

# CITY OF ALBUQUERQUE



December 12, 2017

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

**RE: Country Club Plaza Bldg 3  
Drainage Report and Conceptual Grading and Drainage Plan  
Engineers Stamp Date: 12/8/17  
Hydrology File: J13D010**

Dear Ms. Hoelzer:

Based on the information provided in your submittal received on 12/11/17, the Drainage Report and Conceptual Grading and Drainage Plan are approved for Site Plan for Building Permit.

If you have any questions, please contact me at 924-3695 or [dpeterson@cabq.gov](mailto:dpeterson@cabq.gov).

Sincerely,

Dana Peterson, P.E.  
Senior Engineer, Planning Dept.  
Development Review Services

PO Box 1293

Albuquerque

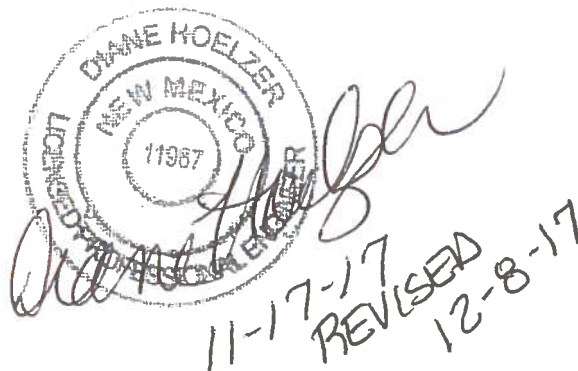
NM 87103

[www.cabq.gov](http://www.cabq.gov)

*Country Club Plaza III*  
*Drainage Management Plan*

*Prepared by*  
*Mark Goodwin & Associates, P.A.*

*November 2017*



# *Country Club Plaza – Phase III*

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# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09 2015)

Project Title: Country Club Plaza - Phase III Building Permit #: \_\_\_\_\_ City Drainage #: J13/D010  
DRB#: 1004677 EPC#: \_\_\_\_\_ Work Order#: \_\_\_\_\_  
Legal Description: Remaining Portion Tract B, Hunning Castle Addition, Tract A-1-A, Laguna Subdivisions Tracts A & B, Lands of HB Horns  
City Address: Central and Laguna

Engineering Firm: Mark Goodwin & Associates, PA Contact: Diane Hoelzer  
Address: PO BOX 90606, ABQ 87199  
Phone#: 828-2200 Fax#: \_\_\_\_\_ E-mail: diane@goodwinengineers.com

Owner: Country Club Partners, LLC Contact: \_\_\_\_\_  
Address: 1718 Central SW, Suite A, ABQ 87104  
Phone#: 453-7164 Fax#: \_\_\_\_\_ E-mail: rembe@infillsolutions.com

Architect: Mullen Heller Architecture, PC Contact: Mike Salvador  
Address: 1718 Central Ave SW, Suite D, ABQ 87104  
Phone#: 268-4144 Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Other Contact: \_\_\_\_\_ Contact: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone#: \_\_\_\_\_ Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Check all that Apply:

### DEPARTMENT:

☒ HYDROLOGY/ DRAINAGE  
☐ TRAFFIC/ TRANSPORTATION  
☐ MS4/ EROSION & SEDIMENT CONTROL

### TYPE OF SUBMITTAL:

☐ ENGINEER/ ARCHITECT CERTIFICATION  
  
☒ CONCEPTUAL G & D PLAN  
☐ GRADING PLAN  
☐ DRAINAGE MASTER PLAN  
☐ DRAINAGE REPORT  
☐ CLOMR/LOMR  
  
☐ TRAFFIC CIRCULATION LAYOUT (TCL)  
☐ TRAFFIC IMPACT STUDY (TIS)  
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)  
  
☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

### CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

☐ BUILDING PERMIT APPROVAL  
☐ CERTIFICATE OF OCCUPANCY  
  
☐ PRELIMINARY PLAT APPROVAL  
☐ SITE PLAN FOR SUB'D APPROVAL  
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☐ WORK ORDER APPROVAL  
☐ CLOMR/LOMR  
  
☐ PRE-DESIGN MEETING  
☐ OTHER (SPECIFY) \_\_\_\_\_

DATE SUBMITTED: December 11, 2017 By: Diane Hoelzer, PE

COA STAFF ELECTRONIC SUBMITTAL RECEIVED \_\_\_\_\_



D. Mark Goodwin & Associates, P.A.  
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199  
(505) 828-2200 FAX 797-9539

December 8, 2017

Dana Peterson, PE  
Hydrology Division, Planning Dept.  
Development and Building Services  
City of Albuquerque  
PO Box 1293  
Albuquerque, NM 87103

**Re: Country Club Plaza III  
Engineers stamp date 12-8-17 (J13 / D010)**

Dear Mr. Peterson:

In response to our phone conversation today;

1. The 100-year 10-day storm event analysis has been added in Appendix B,
2. A short explanation about the analysis has been added to main text for 'developed conditions,
3. Text about "paring the existing wall" to elevation 4953.0 along the SW property line has been added to the G&D Plan

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.



Diane Hoelzer, PE  
Senior Engineer

DLH/dlh

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# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: Country Club Plaza - Phase III Building Permit #: \_\_\_\_\_ City Drainage #: J13/D010

DRB#: 1004677 EPC#: \_\_\_\_\_ Work Order#: \_\_\_\_\_

Legal Description: Remaining Portion Tract B, Hunning Castle Addition, Tract A-1-A, Laguna Subdivisions Tracts A & B, Lands of HB Horns

City Address: Central and Laguna

Engineering Firm: Mark Goodwin & Associates, PA Contact: Diane Hoelzer

Address: PO BOX 90606, ABQ 87199

Phone#: 828-2200 Fax#: \_\_\_\_\_ E-mail: diane@goodwinengineers.com

Owner: Country Club Partners, LLC Contact: \_\_\_\_\_

Address: 1718 Central SW, Suite A, ABQ 87104

Phone#: 453-7164 Fax#: \_\_\_\_\_ E-mail: rembe@infillsolutions.com

Architect: Mullen Heller Architecture, PC Contact: Mike Salvador

Address: 1718 Central Ave SW, Suite D, ABQ 87104

Phone#: 268-4144 Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Other Contact: \_\_\_\_\_ Contact: \_\_\_\_\_

Address: \_\_\_\_\_

Phone#: \_\_\_\_\_ Fax#: \_\_\_\_\_ E-mail: \_\_\_\_\_

Check all that Apply:

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☐ MS4/ EROSION & SEDIMENT CONTROL

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☐ GRADING PLAN

☐ DRAINAGE MASTER PLAN

☐ DRAINAGE REPORT

☐ CLOMR/LOMR

☐ TRAFFIC CIRCULATION LAYOUT (TCL)

☐ TRAFFIC IMPACT STUDY (TIS)

☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

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☐ SO-19 APPROVAL

☐ PAVING PERMIT APPROVAL

☐ GRADING/ PAD CERTIFICATION

☐ WORK ORDER APPROVAL

☐ CLOMR/LOMR

☐ PRE-DESIGN MEETING

☐ OTHER (SPECIFY) \_\_\_\_\_

DATE SUBMITTED: December 5, 2017

By: Diane Hoelzer, PE

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED \_\_\_\_\_



D. Mark Goodwin & Associates, P.A.  
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199  
(505) 828-2200 FAX 797-9539

December 5, 2017

Dana Peterson, PE  
Hydrology Division, Planning Dept.  
Development and Building Services  
City of Albuquerque  
PO Box 1293  
Albuquerque, NM 87103

**Re: Country Club Plaza III**  
**Engineers stamp date 11-30-17 (J13 / D010)**

Dear Mr. Peterson:

In response to your November 22, 2017 comment letter;

The 100 year 10 day runoff volume has been determined and the limits of flooding in the event of a 100% pump system failure is shown on Exhibit A- Flooding limits at maximum elevation of 4953.0'. The volume calculations are provided as well.

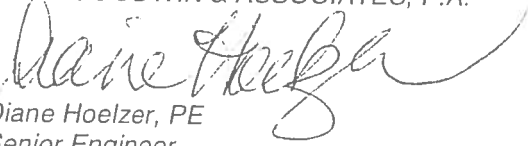
Both pond volumes were calculated to an elevation of 4953.0' and then the limits at elevation 4953.0 were determined and then the total volume provided with this scenario were determined and compared to the actual calculated runoff volume. The volume provided is greater than the volume calculated for the 100 year 10 day storm event.

This plan proposes a shallow (3.6") flat swale that extends from Pond #2 to Laguna Blvd. This invert of the swale is dictated by the existing flowline in Laguna Blvd. The survey indicates this elevation to be 4952.70'. This will at least allow for runoff to be directed to Laguna in the event of a failure. This is the best that can be provided for a spillway to Laguna Blvd.

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

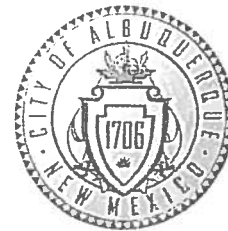


Diane Hoelzer, PE  
Senior Engineer

DLH/dlh

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# CITY OF ALBUQUERQUE



November 22, 2017

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

**RE: Country Club Plaza Bldg 3  
Conceptual Grading and Drainage Plan  
Engineers Stamp Date: 11/17/17  
Hydrology File: J13D010**

Dear Ms. Hoelzer:

Based on the information provided in your submittal received on 11/17/17, the Conceptual Grading and Drainage Plan cannot be approved for Site Plan for Building Permit until the following is addressed:

1. Demonstrate that if the pump fails, the 100-year, 10-day volume will not flood the adjacent properties. i.e.: determine this water surface elevation and show that it will either remain on the Country Club Plaza property or flow overland out to Laguna. Provide section views across the property line as required to support this.

If you have any questions, please contact me at 924-3695 or [dpeterson@cabq.gov](mailto:dpeterson@cabq.gov).

Sincerely,

Dana Peterson, P.E.  
Senior Engineer, Planning Dept.  
Development Review Services





# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

**Project Title:** Country Club Plaza - Phase III **Building Permit #:** \_\_\_\_\_ **City Drainage #:** J13/D010  
**DRB#:** 1004677 **EPC#:** \_\_\_\_\_ **Work Order#:** \_\_\_\_\_  
**Legal Description:** Remaining Portion Tract B, Hunning Castle Addition, Tract A-1-A, Laguna Subdivisions Tracts A & B, Lands of HB Horns  
**City Address:** Central and Laguna

**Engineering Firm:** Mark Goodwin & Associates, PA **Contact:** Diane Hoelzer  
**Address:** PO BOX 90606, ABQ 87199  
**Phone#:** 828-2200 **Fax#:** \_\_\_\_\_ **E-mail:** diane@goodwinengineers.com

**Owner:** Country Club Partners, LLC **Contact:** \_\_\_\_\_  
**Address:** 1718 Central SW, Suite A, ABQ 87104  
**Phone#:** 453-7164 **Fax#:** \_\_\_\_\_ **E-mail:** rembe@infillsolutions.com

**Architect:** Mullen Heller Architecture, PC **Contact:** Mike Salvador  
**Address:** 1718 Central Ave SW, Suite D, ABQ 87104  
**Phone#:** 268-4144 **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Other Contact:** \_\_\_\_\_ **Contact:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

Check all that Apply:

### DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE  
☐ TRAFFIC/ TRANSPORTATION  
☐ MS4/ EROSION & SEDIMENT CONTROL

### TYPE OF SUBMITTAL:

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☐ TRAFFIC CIRCULATION LAYOUT (TCL)  
☐ TRAFFIC IMPACT STUDY (TIS)  
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)  
☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

**DATE SUBMITTED:** November 17, 2017 **By:** Diane Hoelzer, PE

### CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL  
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☐ WORK ORDER APPROVAL  
☐ CLOMR/LOMR  
☐ PRE-DESIGN MEETING  
☐ OTHER (SPECIFY) \_\_\_\_\_

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_



D. Mark Goodwin & Associates, P.A.  
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199  
(505) 828-2200 FAX 797-9539

November 16, 2017

Dana Peterson, PE  
Hydrology Division, Planning Dept.  
Development and Building Services  
City of Albuquerque  
PO Box 1293  
Albuquerque, NM 87103

**Re: Country Club Plaza III**  
**Engineers stamp date 11-16-17 (J13 / D010)**

Dear Mr. Peterson:

In response to your July 18 comment letter,

1. Project description has been added,
2. The site has two detention ponding areas that will capture and detain onsite flows and discharge to the Laguna storm drain at a discharge rate not to exceed 1.0 cfs. The AHYMO results shows that the ponds can be drained in approximately 4 hours for the 100 year 6 hour storm event. The maximum water surface elevation was determined to be 5450.91 with about 1.0 foot of freeboard. The top of the ponds are at 5452.0'
3. There is no pond storage in the parking lot.
4. Given the surrounding existing grades it is not possible to provide for any emergency overflow spillway from either of the ponds that would lead to the public right of way. The top of the ponds are at 5452.0'. Central Avenue elevations are at +/-54.0'. The flowline elevation at Laguna Blvd. is at +/- 52.74'. It looks like the best that can be provided would be a 0% slope V-ditch leading from Pond #2 to Laguna Blvd. with an invert of 52.74 to match the flowline in Laguna Blvd.
5. This note has been added to both Conceptual Grading plan sheets,
6. All buildings are at least 1.0' above the maximum water surface elevation.
7. Okay.

