City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

July 10, 2001

Kim Kemper, P.E.
Kemper-Vaughan Consult. Engr.
5610 San Francisco NE
Albuquerque, New Mexico 87109

RE: DEFINED FITNESS (E-12/D14A)
(Riverside Plaza Lane NW)
ENGINEERS CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
ENGINEERS STAMP DATED 7/28/2000
ENGINEERS CERTIFICATION DATED 6/27/2001

Dear Mr. Kemper:

Based upon the information provided in your Engineers Certification submittal dated 6/27/2001, and the permit for the SO19 (approved 7/9/2001 by the City's Storm Drainage Maintenance inspector), the above referenced site is approved for a Permanent Certificate of Occupancy.

If I can be of further assistance, please contact me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Public Works Department
BLB

C: Vickie Chavez, CAO
drainage file
approval file

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 1, 2000

Kim R. Kemper, P.E.
Kemper-Vaughan Consulting Engineers
370 Coors Road, NW
Albuquerque, NM 87120

RE: GRADING & DRAINAGE PLAN FOR DEFINED FITNESS, RIVERSIDE PLAZA (E-12/ D014A) ENGINEER'S STAMP DATED JULY 28, 2000 SUBMITTED FOR BUILDING PERMIT AND SO 19 APPROVALS

Dear Mr. Kemper,

Based upon the information provided in your July 28, 2000, submittal, the project, referred to above, is approved for Building Permit. Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

In addition, the submittal is approved for an SO 19 permit, which is required for construction within the city right-of-way.

Prior to release of the Certificate of Occupancy, an Engineer Certification of the grading and drainage plan, per the DPM checklist, and a copy of the grading and drainage plan, with approval sign-off by the City's field inspector, will be required.

If you have any questions, please call me at 924-3988.

Sincerely,

Stuart Reeder, P.E.

Stuart Reeder, P.E.
Hydrology Division

xc: Pam Lujan, Permits w/attachment
Whitney Reierson
File

1000-
Diem
drain

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 28, 1999

Ronald R. Bohannan, P.E.
Tierra West, LLC
4421 McLeod Rd. NE, Suite D
Albuquerque, New Mexico 87109

RE: Grading and Drainage Plan for Phase I of Riverside Plaza (E12/D14), Submitted for Site Development Plan for Building Permit Approval and Building Permit Release, Engineer's Stamp Dated 6/9/99. ✓

Dear Mr. Bohannan:

Based on the information provided in the submittal of June 10, 1999, the above referenced plan is approved for Site Development Plan for Building Permit approval by the DRB and for Building Permit release.

As you are aware, the Engineer's Certification is required prior to release of the Certificate of Occupancy for the proposed buildings. Since a portion of this development drains to Winter Haven Drive, the certification must indicate that Winter Haven has been constructed and accepted by the City.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Ben Spencer, Argus Development Co.
File

DEFINED FITNESS

GRADING PLAN & DRAINAGE PLAN

July 27, 2000

Prepared for:

JLS Architecture

1600 Rio Grande Blvd. NW

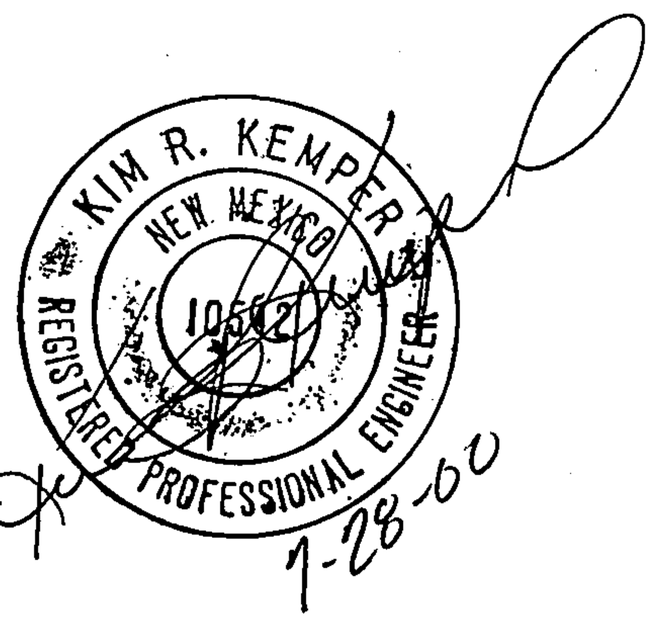
Albuquerque, New Mexico 87104

Prepared by:

