITH 100-YR DEVELOPED FLOWS TO DISCHARGE ORFICES AT EL
ROUTE RESERVOIR         ID=5  HYD NO=POND.OT  INFLOW=3 CODE=24
                                  OUTFLOW (CFS)     STORAGE(AF)     ELEV(FT)
                                  0.89                 0.00021              5222.35
                                  1.23           0.00191                5222.55
                                  1.55           0.02678          5222.80
                                  1.76           0.08509          5223.00
                                  2.00           0.1579           5223.25
                                  2.21           0.2308           5223.5

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

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

     0.00       0.00   5221.83     -0.004      0.00
     0.24       0.00   5222.35      0.000      0.89
     0.48       0.00   5222.35      0.000      0.89
     0.72       0.03   5222.35      0.000      0.89
     0.96       0.20   5222.35      0.000      0.89
     1.20       0.48   5222.35      0.000      0.89
     1.44       2.25   5222.56      0.003      1.25
     1.68       1.91   5222.82      0.032      1.57
     1.92       0.70   5222.77      0.024      1.51
     2.16       0.32   5222.59      0.006      1.28
     2.40       0.18   5222.35      0.000      0.89
     2.64       0.06   5222.35      0.000      0.89
```

2.88	0.04	5222.35	0.000	0.89
3.12	0.03	5222.35	0.000	0.89
3.36	0.03	5222.35	0.000	0.89
3.60	0.03	5222.35	0.000	0.89
3.84	0.02	5222.35	0.000	0.89
4.08	0.02	5222.35	0.000	0.89
4.32	0.02	5222.35	0.000	0.89
4.56	0.02	5222.35	0.000	0.89
4.80	0.02	5222.35	0.000	0.89
5.04	0.03	5222.35	0.000	0.89
5.28	0.03	5222.35	0.000	0.89
5.52	0.03	5222.35	0.000	0.89
5.76	0.03	5222.35	0.000	0.89
6.00	0.03	5222.35	0.000	0.89
6.24	0.01	5222.35	0.000	0.89
6.48	0.00	5222.35	0.000	0.89
6.72	0.00	5222.35	0.000	0.89
6.96	0.00	5222.35	0.000	0.89
7.20	0.00	5222.35	0.000	0.89
7.44	0.00	5222.35	0.000	0.89
7.68	0.00	5222.35	0.000	0.89
7.92	0.00	5222.35	0.000	0.89
8.16	0.00	5222.35	0.000	0.89
8.40	0.00	5222.35	0.000	0.89
8.64	0.00	5222.35	0.000	0.89
8.88	0.00	5222.35	0.000	0.89
9.12	0.00	5222.35	0.000	0.89
9.36	0.00	5222.35	0.000	0.89
9.60	0.00	5222.35	0.000	0.89
9.84	0.00	5222.35	0.000	0.89
10.08	0.00	5222.35	0.000	0.89
10.32	0.00	5222.35	0.000	0.89
10.56	0.00	5222.35	0.000	0.89
10.80	0.00	5222.35	0.000	0.89
11.04	0.00	5222.35	0.000	0.89
11.28	0.00	5222.35	0.000	0.89
11.52	0.00	5222.35	0.000	0.89
11.76	0.00	5222.35	0.000	0.89
12.00	0.00	5222.35	0.000	0.89
12.24	0.00	5222.35	0.000	0.89
12.48	0.00	5222.35	0.000	0.89
12.72	0.00	5222.35	0.000	0.89
12.96	0.00	5222.35	0.000	0.89
13.20	0.00	5222.35	0.000	0.89

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
13.44	0.00	5222.35	0.000	0.89
13.68	0.00	5222.35	0.000	0.89

13.92	0.00	5222.35	0.000	0.89
14.16	0.00	5222.35	0.000	0.89
14.40	0.00	5222.35	0.000	0.89
14.64	0.00	5222.35	0.000	0.89
14.88	0.00	5222.35	0.000	0.89
15.12	0.00	5222.35	0.000	0.89
15.36	0.00	5222.35	0.000	0.89
15.60	0.00	5222.35	0.000	0.89
15.84	0.00	5222.35	0.000	0.89
16.08	0.00	5222.35	0.000	0.89
16.32	0.00	5222.35	0.000	0.89
16.56	0.00	5222.35	0.000	0.89
16.80	0.00	5222.35	0.000	0.89
17.04	0.00	5222.35	0.000	0.89
17.28	0.00	5222.35	0.000	0.89
17.52	0.00	5222.35	0.000	0.89
17.76	0.00	5222.35	0.000	0.89
18.00	0.00	5222.35	0.000	0.89
18.24	0.00	5222.35	0.000	0.89
18.48	0.00	5222.35	0.000	0.89
18.72	0.00	5222.35	0.000	0.89
18.96	0.00	5222.35	0.000	0.89
19.20	0.00	5222.35	0.000	0.89
19.44	0.00	5222.35	0.000	0.89
19.68	0.00	5222.35	0.000	0.89
19.92	0.00	5222.35	0.000	0.89
20.16	0.00	5222.35	0.000	0.89
20.40	0.00	5222.35	0.000	0.89
20.64	0.00	5222.35	0.000	0.89
20.88	0.00	5222.35	0.000	0.89
21.12	0.00	5222.35	0.000	0.89
21.36	0.00	5222.35	0.000	0.89
21.60	0.00	5222.35	0.000	0.89
21.84	0.00	5222.35	0.000	0.89
22.08	0.00	5222.35	0.000	0.89
22.32	0.00	5222.35	0.000	0.89
22.56	0.00	5222.35	0.000	0.89
22.80	0.00	5222.35	0.000	0.89
23.04	0.00	5222.35	0.000	0.89
23.28	0.00	5222.35	0.000	0.89
23.52	0.00	5222.35	0.000	0.89
23.76	0.00	5222.35	0.000	0.89
24.00	0.00	5222.35	0.000	0.89
24.24	0.00	5222.35	0.000	0.89
24.48	0.00	5222.35	0.000	0.89
24.72	0.00	5222.35	0.000	0.89
24.96	0.00	5222.35	0.000	0.89
25.20	0.00	5222.35	0.000	0.89
25.44	0.00	5222.35	0.000	0.89
25.68	0.00	5222.35	0.000	0.89

25.92	0.00	5222.35	0.000	0.89
26.16	0.00	5222.35	0.000	0.89
26.40	0.00	5222.35	0.000	0.89
26.64	0.00	5222.35	0.000	0.89

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
26.88	0.00	5222.35	0.000	0.89
27.12	0.00	5222.35	0.000	0.89
27.36	0.00	5222.35	0.000	0.89
27.60	0.00	5222.35	0.000	0.89
27.84	0.00	5222.35	0.000	0.89
28.08	0.00	5222.35	0.000	0.89
28.32	0.00	5222.35	0.000	0.89
28.56	0.00	5222.35	0.000	0.89
28.80	0.00	5222.35	0.000	0.89
29.04	0.00	5222.35	0.000	0.89
29.28	0.00	5222.35	0.000	0.89
29.52	0.00	5222.35	0.000	0.89
29.76	0.00	5222.35	0.000	0.89
30.00	0.00	5222.35	0.000	0.89
30.24	0.00	5222.35	0.000	0.89
30.48	0.00	5222.35	0.000	0.89
30.72	0.00	5222.35	0.000	0.89
30.96	0.00	5222.35	0.000	0.89
31.20	0.00	5222.35	0.000	0.89
31.44	0.00	5222.35	0.000	0.89
31.68	0.00	5222.35	0.000	0.89
31.92	0.00	5222.35	0.000	0.89
32.16	0.00	5222.35	0.000	0.89
32.40	0.00	5222.35	0.000	0.89
32.64	0.00	5222.35	0.000	0.89
32.88	0.00	5222.35	0.000	0.89
33.12	0.00	5222.35	0.000	0.89
33.36	0.00	5222.35	0.000	0.89
33.60	0.00	5222.35	0.000	0.89
33.84	0.00	5222.35	0.000	0.89
34.08	0.00	5222.35	0.000	0.89
34.32	0.00	5222.35	0.000	0.89
34.56	0.00	5222.35	0.000	0.89
34.80	0.00	5222.35	0.000	0.89
35.04	0.00	5222.35	0.000	0.89
35.28	0.00	5222.35	0.000	0.89
35.52	0.00	5222.35	0.000	0.89
35.76	0.00	5222.35	0.000	0.89
36.00	0.00	5222.35	0.000	0.89
36.24	0.00	5222.35	0.000	0.89
36.48	0.00	5222.35	0.000	0.89
36.72	0.00	5222.35	0.000	0.89

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    36.96       0.00    5222.35       0.000       0.89
    37.20       0.00    5222.35       0.000       0.89
    37.44       0.00    5222.35       0.000       0.89
    37.68       0.00    5222.35       0.000       0.89
    37.92       0.00    5222.35       0.000       0.89
    38.16       0.00    5222.35       0.000       0.89
    38.40       0.00    5222.35       0.000       0.89
    38.64       0.00    5222.35       0.000       0.89
    38.88       0.00    5222.35       0.000       0.89
    39.12       0.00    5222.35       0.000       0.89
    39.36       0.00    5222.35       0.000       0.89
    39.60       0.00    5222.35       0.000       0.89
    39.84       0.00    5222.35       0.000       0.89
 PEAK DISCHARGE =        1.569 CFS - PEAK OCCURS AT HOUR    1.72
 MAXIMUM WATER SURFACE ELEVATION =     5222.818
 MAXIMUM STORAGE =        0.0321 AC-FT      INCREMENTAL TIME=    0.010000HRS

PRINT HYD                      ID=5 CODE 1

                                    HYDROGRAPH FROM AREA POND.OT


    RUNOFF VOLUME =    48.14673 INCHES      =       2.9787 ACRE-FEET
    PEAK DISCHARGE RATE =       1.57 CFS  AT   1.720 HOURS   BASIN AREA =  0.0012 SQ. MI.



*First Flush Basin Pond 4
COMPUTE NM HYD          ID=8  HYD=102 AREA=0.00004 SQ MI
                        A B C D 0 8 8 84
                        TP=0.13333  MASSRAIN=-1

     K =  0.072665HR    TP =  0.133330HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =  0.13262    CFS   UNIT VOLUME =   0.9045       B =   526.28      P60 = 1.8400
     AREA =     0.000034 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000


     K =  0.118551HR    TP =  0.133330HR    K/TP RATIO =  0.889153     SHAPE CONSTANT, N =  3.988933
     UNIT PEAK =  0.17013E-01CFS   UNIT VOLUME =   0.8652       B =   354.44      P60 = 1.8400
     AREA =     0.000006 SQ MI    IA =   0.42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

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

PRINT HYD               ID=8  CODE=1

                                  PARTIAL HYDROGRAPH   102.00
```

```
    RUNOFF VOLUME =      2.05520 INCHES      =        0.0044 ACRE-FEET
    PEAK DISCHARGE RATE =        0.13 CFS  AT    1.530 HOURS    BASIN AREA =  0.0000 SQ. MI.


*Existing Basin to Inlet
COMPUTE NM HYD          ID=10  HYD=200 AREA=0.00095 SQ MI
                        A B C D 0 4 4 92
                        TP=0.13333  MASSRAIN=-1

     K =  0.072665HR    TP =  0.133330HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   3.4498    CFS   UNIT VOLUME =   0.9963       B =   526.28      P60 = 1.8400
     AREA =     0.000874 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000


     K =  0.118551HR    TP =  0.133330HR    K/TP RATIO =  0.889153     SHAPE CONSTANT, N =  3.988933
     UNIT PEAK =  0.20203    CFS   UNIT VOLUME =   0.9294       B =   354.44      P60 = 1.8400
     AREA =     0.000076 SQ MI    IA =   0.42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

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

PRINT HYD               ID=10  CODE=1

                                PARTIAL HYDROGRAPH   200.00


    RUNOFF VOLUME =      2.15400 INCHES      =        0.1091 ACRE-FEET
    PEAK DISCHARGE RATE =        2.82 CFS  AT    1.530 HOURS    BASIN AREA =  0.0010 SQ. MI.


*Existing Basin to inlet removed at building
COMPUTE NM HYD          ID=11  HYD=201 AREA=0.000289 SQ MI
                        A B C D 0 4 4 92
                        TP=0.13333  MASSRAIN=-1

     K =  0.072665HR    TP =  0.133330HR    K/TP RATIO =  0.545000     SHAPE CONSTANT, N =  7.106428
     UNIT PEAK =   1.0495    CFS   UNIT VOLUME =   0.9879       B =   526.28      P60 = 1.8400
     AREA =     0.000266 SQ MI    IA =   0.10000 INCHES    INF =   0.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000


     K =  0.118551HR    TP =  0.133330HR    K/TP RATIO =  0.889153     SHAPE CONSTANT, N =  3.988933
     UNIT PEAK =  0.61461E-01CFS   UNIT VOLUME =   0.8652       B =   354.44      P60 = 1.8400
     AREA =     0.000023 SQ MI    IA =   0.42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =  0.010000

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

```
 PRINT HYD               ID=11  CODE=1

                                  PARTIAL HYDROGRAPH   201.00

     RUNOFF VOLUME =     2.15400 INCHES     =       0.0332 ACRE-FEET
     PEAK DISCHARGE RATE =       0.87 CFS  AT   1.530 HOURS   BASIN AREA =  0.0003 SQ. MI.


 ADD HYD                 ID=12 HYD=201 I=10   I=11
 PRINT HYD               ID=12 CODE=1

                                  PARTIAL HYDROGRAPH   201.00

     RUNOFF VOLUME =     2.15359 INCHES     =       0.1423 ACRE-FEET
     PEAK DISCHARGE RATE =       3.69 CFS  AT   1.530 HOURS   BASIN AREA =  0.0012 SQ. MI.