Please call me if you have any questions.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

  
Diane Hoelzer, PE  
Senior Engineer

DLH/dlh

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# CITY OF ALBUQUERQUE



July 18, 2017

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

**RE: Country Club Plaza Bldg 3**  
**Conceptual Grading and Drainage Plan**  
**Engineers Stamp Date: 6/28/17**  
**Hydrology File: J13D010**

Dear Ms. Hoelzer:

Based on the information provided in your submittal received on 7/5/17, the Conceptual Grading and Drainage Plan cannot be approved for Site Plan for Building Permit until the following are addressed:

1. Include a drainage narrative to support the Grading and Drainage Plan.
2. This site must provide detention ponding capable of detaining a design storm (100yr) equal to or exceeding the evacuation time, or the 10day storm.
3. If the parking area is to be used for ponding, the depth may not exceed 8" in any parking stall.
4. Provide a narrative addressing the need or lack of need for an emergency spillway.
5. Add "Not for Construction" labeling to this conceptual plan; more detail will be required prior to Building Permit.
6. Maximum water surface elevation must be calculated and all buildings (including the adjoining residential properties) should be elevated 1' above the water surface elevation.
7. Supporting calculations for hydrology and pond volume showing that the existing pond may be eliminated and replaced with this site configuration will need to be provided and reviewed prior to Hydrology's approval of the Site Plan. Details such as curbcuts, pump, and forcemain design may be deferred to Building Permit.

If you have any questions, please contact me at 924-3695 or [dpeterson@cabq.gov](mailto:dpeterson@cabq.gov).

Sincerely,

Dana Peterson, P.E.  
Senior Engineer, Planning Dept.  
Development Review Services

## **I. PROJECT DESCRIPTION**

*This is the third phase of Country Club Plaza. The first phase included renovation of existing buildings and parking areas located in the NW part of the property adjacent to Central Avenue. The second phase included a new building and additional parking in the SE part of the property adjacent to Central Avenue. This phase includes the construction of a three-story commercial/ residential building with a total area of approximately 49,800 square feet.*

## **II. DESIGN CRITERIA AND PREVIOUS DEVELOPMENT**

*The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The 2-yr 10-yr, 25-yr, 50-yr and 100-year 6-hour storm events were analyzed to determine the overall impact on Pond #1 that the client wants to use as a small landscaped park for the residents.*

*The onsite Land Treatment values were determined by measuring the total impervious area of the onsite runoff contributing to the ponds. The first flush volumes were calculated using 0.34 inches of precipitation over the new impervious areas, including roof and asphalt roads.*

## **III. EXISTING DRAINAGE CONDITIONS**

*Under existing drainage conditions, the existing developed area identified as "B" drains to Central Avenue (Figure 3). The remaining area in Country Club Plaza including much of the existing pavement on the south side of the existing buildings as well as the new proposed building drains to the proposed Pond #1 or #2.*

## **IV. DEVELOPED DRAINAGE CONDITIONS**

*Under developed drainage conditions, runoff flows in a south to southwest direction before being intercepted through curb cuts, gravel-lined rundowns or concrete channels to either Pond #1 or Pond #2. These ponds will be inter-connected by a buried 24" pipe as shown on sheet 2. Sheet 2 shows a cross section of the top and bottom elevations of these two ponds as well as the results of the AHYMO analysis. Runoff in Pond #1 will spill through a 2' x 6' Type D inlet. Discharge values for this inlet can be found in the Appendix.*

*Pond #1 will discharge to the 24" pipe and be conveyed to Pond #2. Runoff in Pond #2 will spill into a wet well after a portion of the first flush volume is accounted for before being pumped at a maximum flow rate of 1.0 cfs to the existing storm drain in Laguna Blvd. The maximum flow rate was determined at the pre-design meeting held with COA hydrology staff.*

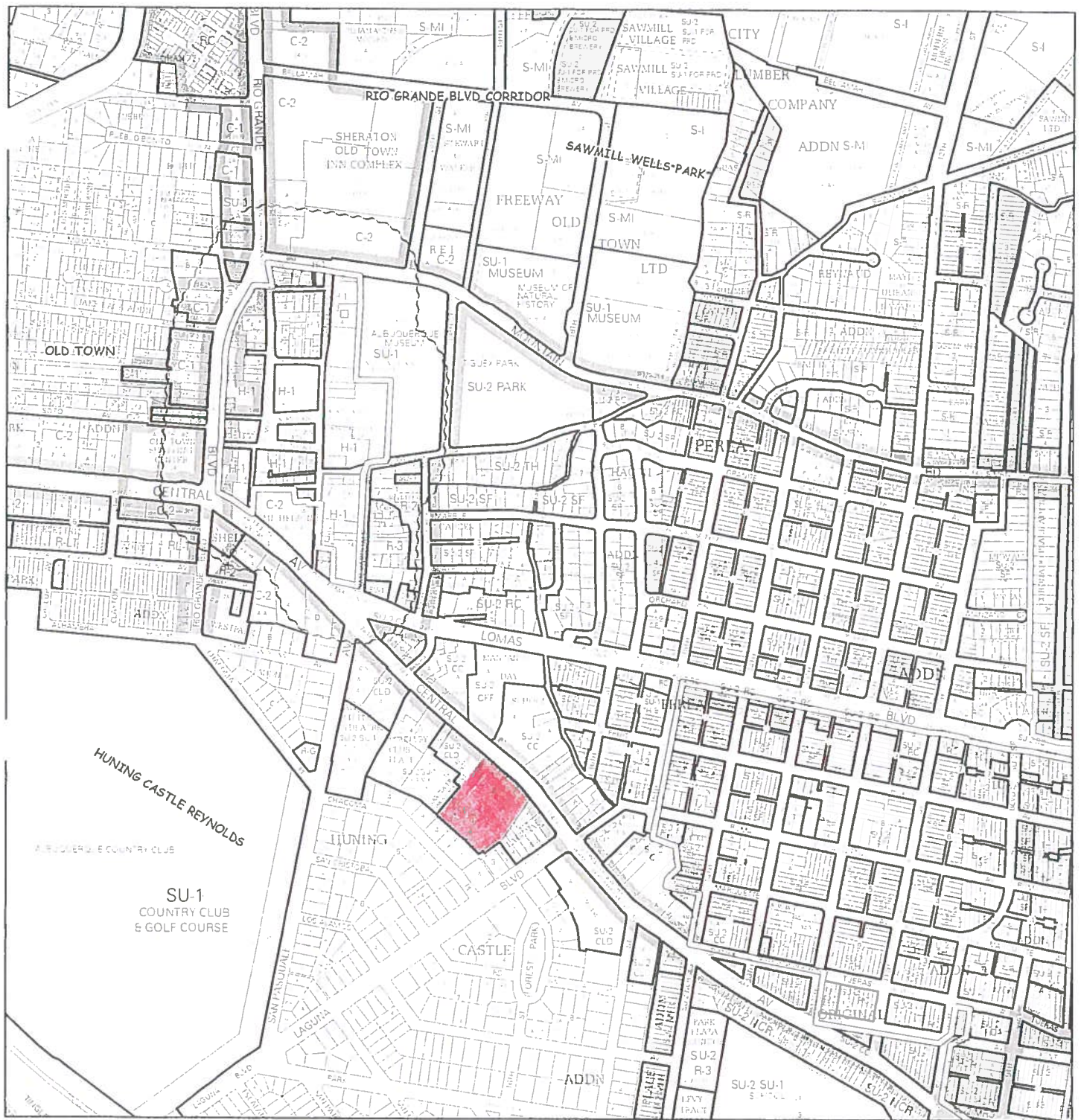
*AHYMO was used to route the various storm events through both ponds. A summary of the results are shown on sheet 2 and Table 2.*

*In the event of total pump failure, the 100-year 10-day storm event was also analyzed. The calculations and exhibit are in Appendix B. The existing wall along the southwest property line will be parged the entire length for water proofed up to elevation 4953.0 prior to dirt placement.*

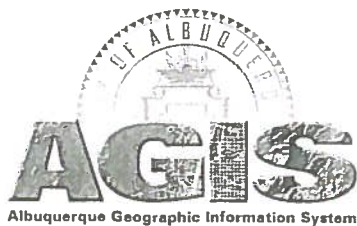
#### **V. FIRST FLUSH PONDS**

*Refer to Figure 3 and Table 1 for calculations involving First Flush volumes.*





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



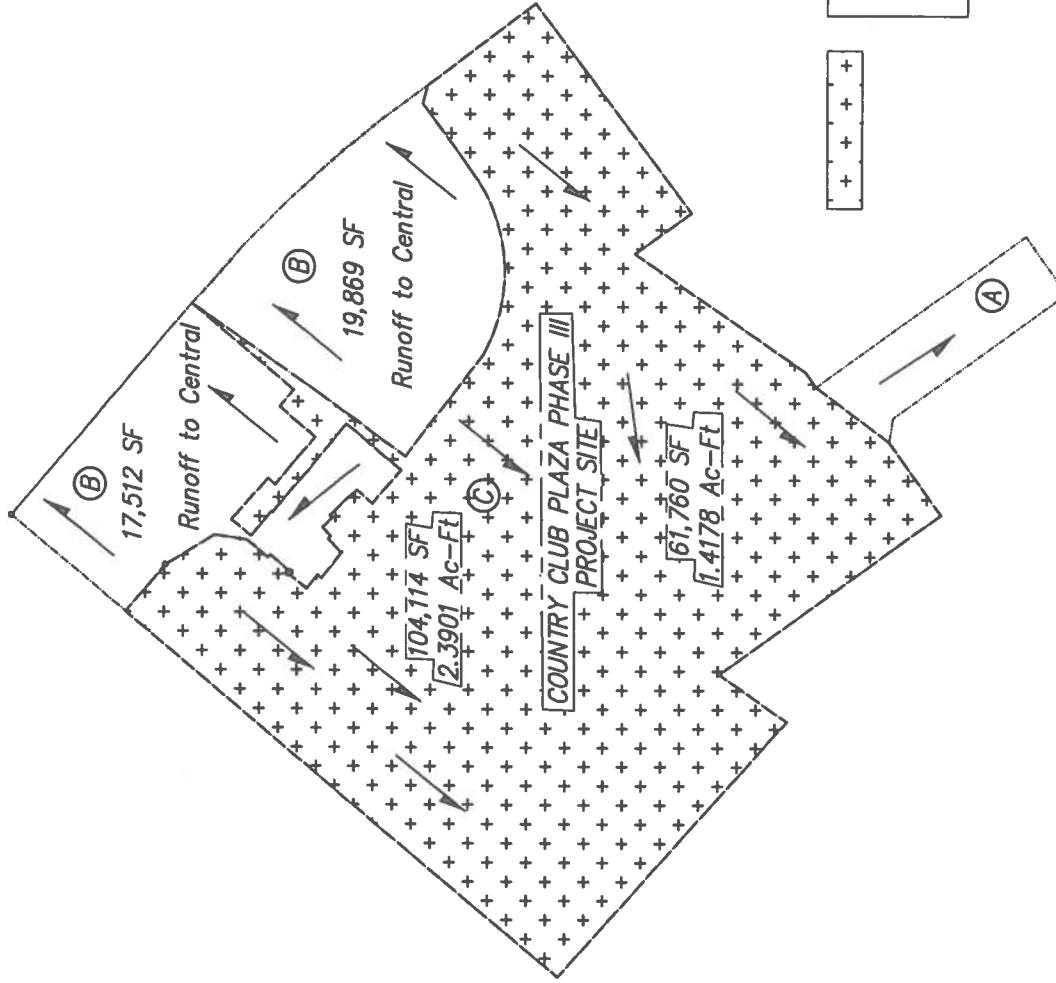
Map amended through: 4/2/2012





FIGURE 2





TOTAL AREA=141,495 SF  
(excluding area A)

TOTAL AREA TO POND =104,114 SF

FIRST FLUSH VOLUME CALC.  
First Flush Area 104,114 SF  
Volume=104114x.84x(.34"/12)  
= 2.478 Cu.Ft.