KEMPER-VAUGHAN CONSULTING ENGINEERS

3700 Coors Road NW

Albuquerque, New Mexico 87120



PROJECT OVERVIEW

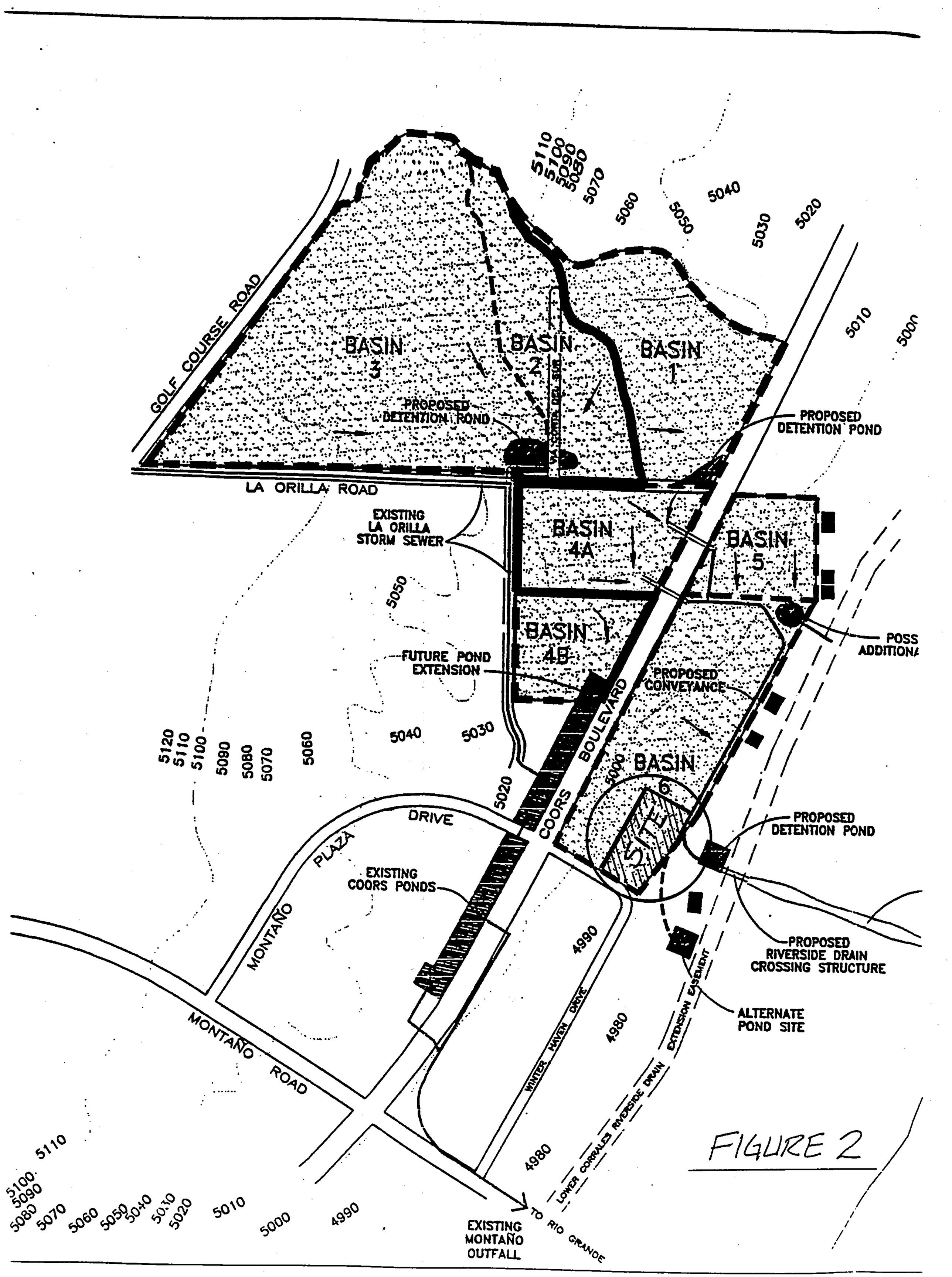
The site is located in the newly developed Riverside Plaza just north of Montano and east of Coors Rd. As shown on panel 118 of the 1996 FIRM (attached), this site does not lie within a designated flood hazard area. The site is 3.8 acres in total and is currently vacant. The proposed project includes the construction of a new fitness center and a pad site and includes the related parking and landscaping. All the improvements immediately adjacent to the pad site will be constructed at this time. The calculations provided include the pad site as impervious area.