 FINISH

     NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 18:09:45
←(s10H
```

18018 Shops at 245

NOAA Atlas 14, Volume 1, Version 5
Location name: Albuquerque, New Mexico, USA*
Latitude: 35.1032°, Longitude: -106.5662°
Elevation: 5291.66 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.177 (0.151-0.209)	0.229 (0.194-0.270)	0.308 (0.260-0.363)	0.368 (0.311-0.432)	0.451 (0.379-0.529)	0.515 (0.432-0.605)	0.584 (0.485-0.684)	0.655 (0.541-0.767)	0.752 (0.615-0.881)	0.829 (0.674-0.971)
10-min	0.270 (0.230-0.318)	0.349 (0.296-0.411)	0.468 (0.396-0.552)	0.560 (0.472-0.658)	0.686 (0.577-0.805)	0.785 (0.656-0.921)	0.889 (0.737-1.04)	0.998 (0.823-1.17)	1.14 (0.935-1.34)	1.26 (1.03-1.48)
15-min	0.334 (0.285-0.393)	0.432 (0.367-0.509)	0.580 (0.492-0.684)	0.694 (0.586-0.816)	0.851 (0.715-0.998)	0.973 (0.814-1.14)	1.10 (0.914-1.29)	1.24 (1.02-1.45)	1.42 (1.16-1.66)	1.56 (1.27-1.83)
30-min	0.450 (0.383-0.529)	0.582 (0.494-0.686)	0.782 (0.662-0.921)	0.935 (0.789-1.10)	1.15 (0.963-1.34)	1.31 (1.10-1.54)	1.48 (1.23-1.74)	1.67 (1.37-1.95)	1.91 (1.56-2.24)	2.11 (1.71-2.47)
60-min	0.557 (0.475-0.655)	0.720 (0.611-0.849)	0.967 (0.819-1.14)	1.16 (0.976-1.36)	1.42 (1.19-1.66)	1.62 (1.36-1.90)	1.84 (1.52-2.15)	2.06 (1.70-2.41)	2.36 (1.93-2.77)	2.61 (2.12-3.05)
2-hr	0.653 (0.547-0.791)	0.836 (0.702-1.02)	1.11 (0.926-1.34)	1.32 (1.10-1.59)	1.62 (1.34-1.95)	1.87 (1.54-2.24)	2.12 (1.73-2.55)	2.39 (1.94-2.86)	2.77 (2.22-3.31)	3.07 (2.44-3.68)
3-hr	0.696 (0.587-0.838)	0.884 (0.745-1.07)	1.16 (0.976-1.39)	1.38 (1.15-1.65)	1.68 (1.40-2.01)	1.93 (1.60-2.30)	2.19 (1.80-2.61)	2.46 (2.01-2.94)	2.84 (2.30-3.39)	3.16 (2.53-3.77)
6-hr	0.810 (0.689-0.970)	1.02 (0.869-1.23)	1.32 (1.12-1.57)	1.55 (1.31-1.85)	1.87 (1.57-2.22)	2.12 (1.77-2.52)	2.38 (1.99-2.83)	2.66 (2.20-3.15)	3.03 (2.49-3.59)	3.34 (2.72-3.96)
12-hr	0.895 (0.770-1.04)	1.13 (0.971-1.32)	1.43 (1.23-1.67)	1.67 (1.43-1.94)	1.99 (1.70-2.31)	2.24 (1.90-2.60)	2.51 (2.11-2.90)	2.77 (2.32-3.21)	3.13 (2.60-3.64)	3.43 (2.83-3.98)
24-hr	1.02 (0.895-1.18)	1.28 (1.12-1.48)	1.61 (1.40-1.85)	1.87 (1.63-2.15)	2.22 (1.92-2.55)	2.49 (2.15-2.85)	2.77 (2.39-3.17)	3.06 (2.62-3.50)	3.44 (2.93-3.94)	3.75 (3.17-4.29)
2-day	1.08 (0.942-1.23)	1.35 (1.18-1.54)	1.70 (1.48-1.93)	1.97 (1.72-2.24)	2.33 (2.03-2.65)	2.61 (2.26-2.97)	2.91 (2.51-3.31)	3.21 (2.75-3.65)	3.61 (3.08-4.12)	3.92 (3.33-4.48)
3-day	1.18 (1.05-1.31)	1.47 (1.31-1.64)	1.82 (1.63-2.03)	2.10 (1.87-2.34)	2.47 (2.20-2.76)	2.76 (2.45-3.08)	3.06 (2.70-3.41)	3.36 (2.95-3.74)	3.75 (3.29-4.19)	4.06 (3.54-4.54)
4-day	1.27 (1.16-1.40)	1.58 (1.44-1.73)	1.94 (1.77-2.13)	2.23 (2.03-2.44)	2.62 (2.37-2.86)	2.91 (2.63-3.18)	3.21 (2.89-3.51)	3.51 (3.15-3.84)	3.90 (3.49-4.27)	4.20 (3.74-4.61)
7-day	1.45 (1.33-1.59)	1.81 (1.65-1.97)	2.20 (2.01-2.40)	2.51 (2.29-2.73)	2.92 (2.66-3.17)	3.22 (2.93-3.51)	3.53 (3.20-3.84)	3.82 (3.47-4.16)	4.21 (3.81-4.59)	4.50 (4.05-4.91)
10-day	1.61 (1.48-1.76)	2.00 (1.83-2.17)	2.45 (2.25-2.66)	2.81 (2.58-3.04)	3.28 (3.00-3.55)	3.63 (3.31-3.93)	3.99 (3.63-4.32)	4.34 (3.94-4.70)	4.80 (4.33-5.20)	5.14 (4.62-5.58)
20-day	2.03 (1.86-2.22)	2.52 (2.31-2.76)	3.07 (2.81-3.35)	3.48 (3.18-3.79)	4.00 (3.65-4.36)	4.38 (3.99-4.77)	4.76 (4.32-5.17)	5.10 (4.63-5.55)	5.55 (5.02-6.04)	5.86 (5.29-6.39)
30-day	2.44 (2.23-2.65)	3.03 (2.77-3.28)	3.65 (3.34-3.95)	4.11 (3.75-4.45)	4.68 (4.28-5.06)	5.10 (4.64-5.51)	5.49 (5.00-5.94)	5.86 (5.33-6.34)	6.31 (5.72-6.83)	6.63 (6.00-7.18)
45-day	2.98 (2.74-3.24)	3.70 (3.40-4.01)	4.41 (4.06-4.78)	4.92 (4.52-5.33)	5.55 (5.10-6.01)	5.98 (5.49-6.47)	6.37 (5.85-6.89)	6.72 (6.16-7.28)	7.13 (6.53-7.73)	7.39 (6.77-8.00)
60-day	3.43 (3.16-3.73)	4.25 (3.92-4.62)	5.08 (4.68-5.50)	5.67 (5.22-6.14)	6.38 (5.87-6.91)	6.87 (6.32-7.44)	7.32 (6.74-7.94)	7.72 (7.11-8.39)	8.19 (7.54-8.91)	8.50 (7.82-9.24)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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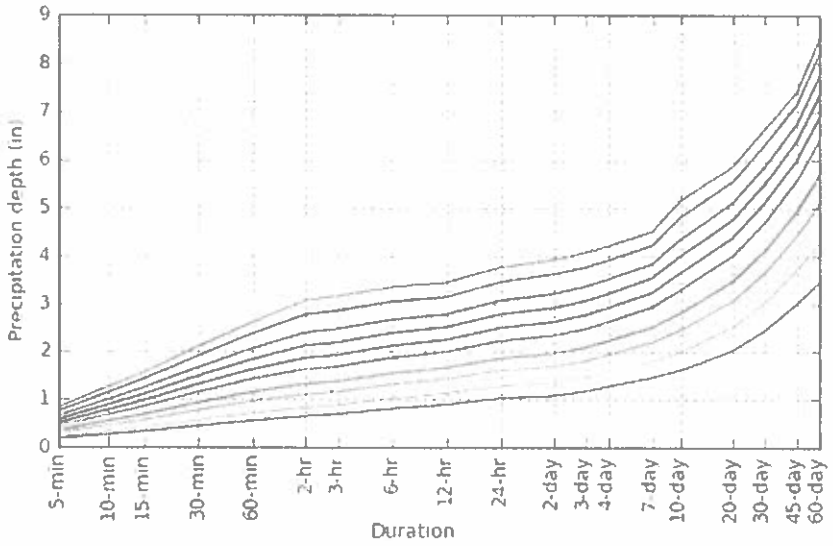
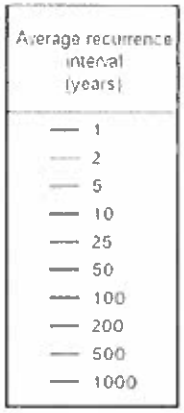
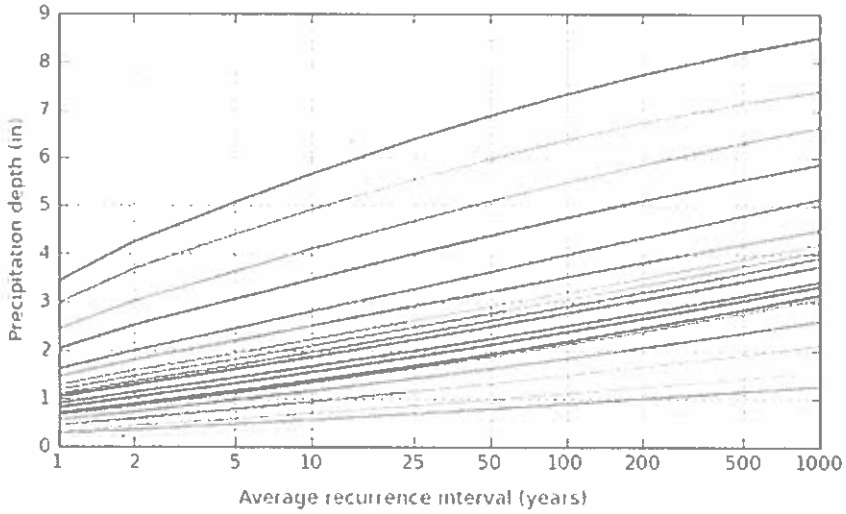
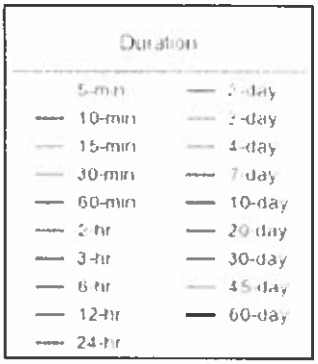
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 35.1032°, Longitude: -106.5662°









NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Thu Jul 19 00:27:26 2018

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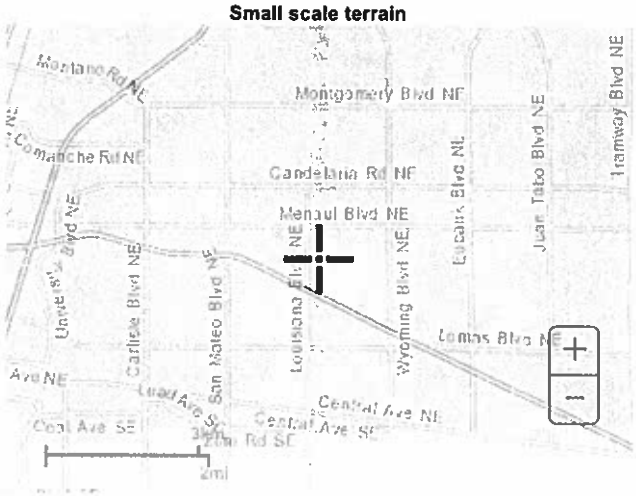
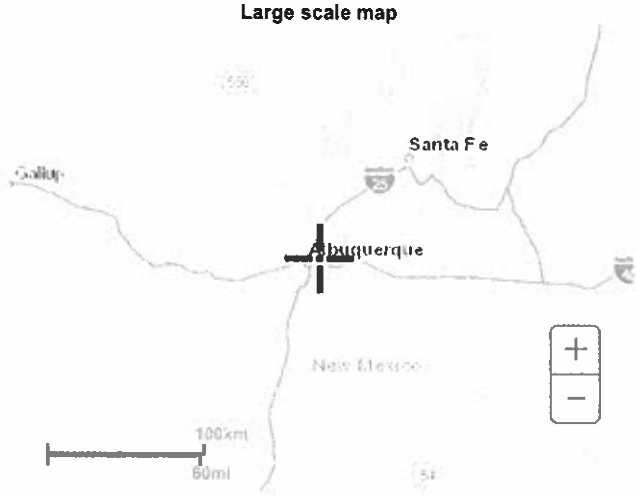
Maps & aerials

Small scale terrain

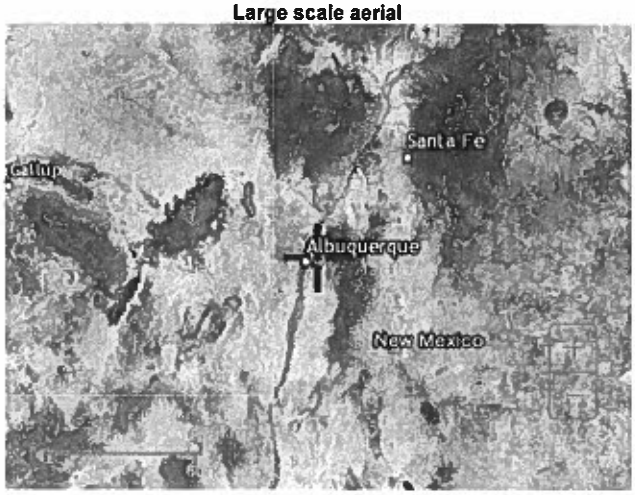


Large scale terrain

Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring MD 20910
Questions? HDSC.Questions@noaa.gov

Disclaimer

APPENDIX B

Drainage Covenant

#2
(NO PUBLIC EASEMENT)

DRAINAGE COVENANT

This Drainage Covenant ("Covenant"), between _____ ("Owner"), whose address is _____ and whose telephone number is (___) _____ and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P.O. Box 1293, Albuquerque, New Mexico 87103, is made in Albuquerque, Bernalillo County, New Mexico and is entered into as of the date Owner signs this Covenant.

1. Recital. Owner is the current owner of certain real property described as:

_____

_____

_____

in Bernalillo County, New Mexico (the "Property"). (Give legal description and filing information).

Pursuant to City ordinances, regulations and other applicable laws, the Owner is required to construct and maintain certain drainage facilities ("Drainage Facility") on the Property, and the parties wish to enter into this Covenant to establish the obligations and responsibilities of the parties.

2. Description and Construction of Drainage Facilities. Owner shall construct the following "Drainage Facility" within the Property at Owner's sole expense in accordance with the standard plans and specifications approved by the City pursuant to Drainage File No. _____

_____

_____.

The Drainage Facility is more particularly described in the attached Exhibit A. The Owner will not permit the Drainage Facility to constitute a hazard to the health or safety of the general public.

3. Maintenance of Drainage Facility. The Owner will maintain the Drainage Facility at the Owner's cost in accordance with the approved Drainage Report and plans.

4. City's Right of Entry. The City has the right to enter upon the Property at any time and perform whatever inspection, maintenance or repair of the Drainage Facility it deems appropriate, without liability to the Owner.

5. Demand for Construction or Repair. The City may send written notice ("Notice") to the Owner requiring the Owner to construct or repair the Drainage Facility within thirty (30) days ("Deadline") of receipt of the Notice, as provided in Section 11, and the Owner will comply promptly with the requirements of the Notice. The Owner will perform all required work by the Deadline, at Owner's sole expense.

6. Failure to Perform by Owner and Emergency Work by City. If the Owner fails to comply with the terms of the Notice by the Deadline, or if the City determines that an emergency condition exists, the City may perform the work itself. The City may assess the Owner for the cost of the work and for any other expenses or damages, which result from Owner's failure to perform. The Owner agrees promptly to pay the City the amount assessed. If the Owner fails to pay the City within thirty (30) days after the City gives the Owner written notice of the amount due, the City may impose a lien against Owner's Property for the total resulting amount.

7. Liability of City for Repair after Notice or as a Result of Emergency. The City shall not be liable to the Owner for any damages resulting from the City's maintenance or repair following Notice to the Owner as required in this Covenant or in an emergency unless the damages are the result of the reckless conduct or gross negligence of the City

8. Indemnification. The Owner agrees to indemnify and save the City, its officials, agents and employees harmless from all claims, actions, suits and proceedings arising out of, or resulting from the Owner's negligent maintenance, construction, repair or use of the Drainage Facility. To the extent, if at all, Section 56-7-1 NMSA 1978 is applicable to this Covenant, this Covenant to indemnify will not extend to liability, claims, damages, losses or expenses, including attorneys' fees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by the Owner or its agents or employees; or (2) the giving of or the failure to give directions or instructions by the Owner, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

9. Cancellation of Agreement and Release of Covenant. This Covenant may be released if the Drainage Facility is no longer required for the protection of the public health, safety and welfare by the City filing a "Notice of Release" with the Bernalillo County Clerk. The Notice of Release must be signed by the City's Chief Administrative Officer or his designee, and the approval of the City Hydrologist must be endorsed thereon.

10. Assessment. Nothing in this Covenant shall be construed to relieve the Owner, its heirs, assigns and successors from an assessment against the Owner's Property for improvements to the Property under a duly authorized and approved Special Assessment District. The parties specifically agree that the value of the Drainage Facility will not reduce the amount assessed by the City.

11. Notice. For purposes of giving formal written notice to the Owner, Owner's address is:

_____

_____

_____

Notice may be given to the Owner either in person or by mailing the Notice by regular U.S. mail, postage paid. Notice will be considered to have been received by the Owner within three (3) days after the Notice is mailed if there is no actual evidence of receipt. The Owner may change Owner's address by giving written notice of the change by Certified Mail-Return Receipt Requested,

to City Hydrologist, P.O. Box 1293, Albuquerque, New Mexico 87103.

12. Term. This Covenant shall continue until terminated by the City pursuant to Section 9 above.

13. Binding on Owner's Property. The covenants and obligations of the Owner set forth herein shall be binding on Owner, its heirs, personal representatives, assigns and successors and on Owner's Property and shall constitute covenants running with the Owner's Property until released by the City.

14. Entire Agreement. This Covenant contains the entire agreement of the parties and supersedes any and all other agreements or understandings, oral or written, whether previous to the execution hereof or contemporaneous herewith regarding this subject matter.

15. Changes to Agreement. Changes to this Covenant are not binding unless made in writing, signed by both parties.

16. Construction and Severability. If any part of this Covenant is held to be invalid or unenforceable, the remainder of the Covenant will remain valid and enforceable if the remainder is reasonably capable of completion.

17. Captions. The captions to the sections or paragraphs of this Covenant are not part of this Covenant and will not affect the meaning of construction of any of its provisions.

OWNER:

By [signature]: _____

Name [print]: _____

Title: _____

Dated: _____

CITY OF ALBUQUERQUE:

By: _____

Shahab Biazar, P.E., City engineer

Dated: _____

OWNER'S ACKNOWLEDGMENT

STATE OF NEW MEXICO)
)ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on this _____ day of _____, 20___, by _____ (name of person signing permit), _____(title of person signing permit) of _____ (Owner).

(SEAL)

_____
Notary Public
My Commission Expires: _____

CITY'S ACKNOWLEDGMENT

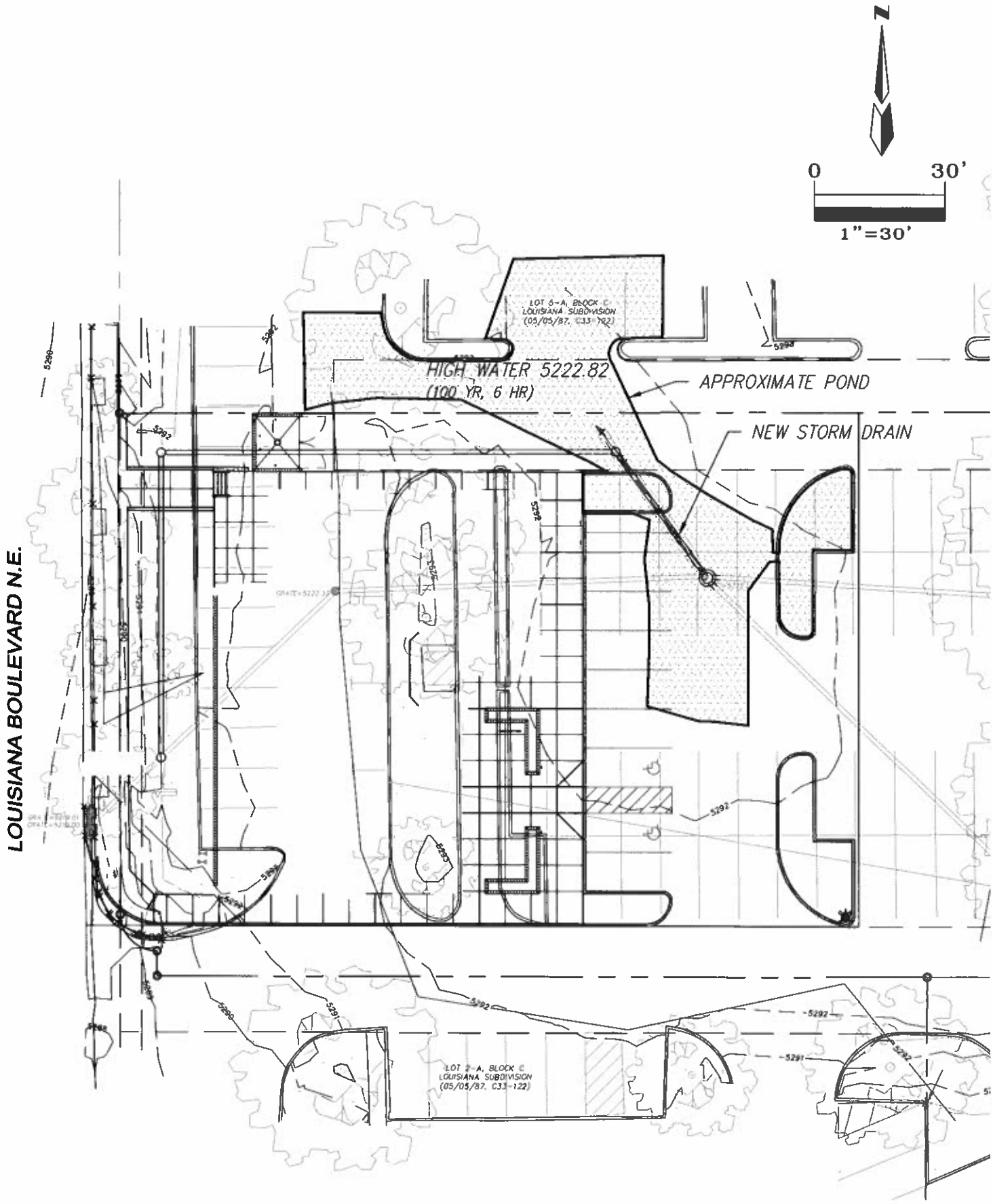
STATE OF NEW MEXICO)
)ss
COUNTY OF BERNALILLO)

This instrument was acknowledged before me on this _____ day of _____20__, by Shahab Biazar, P.E., City Engineer, of the City of Albuquerque, a municipal corporation, on behalf of said corporation.

(SEAL)

_____
Notary Public
My Commission Expires: _____

(EXHIBIT A ATTACHED)



PRELIMINARY

EXHIBIT A

DETENTION POND & STORM DRAIN

2424 LOUISIANA BLVD


Cutler Ave NE

APPENDIX C

Past Reports

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

January 16, 2002

Larry D. Read, PE
Larry Read & Associates
12836-B Lomas NE
Albuquerque, NM 87112

Re: AFC – 5 Parking Lot Drainage Report
Engineer's Stamp dated 1-10-02, (H19/D1)

Dear Mr. Read,

Based upon the information provided in your submittal dated 1-11-02, the above referenced plan is approved for Paving Permit and Site Plan for Building Permit action by the DRB.

Upon completion of the project, please submit a certified as-built for our files. If I can be of further assistance, please contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Sr. Hydrology, PWD
Development and Building Services

C: file

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

DRAINAGE INFORMATION SHEET
(REV. 11/01/2001)

H-19/D1

PROJECT TITLE: AFC-5 Additional Parking ZONE MAP/DRG. FILE #: H-19
DRB #: 1001636 EPC#: WORK ORDER#:
LEGAL DESCRIPTION: Lot 6A1C1
CITY ADDRESS: 2100 Louisiana BLVD. NE, Albq. NM 87110

ENGINEERING FIRM: Larry Read & Assoc., Inc. CONTACT: Larry Read
ADDRESS: 4800 Juan Tabo Blvd. Suite C PHONE: 237-8821
CITY, STATE: Albq. NM ZIP CODE: 87111

OWNER: AFC Partners Limited Partnership CONTACT: William J. Bailey
ADDRESS: 2100 Louisiana Blvd NE Bldg 3 PHONE: 998-1158
CITY, STATE: Albq. NM ZIP CODE: 87110

ARCHITECT: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: Cartesian Surveys CONTACT: Will Ploetner
ADDRESS P.O. Box 44414 PHONE: 350-5198
CITY, STATE: Rio Rancho, NM ZIP CODE: 87174

CONTRACTOR: N/A CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CHECK TYPE OF SUBMITTAL:
- ___ DRAINAGE REPORT
- ✓ DRAINAGE PLAN
- ___ 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

RECEIVED
JAN 11 2002
HYDROLOGY SECTION

DATE SUBMITTED: 1/8/2002 BY: Larry Read

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
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5)
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or

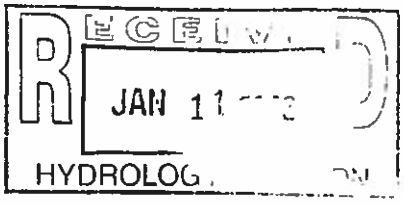
DRAINAGE REPORT

for

PROPOSED NEW PARKING for AFC-5

Albuquerque, New Mexico

January 11, 2002



PREPARED BY
LARRY D. READ, PE
4800 Juan Tabo Blvd., NE Suite C
Albuquerque, New Mexico 87111
(505) 237-8421

TABLE OF CONTENTS

DRAINAGE REPORT

for

PROPOSED NEW PARKING for AFC-5

Albuquerque, New Mexico

January 11, 2002

PURPOSE

Most of the American Financial Center Site was developed between the early 1980's and the mid 1990's. Some renovations to existing buildings occurred as late as 1999. However, this central area of the site, although many previous plans have been developed, has never developed.

The owners of American Financial Center Building 5 have historically been short of parking area. They are proposing to develop this remaining central area as additional parking. The proposed parking will help bring AFC-5 into the range of parking normally accepted in the real estate market and, due to it's location, will help alleviate the parking problems throughout the American Financial Center.

This project will add approximately 2.1 acres of asphalt paved parking and associated landscaping in the central site area.

EXISTING DRAINAGE CONDITIONS

The existing developed areas of the site were guided by a Master Drainage Plan prepared by Bohannan Huston in 1984. Per the Master Drainage Plan, the runoff from each basin is limited by the installation of a 4" orifice plate.

This site includes Basin 1, Basin 3C, and Basin 3B from the Master Drainage Plan. This is true of all existing development except Master Drainage Plan Basin 2 (Basin 1 in this report) which attempted to control the discharge using 4" PVC discharge pipes.

One significant deviation from the MDP noted during the survey of this site is the discharge from the parking area south of AFC-1. The MDP indicated this discharge was directed to the existing inlet in Basin 5. However the topographic survey found that the most likely route for this discharge is west into the system that connects directly into the 60" storm drain in Louisiana Blvd. This is evidenced in the fact that the discharge invert of the existing inlet in Basin 5 is above the inverts of the inlets in the AFC-1 parking lot and the fact that there are no connections to the existing inlet in Basin 5 from the west.

OFFSITE DRAINAGE

As shown in the Master Drainage Plan (MDP), this site accepts runoff from MDP Basin 2. Although the existing development slightly modified the basin boundaries, this is true as can be seen on the Drainage Basin Map in the pocket of this report as Basins 1 and Basin 2.

FLOOD PLAIN STATUS

As shown on FIRM Panels 350001C0352 D, effective September 20, 1996, no portion of the existing building or site is included in a 100-year floodplain. And excerpt from this map is included with the site located.

METHODOLOGY

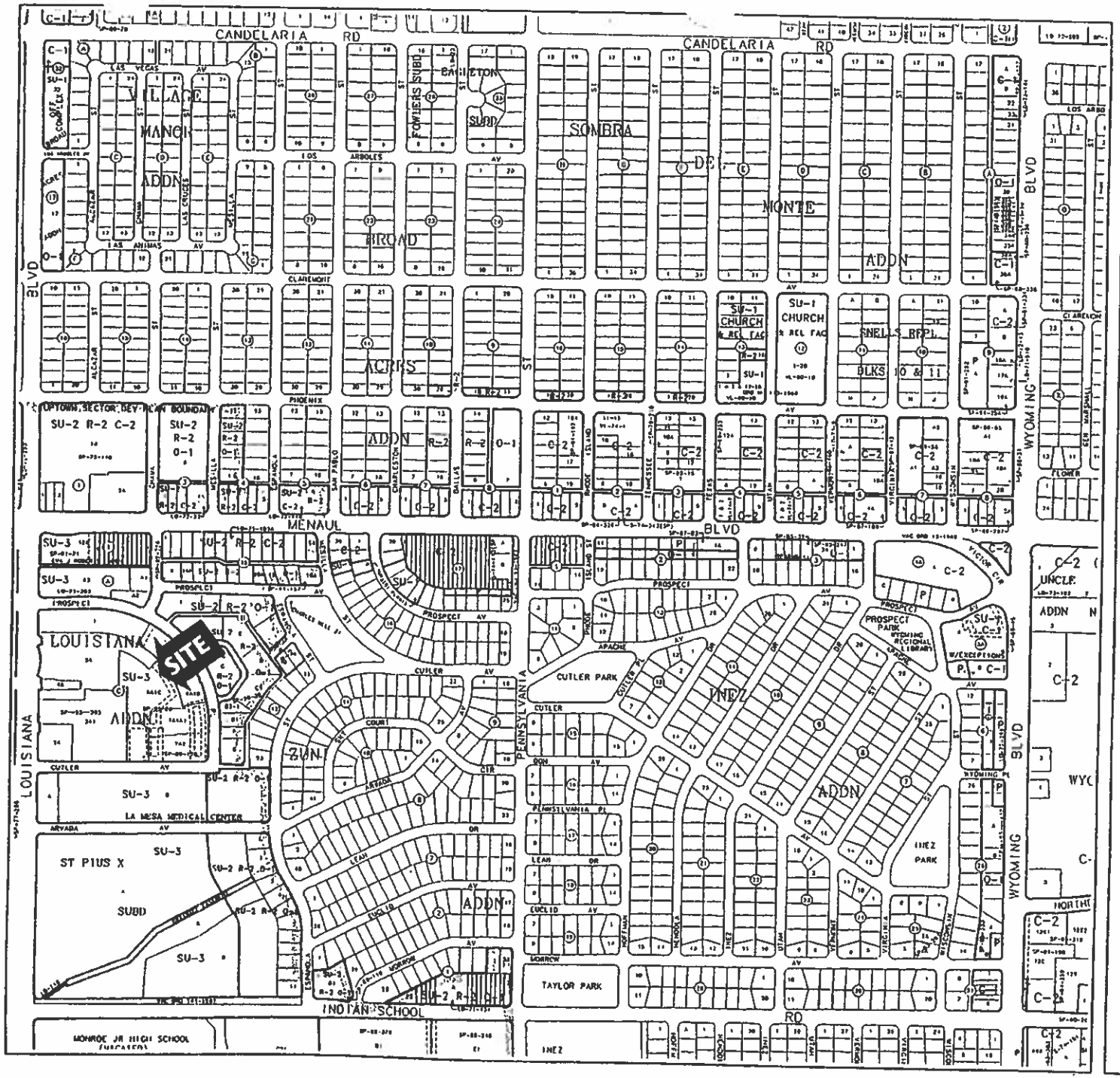
The hydrology for this project was analyzed using the 1997 version of AHYMO and the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2.

This site is within Precipitation Zone 3.

FULLY DEVELOPED CONDITION

The proposed development follows the 1984 Master Drainage Plan by limiting the discharge from each Basin using a 4" diameter orifice plate and the storm inlet. The proposed drainage basins, including offsite basins, very closely match the MDP basin areas as discussed above. The proposed additional paved area is divided into 2 basins (Basin 3 and Basin 4) as shown on the Drainage Basin Map in the pocket of this report. The total peak discharge from new Basin 3 and 4 plus the existing drainage from Basin 5 will be slightly less than 2cfs, significantly below the capacity of the existing 12" storm drain and 48" sidewalk culvert on Cutler Ave.

As a result of this development, the 100-year storm event runoff will not be increased and may have a minor decrease to Culter Ave. Therefore, there is no adverse downstream effect due to this development.



GRAPHIC SCALE IN FEET

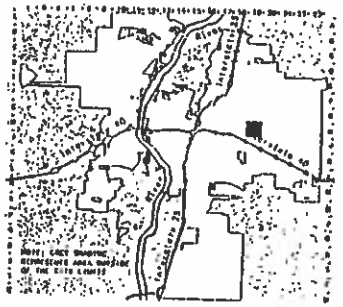
250 0 500 1000

CITY OF Albuquerque

PLANNING DEPARTMENT

©Copyright 1996

Map Amended through February 28, 1996



LEGAL DESCRIPTION

TION

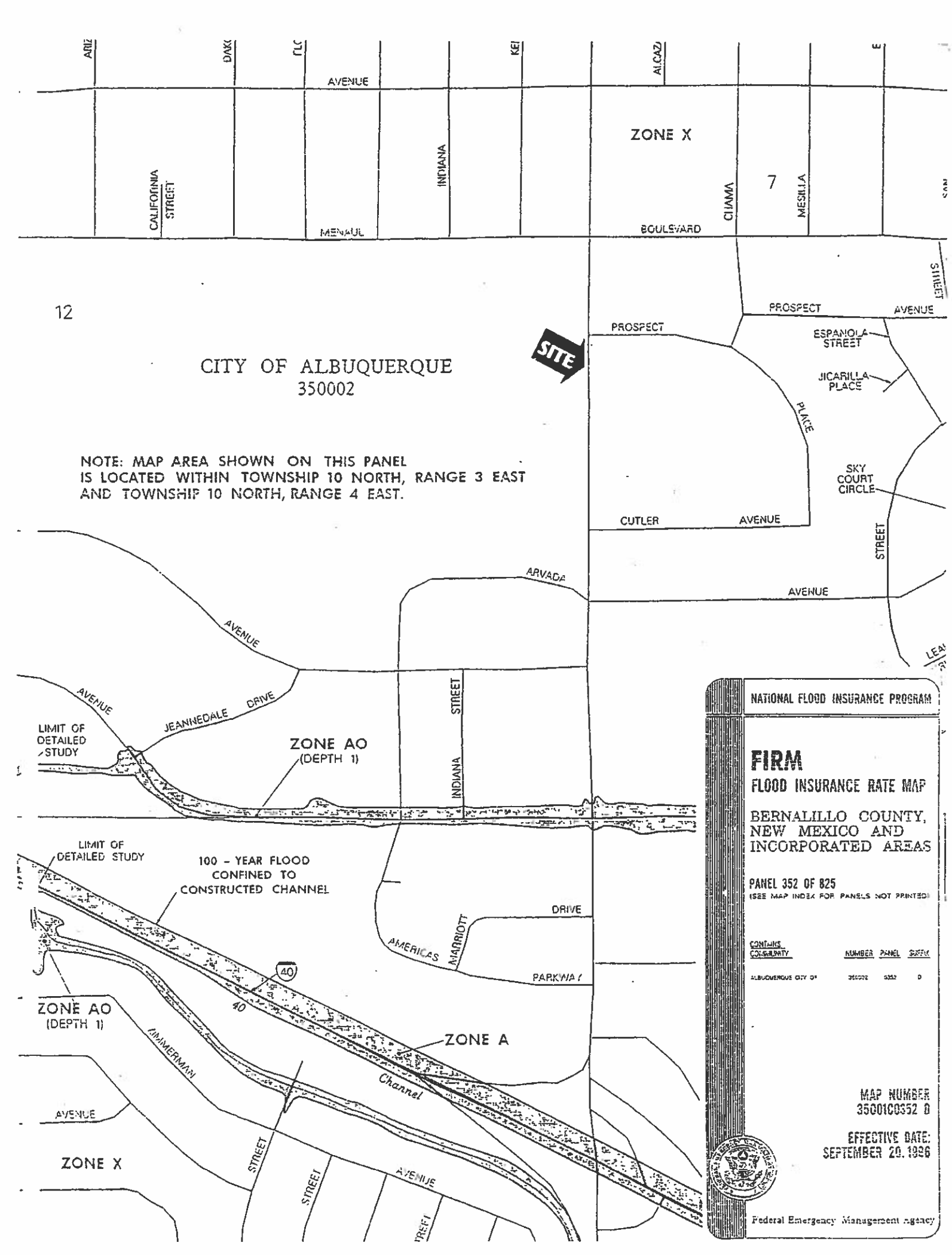
RGE

SEC 7

UNIFORM PROPERTY CODE

1-019-058

H-19-Z


12
CITY OF ALBUQUERQUE
350002
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 10 NORTH, RANGE 3 EAST AND TOWNSHIP 10 NORTH, RANGE 4 EAST.
SITE
ZONE X
7
CALIFORNIA STREET
INDIANA
MENAUL
BOULEVARD
CHAMA
MESILLA
PROSPECT
AVENUE
ESPANOLA STREET
JICARILLA PLACE
SKY COURT CIRCLE
CUTLER
ARVADA
JEANNEDALE DRIVE
LIMIT OF DETAILED STUDY
ZONE AO (DEPTH 1)
100 - YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
AMERICAS MARRIOTT
PARKWAY
ZIMMERMAN
ZONE A
Channel
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS
PANEL 352 OF 825
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS COMMUNITY
NUMBER
PANEL
SUFFIX
ALBUQUERQUE CITY OF
350002
0352
D
MAP NUMBER 35001C0352 D
EFFECTIVE DATE: SEPTEMBER 20, 1996
Federal Emergency Management Agency

APPENDIX A

DRAINAGE CALCULATIONS