FIGURE 3

MARK GOODWIN & ASSOCIATES, PA  
Diane Hoelzer, PE  
828-2200

COUNTRY CLUB PLAZA PHASE III  
DRAINAGE SUB BASIN AREAS  
November 13, 2017



TABLE 1

COUNTRY CLUB PLAZA PHASE III								
POND RATING TABLE								
	POND 1		POND 2		24" PIPE			
ELEV	AREA	VOL-1	AREA	VOL-2	VOL-3	1+2+3	SUM	SUM
FT	SF	CF	SF	CF	CF	CF	CF	AcFt
52.00	2874	2812	1559	1559		4371	15391	0.35332
51.00	2750	1781	1559	1029		2810	11020	0.25298
50.34	2647	891	1559	530		1421	8210	0.18848
50.00	2596		1559	1559		1559	6789	0.15585
49.00	0		1559	1559	261	1820	5230	0.12006
48.00	0		1559	1559	261	1820	3410	0.07828
47.00	0		1559	1590		1590	1590	0.03651
45.98	0		1559	0	0	0	0	
	= FIRST FLUSH VOLUME IN POND 1 AND POND 2= 2481 CF							

TABLE 2

COUNTRY CLUB PLAZA PHASE III						
SUMMARY OF POND VOLUMES/WSEL FOR STORM EVENTS						
		2 YR	10 YR	25 YR	50 YR	100 YR
PEAK DISCHARGE	(cfs)	4.10	6.70	8.16	9.25	10.33
MAX POND VOL.	(Ac.Ft.)	0.0890	0.1623	0.2077	0.2428	0.2787
MAX. WSEL	(feet)	48.16	49.22	49.88	50.39	50.91
PEAK Q OUTFALL	(cfs)	1.00	1.00	1.00	1.00	1.00

TABLE 3

Precipitation value		2 YR	10 YR	25 YR	50 YR	100 YR
1 hours	(inches)	0.82	1.267	1.52	1.71	1.9
6 hour	(inches)	0.95	1.47	1.76	1.98	2.2
24 hour	(inches)	1.14	1.75	2.1	2.367	2.63

11/15/2017

DLH



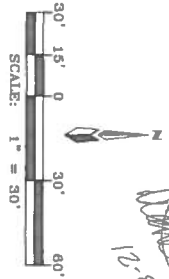
F:\15\065\15007 - County Club Plaza Phase 3\3DRAUL & DRAIN\15007\_0030\_Plane 3.dwg 12/6/2017 11:23:18 AM, Dwayne



**BENCHMARK**  
ACS CONTROL STATION '17-114'  
N= 1488866.752  
E= 1591463.317  
NEW MEXICO STATE PLANE, CENTRAL ZONE  
G-C= 0.999681811  
DELTA-ALPHA= -0.017159700  
MAD 1983/NAVD 1988

**LEGEND**

- EXISTING SPOT ELEVATION
- EXISTING CONTOUR
- EXISTING WATER WELL
- EXISTING DRAIN WIRE
- EXISTING GAS LINE
- EXISTING TELEPHONE PRESTEL
- NEW SPOT ELEVATION
- NEW CONTOUR ELEVATION
- EXISTING SEWER MANHOLE
- EXISTING GAS METER
- EXISTING WATER VALVE
- EXISTING CLEANOUT
- EXISTING UTILITY POLE
- EXISTING MONITORING WELL
- EXISTING WATER METER
- EXISTING CURB
- NEW WATER METER
- NEW RETAINING WALL
- BASELINE A
- BASELINE B
- TOP OF CURB
- BOTTOM OF CURB
- NEW FLOW LINE, SPOT ELEVATION
- NEW SWALE
- EXISTING ELEVATION
- EXISTING DRAINWAY CUT



**dmg** MARK GOODMAN & ASSOCIATES, P.A.  
CONSULTING ENGINEERS  
700 BOYD STREET  
ALBUQUERQUE, NEW MEXICO 87105  
OFFICE (505) 823-2200, FAX (505) 797-5535

**PROJECT**  
Country Club Plaza | Building 3  
1716 Central Avenue SW  
Albuquerque, NM 87104

**TITLE**  
CONCEPTUAL GRADING & DRAINAGE PLAN

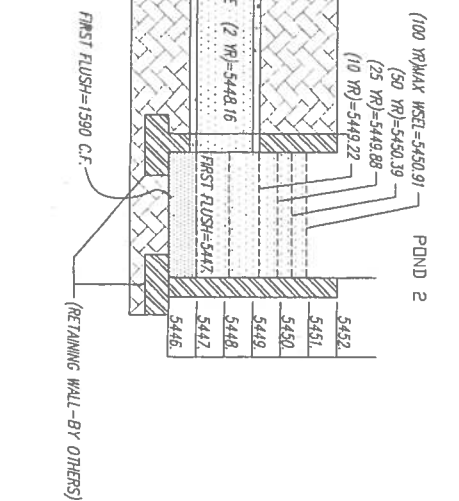
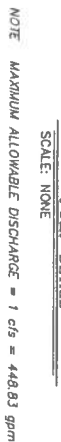
**SHEET**  
1 OF 2

**JCB NUMBER** 15-06  
**DRAWN BY** SEJ  
**PROJECT MGR** MMH  
**DATE** 10-11-2017  
**PHASE** SD

PRELIMINARY  
NOT FOR  
CONSTRUCTION



REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			



## ***APPENDIX A***

*AHYMO printouts for  
2, 10, 25, 50, 100-year 6-hour storm event*

# COUNTRY CLUB PLAZA III

CONNECTING PIPE BETWEEN POND #1 AND #2.

Results

Set units: <input type="text"/> m <input type="text"/> mm <input type="text"/> ft <input type="text"/> in			
Pipe diameter, $d_o$	<input type="text"/> 2	<input type="text"/> ft	<input type="text"/> ▼
Manning roughness, $n$ ?	<input type="text"/> .013		
Pressure slope (possibly ? equal to pipe slope), $S_o$	<input type="text"/> .003	<input type="text"/> rise/run	<input type="text"/> ▼
Percent of (or ratio to) full depth (100% or 1 if flowing full)	<input type="text"/> 1	<input type="text"/> fraction	<input type="text"/> ▼

Flow, $Q$	12.3899	cfs	▼
Velocity, $v$	3.9439	ft/sec	▼
Velocity head, $h_v$	0.2417	ft	▼
Flow area	3.1417	ft <sup>2</sup>	▼
Wetted perimeter	6.2832	ft	▼
Hydraulic radius	0.5000	ft	▼
Top width, $T$	0.0000	ft	▼
Froude number, $F$	0.00		
Shear stress (tractive force), $\tau$	0.3746	psf	▼



D. Mark Goodwin & Associates, P.A.  
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199  
(505) 828-2200 FAX 797-9539

PROJECT Country Club Plaza  
SUBJECT Hydrology Calcs  
BY DHG DATE 11-16-17  
CHECKED \_\_\_\_\_ DATE \_\_\_\_\_  
SHEET \_\_\_\_\_ OF \_\_\_\_\_

POND 1 - TYPE 'D' INLET

Grate = 2'x6'

$$L = 16 \approx 14'$$

$$Q = 10.33 \text{ cfs (max)}$$

$$Q = LC H^{3/2}$$

$$10.33 = (14)(3)(H)^{3/2} \quad \therefore H = 0.4'$$

AHYMO PROGRAM (AHYMO-S4)  
- Version: S4.01a - Rel: 01a  
RUN DATE (MON/DAY/YR) = 11/15/2017  
START TIME (HR:MIN:SEC) = 16:25:17  
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\CCLUB100.DAT  
USER NO.= M-GoodwinMMSiteA90075759

\*S\*\*\*\*\*

COUNTRY CLUB PLAZA UNIT 3  
100 YEAR 6 HOUR STORM EVENT

FILE: CCLUB100.DAT

LAST REVISED: 11-15-17

NOAA ATLAS 2, VOL IV ZONE J 13

TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6

NEW MEXICO

START

LOCATION State of New Mexico soil infiltration values (LAND FACTORS) used for computations.

Land Treatment Initial Abstr.(in) Unif. Infiltr.(in/hour)

A	0.65	1.67
B	0.50	1.25
C	0.35	0.83
D	0.10	0.04

RAINFALL

TYPE=1 RAIN QUARTER=0.0

RAIN ONE=1.90 IN RAIN SIX=2.20 IN

RAIN DAY=2.63 IN DT=0.0333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1

DT = 0.033300 HOURS END TIME = 5.994000 HOURS

\*S\*\*\*\*\*

COUNTRY CLUB SOUTH BUILDING

S FLOW TO SOUTH AND TO LAGUNA

\*\*\* \*\*\*\*\*

\*\*\* AREA = 104,114 SF

\*\*\* 2.46-ACRES

\*\*\* \*\*\*\*\*

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.003735 SQ MI

PER A=0 PER B=6 PER C=10 PER D=84

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 12.387 CFS UNIT VOLUME = 0.9984 B = 526.28 P60 = 1.9000

AREA = 0.003137 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.115413HR TP = 0.133300HR K/TP RATIO = 0.865817 SHAPE CONSTANT, N = 4.104785

UNIT PEAK = 1.6233 CFS UNIT VOLUME = 0.9922 B = 362.10 P60 = 1.9000

AREA = 0.000598 SQ MI IA = 0.40625 INCHES INF = 0.98750 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.80438 INCHES = 0.3594 ACRE-FEET  
PEAK DISCHARGE RATE = 10.33 CFS AT 1.532 HOURS BASIN AREA = 0.0037 SQ. MI.

```

**S*****
**S*****
**S* ROUTE THRU PARK POND 1 AND POND 2 AND 24" PIPE
**S
**S* POND #1 FIRST FLUSH DEPTH AT 50.34 VOLUME=891 CF
**S
**S* POND #2 FIRST FLUSH DEPTH AT 47.00 VOLUME=1590 CF
**S
**S* TOTAL FIRST FLUSH VOLUME=2481 CF (REQD = 2476 CF)
**S*****
ROUTE RESERVOIR      ID=12  HYD=POND.12  INFLOW=1  CODE=50
OUTFLOW(CFS)          STORAGE(ACFT)  ELEV(FT)
0.00                  0.000000      45.98
0.01                  0.056956      47.00
1.00                  0.07828      48.00
1.01                  0.35332      52.00

```

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	45.98	0.000	0.00
0.80	0.00	45.98	0.000	0.00
1.60	8.36	49.58	0.187	1.00
2.40	0.33	50.75	0.267	1.01
3.20	0.01	49.87	0.207	1.00
4.00	0.01	48.91	0.141	1.00
4.80	0.02	47.90	0.076	0.90
5.59	0.03	47.06	0.058	0.07
6.39	0.00	47.01	0.057	0.02
7.19	0.00	46.99	0.056	0.01
7.99	0.00	46.98	0.056	0.01
8.79	0.00	46.97	0.055	0.01
9.59	0.00	46.96	0.055	0.01
10.39	0.00	46.95	0.054	0.01
11.19	0.00	46.93	0.053	0.01
11.99	0.00	46.92	0.053	0.01
12.79	0.00	46.91	0.052	0.01
13.59	0.00	46.90	0.051	0.01
14.39	0.00	46.89	0.051	0.01
15.18	0.00	46.88	0.050	0.01
15.98	0.00	46.87	0.050	0.01
16.78	0.00	46.86	0.049	0.01
17.58	0.00	46.85	0.049	0.01
18.38	0.00	46.84	0.048	0.01
19.18	0.00	46.83	0.047	0.01
19.98	0.00	46.82	0.047	0.01
20.78	0.00	46.81	0.046	0.01
21.58	0.00	46.80	0.046	0.01
22.38	0.00	46.79	0.045	0.01
23.18	0.00	46.78	0.045	0.01
23.98	0.00	46.77	0.044	0.01
24.78	0.00	46.76	0.044	0.01
25.57	0.00	46.75	0.043	0.01
26.37	0.00	46.75	0.043	0.01



TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
27.17	0.00	46.74	0.042	0.01
27.97	0.00	46.73	0.042	0.01
28.77	0.00	46.72	0.041	0.01
29.57	0.00	46.71	0.041	0.01
30.37	0.00	46.70	0.040	0.01
31.17	0.00	46.69	0.040	0.01
31.97	0.00	46.69	0.039	0.01
32.77	0.00	46.68	0.039	0.01
33.57	0.00	46.67	0.039	0.01
34.37	0.00	46.66	0.038	0.01
35.16	0.00	46.65	0.038	0.01
35.96	0.00	46.65	0.037	0.01
36.76	0.00	46.64	0.037	0.01
37.56	0.00	46.63	0.036	0.01
38.36	0.00	46.62	0.036	0.01
39.16	0.00	46.62	0.036	0.01
39.96	0.00	46.61	0.035	0.01
40.76	0.00	46.60	0.035	0.01
41.56	0.00	46.59	0.034	0.01
42.36	0.00	46.59	0.034	0.01
43.16	0.00	46.58	0.034	0.01
43.96	0.00	46.57	0.033	0.01

PEAK DISCHARGE = 1.007 CFS - PEAK OCCURS AT HOUR 2.06  
 MAXIMUM WATER SURFACE ELEVATION = 50.914  
 MAXIMUM STORAGE = 0.2787 AC-FT INCREMENTAL TIME= 0.033300HRS

FINISH

NORMAL PROGRAM FINISH      END TIME (HR:MIN:SEC) = 16:25:17

AHYMO PROGRAM (AHYMO-S4)  
- Version: S4.01a - Rel: 01a  
RUN DATE (MON/DAY/YR) = 11/15/2017  
START TIME (HR:MIN:SEC) = 15:48:19  
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\CCLUB50.DAT  
USER NO.= M-GoodwinNMSiteA90075759

\*S\*\*\*\*\*

\*S COUNTRY CLUB PLAZA UNIT 3  
\*S 50 YEAR 6 HOUR STORM EVENT  
\*S

\*S FILE: CCLUB50.DAT

\*S LAST REVISED: 11-15-17

\*S NOAA ATLAS 2, VOL IV ZONE J 13

\*S TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6

\*S NEW MEXICO

State of New Mexico soil infiltration values (LAND FACTORS) used for computations.