DRAINAGE PLAN

As stated above, this site is within the Riverside Plaza subdivision that has just recently been completed. The drainage plan for this subdivision can be found it City file E12/D14. An exhibit showing the entire subdivision is attached as Figure 1. Shown on the attached Figure 2 are the offsite basins which impact the subdivision. Of these offsite basins only basin 4B has an impact on the subject property. Storm waters from basin 4B are conveyed beneath Coors Rd and discharge onto the parcel immediately west of the new Defined Fitness site. The subdivision plan calculated these flows to be 20.7 cfs. This runoff then surface flow across the adjacent site, flow onto the subject site and then enter Winter Haven Rd. The subdivision drainage plan provides for free discharge from this site onto Winter Haven Rd.

Shown on the attached Figure 3 is a graphic summary of all the runoff that enters and exits this property. Due to the configuration of the proposed site development plan, the original basins as shown on the subdivision plan could not be precisely followed. However, this is of no consequence due to the fact that all storm waters are to eventually reach Winter Haven and then flow to south to downstream facilities.

The calculations provided herein include the design event peak discharge and volumetric runoff for each individual onsite basin defined on Figure 3. Calculations are also provided for the offsite parcel to the west which will surface flow onto the subject site. The developed condition of the adjacent property was assumed to be 90% impervious and 10% landscape. Also included is a rating curve identifying the capacity of the proposed concrete rundowns which discharge onto Winter Haven.


GOLF COURSE ROAD
LA ORILLA ROAD
MONTAÑO PLAZA DRIVE
MONTAÑO ROAD
COORS BOULEVARD
WINTER HAVEN DRIVE
VAL COMO DEL SUR
LOWER CORRALES RIVERSIDE DRAIN EXTENSION
BASIN 1
BASIN 2
BASIN 3
BASIN 4A
BASIN 4B
BASIN 5
BASIN 6
SITE
PROPOSED DETENTION POND
PROPOSED DETENTION POND
PROPOSED DETENTION POND
EXISTING LA ORILLA STORM SEWER
FUTURE POND EXTENSION
EXISTING COORS PONDS
PROPOSED CONVEYANCE
PROPOSED RIVERSIDE DRAIN CROSSING STRUCTURE
ALTERNATE POND SITE
POSS ADDITIONA
EXISTING MONTAÑO OUTFALL
TO RIO GRANDE
5120
5110
5100
5090
5080
5070
5060
5050
5040
5030
5020
5010
5000
4990
4980
FIGURE 2