```
AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =01/11/2002
INPUT FILE = C:\ACADFI~1\ACADPR~1\AFC\AFC-8\FINALD~1\AHYMOI~2.TXT                     USER NO.= AHYMO-I-9702a0100001A-SH

                                 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

*S  PROPOSED CONDITIONS
*S******* 100 YEAR, 6-HOUR STORM (Section 22.2 Hydrology)
START                                                                                                  TIME=       .00
LOCATION                        DEFAULT
RAINFALL  TYPE= 1                                                                                      RAIN6=     2.600
*s
*S BASIN AFC6/AFC7 (BASIN 1)
COMPUTE NM HYD           A.0    -     1        .00154        4.74        .184       2.24528     1.518    4.814 PER IMP=   91.50
*S
ROUTE RESERVOIR        POND.1    1    11        .00154        2.26        .184       2.24914     1.683    2.302 AC-FT=      .036
*S
*s
*S BASIN AFC7/AFC7 (BASIN 2)
COMPUTE NM HYD           A.0    -     2        .00037        1.17        .045       2.28551     1.518    4.925 PER IMP=   94.30
*S
*S
*S BASIN AFC-5 NORTH PARKING LOT (BASIN 3)
COMPUTE NM HYD           A.0    -     3        .00206        6.30        .245       2.22431     1.518    4.775 PER IMP=   89.90
*S
*S
ADD HYD                31.00 11& 3   31        .00360        8.47        .429       2.23484     1.518    3.677
*S
*S
ROUTE RESERVOIR        POND.1   31    32        .00360         .63        .430       2.23764     2.343     .273 AC-FT=      .331
*S
*S
*S BASIN AFC-4 PARKING LOT (BASIN 4)
*S
COMPUTE NM HYD           A.0    -     4        .00105        3.29        .128       2.29761     1.518    4.913 PER IMP=   94.60
*S
*S
*S
ROUTE RESERVOIR        POND.1    4    41        .00105         .63        .129       2.30296     2.079     .938 AC-FT=      .068
*S
FINISH
```

```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
RUN DATE (MON/DAY/YR) = 01/11/2002
START TIME (HR:MIN:SEC) = 10:54:23     USER NO.= AHYMO-I-9702a0100001A-SH
INPUT FILE = C:\ACADFI~1\ACADPR~1\AFC\AFC-8\FINALD~1\AHYMOI~2.TXT

     *S  PROPOSED CONDITIONS
     *S******* 100 YEAR, 6-HOUR STORM (Section 22.2 Hydrology)
     START               0.00
     LOCATION            ALBUQUERQUE ZONE 3
          Soil infiltration values (LAND FACTORS) for this location are not available.
          The following default values were used.
          Land Treatment     Initial Abstr.(in)    Unif. Infilt.(in/hour)
               A             0.65                  1.67
               B             0.50                  1.25
               C             0.35                  0.83
               D             0.10                  0.04

     RAINFALL            TYPE=1 RAIN QUARTER=0.0 RAIN ONE=2.14
                         RAIN SIX=2.60IN DAY=3.1 DT=0.033

                    COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                    DT =     .033000 HOURS       END TIME =     5.973000 HOURS
                       .0000   .0027   .0055   .0083   .0112   .0141   .0171
                       .0202   .0234   .0266   .0299   .0333   .0368   .0403
                       .0440   .0478   .0517   .0557   .0598   .0641   .0685
                       .0731   .0778   .0828   .0879   .0933   .0988   .1047
                       .1108   .1173   .1241   .1303   .1364   .1430   .1520
                       .1792   .2221   .2848   .3717   .4870   .6353   .8211
                     1.0492  1.3244  1.4475  1.5337  1.6092  1.6774  1.7399
                     1.7978  1.8518  1.9024  1.9499  1.9947  2.0370  2.0771
                     2.1150  2.1510  2.1851  2.2176  2.2484  2.2692  2.2764
                     2.2833  2.2899  2.2961  2.3022  2.3080  2.3136  2.3190
                     2.3242  2.3292  2.3342  2.3389  2.3436  2.3481  2.3525
                     2.3568  2.3610  2.3652  2.3692  2.3731  2.3770  2.3807
                     2.3844  2.3881  2.3916  2.3952  2.3986  2.4020  2.4053
                     2.4086  2.4118  2.4150  2.4181  2.4212  2.4242  2.4272
                     2.4302  2.4331  2.4360  2.4388  2.4416  2.4444  2.4471
                     2.4498  2.4525  2.4551  2.4577  2.4603  2.4628  2.4654
                     2.4679  2.4703  2.4728  2.4752  2.4776  2.4799  2.4823
                     2.4846  2.4869  2.4892  2.4914  2.4937  2.4959  2.4981
                     2.5003  2.5024  2.5046  2.5067  2.5088  2.5109  2.5130
                     2.5150  2.5171  2.5191  2.5211  2.5231  2.5250  2.5270
                     2.5290  2.5309  2.5328  2.5347  2.5366  2.5385  2.5403
                     2.5422  2.5440  2.5459  2.5477  2.5495  2.5513  2.5530
                     2.5548  2.5566  2.5583  2.5600  2.5618  2.5635  2.5652
                     2.5669  2.5686  2.5702  2.5719  2.5735  2.5752  2.5768
                     2.5784  2.5801  2.5817  2.5833  2.5848  2.5864  2.5880
                     2.5896  2.5911  2.5927  2.5942  2.5957  2.5973  2.5988
```

```
*s
*S BASIN AFC6/AFC7 (BASIN 1)
COMPUTE NM HYD       ID=1 HYD=A.0 DA=0.001537 SQ MI
                     %A= 0.00 %B= 4.9 %C= 3.6 %D= 91.50
                     TP=0.1333 RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   5.5524    CFS   UNIT VOLUME =    .9972       B =   526.28      P60 = 2.1400
     AREA =      .001406 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033000


     K =   .123176HR    TP =   .133300HR    K/TP RATIO =   .924053     SHAPE CONSTANT, N =  3.829633
     UNIT PEAK =   .33680    CFS   UNIT VOLUME =    .9589       B =   343.65      P60 = 2.1400
     AREA =      .000131 SQ MI    IA =    .43647 INCHES    INF =   1.07212 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033000

PRINT HYD            ID=1 CODE=1

                                        HYDROGRAPH FROM AREA A.0


    RUNOFF VOLUME =     2.24528 INCHES     =        .1841 ACRE-FEET
    PEAK DISCHARGE RATE =       4.74 CFS  AT   1.518 HOURS   BASIN AREA =   .0015 SQ. MI.


*S
ROUTE RESERVOIR      ID=11  HYD=POND.1  INFLOW ID=1  CODE=10
                     OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                          0.00             0.0000              0.00
                          2.04             0.000064            2.83
                          2.58             0.0865              4.40

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

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

      .00       .00       .00       .000       .00
      .33       .00       .00       .000       .00
      .66       .00       .00       .000       .00
      .99       .05       .07       .000       .05
     1.32      1.25      1.73       .000      1.25
     1.65      2.59      3.47       .036      2.26
     1.98      1.20      3.22       .021      2.17
     2.31       .27       .79       .000       .57
     2.64       .11       .32       .000       .23
     2.97       .07       .19       .000       .14
```

```
     3.30        .05        .13        .000        .09
     3.63        .04        .10        .000        .07
     3.96        .04        .08        .000        .06
     4.29        .04        .07        .000        .05
     4.62        .04        .06        .000        .04
     4.95        .04        .06        .000        .04
     5.28        .04        .06        .000        .04
     5.61        .04        .06        .000        .04
     5.94        .04        .06        .000        .04
     6.27        .01        .01        .000        .01
     6.60        .00        .00        .000        .00
 PEAK DISCHARGE =         2.265 CFS - PEAK OCCURS AT HOUR    1.68
 MAXIMUM WATER SURFACE ELEVATION =         3.483
 MAXIMUM STORAGE =          .0360 AC-FT      INCREMENTAL TIME=      .033000HRS

*S
PRINT HYD           ID=11  CODE=1

                                        HYDROGRAPH FROM AREA POND.1


    RUNOFF VOLUME =      2.24914 INCHES      =         .1844 ACRE-FEET
    PEAK DISCHARGE RATE =        2.26 CFS  AT   1.683 HOURS   BASIN AREA =    .0015 SQ. MI.



*s
*S BASIN AFC7/AFC7 (BASIN 2)
COMPUTE NM HYD      ID=2 HYD=A.0 DA=0.000370 SQ MI
                    %A= 0.00 %B= 2.2 %C= 3.5 %D= 94.30
                    TP=0.1333 RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   1.3775    CFS   UNIT VOLUME =     .9908       B =   526.28      P60 = 2.1400
     AREA =       .000349 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033000


     K =   .118463HR    TP =   .133300HR    K/TP RATIO =   .888691     SHAPE CONSTANT, N =  3.991280
     UNIT PEAK =   .56101E-01CFS   UNIT VOLUME =     .8744       B =   354.59      P60 = 2.1400
     AREA =       .000021 SQ MI    IA =     .40789 INCHES    INF =     .99211 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033000

*S
PRINT HYD           ID=2 CODE=1

                                        HYDROGRAPH FROM AREA A.0
```

```
    RUNOFF VOLUME =      2.28551 INCHES      =         .0451 ACRE-FEET
    PEAK DISCHARGE RATE =       1.17 CFS  AT   1.518 HOURS   BASIN AREA =    .0004 SQ. MI.


*S
*S BASIN AFC-5 NORTH PARKING LOT (BASIN 3)
COMPUTE NM HYD       ID=3 HYD=A.0 DA=0.002063 SQ MI
                     %A= 0.00 %B= 5.9 %C= 4.2 %D= 89.9
                     TP=0.1333 RAINFALL=-1

     K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   7.3222    CFS   UNIT VOLUME =     .9978       B =   526.28      P60 = 2.1400
     AREA =      .001855 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033000


     K =   .123367HR    TP =   .133300HR    K/TP RATIO =   .925480     SHAPE CONSTANT, N =  3.823434
     UNIT PEAK =   .53649    CFS   UNIT VOLUME =     .9759       B =   343.22      P60 = 2.1400
     AREA =      .000208 SQ MI    IA =    .43762 INCHES    INF =   1.07535 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033000

*S
PRINT HYD            ID=3 CODE=1

                                        HYDROGRAPH FROM AREA A.0

    RUNOFF VOLUME =      2.22431 INCHES      =         .2447 ACRE-FEET
    PEAK DISCHARGE RATE =       6.30 CFS  AT   1.518 HOURS   BASIN AREA =    .0021 SQ. MI.