Land Treatment Initial Abstr.(in) Unif. Infilt.(in/hour)

A 0.65 1.67

B 0.50 1.25

C 0.35 0.83

D 0.10 0.04

RAINFALL

TYPE=1 RAIN QUARTER=0.0

RAIN ONE=1.71 IN RAIN SIX=1.98 IN

RAIN DAY=2.367 IN DT=0.0333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1

DT = 0.033300 HOURS END TIME = 5.994000 HOURS

\*S\*\*\*\*\*

\*S COUNTRY CLUB SOUTH BUILDING

\*S FLOW TO SOUTH AND TO LAGUNA

\*S\*\*\*\*\*

\*\*\* AREA = 104,114 SF

\*\*\* 2.46 ACRES

\*\*\* \*\*\*\*\*

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.003735 SQ MI

PER A=0 PER B=6 PER C=10 PER D=84

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428

UNIT PEAK = 12.387 CFS UNIT VOLUME = 0.9984 B = 526.28 P60 = 1.7100

AREA = 0.003137 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.115216HR TP = 0.133300HR K/TP RATIO = 0.864339 SHAPE CONSTANT, N = 4.112381

UNIT PEAK = 1.6256 CFS UNIT VOLUME = 0.9922 B = 362.59 P60 = 1.7100

AREA = 0.000598 SQ MI IA = 0.40625 INCHES INF = 0.98750 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 1.59537 INCHES = 0.3178 ACRE-FEET  
PEAK DISCHARGE RATE = 9.25 CFS AT 1.532 HOURS BASIN AREA = 0.0037 SQ. MI.

```

*****
**S** ROUTE THRU PARK POND 1 AND POND 2 AND 24" PIPE
**S**
**S* POND #1 FIRST FLUSH DEPTH AT 50.34 VOLUME=891 CF
**S**
**S* POND #2 FIRST FLUSH DEPTH AT 47.00 VOLUME=1590 CF
**S**
**S* TOTAL FIRST FLUSH VOLUME=2481 CF (REQD = 2476 CF)
**S*****
ROUTE RESERVOIR      ID=12  HYD=POND.12  INFLOW=1  CODE=50
OUTFLOW(CFS)          STORAGE(ACFT)  ELEV(FT)
0.00                  0.000000      45.98
0.01                  0.056956      47.00
1.00                  0.07828      48.00
1.01                  0.35332      52.00

*  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *
TIME    INFLOW    ELEV    VOLUME    OUTFLOW
(HRS)   (CFS)    (FEET)  (AC-FT)  (CFS)
0.00    0.00     45.98    0.000    0.00
0.80    0.00     45.98    0.000    0.00
1.60    7.48     49.27    0.165    1.00
2.40    0.29     50.20    0.229    1.01
3.20    0.00     49.30    0.168    1.00
4.00    0.00     48.34    0.102    1.00
4.80    0.02     47.14    0.060    0.15
5.59    0.03     47.02    0.057    0.03
6.39    0.00     47.01    0.057    0.02
7.19    0.00     46.99    0.056    0.01
7.99    0.00     46.98    0.056    0.01
8.79    0.00     46.97    0.055    0.01
9.59    0.00     46.96    0.055    0.01
10.39   0.00     46.94    0.054    0.01
11.19   0.00     46.93    0.053    0.01
11.99   0.00     46.92    0.053    0.01
12.79   0.00     46.91    0.052    0.01
13.59   0.00     46.90    0.051    0.01
14.39   0.00     46.89    0.051    0.01
15.18   0.00     46.88    0.050    0.01
15.98   0.00     46.87    0.050    0.01
16.78   0.00     46.86    0.049    0.01
17.58   0.00     46.85    0.049    0.01
18.38   0.00     46.84    0.048    0.01
19.18   0.00     46.83    0.047    0.01
19.98   0.00     46.82    0.047    0.01
20.78   0.00     46.81    0.046    0.01
21.58   0.00     46.80    0.046    0.01
22.38   0.00     46.79    0.045    0.01
23.18   0.00     46.78    0.045    0.01
23.98   0.00     46.77    0.044    0.01
24.78   0.00     46.76    0.044    0.01
25.57   0.00     46.75    0.043    0.01
26.37   0.00     46.75    0.043    0.01

```

27.17	0.00	46.74	0.042	0.01
27.97	0.00	46.73	0.042	0.01
28.77	0.00	46.72	0.041	0.01
29.57	0.00	46.71	0.041	0.01
30.37	0.00	46.70	0.040	0.01
31.17	0.00	46.69	0.040	0.01
31.97	0.00	46.69	0.039	0.01
32.77	0.00	46.68	0.039	0.01
33.57	0.00	46.67	0.038	0.01
34.37	0.00	46.66	0.038	0.01
35.16	0.00	46.65	0.038	0.01
35.96	0.00	46.65	0.037	0.01
36.76	0.00	46.64	0.037	0.01
37.56	0.00	46.63	0.036	0.01
38.36	0.00	46.62	0.036	0.01
39.16	0.00	46.62	0.035	0.01
39.96	0.00	46.61	0.035	0.01
40.76	0.00	46.60	0.035	0.01
41.56	0.00	46.59	0.034	0.01
42.36	0.00	46.59	0.034	0.01
43.16	0.00	46.58	0.033	0.01
43.96	0.00	46.57	0.033	0.01

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

44.76	0.00	46.57	0.033	0.01
45.55	0.00	46.56	0.032	0.01
46.35	0.00	46.55	0.032	0.01
47.15	0.00	46.55	0.032	0.01
47.95	0.00	46.54	0.031	0.01
48.75	0.00	46.53	0.031	0.01
49.55	0.00	46.53	0.031	0.01
50.35	0.00	46.52	0.030	0.01
51.15	0.00	46.51	0.030	0.01
51.95	0.00	46.51	0.029	0.01
52.75	0.00	46.50	0.029	0.01
53.55	0.00	46.50	0.029	0.01
54.35	0.00	46.49	0.028	0.00

PEAK DISCHARGE = 1.006 CFS - PEAK OCCURS AT HOUR 2.06  
 MAXIMUM WATER SURFACE ELEVATION = 50.392  
 MAXIMUM STORAGE = 0.2428 AC-FT INCREMENTAL TIME= 0.033300HRS

FINISH

NORMAL PROGRAM FINISH      END TIME (HR:MIN:SEC) = 15:48:19

-- Version: S4.01a - Rel: 01a

U  
\*

\* S COUNTRY CLUB PLAZA INTT 3

\*S FILE: CCLUB25.DAT

\*S LAST REVISED: 11-15-17

NOAA ATLAS 2, VOL IV ZONE J 13 \*S

START  
TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6

NEW MEXICO  
LOCATION

State of New Mexico soil infiltration values (LAND FACTORS) used for computations.

Land Treatment	Initial Abstr. (in)	Unif. Infiltr. (in/hour)
1	1.0	0.05
2	1.5	0.07
3	2.0	0.09
4	2.5	0.11
5	3.0	0.13
6	3.5	0.15
7	4.0	0.17
8	4.5	0.19
9	5.0	0.21
10	5.5	0.23
11	6.0	0.25
12	6.5	0.27
13	7.0	0.29
14	7.5	0.31
15	8.0	0.33
16	8.5	0.35
17	9.0	0.37
18	9.5	0.39
19	10.0	0.41
20	10.5	0.43
21	11.0	0.45
22	11.5	0.47
23	12.0	0.49
24	12.5	0.51
25	13.0	0.53
26	13.5	0.55
27	14.0	0.57
28	14.5	0.59
29	15.0	0.61
30	15.5	0.63
31	16.0	0.65
32	16.5	0.67
33	17.0	0.69
34	17.5	0.71
35	18.0	0.73
36	18.5	0.75
37	19.0	0.77
38	19.5	0.79
39	20.0	0.81
40	20.5	0.83
41	21.0	0.85
42	21.5	0.87
43	22.0	0.89
44	22.5	0.91
45	23.0	0.93
46	23.5	0.95
47	24.0	0.97
48	24.5	0.99
49	25.0	1.01
50	25.5	1.03
51	26.0	1.05
52	26.5	1.07
53	27.0	1.09
54	27.5	1.11
55	28.0	1.13
56	28.5	1.15
57	29.0	1.17
58	29.5	1.19
59	30.0	1.21
60	30.5	1.23
61	31.0	1.25
62	31.5	1.27
63	32.0	1.29
64	32.5	1.31
65	33.0	1.33
66	33.5	1.35
67	34.0	1.37
68	34.5	1.39
69	35.0	1.41
70	35.5	1.43
71	36.0	1.45
72	36.5	1.47
73	37.0	1.49
74	37.5	1.51
75	38.0	1.53
76	38.5	1.55
77	39.0	1.57
78	39.5	1.59
79	40.0	1.61
80	40.5	1.63
81	41.0	1.65
82	41.5	1.67
83	42.0	1.69
84	42.5	1.71
85	43.0	1.73
86	43.5	1.75
87	44.0	1.77
88	44.5	1.79
89	45.0	1.81
90	45.5	1.83
91	46.0	1.85
92	46.5	1.87
93	47.0	1.89
94	47.5	1.91
95	48.0	1.93
96	48.5	1.95
97	49.0	1.97
98	49.5	1.99
99	50.0	2.01
100	50.5	2.03

A 0.65 1.67

B 0.50 1.25

C	0.35	0.83
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## RAINFALL

```
RAINFALL
TYPE=1 RAIN QUARTER=0.0
```

RAIN ONE=1.52 IN RAIN SIX=1.76 IN

RAIN DAY=2.10 IN DT=0 0333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D17

```
DT = 0.033300 HOURS      END TIME = 5 994000 HOURS
```

5

\*S COUNTRY CLUB SOUTH BUILDING

\* S FLOW TO SOUTH AND TO LAGUNA

\* \* \* \* \*

\*\*\* AREA = 104,114 SF

\*\*\* 2.46 ACRES

\* \* \*

COMPUTE NM HYD ID=1 HYD NO=100 AREA= 0.003735 SQ MI

PER A=0 PER B=6 PER C=10 PER D=84

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR    TP = 0.133300HR    K/TP RATIO = 0.545000    SHAPE CONSTANT. N = 7.106428

UNIT PEAK =	12.387	CFS	UNIT VOLUME =	0.9984	B =	526.28	P60 =	1.5200
-------------	--------	-----	---------------	--------	-----	--------	-------	--------

AREA = 0.003137 SQ MI    IA = 0.10000 INCHES    INF = 0.04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.117257HR TP = 0.133300HR K/TP RATIO = 0.879646 SHAPE CONSTANT N = 4.035276

UNIT PEAK =	1.6028	CFS	UNIT VOLUME =	0.9917	B =	357.51	P60 =	1.5200
-------------	--------	-----	---------------	--------	-----	--------	-------	--------

AREA = 0.000598 SQ MI      IA = 0.40625 INCHES      TNF = 0.98750 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD

PRINT HYD TD=1 CODE=1

PARTIAL HYDROGRAPH 700.00

RUNOFF VOLUME = 1.38869 INCHES = 0.2766 ACRE-Feet  
 PEAK DISCHARGE RATE = 8.16 CFS AT 1.532 HOURS BASIN AREA = 0.0037 SQ. MI.

```

*****
**S*****
**S** ROUTE THRU PARK POND 1 AND POND 2 AND 24" PIPE
**S
**S** POND #1 FIRST FLUSH DEPTH AT 50.34 VOLUME=891 CF
**S
**S** POND #2 FIRST FLUSH DEPTH AT 47.00 VOLUME=1590 CF
**S
**S** TOTAL FIRST FLUSH VOLUME=2481 CF (REQD = 2476 CF)
*****
ROUTE RESERVOIR
ID=12 HYD=POND.12 INFLOW=1 CODE=50
OUTFLOW(CFS) STORAGE(ACFT) ELEV(FT)
0.00 0.000000 45.98
0.01 0.056956 47.00
1.00 0.07828 48.00
1.01 0.35332 52.00
*****
* * * * *
TIME INFLOW ELEV VOLUME OUTFLOW
(HRS) (CFS) (FEET) (AC-FT) (CFS)
0.00 0.00 45.98 0.000 0.00
0.80 0.00 45.98 0.000 0.00
1.60 6.59 48.96 0.144 1.00
2.40 0.25 49.66 0.192 1.00
3.20 0.00 48.75 0.130 1.00
4.00 0.00 47.50 0.068 0.51
4.80 0.01 47.02 0.057 0.03
5.59 0.02 47.01 0.057 0.02
6.39 0.00 47.00 0.057 0.01
7.19 0.00 46.99 0.056 0.01
7.99 0.00 46.98 0.056 0.01
8.79 0.00 46.97 0.055 0.01
9.59 0.00 46.96 0.054 0.01
10.39 0.00 46.94 0.054 0.01
11.19 0.00 46.93 0.053 0.01
11.99 0.00 46.92 0.053 0.01
12.79 0.00 46.91 0.052 0.01
13.59 0.00 46.90 0.051 0.01
14.39 0.00 46.89 0.051 0.01
15.18 0.00 46.88 0.050 0.01
15.98 0.00 46.87 0.050 0.01
16.78 0.00 46.86 0.049 0.01
17.58 0.00 46.85 0.049 0.01
18.38 0.00 46.84 0.048 0.01
19.18 0.00 46.83 0.047 0.01
19.98 0.00 46.82 0.047 0.01
20.78 0.00 46.81 0.046 0.01
21.58 0.00 46.80 0.046 0.01
22.38 0.00 46.79 0.045 0.01
23.18 0.00 46.78 0.045 0.01
23.98 0.00 46.77 0.044 0.01
24.78 0.00 46.76 0.044 0.01
25.57 0.00 46.75 0.043 0.01
26.37 0.00 46.74 0.043 0.01
*****

```

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
27.17	0.00	46.74	0.042	0.01
27.97	0.00	46.73	0.042	0.01
28.77	0.00	46.72	0.041	0.01
29.57	0.00	46.71	0.041	0.01
30.37	0.00	46.70	0.040	0.01
31.17	0.00	46.69	0.040	0.01
31.97	0.00	46.69	0.039	0.01
32.77	0.00	46.68	0.039	0.01
33.57	0.00	46.67	0.038	0.01
34.37	0.00	46.66	0.038	0.01
35.16	0.00	46.65	0.038	0.01
35.96	0.00	46.65	0.037	0.01
36.76	0.00	46.64	0.037	0.01
37.56	0.00	46.63	0.036	0.01
38.36	0.00	46.62	0.036	0.01
39.16	0.00	46.62	0.035	0.01
39.96	0.00	46.61	0.035	0.01
40.76	0.00	46.60	0.035	0.01
41.56	0.00	46.59	0.034	0.01
42.36	0.00	46.59	0.034	0.01
43.16	0.00	46.58	0.033	0.01
43.96	0.00	46.57	0.033	0.01

PEAK DISCHARGE = 1.005 CFS - PEAK OCCURS AT HOUR 2.03  
 MAXIMUM WATER SURFACE ELEVATION = 49.883  
 MAXIMUM STORAGE = 0.2077 AC-FT INCREMENTAL TIME= 0.033300HRS

FINISH

NORMAL PROGRAM FINISH      END TIME (HR:MIN:SEC) = 15:46:11

AHYMO PROGRAM (AHYMO-S4)  
- Version: S4.01a - Rel: 01a  
RUN DATE (MON/DAY/YR) = 11/15/2017  
START TIME (HR:MIN:SEC) = 16:34:26  
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\CCJUB10.DAT  
USER NO. = M-GoodwinMSiteA90075759

\*\*\*\*\*

\*S  
\*S COUNTRY CLUB PLAZA UNIT 3  
\*S 10 YEAR 6 HOUR STORM EVENT  
\*S

\*S FILE: CCJUB10.DAT  
\*S LAST REVISED: 11-15-17  
\*S NOAA ATLAS 2, VOL IV ZONE J 13  
\*S TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6  
\*S NEW MEXICO

START LOCATION State of New Mexico soil infiltration values (LAND FACTORS) used for computations.  
Land Treatment Initial Abstr.(in) Unif. Infiltr.(in/hour)  
A 0.65 1.67  
B 0.50 1.25  
C 0.35 0.83  
D 0.10 0.04

RAINFALL TYPE=1 RAIN QUARTER=0.0

RAIN ONE=1.267 IN RAIN SIX=1.47 IN  
RAIN DAY=1.75 IN DT=0.0333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1  
DT = 0.033300 HOURS END TIME = 5.994000 HOURS

\*\*\*\*\*

\*\*\*  
\*S COUNTRY CLUB SOUTH BUILDING  
\*S FLOW TO SOUTH AND TO LAGUNA  
\*\*\*

\*\*\* AREA = 104,114 SF  
\*\*\* 2.46 ACRES  
\*\*\*

COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.003735 SQ MI  
PER A=0 PER B=6 PER C=10 PER D=84  
TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428  
UNIT PEAK = 12.387 CFS UNIT VOLUME = 0.9984 B = 526.28 P60 = 1.2670  
AREA = 0.003137 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR  
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.120505HR TP = 0.133300HR K/TP RATIO = 0.904010 SHAPE CONSTANT, N = 3.919162  
UNIT PEAK = 1.5680 CFS UNIT VOLUME = 0.9917 B = 349.75 P60 = 1.2670  
AREA = 0.000598 SQ MI IA = 0.40625 INCHES INF = 0.98750 INCHES PER HOUR  
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00



RUNOFF VOLUME = 1.12186 INCHES = 0.2235 ACRE-FEET  
PEAK DISCHARGE RATE = 6.70 CFS AT 1.532 HOURS BASIN AREA = 0.0037 SQ. MI.

\*S\*\*\*\*\*  
\*S\*\*\*\*\*  
\*S\* ROUTE THRU PARK POND 1 AND POND 2 AND 24" PIPE  
\*S

\*S\* POND #1 FIRST FLUSH DEPTH AT 50.34 VOLUME=891 CF  
\*S

\*S\* POND #2 FIRST FLUSH DEPTH AT 47.00 VOLUME=1590 CF  
\*S

\*S\* TOTAL FIRST FLUSH VOLUME=2481 CF (REOD = 2476 CF)  
\*S\*\*\*\*\*

ROUTE RESERVOIR ID=12 HYD=POND.12 INFLOW=1 CODE=50  
OUTFLOW(CFS) STORAGE(ACFT) ELEV(FT)  
0.00 0.000000 47.00 45.98  
0.01 0.056956 47.00 48.00  
1.00 0.07828  
1.01 0.35332 52.00

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	45.98	0.000	0.00
0.80	0.00	45.98	0.000	0.00
1.60	5.41	48.55	0.116	1.00
2.40	0.19	48.95	0.144	1.00
3.20	0.00	48.03	0.080	1.00
4.00	0.00	47.04	0.058	0.05
4.80	0.00	47.00	0.057	0.01
5.59	0.02	47.00	0.057	0.01
6.39	0.00	47.00	0.057	0.01
7.19	0.00	46.99	0.056	0.01
7.99	0.00	46.98	0.056	0.01
8.79	0.00	46.97	0.055	0.01
9.59	0.00	46.95	0.054	0.01
10.39	0.00	46.94	0.054	0.01
11.19	0.00	46.93	0.053	0.01
11.99	0.00	46.92	0.053	0.01
12.79	0.00	46.91	0.052	0.01
13.59	0.00	46.90	0.051	0.01
14.39	0.00	46.89	0.051	0.01
15.18	0.00	46.88	0.050	0.01
15.98	0.00	46.87	0.050	0.01
16.78	0.00	46.86	0.049	0.01
17.58	0.00	46.85	0.048	0.01
18.38	0.00	46.84	0.048	0.01
19.18	0.00	46.83	0.047	0.01
19.98	0.00	46.82	0.047	0.01
20.78	0.00	46.81	0.046	0.01
21.58	0.00	46.80	0.046	0.01
22.38	0.00	46.79	0.045	0.01
23.18	0.00	46.78	0.045	0.01

23.98	0.00	46.77	0.044	0.01
24.78	0.00	46.76	0.044	0.01
25.57	0.00	46.75	0.043	0.01
26.37	0.00	46.74	0.043	0.01
27.17	0.00	46.73	0.042	0.01
27.97	0.00	46.73	0.042	0.01
28.77	0.00	46.72	0.041	0.01
29.57	0.00	46.71	0.041	0.01
30.37	0.00	46.70	0.040	0.01
31.17	0.00	46.69	0.040	0.01
31.97	0.00	46.68	0.039	0.01
32.77	0.00	46.68	0.039	0.01
33.57	0.00	46.67	0.038	0.01
34.37	0.00	46.66	0.038	0.01
35.16	0.00	46.65	0.038	0.01
35.96	0.00	46.64	0.037	0.01
36.76	0.00	46.64	0.037	0.01
37.56	0.00	46.63	0.036	0.01
38.36	0.00	46.62	0.036	0.01
39.16	0.00	46.61	0.035	0.01
39.96	0.00	46.61	0.035	0.01
40.76	0.00	46.60	0.035	0.01
41.56	0.00	46.59	0.034	0.01
42.36	0.00	46.59	0.034	0.01
43.16	0.00	46.58	0.033	0.01
43.96	0.00	46.57	0.033	0.01

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

44.76	0.00	46.56	0.033	0.01
45.55	0.00	46.56	0.032	0.01
46.35	0.00	46.55	0.032	0.01
47.15	0.00	46.54	0.032	0.01
47.95	0.00	46.54	0.031	0.01
48.75	0.00	46.53	0.031	0.01
49.55	0.00	46.53	0.030	0.01
50.35	0.00	46.52	0.030	0.01
51.15	0.00	46.51	0.030	0.01
51.95	0.00	46.51	0.029	0.01
52.75	0.00	46.50	0.029	0.01
53.55	0.00	46.49	0.029	0.01
54.35	0.00	46.49	0.028	0.00

PEAK DISCHARGE = 1.003 CFS - PEAK OCCURS AT HOUR 2.00  
 MAXIMUM WATER SURFACE ELEVATION = 49.223  
 MAXIMUM STORAGE = 0.1623 AC-FT INCREMENTAL TIME= 0.0333300HRS

PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA POND.12

RUNOFF VOLUME = 1.07634 INCHES = 0.2144 ACRE-FEET  
 PEAK DISCHARGE RATE = 1.00 CFS AT 1.998 HOURS BASIN AREA = 0.0037 SQ. MI.

AHYMO PROGRAM (AHYMO-S4)  
RUN DATE (MON/DAY/YR) = 11/15/2017  
START TIME (HR:MIN:SEC) = 15:40:57  
INPUT FILE = C:\Program Files (x86)\AHYMO-S4\CCLUB2.DAT  
- Version: S4.01a - Rel: 01a  
USER NO.= M-GoodwinMSiteA90075759

\*\*\*\*\*

\*S  
\*S COUNTRY CLUB PLAZA UNIT 3  
\*S 2 YEAR 6 HOUR STORM EVENT  
\*S

\*S FILE: CCLUB2.DAT

\*S LAST REVISED: 11-15-17

\*S NOAA ATLAS 2, VOL IV ZONE J 13

START TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6

LOCATION NEW MEXICO

State of New Mexico soil infiltration values (LAND FACTORS) used for computations.