*S
ADD HYD              ID=31 HYD 31  ID I=11  ID II=3
*S
PRINT HYD            ID=31  CODE=1

                                      OUTFLOW HYDROGRAPH REACH    31.00

    RUNOFF VOLUME =      2.23484 INCHES      =         .4291 ACRE-FEET
    PEAK DISCHARGE RATE =       8.47 CFS  AT   1.518 HOURS   BASIN AREA =    .0036 SQ. MI.


*S
ROUTE RESERVOIR      ID=32  HYD=POND.1  INFLOW ID=31  CODE=10
                     OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
```

0.00	0.0000	90.26
0.45	0.000030	91.50
0.69	0.443371	93.00

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	90.26	.000	.00
.33	.00	90.26	.000	.00
.66	.00	90.26	.000	.00
.99	.12	90.58	.000	.11
1.32	2.90	91.53	.010	.46
1.65	5.71	92.09	.175	.54
1.98	3.76	92.46	.283	.60
2.31	.94	92.62	.331	.63
2.64	.38	92.60	.325	.63
2.97	.23	92.56	.314	.62
3.30	.16	92.52	.301	.61
3.63	.13	92.47	.287	.61
3.96	.11	92.43	.273	.60
4.29	.10	92.38	.260	.59
4.62	.09	92.33	.246	.58
4.95	.09	92.29	.233	.58
5.28	.09	92.24	.219	.57
5.61	.09	92.20	.206	.56
5.94	.10	92.16	.194	.55
6.27	.01	92.11	.180	.55
6.60	.00	92.06	.166	.54
6.93	.00	92.01	.151	.53
7.26	.00	91.96	.137	.52
7.59	.00	91.91	.122	.52
7.92	.00	91.87	.108	.51
8.25	.00	91.82	.095	.50
8.58	.00	91.77	.081	.49
8.91	.00	91.73	.068	.49
9.24	.00	91.68	.055	.48
9.57	.00	91.64	.042	.47
9.90	.00	91.60	.029	.47
10.23	.00	91.55	.016	.46
10.56	.00	91.51	.004	.45

PEAK DISCHARGE = .629 CFS - PEAK OCCURS AT HOUR 2.34
MAXIMUM WATER SURFACE ELEVATION = 92.619
MAXIMUM STORAGE = .3309 AC-FT INCREMENTAL TIME= .033000HRS

*S
PRINT HYD ID=32 CODE=1

```
                                    HYDROGRAPH FROM AREA POND.1

    RUNOFF VOLUME =      2.23764 INCHES      =         .4296 ACRE-FEET
    PEAK DISCHARGE RATE =         .63 CFS  AT    2.343 HOURS    BASIN AREA =    .0036 SQ. MI.


*S
*S BASIN AFC-4 PARKING LOT (BASIN 4)
*S
COMPUTE NM HYD       ID=4 HYD=A.0 DA=0.001047 SQ MI
                     %A= 0.00 %B= 0.00 %C= 5.40 %D= 94.6
                     TP=0.1333 RAINFALL=-1

     K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =   3.9104     CFS   UNIT VOLUME =     .9965       B =    526.28       P60 = 2.1400
     AREA =       .000990 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033000


     K =    .108912HR     TP =    .133300HR     K/TP RATIO =    .817047      SHAPE CONSTANT, N =  4.373949
     UNIT PEAK =    .16091     CFS   UNIT VOLUME =     .9162       B =    379.38       P60 = 2.1400
     AREA =       .000057 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033000

*S
PRINT HYD            ID=4 CODE=1

                                    HYDROGRAPH FROM AREA A.0

    RUNOFF VOLUME =      2.29761 INCHES      =         .1283 ACRE-FEET
    PEAK DISCHARGE RATE =        3.29 CFS  AT    1.518 HOURS    BASIN AREA =    .0010 SQ. MI.


*S
*S
ROUTE RESERVOIR      ID=41  HYD=POND.1  INFLOW ID=4  CODE=10
                     OUTFLOW (CFS)      STORAGE (AC_FT)       ELEVATION
                          0.00              0.0000              89.46
                          0.45              0.000030            91.14
                          0.69              0.091400            92.08

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

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

LOT 1
BLOCK C, LOUISIANA SUB.
FILED 4/14/67
VOL.C6,FOLIO 186

POST HYDRANT

AFC-6
SINGLE STORY
OFFICE BLDG.
FF ELEV 5299.51

BASIN 1

AFC-5
SEVEN STORY
OFFICE BLDG.
FF ELEV 5293.50

BASIN 3

PROSPECT PLACE N.E.
(64' ROW 44' F-F)

AFC-7
SINGLE STORY W/ BSMT
OFFICE BLDG.
FF ELEV 5301.94

LOUISIANA BOULEVARD N.E.

LOT 4-A
BLOCK G, LOUISIANA SUB
FILED: 5/05/87
VOL.C33,FOLIO 122

AFC-1
FOUR-STORY
OFFICE BLDG.
FF ELEV 5291.52

BASIN 4

BASIN 2

AFC-4
TWO STORY
OFFICE BLDG.
FF ELEV 5292.68

EXISTING 60" SD

LOT 2-A
BLOCK C, LOUISIANA SUB
FILED: 5/05/87
VOL.C33,FOLIO 122

AFC-2
FOUR-STORY
OFFICE BLDG.
FF ELEV 5289.37

AFC-3
TWO STORY
OFFICE BLDG.
FF ELEV 5292.68

S 00°18'25" E

CUTLER AVENUE N.E. 60'R\W

GRAPHIC SCALE (1 INCH = 40 FEET)

DRAINAGE BASIN MAP

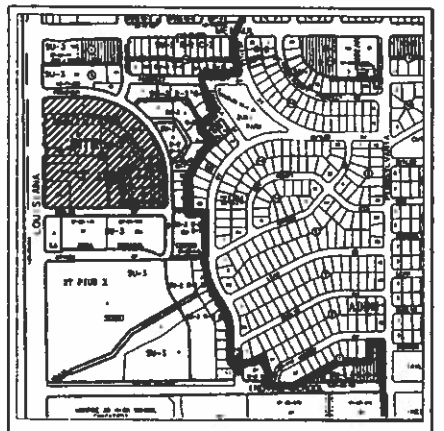
AMERICAN FINANCIAL CENTER (AFC-5)

ALBUQUERQUE, NEW MEXICO

LARRY READ & ASSOCIATES, Inc.
Civil Engineers
4800-C Juan Tabo, NE
Albuquerque, New Mexico 87111
(505) 237-8421

FILE NAME: PARK_6.DWG 10/02/01 SHEET C1

GRAPHIC SCALE (1 INCH = 40 FEET)



LOT 1
BLOCK C, LOUISIANA SUB.
FILED: 4/14/87
VOL.C6, FOLIO 186

LOT 4-A
BLOCK C, LOUISIANA SUB
FILED 5/05/87
VOL.C33, FOLIO 122

LOT 2-A
BLOCK C, LOUISIANA SUB.
FILED 5/05/87
VOL.C33, FOLIO 122

AFC-1
FOUR-STORY
OFFICE BLDG.
FF ELEV 5291.52

AFC-2
FOUR-STORY
OFFICE BLDG.
FF ELEV 5290.37

AFC-3
TWO STORY
OFFICE BLDG.
FF ELEV 5292.68

AFC-4
TWO STORY
OFFICE BLDG.
FF ELEV 5292.68

AFC-5
SEVEN STORY
OFFICE BLDG.
FF ELEV 5293.50

AFC-6
SINGLE STORY
OFFICE BLDG.
FF ELEV 5299.51

AFC-7
SINGLE STORY W/ BSMT
OFFICE BLDG.
FF ELEV 5301.94

LOUISIANA BOULEVARD N.E.

PROSPECT PLACE N.E.
(64' ROW 44' F-F)

CUTLER AVENUE N.E. 60'R\W

EXISTING 60" SD

S 00°48'25" E

GRADING AND DRAINAGE PLAN

AMERICAN FINANCIAL CENTER (AFC-5)

ALBUQUERQUE, NEW MEXICO

LARRY READ & ASSOCIATES, Inc.
Civil Engineers
4800-C Juan Tabo, NE
Albuquerque, New Mexico 87111
(505) 237-8421

FILE NAME: PARK_6.DWG 10/02/01

SHEET C2

CITIZEN'S BANK

1" = 50'

N.E. 60" RCP BOULEVARD

1-Double 'C' Inlet
21" RCP
1-Double 'C' Inlet
24" RCP
2-Double 'C' Inlets
PROSPECT PLACE

Flow to Street
FF 5296.54
Runoff Detained on Roof
EXISTING BUILDING
Construct Retaining Wall

BASIN 4
BASIN 5
100 Year Ponding Limit
1-Double 'C' Inlet
Tie 8" SS to back of existing inlet
Install Type 'D' Inlet with 4" orifice plate. Rim Elev. 90.0 Inv Elev 87.6
NEW 7-STORY BUILDING
FF 5293.50
Runoff Detained on Roof
BASIN 3a
LANDSCAPED AREA
Provide small depressed area to capture irrigation flows
NEW 2-STORY PARKING AREA
Elevations represent bottom story of Parking Structure
BASIN 2

WATER SCULPTURE
COURT YARD AREA
BASIN 3b
Plaza Area - Grades should be established for positive drainage to street or grass surfaces.
NEW 10-STORY BUILDING
FF 5294.00
BASIN 3c
Runoff Detained on Roof
Extend Retaining Wall
BASIN 1

PROJECT TBM
FF 5291.60
Runoff Detained on Roof
EXISTING BUILDING
Grade parking area to drain to inlet
100 Year Ponding Limit
Install Type 'D' Inlet w/ 4" orifice plate Rim Elev. 91.5 Inv. Elev. 87.5
Install Sidewalk Culvert
FF 5292.50
EXISTING BUILDING
Runoff Detained on Roof
FF 5292.50
Runoff Detained on Roof
EXISTING BUILDING
FF 5289.37
EXISTING BUILDING

LOUISIANA

SS Manhole Rim Elev 88.42 Inv Elev 86.17
SS Manhole Rim Elev 88.80 Inv Elev 86.80
SS Manhole Rim Elev 89.01 Inv Elev 85.40
SS Manhole Rim Elev 90.87 Inv Elev 88.62
SS Manhole Rim Elev 89.68 Inv Elev 87.90
SS Manhole Rim Elev 90.07 Inv Elev 88.39
SS Manhole Rim Elev 91.40 Inv Elev 89.00
SS Manhole Rim Elev 88.46 Inv Elev 86.21
Tie New SS Line to Existing Mh
Existing Expansion Chamber & Sidewalk Culvert
Existing Expansion Chamber & Sidewalk Culvert
Top of Fire Plug 5295.06

Flow to Street
Flow to Street
Flow to Street
Flow to Street
Project TBM Chiseled Square 5294.64
1-Double 'C' Inlet
1-Double 'C' Inlet
24" RCP
1-Double 'C' Inlet
2-Double 'C' Inlets

CUTLER AVENUE N.E.

LEGEND
- SPOT ELEVATION
- STORM DRAIN LINE
- STORM INLET
- RETAINING WALL
- NEW DEVELOPMENT
- BASIN BOUNDARY

A unit draft

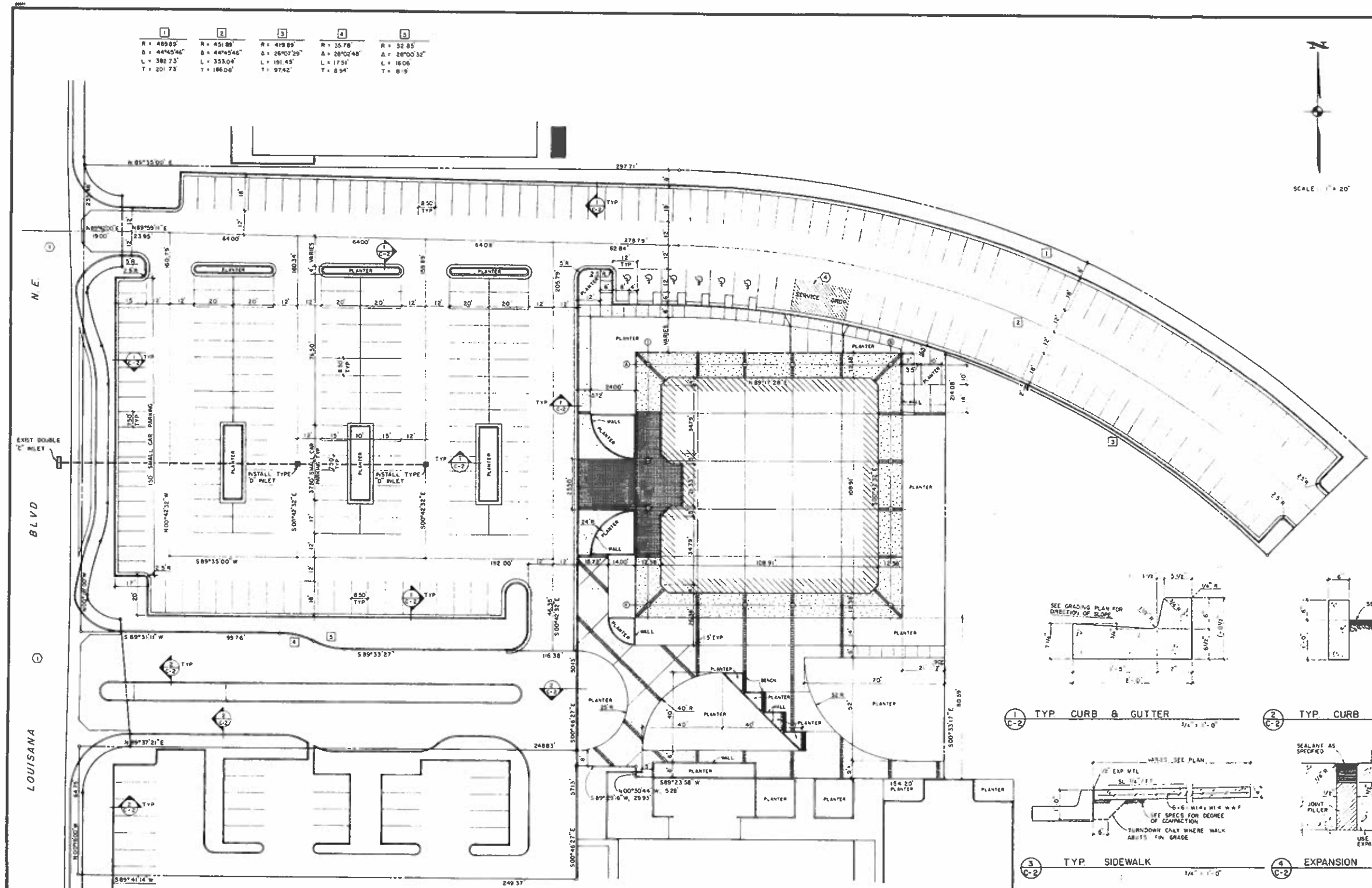
PLATE 4
PROPOSED CONDITIONS

AMERICAN FINANCIAL CENTER
DRAINAGE PLAN

Job No. 32140 | Sheet 1 of 2
Drawn By P.E. | Date JAN. 84
Checked By B.G.B | Scale 1"=50'

Carl W. Walker 1-17-84

13618



	1	2	3	4	5
R =	489.89'	451.89'	419.89'	35.78'	32.85'
Δ =	44°45'46"	44°45'46"	26°07'29"	28°02'48"	28°00'32"
L =	382.73'	353.04'	191.45'	17.51'	16.06'
T =	201.73'	186.08'	97.42'	8.94'	8.19

SITE PLAN

NOTES

1. SEE UPTOWN STREET IMPROVEMENTS, PROJECT NUMBER 1844, FOR THE PROPOSED WIDENING OF LOUISIANA BLVD.
2. DIMENSIONS AT PARKING AREAS & ROADS ARE TO THE FACE OF CURB.
3. PAINT 4" WIDE WHITE LINES FOR PARKING SPACES.
4. PAINT 4" WIDE DIAGONAL YELLOW LINES AS SHOWN.
5. PAINT STANDARD HANDICAPPED SYMBOL IN THE PARKING SPACES SHOWN ON THE PLAN.