Land Treatment Initial Abstr.(in) Unif. Infiltr.(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=0.82 IN RAIN SIX=0.95 IN

RAIN DAY=1.14 IN DT=0.0333 HRS

6-HOUR RAINFALL DIST. - BASED ON NOAA ATLAS 14 FOR CONVECTIVE AREAS (NM & AZ) - D1  
DT = 0.033300 HOURS END TIME = 5.994000 HOURS

\*\*\*\*\*

\*S COUNTRY CLUB SOUTH BUILDING

\*S FLOW TO SOUTH AND TO LAGUNA

\*\*\*\*\*

\*\*\* AREA = 104,114 SF

\*\*\* 2.46 ACRES

\*\*\*\*\*

#### COMPUTE NM HYD

ID=1 HYD NO=100 AREA= 0.003735 SQ MI

PER A=0 PER B=6 PER C=10 PER D=84

TP=-.1333 HR MASS RAIN=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428  
UNIT PEAK = 12.387 CFS UNIT VOLUME = 0.9984 B = 526.28 P60 = .82000  
AREA = 0.003137 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR  
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

K = 0.126243HR TP = 0.133300HR K/TP RATIO = 0.947056 SHAPE CONSTANT, N = 3.732439  
UNIT PEAK = 1.5105 CFS UNIT VOLUME = 0.9914 B = 336.92 P60 = .82000  
AREA = 0.000598 SQ MI IA = 0.40625 INCHES INF = 0.98750 INCHES PER HOUR  
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.033300

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.00

RUNOFF VOLUME = 0.65390 INCHES = 0.1303 ACRE-FEET  
PEAK DISCHARGE RATE = 4.10 CFS AT 1.532 HOURS BASIN AREA = 0.0037 SQ. MI.

\*S\*\*\*\*\*  
\*S\*\*\*\*\*  
\*S\*\*\*\*\*

\*S\* ROUTE THRU PARK POND 1 AND POND 2 AND 24" PIPE

\*S

\*S\* POND #1 FIRST FLUSH DEPTH AT 50.34 VOLUME=891 CF

\*S

\*S\* POND #2 FIRST FLUSH DEPTH AT 47.00 VOLUME=1590 CF

\*S

\*S\* TOTAL FIRST FLUSH VOLUME=2481 CF (REQD = 2476 CF)

\*S\*\*\*\*\*  
\*S\*\*\*\*\*  
\*S\*\*\*\*\*

ROUTE RESERVOIR ID=12 HYD=POND.12 INFLOW=1 CODE=50  
OUTFLOW(CFS) STORAGE(ACFT) ELEV(FT)  
0.00 0.000000 45.98  
0.01 0.056956 47.00  
1.00 0.07828 48.00  
1.01 0.35332 52.00

\* \* \* \* \*

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	45.98	0.000	0.00
0.80	0.00	45.98	0.000	0.00
1.60	3.30	47.63	0.070	0.63
2.40	0.09	47.47	0.067	0.48
3.20	0.00	47.02	0.057	0.03
4.00	0.00	46.99	0.057	0.01
4.80	0.00	46.98	0.056	0.01
5.59	0.01	46.97	0.055	0.01
6.39	0.00	46.97	0.055	0.01
7.19	0.00	46.96	0.055	0.01
7.99	0.00	46.95	0.054	0.01
8.79	0.00	46.94	0.053	0.01
9.59	0.00	46.93	0.053	0.01
10.39	0.00	46.91	0.052	0.01
11.19	0.00	46.90	0.052	0.01
11.99	0.00	46.89	0.051	0.01
12.79	0.00	46.88	0.050	0.01
13.59	0.00	46.87	0.050	0.01
14.39	0.00	46.86	0.049	0.01
15.18	0.00	46.85	0.049	0.01
15.98	0.00	46.84	0.048	0.01
16.78	0.00	46.83	0.048	0.01
17.58	0.00	46.82	0.047	0.01
18.38	0.00	46.81	0.046	0.01
19.18	0.00	46.80	0.046	0.01
19.98	0.00	46.79	0.045	0.01
20.78	0.00	46.78	0.045	0.01
21.58	0.00	46.77	0.044	0.01
22.38	0.00	46.77	0.044	0.01
23.18	0.00	46.76	0.043	0.01
23.98	0.00	46.75	0.043	0.01
24.78	0.00	46.74	0.042	0.01

25.57	0.00	46.73	0.042	0.01
26.37	0.00	46.72	0.041	0.01
27.17	0.00	46.71	0.041	0.01
27.97	0.00	46.70	0.040	0.01
28.77	0.00	46.70	0.040	0.01
29.57	0.00	46.69	0.040	0.01
30.37	0.00	46.68	0.039	0.01
31.17	0.00	46.67	0.039	0.01
31.97	0.00	46.66	0.038	0.01
32.77	0.00	46.66	0.038	0.01
33.57	0.00	46.65	0.037	0.01
34.37	0.00	46.64	0.037	0.01
35.16	0.00	46.63	0.036	0.01
35.96	0.00	46.62	0.036	0.01
36.76	0.00	46.62	0.036	0.01
37.56	0.00	46.61	0.035	0.01
38.36	0.00	46.60	0.035	0.01
39.16	0.00	46.60	0.034	0.01
39.96	0.00	46.59	0.034	0.01
40.76	0.00	46.58	0.034	0.01
41.56	0.00	46.57	0.033	0.01
42.36	0.00	46.57	0.033	0.01
43.16	0.00	46.56	0.032	0.01
43.96	0.00	46.55	0.032	0.01

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

44.76	0.00	46.55	0.032	0.01
45.55	0.00	46.54	0.031	0.01
46.35	0.00	46.53	0.031	0.01
47.15	0.00	46.53	0.031	0.01
47.95	0.00	46.52	0.030	0.01
48.75	0.00	46.52	0.030	0.01
49.55	0.00	46.51	0.030	0.01
50.35	0.00	46.50	0.029	0.01
51.15	0.00	46.50	0.029	0.01
51.95	0.00	46.49	0.029	0.01
52.75	0.00	46.49	0.028	0.00

PEAK DISCHARGE = 1.000 CFS - PEAK OCCURS AT HOUR 1.86  
 MAXIMUM WATER SURFACE ELEVATION = 48.156  
 MAXIMUM STORAGE = 0.0890 AC-FT INCREMENTAL TIME= 0.033300HRS

PRINT HYD ID=12 CODE=1

HYDROGRAPH FROM AREA POND.12

RUNOFF VOLUME = 0.60972 INCHES = 0.1215 ACRE-FEET  
 PEAK DISCHARGE RATE = 1.00 CFS AT 1.865 HOURS BASIN AREA = 0.0037 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 15:40:

## ***APPENDIX B***

*100 Year 10 Day Storm  
Calculations and Exhibit*



D. Mark Goodwin & Associates, P.A.  
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199  
(505) 828-2200 FAX 797-9539

PROJECT Country Club Pkwa III  
SUBJECT 100 YR 10 DAY CALC.  
BY DLH DATE 11.27.17  
CHECKED \_\_\_\_\_ DATE \_\_\_\_\_  
SHEET \_\_\_\_\_ OF \_\_\_\_\_

Calculate 100 year 10 day storm volume

$$V_{10DAY} = V_{560} + A_D \left( \frac{P_{10} - P_6}{12} \right)$$

$$P_6 = 2.20''$$

$$P_{24} = 2.63''$$

$$P_{10} = 10 - \left( \frac{24.9}{P_{24}^{1.4}} \right)$$

$$= 10 - \left( \frac{24.9}{2.63^{1.4}} \right) = 3.57''$$

$$V_{10DAY} = 0.3594 AF + 2.39 (.84) \left( \frac{3.57 - 2.20}{12} \right)$$

$$= 0.3594 AF + 0.2292 AF = 0.5886 AF = 25,639 CF$$

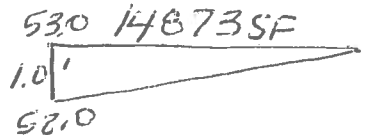
POND 1 VOLUME @ 53.0 ELEV. = 8358 CF

POND 2 VOLUME @ 53.0 ELEV. = 10944 CF

Estimate of volume in parking area and swale to Laguna, (outside pond volume):

$$\text{Area} = 14,873 SF$$

Assume a triangulation for storage.



Calc. volume:

$$\frac{14873 SF (1.0')}{2} = 7436.5 CF$$

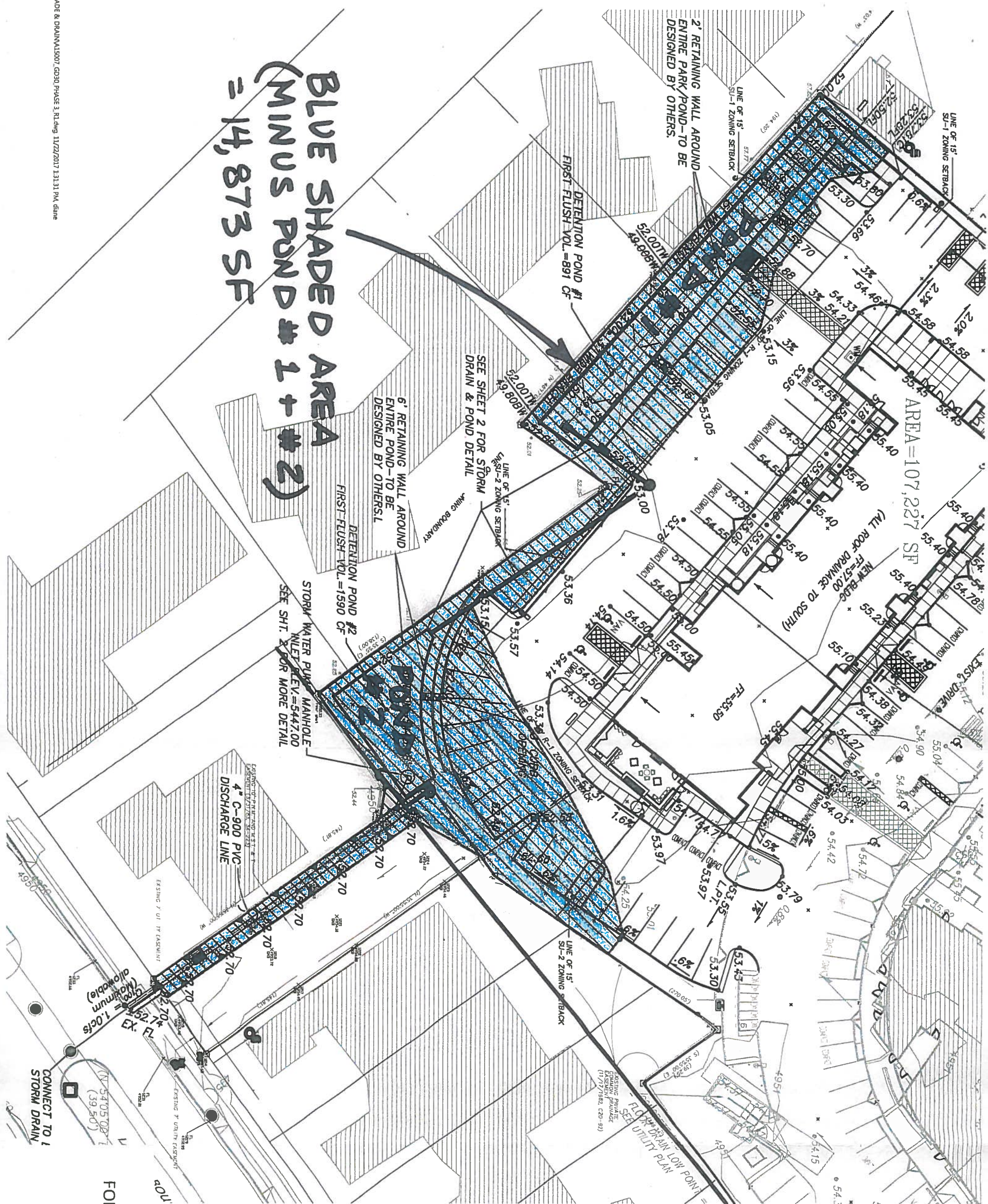
TOTAL CALC VOLUME @ ELEV. 53.0:

$$8358 CF + 10,944 CF + 7436.5 CF = 26,739 CF$$

$$26,739 CF (\text{estimate}) > 25,639 CF (100 YR 10 day vol.)$$



BLUE SHADED AREA  
(MINUS POND #1 + #2)  
= 14,873 SF



LIMITS OF FLOODING

FOR THE 100 YEAR 10 DAY STORM VOLUME  
(ASSUMING TOTAL PUMP FAILURE)

12-5-17  
COUNTRY CLUB PLAZA PHASE III  
J13/D010





# City of Albuquerque

Planning Department

Development & Building Services Division

## DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

**Project Title:** \_\_\_\_\_ **Building Permit #:** \_\_\_\_\_ **City Drainage #:** \_\_\_\_\_

**DRB#:** \_\_\_\_\_ **EPC#:** \_\_\_\_\_ **Work Order#:** \_\_\_\_\_

**Legal Description:** \_\_\_\_\_

**City Address:** \_\_\_\_\_

**Engineering Firm:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Owner:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Architect:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Other Contact:** \_\_\_\_\_ **Contact:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Phone#:** \_\_\_\_\_ **Fax#:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

Check all that Apply:

**DEPARTMENT:**

- ☐ HYDROLOGY/ DRAINAGE  
☐ TRAFFIC/ TRANSPORTATION  
☐ MS4/ EROSION & SEDIMENT CONTROL

**TYPE OF SUBMITTAL:**

- ☐ ENGINEER/ ARCHITECT CERTIFICATION
- ☐ CONCEPTUAL G & D PLAN  
☐ GRADING PLAN  
☐ DRAINAGE MASTER PLAN  
☐ DRAINAGE REPORT  
☐ CLOMR/LOMR
- ☐ TRAFFIC CIRCULATION LAYOUT (TCL)  
☐ TRAFFIC IMPACT STUDY (TIS)  
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
- ☐ OTHER (SPECIFY) \_\_\_\_\_

**CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:**

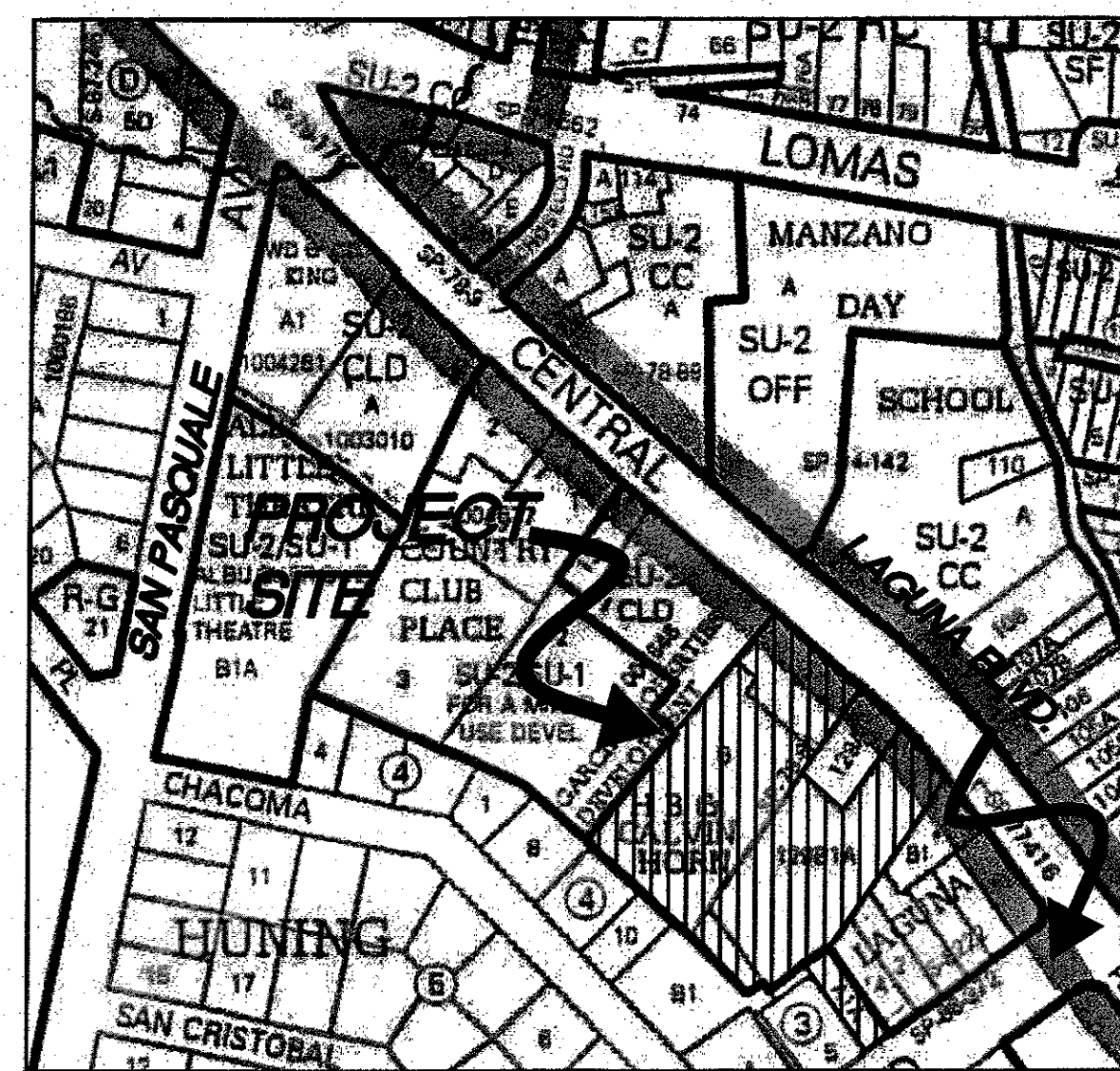
- ☐ BUILDING PERMIT APPROVAL  
☐ CERTIFICATE OF OCCUPANCY
- ☐ PRELIMINARY PLAT APPROVAL  
☐ SITE PLAN FOR SUB'D APPROVAL  
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL  
☐ FINAL PLAT APPROVAL  
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE  
☐ FOUNDATION PERMIT APPROVAL  
☐ GRADING PERMIT APPROVAL  
☐ SO-19 APPROVAL  
☐ PAVING PERMIT APPROVAL  
☐ GRADING/ PAD CERTIFICATION  
☐ WORK ORDER APPROVAL  
☐ CLOMR/LOMR
- ☐ PRE-DESIGN MEETING  
☐ OTHER (SPECIFY) \_\_\_\_\_

IS THIS A RESUBMITTAL?: ☐ Yes ☐ No

**DATE SUBMITTED:** \_\_\_\_\_ **By:** \_\_\_\_\_

COA STAFF: \_\_\_\_\_ ELECTRONIC SUBMITTAL RECEIVED: \_\_\_\_\_





VICINITY MAP ZONE ATLAS: J-13-Z

#### BENCHMARK

ACS CONTROL STATION "17-J14"  
N= 1488868.762  
E= 1519148.317  
Z= 4957.484  
NEW MEXICO STATE PLANE, CENTRAL ZONE  
G-G= 0.9996833611  
DELTA-ALPHA= -0013°59'00"  
NAD 1983/NAVD 1988

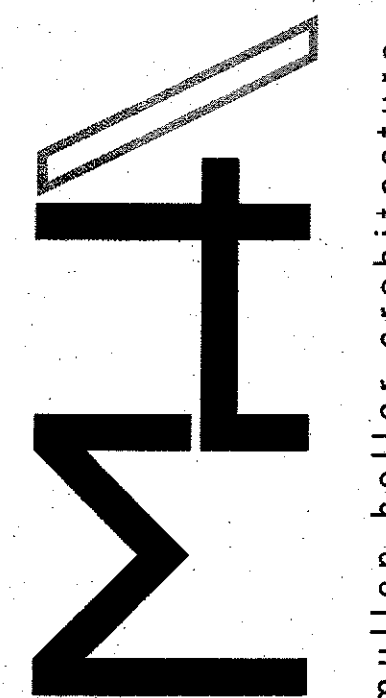
#### LEGEND

- x 00.00 EXISTING SPOT ELEVATION
- 51.36 EXISTING CONTOUR
- EXISTING WATER WELL
- EXISTING BOLLARD
- EXISTING GUY WIRE
- EXISTING SAS MH
- EXISTING TELEPHONE PEDESTAL
- NEW SPOT ELEVATION
- SWALE
- 00.00 NEW CONTOUR ELEVATION
- EXISTING SEWER MANHOLE
- EXISTING GAS METER
- EXISTING WATER VALVE
- EXISTING CLEANOUT
- EXISTING UTILITY POLE
- EXISTING MONITORING WELL
- EXISTING WATER METER
- EXISTING CURB
- NEW WATER METER
- NEW RETAINING WALL
- BASIN A
- BASIN B
- BASIN BOUNDARY
- 52.53 TOP OF CURB
- 52.03 BOTTOM OF CURB
- 52.00 NEW FLOW LINE, SPOT ELEVATION
- NEW SWALE
- 51.60 ± EXISTING ELEVATION
- EXISTING DRIVEWAY CUT

30' 15' 0 30' 60'  
SCALE: 1" = 30'

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

REV	DATE	BY	DESCRIPTION
1			
2			
3			
4			



PRELIMINARY  
NOT FOR  
CONSTRUCTION

MULLEN HELLER ARCHITECTURE  
1718 CENTRAL AVE SW | STE D  
ALBUQUERQUE, NM 87109  
P 505.268.4144  
F 505.268.4244  
www.mullenheller.com

JOB NUMBER 15-06

DRAWN BY SEJ

PROJECT MGR MMM

DATE 10-11-2017

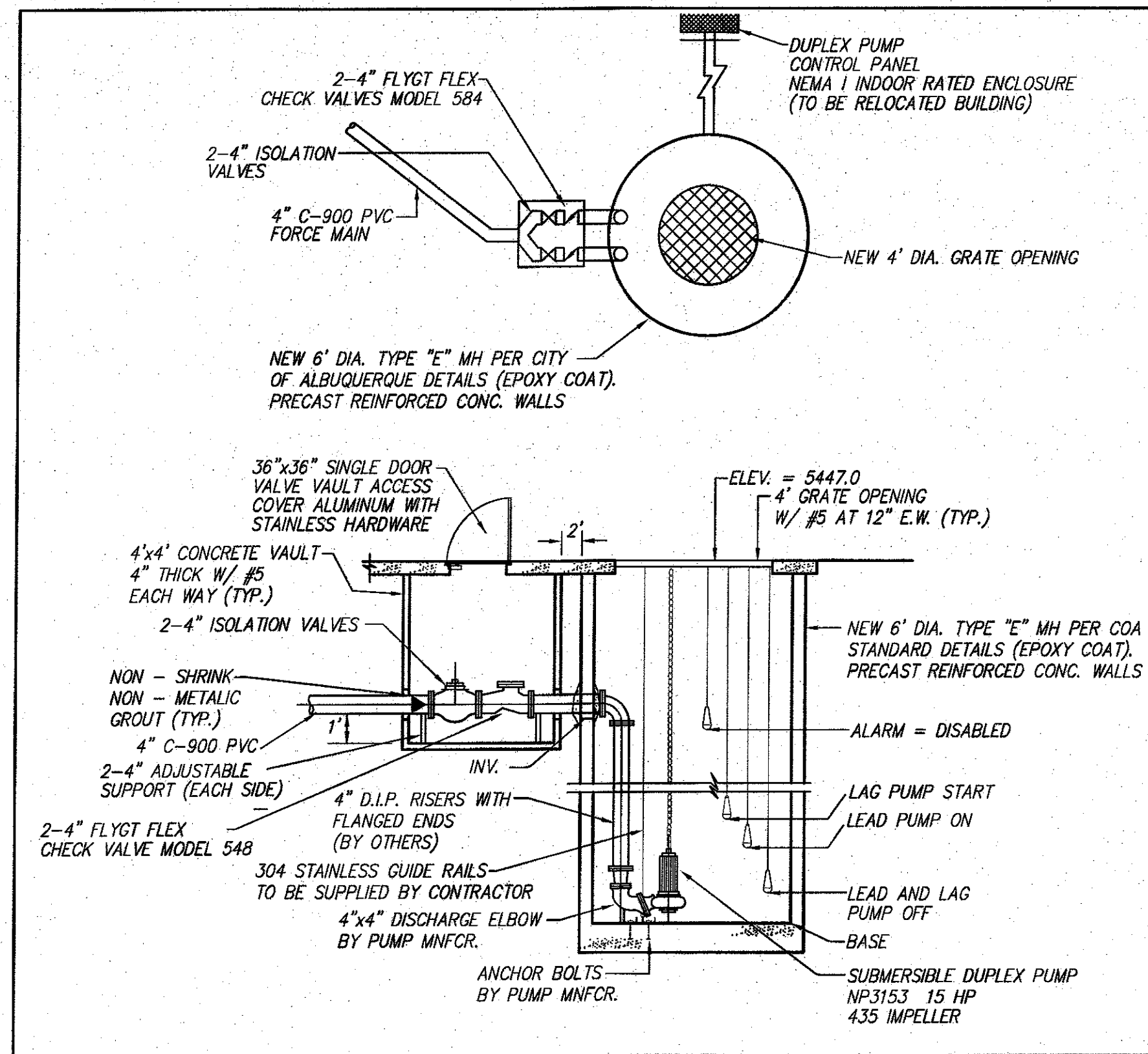
PHASE SD

PROJECT  
Country Club Plaza | Building 3  
1716 Central Avenue SW  
Albuquerque, NM 87104  
TITLE  
CONCEPTUAL GRADING & DRAINAGE PLAN