LEGEND

DESCRIPTION	EXISTING	NEW	PROPOSED
PROPERTY LINE (R/W)			
CENTERLINE			
BUILDING			
CURB & GUTTER			
CURB			
CONC SIDEWALK			
EXPOSED AGGREGATE			
PAVERS			

1 C-2 TYP CURB & GUTTER 3/4" = 1'-0"

2 C-2 TYP. CURB 1" = 1'-0"

3 C-2 TYP. SIDEWALK 3/4" = 1'-0"

4 C-2 EXPANSION JOINT

4 C-2 CONTRACTION JOINT

*NOTES
1. SPACING OF CONTRACTION JOINTS SHALL NOT BE LESS THAN 6 FT NOR MORE THAN 10 FT O.C.
2. JOINTS IN SIDEWALKS ABUTTING CURB & GUTTER SHALL MATCH CURB & GUTTER JOINTS

*1" FOR SIDEWALKS AND 1½" FOR CURB & GUTTER

5 C-2 TYP. PAVING SECTION 1" = 1'-0"

W. C. KRUGER & ASSOCIATES
ARCHITECTS PLANNERS INC
SUITE 1100 BANK OF NEW MEXICO BUILDING
ALBUQUERQUE, NEW MEXICO
ZIP CODE 87101
TELEPHONE (505) 842 8663

STATE OF NEW MEXICO
W. C. KRUGER
NO. 47
ALBUQUERQUE
NEW MEX
REGISTERED ARCHITECT

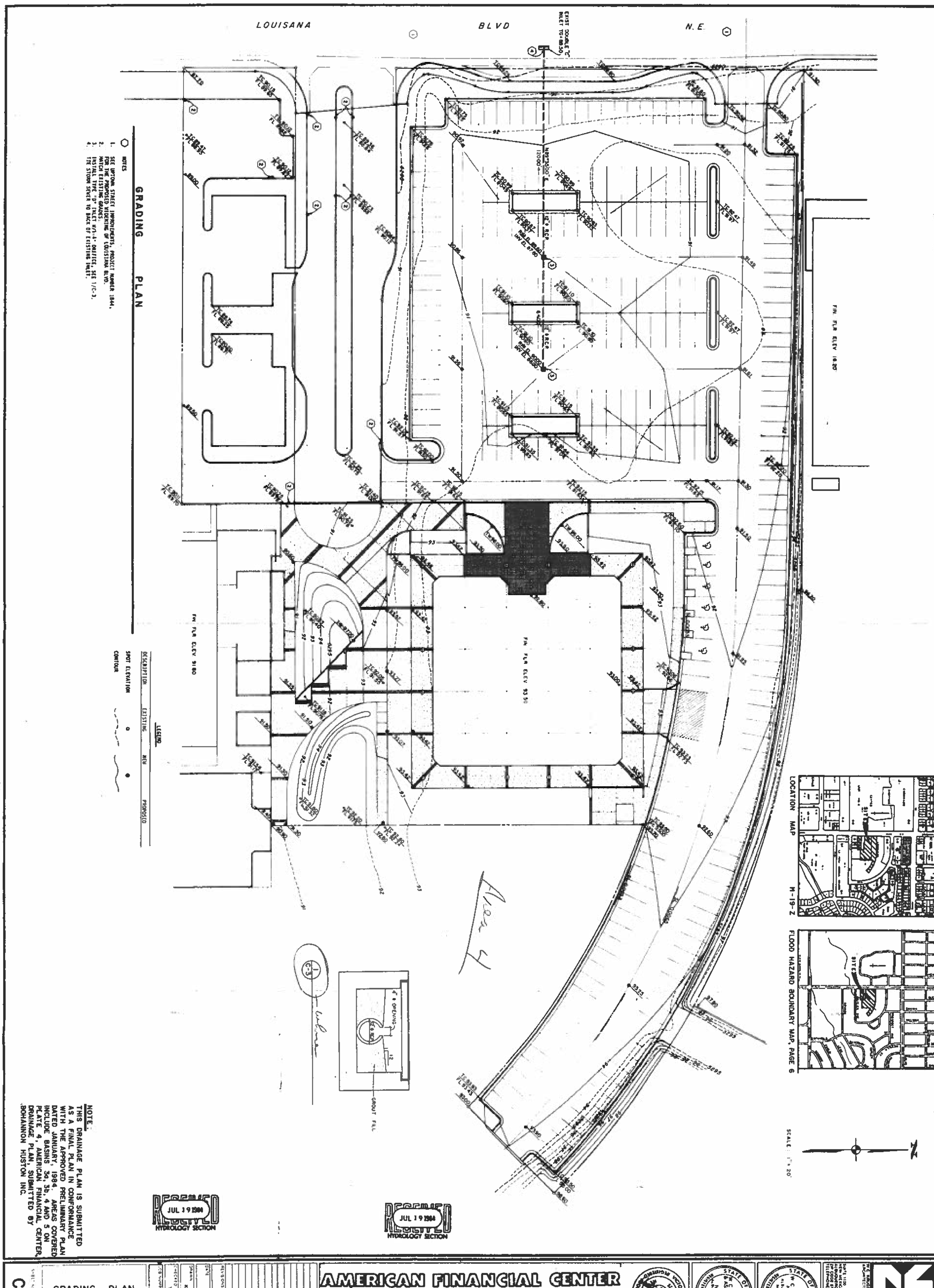
STATE OF NEW MEXICO
W. C. KRUGER & ASSOCIATES INC
NO. 938
ALBUQUERQUE
N M
REGISTERED ARCHITECT

AMERICAN FINANCIAL CENTER
BUILDING NO. 5
ALBUQUERQUE, NEW MEXICO

REVISIONS
DATE
DRAWN KJD
CHECKED WJC
JOB NUMBER

SITE PLAN AND DETAILS

SHEET NUMBER
C-2



GRADING PLAN

NOTES

1. SEE UPTOWN STREET IMPROVEMENTS, PROJECT NUMBER 1844, FOR THE PROPOSED WIDENING OF LOUISIANA BLVD.
2. MATCH EXISTING GRADES.
3. INSTALL TYPE "D" INLET W/1-6" ORIFICE, SEE 1/C-3.
4. TIE STORM SEWER TO BACK OF EXISTING INLET.

LEGEND

DESCRIPTION	EXISTING	NEW	PROPOSED
SPOT ELEVATION	○	●	
CONTOUR	- - -	~~~	

NOTE:
THIS DRAINAGE PLAN IS SUBMITTED AS A FINAL PLAN IN CONFORMANCE WITH THE APPROVED PRELIMINARY PLAN DATED JANUARY, 1984. AREAS COVERED INCLUDE BASINS 3a, 3b, 4 AND 5 ON PLATE 4, AMERICAN FINANCIAL CENTER, DRAINAGE PLAN, SUBMITTED BY BOHANNON HUSTON INC.

RECEIVED JUL 19 1984 HYDROLOGY SECTION

RECEIVED JUL 19 1984 HYDROLOGY SECTION

AMERICAN FINANCIAL CENTER
BUILDING NO. 5
ALBUQUERQUE, NEW MEXICO

GRADING PLAN

C-3

CITY OF ALBUQUERQUE

June 21, 2016

Richard J. Berry, Mayor

Mike Balaskovits, P.E.
Bohannan Huston, Inc.
7500 Jefferson St NE Courtyard 1
Albuquerque, NM, 87109

RE: **2440 Louisiana Lots**
Conceptual Grading and Drainage Plan
Submittal Date 5-17-2016 (File: H19D084)

Dear Mr. Balaskovits:

Based upon the information provided in your submittal received 5-17-16, and as discussed at a previous DRB Hearing (6-15-2016) the above referenced Grading and Drainage Plan is approved for Site Plan for Subdivision (#1010042).

Please make sure to be aware that if the final grading and drainage plan needs cross-lot drainage easements they will be required for final sign off.

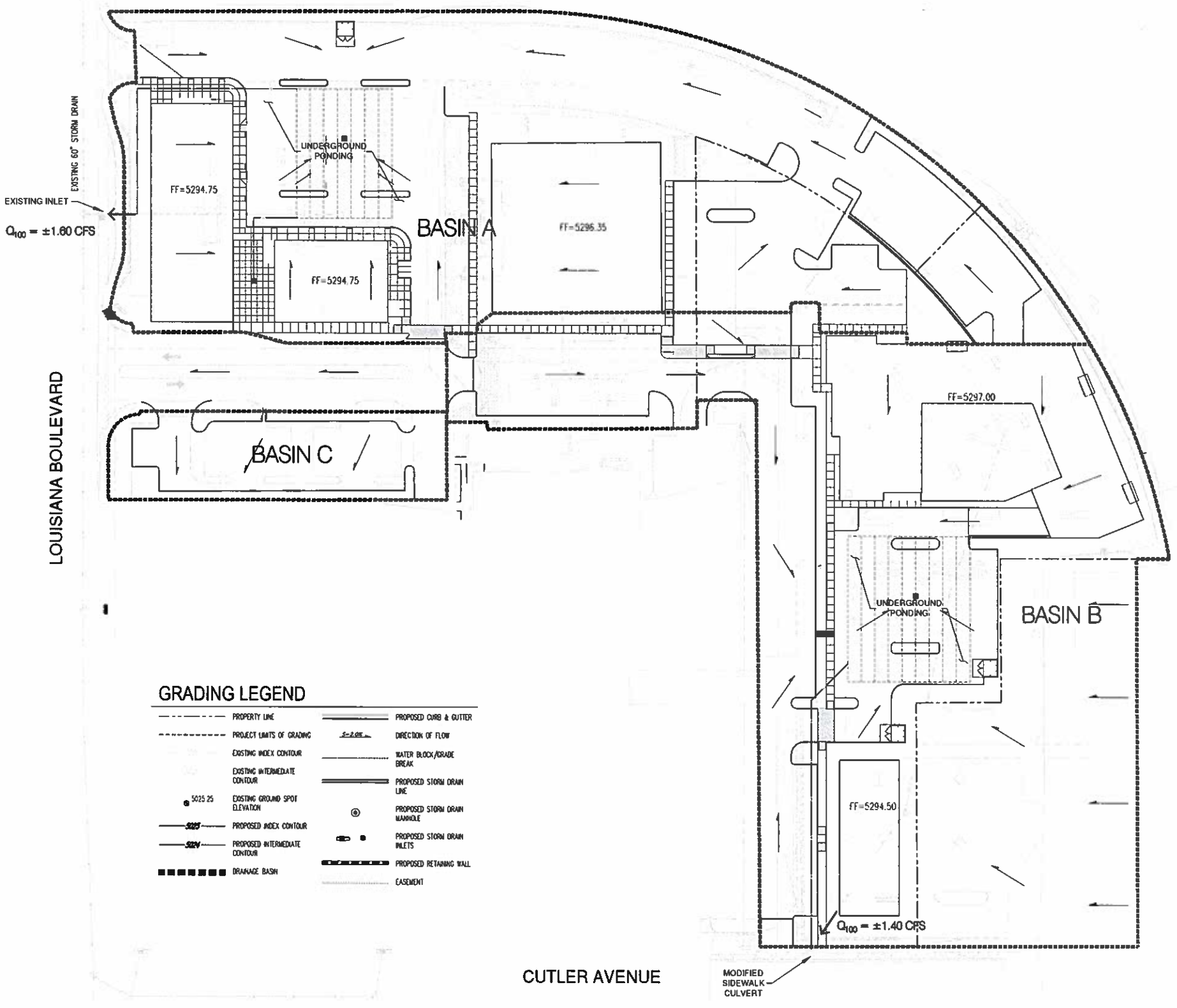
If you have any questions, you can contact me at 924-3986.

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

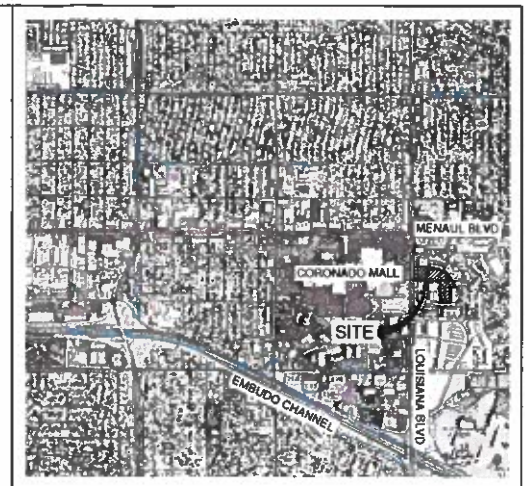
Orig: Drainage file

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



GRADING LEGEND

PROPERTY LINE	PROPOSED CURB & GUTTER
PROJECT LIMITS OF GRADING	DIRECTION OF FLOW
EXISTING INDEX CONTOUR	WATER BLOCK/GRADE BREAK
EXISTING INTERMEDIATE CONTOUR	PROPOSED STORM DRAIN LINE
5025.25 EXISTING GROUND SPOT ELEVATION	PROPOSED STORM DRAIN MANHOLE
PROPOSED INDEX CONTOUR	PROPOSED STORM DRAIN INLETS
PROPOSED INTERMEDIATE CONTOUR	PROPOSED RETAINING WALL
DRAINAGE BASIN	EASEMENT



FEMA FLOODPLAIN MAP: 35001C0352H

DRAINAGE NARRATIVE

EXISTING CONDITIONS:

THE SITE IS LOCATED NEAR THE INTERSECTION OF LOUISIANA BLVD AND CUTLER AVE, EAST OF CORONADO MALL. THE APPROXIMATELY 5.8 ACRES OF THE ENTIRE DEVELOPMENT IS CURRENTLY SUBDIVIDED INTO 2 TRACTS, WHICH ARE FULLY DEVELOPED. THE SITE CONSISTS OF EXISTING PARKING LOTS AND COVERED PARKING AREAS BUILT AROUND AN EXISTING 7 STORY BUILDING. THE CURRENT CONDITIONS OF THE SITE ARE FAIRLY FLAT.

REVIEW OF THE CITY HYDROLOGY FILES (COA HYDROLOGY FILE #H19-D1) AND THE EXISTING TOPOGRAPHIC SURVEY SHOWS THERE ARE SEVERAL EXISTING INLETS LOCATED AROUND THE SITE WHICH DISCHARGE INTO THE PUBLIC RIGHT OF WAY. ALL THE DRAINAGE FROM THE SITE APPEARS TO ENTER THE EXISTING 60" STORM DRAIN LOCATED WITHIN LOUISIANA BLVD VIA A DIRECT STORM DRAIN CONNECTION (BASIN A) OR VIA SURFACE FLOW WHICH IS PICKED UP IN CURB INLETS AT THE INTERSECTION OF CUTLER AND LOUISIANA (BASIN B). THE NORTHERN AND WESTERN PORTION OF THE SITE (BASIN A) CURRENTLY DRAIN TO A SERIES OF EXISTING INLETS ONSITE WHICH TIE TO AN AREA DRAIN WITHIN LOUISIANA BLVD. THE SOUTHERN PORTION OF THE SITE DRAINS TO A SERIES OF SHALLOW ONSITE INLETS THAT EVENTUALLY DISCHARGES INTO CUTLER AVE VIA A MODIFIED SIDEWALK CULVERT. THIS IS CONSISTENT WITH THE APPROVED DRAINAGE REPORT FOR AMERICAN FINANCIAL CENTER (HYDROLOGY FILE H19-D1) DATED JANUARY 17, 1984. ACCORDING TO THIS REPORT, THE ALLOWABLE DISCHARGE FROM THE SITE IS DETAINED VIA 4" ORIFICE PLATES ON ALL OUTFLOW PIPES. EXISTING SURFACE PARKING PONDS HELP TO MITIGATE THESE FLOWS AS NECESSARY. THIS REPORT ANALYZED THE SITE BASED ON A MODIFIED SITE LAYOUT THAT WAS NEVER FULLY CONSTRUCTED.

A MORE RECENT GRADING AND DRAINAGE PLAN PREPARED BY LARRY READ AND APPROVED ON JANUARY 11, 2002 FOR PAVING PERMIT AND SITE PLAN FOR BUILDING PERMIT, CONSTRUCTED ADDITIONAL ONSITE PARKING. ACCORDING TO THIS PLAN, THE SITE UTILIZES THE PARKING LOTS AS DETENTION PONDS DURING LARGER STORM EVENTS. THESE PONDS AND OTHER ONSITE DRAINAGE IMPROVEMENTS WERE VERIFIED BY THE TOPOGRAPHIC SURVEY.

PER FEMA MAP PANEL #35001C0352H (SEE ABOVE), THE SITE IS NOT LOCATED WITHIN A KNOWN FLOOD ZONE.

PROPOSED CONDITIONS:

THE DEVELOPED FLOWS FOR THE SITE WILL MAINTAIN THE REDUCED DISCHARGE TO THE SURROUNDING RIGHT OF WAY. THE SITE WILL NOT DEVIATE SIGNIFICANTLY FROM HISTORIC FLOW PATHS. DUE TO THE PROPOSED BUILDINGS AND THE SITE SLOPE CONSTRAINTS, UNDERGROUND PONDING WILL BE REQUIRED TO ASSIST IN THE FIRST FLUSH REQUIREMENTS AS WELL AS HELP TO DETAIN THE PEAK DISCHARGE TO MEET THE ALLOWABLE DISCHARGE RATES.

THE NORTHERN PORTION OF THE SITE (BASIN A), ALONG LOUISIANA BOULEVARD INCLUDING THE EXISTING LEWIS UNIVERSITY BUILDING, WILL CONTINUE TO DISCHARGE TO THE 60" STORM DRAIN IN LOUISIANA. UNDERGROUND PONDING WITH BE REQUIRED TO MAINTAIN THE ALLOWABLE DISCHARGE (±1.6CFS) AND TO RETAIN THE FIRST FLUSH VOLUME.

THE SOUTHERN PORTION OF THE SITE (BASIN B) THAT IS ADJACENT TO CUTLER AVENUE WILL MAINTAIN THE ALLOWABLE DISCHARGE (±1.4CFS) AND CONTINUE TO DISCHARGE DIRECTLY TO CUTLER VIA SURFACE FLOW. THE EXISTING STORM DRAINAGE WILL HAVE TO BE REROUTED AROUND THE PROPOSED BUILDINGS AS NECESSARY AND UNDERGROUND PONDING WILL ALSO BE REQUIRED TO RETAIN THE FIRST FLUSH AND MAINTAIN THE ALLOWABLE DISCHARGE.

GIVEN THE ABOVE INFORMATION, THE SITE WILL MAINTAIN HISTORICAL FLOWPATHS AND FLOWS VIA ONSITE STORM DRAIN SYSTEMS AND UNDERGROUND PONDING. WITH THIS SUBMITTAL, WE ARE SEEKING SITE PLAN FOR SUBDIVISION APPROVAL.

ARCHITECTURE / DESIGN / INSPIRATION

DEKKER PERICH SABATINI

7601 JEFFERSON NE, SUITE 100
ALBUQUERQUE, NM 87109

505.761.9700 / DPSDESIGN.ORG

ISSUED FOR
DRB/URT
Site Plan for Subdivision

SEAL

PROJECT

2440 LOUISIANA LOTS
Albuquerque, New Mexico
SITE PLAN FOR SUBDIVISION
DRB SUBMITTAL

REVISIONS

DRAWN BY	MHS
REVIEWED BY	MJB
DATE	5.18.16
PROJECT NO	20160384

DRAWING NAME

CONCEPTUAL GRADING PLAN

SHEET NO

2 OF 2

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May 16, 2016 - 6:33pm
Plotted by: MSATCHES

Bohannan Huston
www.bhinc.com 800.877.5332

LOUISIANA BOULEVARD N.E.

LOT 5-A, BLOCK C
LOUISIANA SUBDIVISION
(05/05/87, C33-122)

NEW BUILDING
FF 24.37

EXISTING 5' P.U.E.
(07/13/62, D3-40)

NEW JUNCTION
INVIN=17.96'
INVOUT=17.86'

NEW JUNCTION
INV=5216.76
(VERIFY, NOTE A)

NEW JUNCTION
INV=5215.84
(VERIFY)

12" C-900 PVC

2' SIDEWALK EXTENSION

NEW 2' DIA INLET
GRATE= 22.65
6" DIA ORFICE=22.13'
INVIN=19.64
INVOUT=19.54

EXISTING 25.38' INGRESS & EGRESS EASEMENT (02/09/84, C23-46)

EX SLOT DRAIN (TO BE REMOVED)

POND #3 BOT 22.36

POND #1 BOT 22.37

POND #2 BOT 22.37

POND #4 BOT 22.99

ABANDON AND REMOVE EXISTING STORM DRAIN AS REQUIRED

NEW 2.5' DIA INLET
GRATE=22.29
6" DIA ORFICE=22.13'
INVIN=20.37'
INVOUT=20.27'

NEW ASPHALT PAVEMENT

EXISTING ASPHALT PAVEMENT TO REMAIN

EXISTING INGRESS & EGRESS EASEMENT (02/09/84, C23-46)

(2' CURB OPENING)

(N 89°41'14" W)

(N 00°20'21" W)

(N 89°42'00" W)

(N 45°17'52" W)

(L=13.22')
(R=8.42')
(89°57'39")
(C=11.91')

(249.37')

(177.50')

(5.73')

(N 00°46'27" W)

12.22'

25.38'

24.54'

11.62'

12.92'

12.38'

12.00'

LEGAL DESCRIPTION

LOT NUMBERED THREE-A-ONE (3-A-1) IN BLOCK LETTERED "C", OF LOUISIANA SUBDIVISION, CITY OF ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE SECOND CORRECTION PLAT OF LOT 3-A-1, BLOCK "C" OF SAID SUBDIVISION, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON JULY 1, 1996, IN PLAT BOOK 96C, PAGE 290.

ACS BENCHMARK

BENCHMARK FOR THIS SITE IS BASED ON ELEVATION DATUM NAVD 1988 FROM AGRS MONUMENT "15-H18", PUBLISHED ELEVATION(FEET) = 5303.391
(DATE OF RETRIVAL: JULY 2007 FOR NON AGRS MONUMENTS)

LEGEND

- FOUND AND USED MONUMENT AS DESIGNATED
- DENOTES NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993" SET THIS SURVEY
- FOUND ALUMINUM AGRS MONUMENT AS DESIGNATED
- SET CP AS DESIGNATED
- EXISTING SERVICE/DROP POLE AS DESIGNATED
- EXISTING UTILITY POLE
- EXISTING ELECTRIC BOX
- EXISTING LIGHT POLE
- EXISTING TRANSFORMER
- EXISTING PULLBOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING IRRIGATION CONTROL VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING PIV
- EXISTING SPIGOT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING CLEANOUT
- EXISTING UNKNOWN MANOLE
- EXISTING GAS VALVE
- EXISTING SIGN
- EXISTING GAS METER
- EXISTING POND INLET
- EXISTING MEDIAN INLET
- EXISTING CURB INLET
- EXISTING GUARD POST
- EXISTING HANDICAP PARKING SPACE
- EXISTING CURB AND GUTTER
- EXISTING OVERHEAD UTILITY LINE
- EXISTING GAS LINE
- EXISTING TELEPHONE LINE
- •81.77 NEW SPOT ELEVATION
- 81.77TW NEW TOP OF WALL ELEVATION
- 81.77BW NEW BOTTOM OF WALL ELEVATION
- 81.77TC NEW TOP OF CURB
- 81.77TA NEW TOP OF ASPHALT
- NEW FLOW DIRECTION
- NEW ASPHALT PAVEMENT

GENERAL 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. NO WORK ALLOWED IN THE PUBLIC RIGHT OF WAY WITHOUT AN APPROVED WORK ORDER.

NOTE:

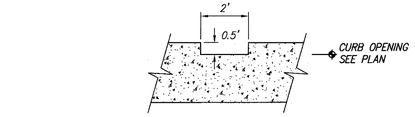
A. CONTRACTOR TO CONFIRM STORM DRAIN CONNECTION INVERT PRIOR TO STORM DRAIN CONSTRUCTION AND NOTIFY ENGINEER. STORM DRAIN LAYOUT IS ASSUMED. STORM DRAIN LAYOUT IS PER LARRY READ & ASSOCIATES 2002 DRAINAGE BASIN MAP

B. BUILDING ROOF TO DRAIN TO THE NORTH AND EAST SIDES.

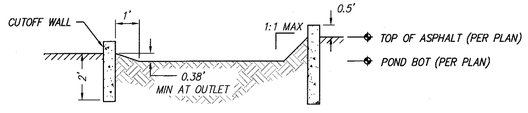
DIANE HOELZER
NEW MEXICO
11697
REGISTERED PROFESSIONAL ENGINEER
8-14-18

10' 5' 0 10' 20'
SCALE: 1" = 10'

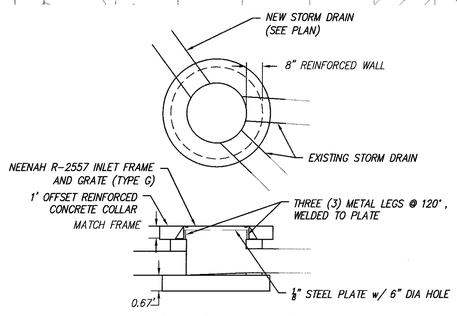
CURB OPENING



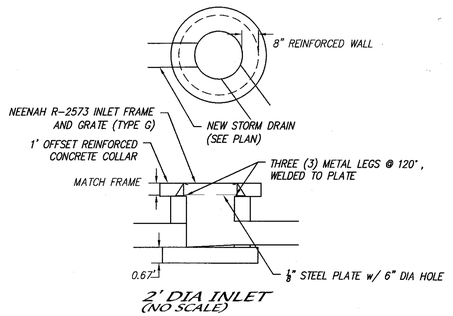
FIRST FLUSH POND SECTION



2.5' DIA INLET
(NO SCALE)



2' DIA INLET
(NO SCALE)



UNDERGROUND UTILITIES CAUTION:

NOTE THAT ALL EXISTING UTILITIES MAY NOT BE SHOWN. ALL EXISTING SERVICE CONNECTIONS ARE NOT SHOWN. ANY EXISTING UTILITIES THAT ARE SHOWN ARE APPROXIMATE LOCATION ONLY. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ALL THE UTILITY OWNERS AND TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO ANY EXCAVATIONS TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS.

SHOPS @ THE 24s

GRADING & DRAINAGE PLAN

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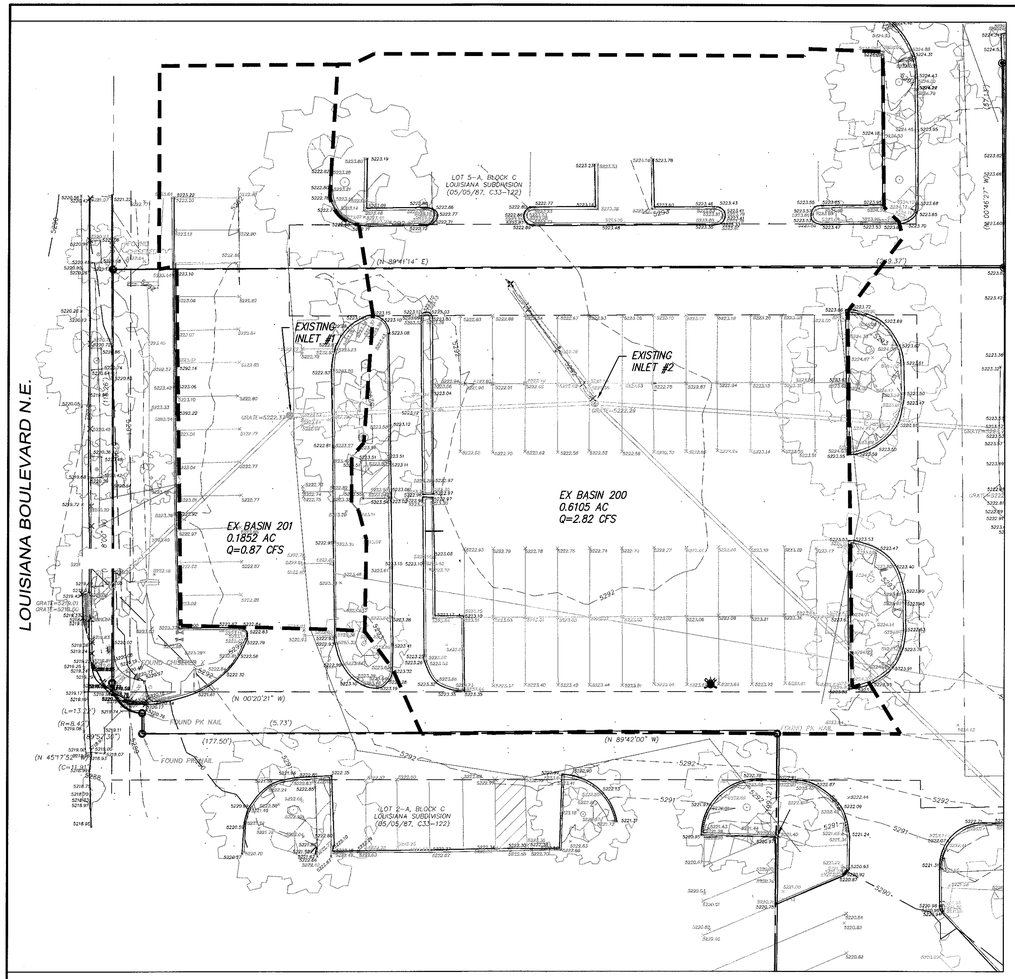
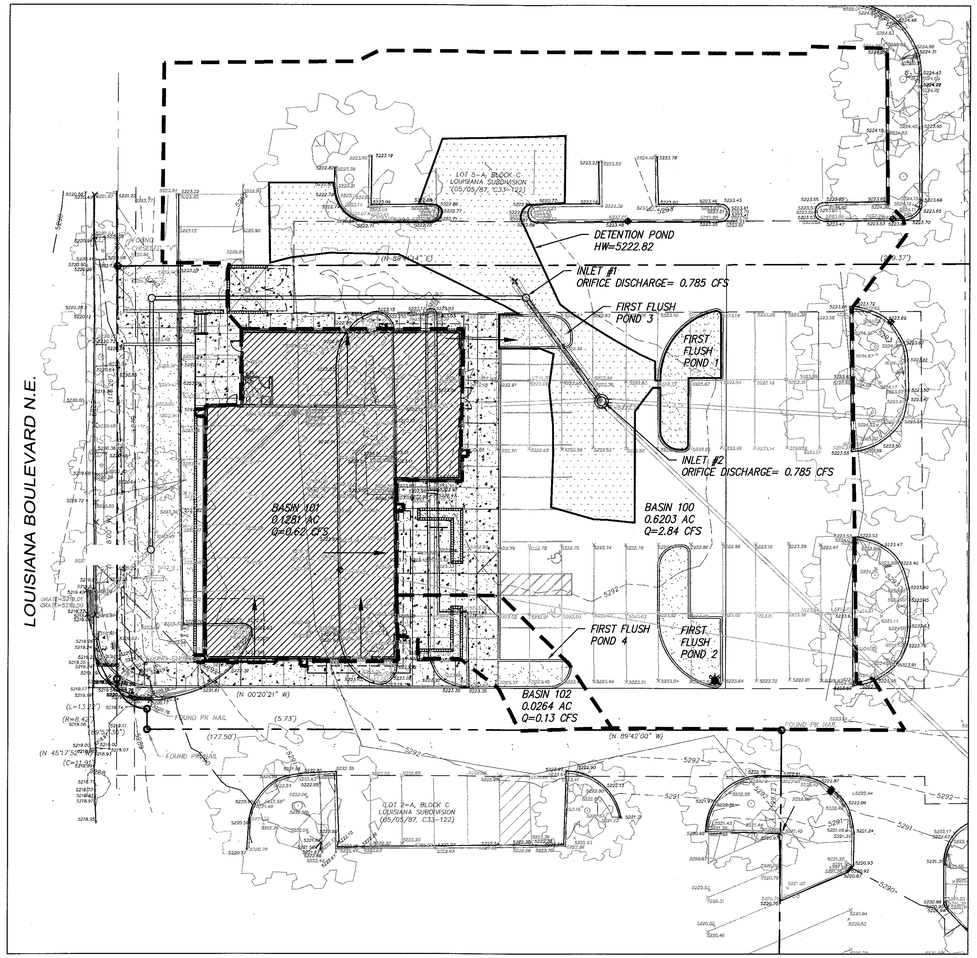
CONSULTING ENGINEERS
P.O. BOX 90606
ALBUQUERQUE, NEW MEXICO 87199
(505)828-2200, FAX (505)797-9539