SHEET

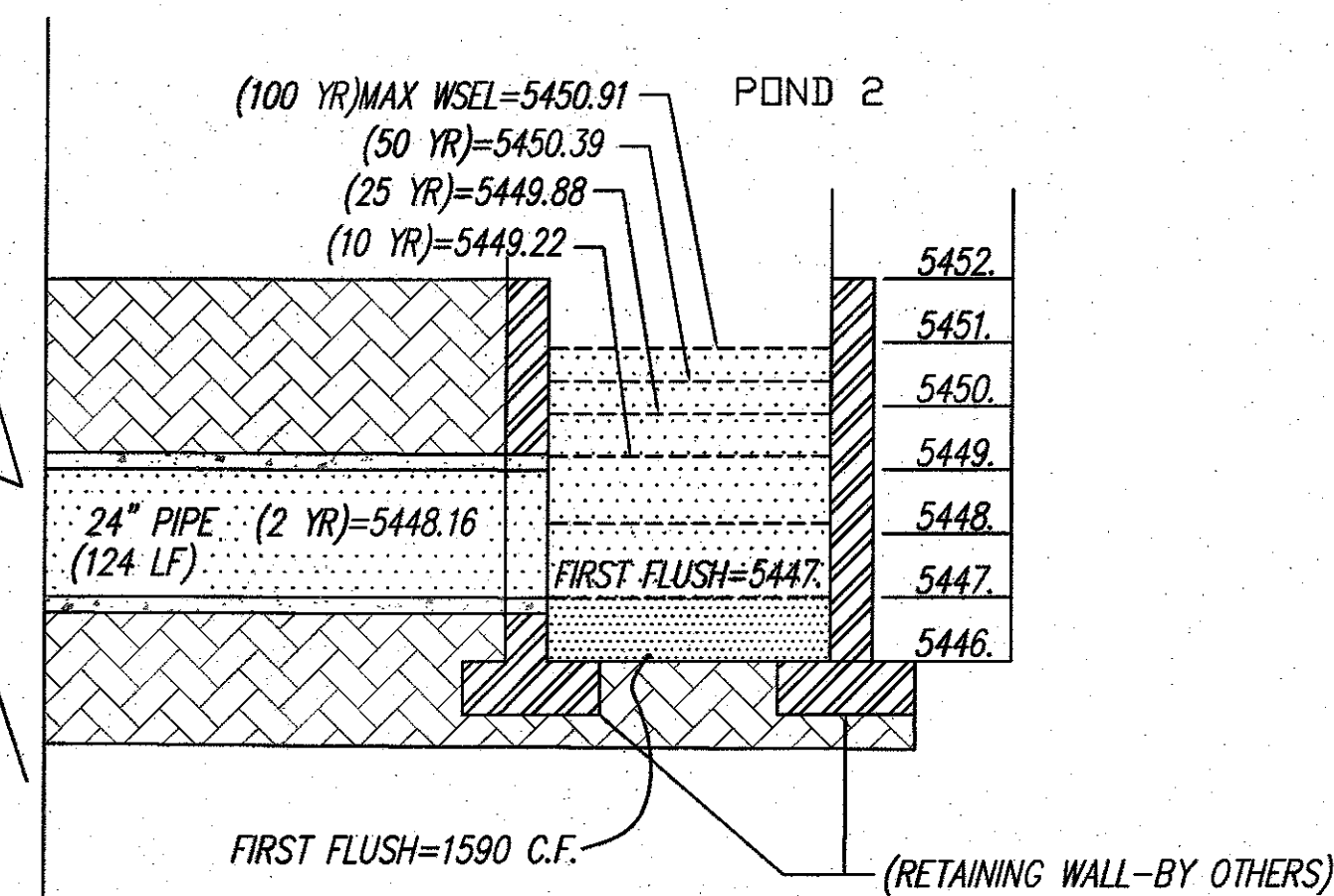
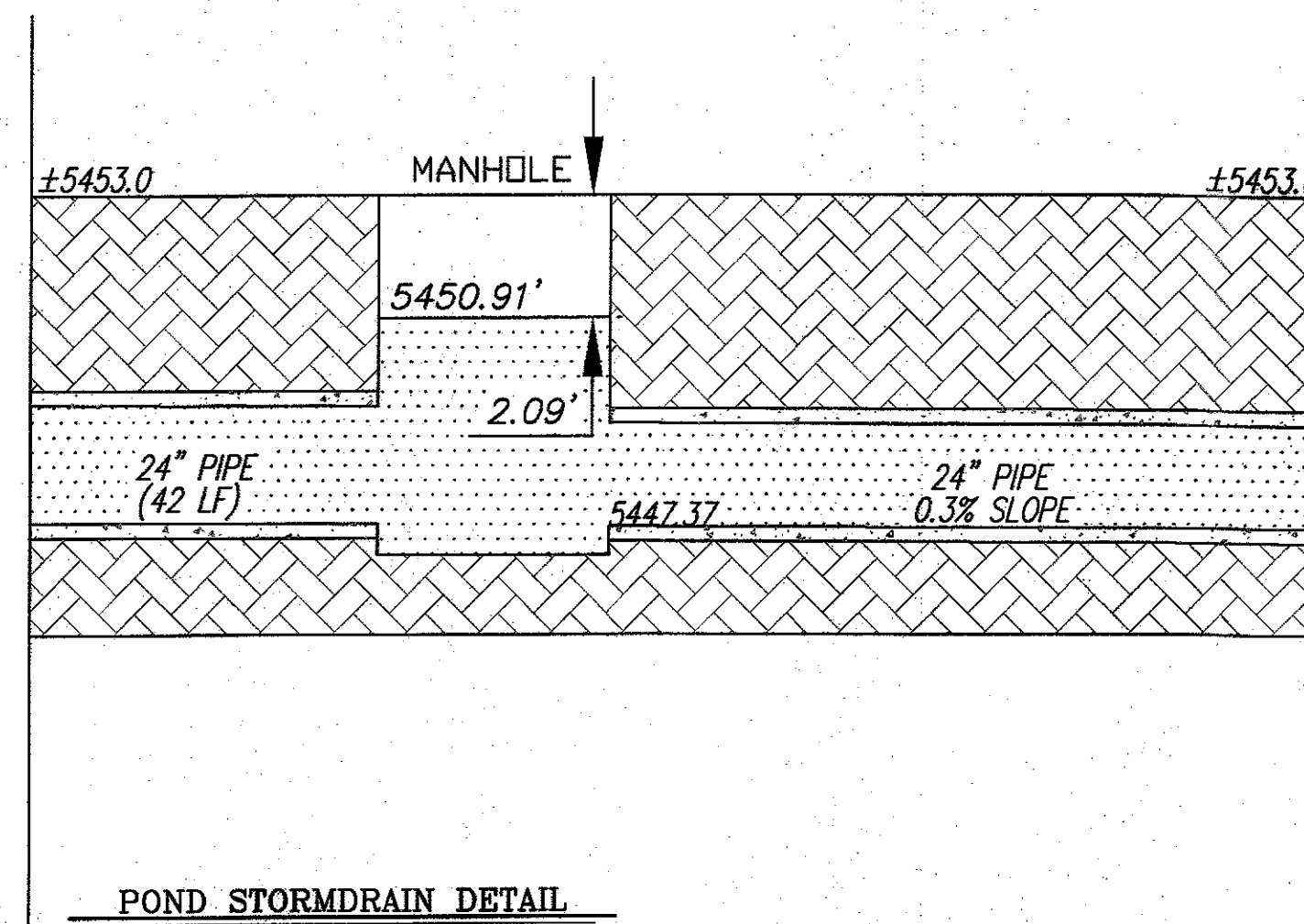
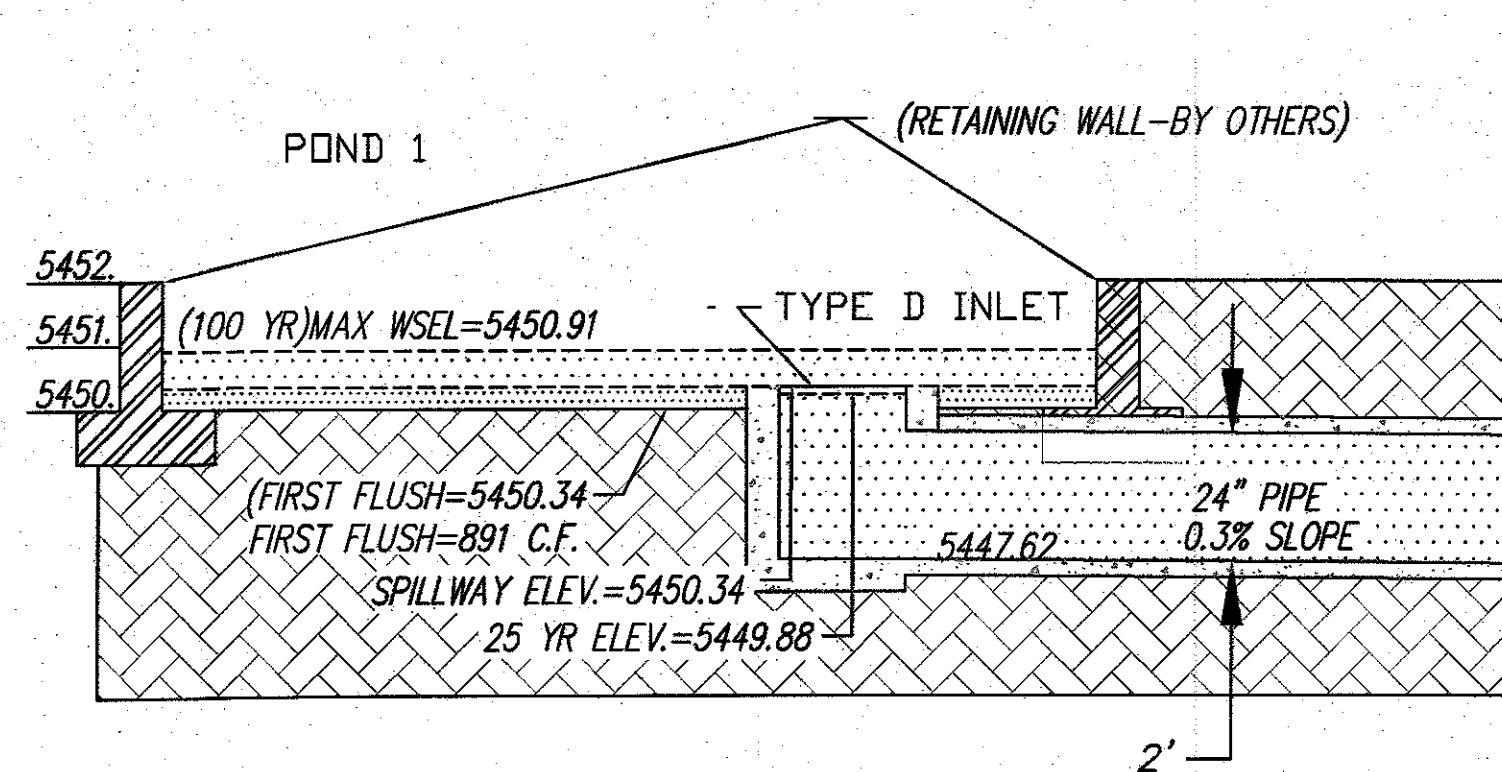
1 OF 2





**PUMP DETAIL**  
SCALE: NONE

NOTE: MAXIMUM ALLOWABLE DISCHARGE = 1 cfs = 448.83 gpm



12-5-17  
REVISED  
12-8-17

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

REV	DATE	BY	DESCRIPTION
1	12-5-17		
2	12-8-17		
3			
4			
5			

**mullen heller architecture**

PRELIMINARY  
NOT FOR  
CONSTRUCTION

**MULLEN HELLER ARCHITECTURE**  
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ALBUQUERQUE, NM | 87109  
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JOB NUMBER	15-06
DRAWN BY	SEJ
PROJECT MGR	MMM
DATE	10-11-2017
PHASE	SD

PROJECT  
**Country Club Plaza | Building 3**  
1716 Central Avenue SW  
Albuquerque, NM 87104  
TITLE  
**CONCEPTUAL GRADING & DRAINAGE PLAN**

SHEET  
**2 OF 2**