Designed: CP/DH	Drawn: DER, CP	Checked: DMG	Sheet C1 of 3
Scale: AS SHOWN	Date: 8/13/2018	Job: A18018	

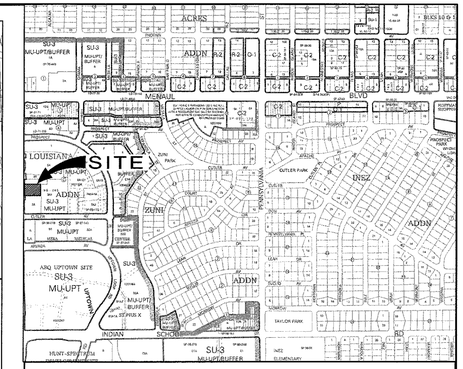


EXISTING BASINS TO EXISTING INLETS #1 AND #2
Q = 3.69 CFS (EXISTING BASINS)



PROPOSED BASINS TO NEW INLETS #1 AND #2
Q = 3.59 CFS (PROPOSED BASINS)
Q = 1.70 CFS (BASIN 102 AND DETENTION POND)

20' 10' 0 20' 20'
SCALE: 1" = 20'



VICINITY MAP

LEGAL DESCRIPTION

LOT NUMBERED THREE-A-ONE (3-A-1) IN BLOCK LETTERED "C", OF LOUISIANA SUBDIVISION, CITY OF ALBUQUERQUE, NEW MEXICO, AS THE SAME IS SHOWN AND DESIGNATED ON THE SECOND CORRECTION PLAT OF LOT 3-A-1, BLOCK "C" OF SAID SUBDIVISION, FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO, ON JULY 1, 1996, IN PLAT BOOK 96C, PAGE 290.

HYDROLOGY NOTES

OVERALL HYDROLOGY PLAN:

THE PROJECT IS THE RECONSTRUCTION AND REGRADING OF A PORTION WITHIN AN EXISTING PROPERTY. IN REGARDS TO HYDROLOGY, THE PROPOSED CONSTRUCTION COMPARED TO THE EXISTING IS NOT SIGNIFICANT. AS THE IMPERVIOUS AREA IS NOT CHANGED SIGNIFICANTLY, THE AREA OF CONSTRUCTION WOULD SHED DISCHARGE SIMILAR TO EXISTING CONDITIONS, WITHOUT CONSIDERATION OF THE ROUTING AFFECTS FROM FIRST FLUSH CAPTURE. HOWEVER, THE PROPOSED INLETS ARE EQUIPPED ORIFICE PLATES TO REDUCE THE STORM WATER DISCHARGE RATE FROM EXISTING.

THE NEW GRADES WILL CAPTURE FIRST FLUSH RUNOFF FROM THE NEW CONSTRUCTION AREA AND EXISTING OFFSITE PAVED AREA. FIRST FLUSH PONDS 1+2 WILL CAPTURE FROM THE EAST SIDE OF BASIN 100, FIRST FLUSH POND 3 WILL CAPTURE FROM THE BUILDING ROOF, AND FIRST FLUSH POND 4 WILL CAPTURE FROM BASIN 102. THE REQUIRED FIRST FLUSH VOLUME GENERATED BY THE NEW CONSTRUCTION AREA IS CALCULATED AT 362 CF (0.26" FIRST FLUSH DEPTH). THE FIRST FLUSH PONDS ARE GRADED TO ACCOMMODATE THIS VOLUME. COLLECTING FIRST FLUSH FROM OFFSITE AREAS IS NOT REQUIRED, HOWEVER, BECAUSE THE OFFSITE BASINS ARE AVAILABLE FROM EXISTING ELEVATIONS, OFFSITE BASIN DISCHARGE IS COLLECTED AND CREDITED TOWARDS THE CONSTRUCTION AREA REQUIRED FIRST FLUSH VOLUME. THE FIRST FLUSH PONDS COLLECT FLOW THRU CURB OPENINGS AT UPSTREAM SIDES AND RELEASE VOLUME IN EXCESS OF FIRST FLUSH THRU DOWNSTREAM CURB OPENINGS THAT ARE LOWER IN ELEVATION.

THE RESULTS ARE SUMMARIZED IN THE ATTACHED SUPPLEMENTAL INFORMATION:

THE NEW BUILDING WILL SHED WATER FROM DOWNSPOUTS TO THE NORTH AND EAST SIDES INTO THE PARKING LOT WITH TWO SUMP INLETS EQUIPPED WITH 6" ORIFICE PLATES TO LIMIT FLOW FROM 3.45 CFS TO 1.57 CFS FROM BASINS 101 AND 100 COMBINED. THIS WILL DETAIN APPROXIMATELY 6" OF STORM WATER PONDING OVER INLET #2 (100 YR) IN THE NEWLY CONSTRUCTED PARKING LOT EAST OF THE NEW BUILDING. THIS DETENTION IS NEEDED TO LOWER STORM WATER DISCHARGE INTO THE LOUISIANA STORM DRAIN AS IMPOSED BY THE CITY OF ALBUQUERQUE HYDROLOGY DEPARTMENT.

THE STORM DRAIN SYSTEM IS EXISTING AND WILL BE RECONTRUCTED FROM INLET #2 AROUND THE BUILDING ON THE NORTH AND WEST SIDES. IT WILL JUNCTION BACK INTO THE EXISTING STORM DRAIN AT A LOCATION WEST OF THE PROPOSED BUILDING AND BE CONVEYED TO THE LOUISIANA STORM DRAIN. THE JUNCTION LOCATION AND THE EXISTING STORM DRAIN SYSTEM ARE TO BE VERIFIED ONCE UNCOVERED DURING CONSTRUCTION.

FIRST FLUSH CAPTURE

Area of Construction:	SF	AC	SQ MI
	20085	0.4611	0.000720

Proposed (SF)	
Impervious	Landscape
16709	3376

First Flush depth: (inches)	0.26
Required First Flush Volume based on Design: (CF)	362
Proposed Design First Flush Capacity	
PONDS 1 & 2	
Depth (FT):	0.38
Bottom (SF)	305
Top (SF)	403
Volume (CF)	134.52
Two Ponds (1&2)	269.04
POND 3	
Depth (FT):	0.38
Bottom (SF)	111
Top (SF)	161
Volume (CF)	52
POND 4	
Depth (FT):	0.38
Bottom (SF)	85
Top (SF)	133
Volume (CF)	41
First Flush Captured Volume (CF)=	362

CHANE HOELZER
NEW MEXICO
17897
PROFESSIONAL ENGINEER
8-14-18

SHOPS @ THE 24s

SUB BASIN BOUNDARY EXHIBIT

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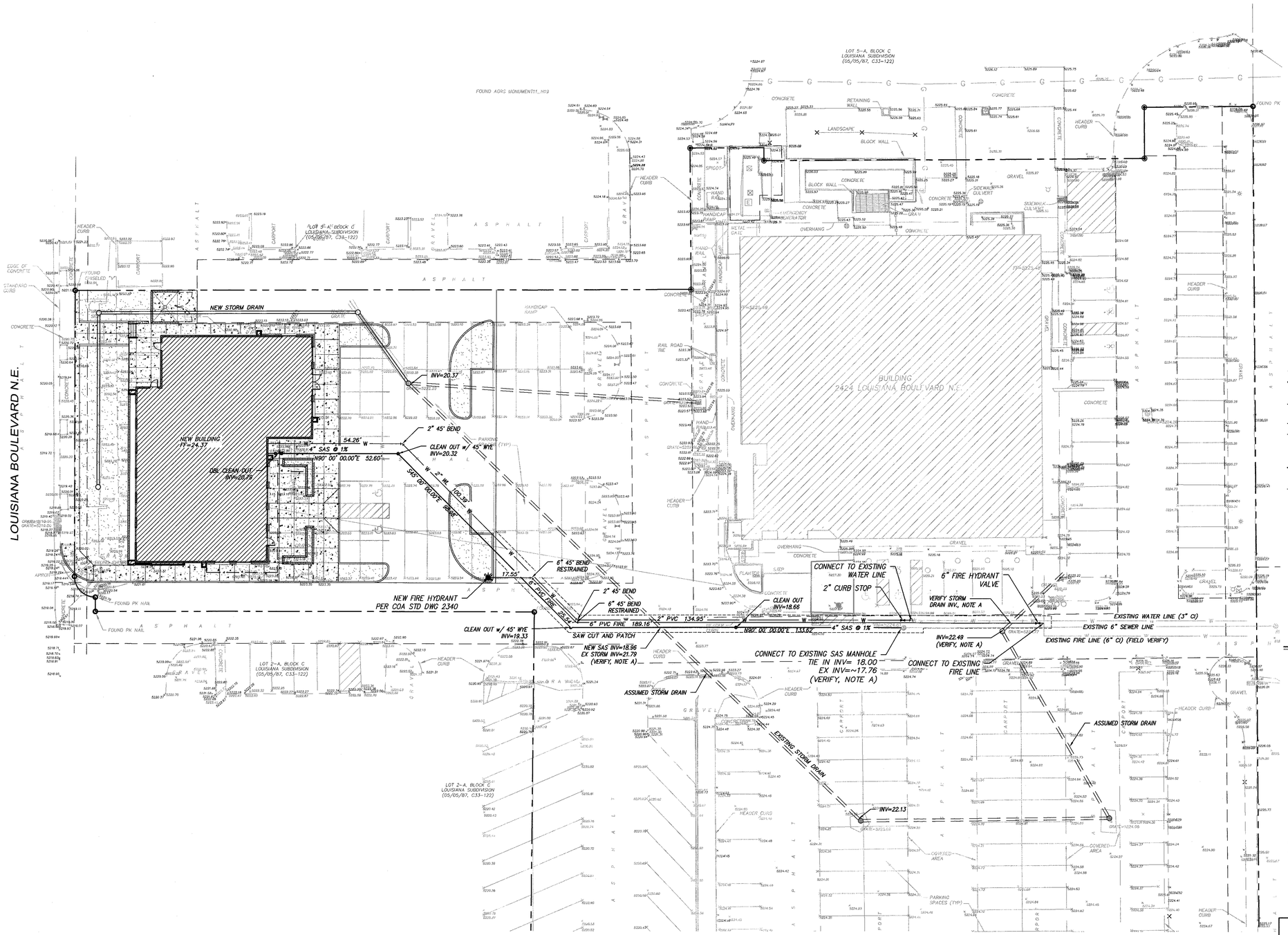
Scale: AS SHOWN	Date: 8/13/2018	Job: A18018	



LEGEND

- FOUND AND USED MONUMENT AS DESIGNATED
- DENOTES NO. 4 REBAR WITH YELLOW PLASTIC CAP "PS 11993" SET THIS SURVEY
- FOUND ALUMINUM AGRS MONUMENT AS DESIGNATED
- SET CP AS DESIGNATED
- EXISTING SERVICE/DROP POLE AS DESIGNATED
- EXISTING UTILITY POLE
- EXISTING ELECTRIC BOX
- EXISTING LIGHT POLE
- EXISTING TRANSFORMER
- EXISTING PULLBOX
- EXISTING TELEPHONE PEDESTAL
- EXISTING IRRIGATION CONTROL VALVE
- EXISTING WATER METER
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING PIV
- EXISTING SPIGOT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING CLEANOUT
- EXISTING UNKNOWN MANOLE
- EXISTING GAS VALVE
- EXISTING SIGN
- EXISTING GAS METER
- EXISTING POND INLET
- EXISTING MEDIAN INLET
- EXISTING CURB INLET
- EXISTING GUARD POST
- EXISTING HANDICAP PARKING SPACE
- EXISTING CURB AND GUTTER
- EXISTING OVERHEAD UTILITY LINE
- EXISTING GAS LINE
- EXISTING TELEPHONE LINE
- NEW EASEMENTS
- 12" CMP — NEW STORM DRAIN
- NEW STORM DRAIN MH
- 6"WL — NEW WATERLINE
- NEW WATER METER SGL
- NEW WATER BEND
- NEW WATER TEE
- NEW GATE VALVE
- NEW FIRE HYDRANT
- 4"SAS — NEW SAS
- NEW SAS CLEAN OUT
- PAVEMENT CUT AND PATCH

20' 10' 0 20' 40'

SCALE: 1" = 20'

DRANE HOELZER — NEW MEXICO — 11987 — REGISTERED PROFESSIONAL ENGINEER

8-14-18

City of Albuquerque Standard Utility Notes:

1. All waterline is C-900 PVC pipe and all sanitary sewer is SDR35 PVC pipe and all storm drain is RCP Class III unless noted otherwise on the plans.
2. EMD's shall be installed on all waterline and sanitary sewer appurtenances as per section 170 of Standard Specifications.
3. All residential waterline services shall be 3/4" unless noted otherwise on plans.
4. All Gate Valves shall be per COA Std. Dwg. 2326 and 2328.
5. All Type "C" manholes shall be per COA Std. Dwg. 2101.
6. All Type "E" manholes shall be per COA Std. Dwg. 2102.
7. All 3/4" and 1" water services shall be per COA Std Dwg 2362 and 2368
8. All 1-1/2" and 2" water services shall be per COA Std Dwg 2363 and 2367
9. All SAS services into main line shall be per COA Std Dwg 2125.
10. All SAS services into manholes shall be per COA Std Dwg 2118.

NOTE:
A. CONTRACTOR TO CONFIRM SAS CONNECTION INVERT AND LOCATE EXISTING STORM DRAIN ALONG UTILITY CORRIDORS PRIOR TO UTILITY CONSTRUCTION AND NOTIFY ENGINEER. STORM DRAIN LAYOUT IS ASSUMED. STORM DRAIN LAYOUT IS PER LARRY READ & ASSOCIATES 2002 DRAINAGE BASIN MAP

SHOPS @ THE 24s

UTILITY PLAN

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