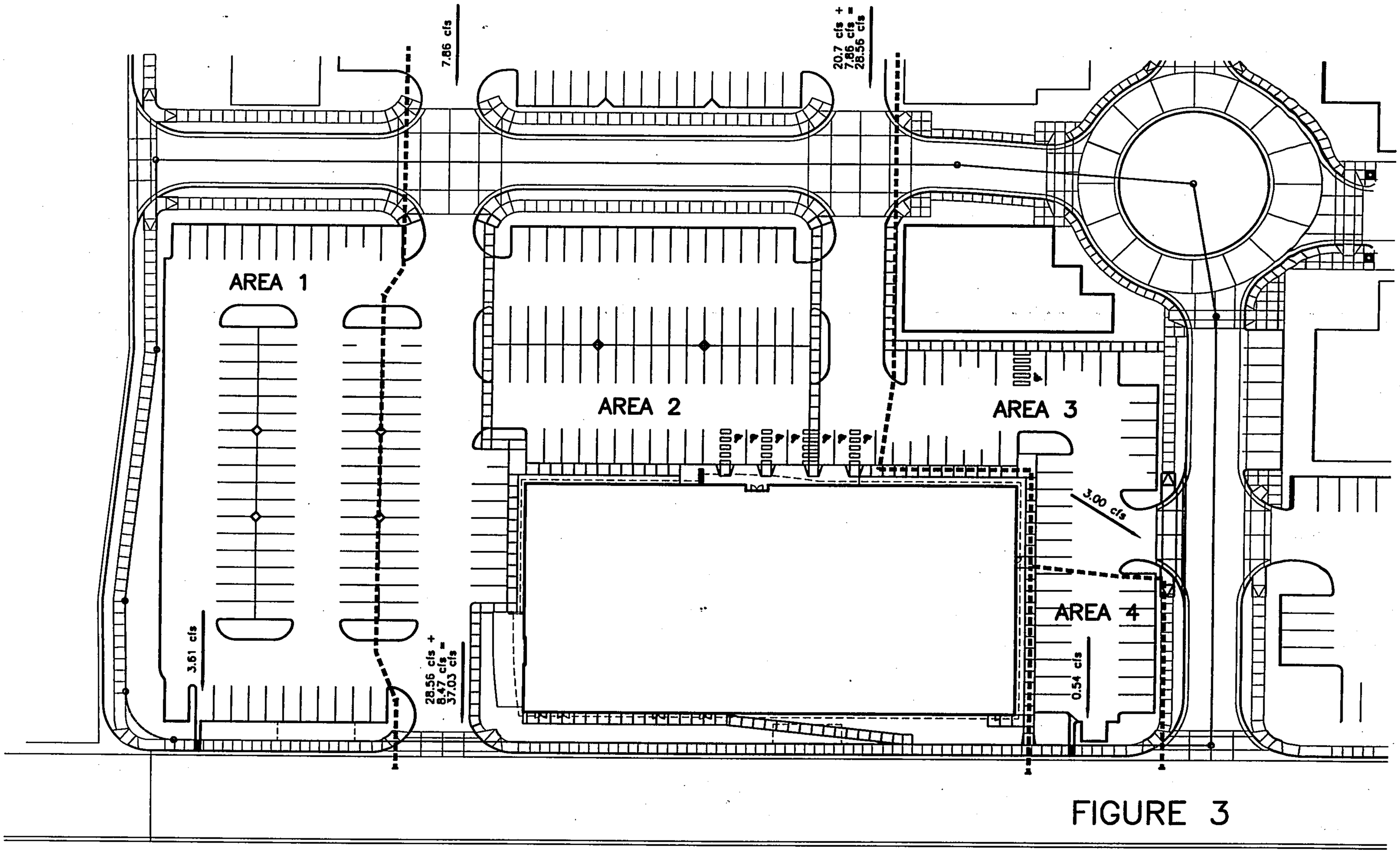

7.86 cfs
20.7 cfs +
7.86 cfs =
28.56 cfs
AREA 1
AREA 2
AREA 3
AREA 4
3.00 cfs
3.61 cfs
28.56 cfs +
8.47 cfs =
37.03 cfs
0.54 cfs

FIGURE 3

TOTAL SITE AREA = 3.80 ac.

DRAINAGE ZONE 1
PRECIPITATION: 360 = 2.20 in.
1140 = 2.66 in.
10day = 3.67 in.

	EXCESS PRECIPITATION:	PEAK DISCHARGE:	
TREATMENT A	0.44 in.	1.29	cfs/ac.
TREATMENT B	0.67 in.	2.03	cfs/ac.
TREATMENT C	0.99 in.	2.87	cfs/ac.
TREATMENT D	1.97 in.	4.37	cfs/ac.

EXISTING CONDITIONS:	AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0 ac.	0 ac.
TREATMENT B	0 ac.	0.42 ac.
TREATMENT C	3.8 ac.	0 ac.
TREATMENT D	0 ac.	3.38 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.00)+(0.99)x(3.80)+(1.97)x(0.00)/ 3.80 ac.
= 0.99 in.
V100-360 = (0.99)x(3.80)/ 12 = 0.313500 ac-ft = 13656 cf

EXISTING PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.00)+(2.87)x(3.80)+(4.37)x(0.00)= 10.91 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.42)+(0.99)x(0.00)+(1.97)x(3.38)/ 3.80 ac.
= 1.83 in.
V100-360 = (1.83)x(3.80)/ 12.0 = 0.578333 ac-ft = 25192 cf

V100-1440 = (0.58)+(3.38)x(2.66 - 2.20)/ 12 = 0.707900 ac-ft = 30836 cf

V100-10day = (0.58)+(3.38)x(3.67 - 2.20)/ 12 = 0.992383 ac-ft = 43228 cf

PROPOSED PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.42)+(2.87)x(0.00)+(4.37)x(3.38)= 15.62 cfs

ONSITE AREA 1 AREA = 0.89 ac.

DRAINAGE ZONE 1
PRECIPITATION: 360 = 2.20 in.
1140 = 2.66 in.
10day = 3.67 in.

	EXCESS PRECIPITATION:	PEAK DISCHARGE:	
TREATMENT A	0.44 in.	1.29	cfs/ac.
TREATMENT B	0.67 in.	2.03	cfs/ac.
TREATMENT C	0.99 in.	2.87	cfs/ac.
TREATMENT D	1.97 in.	4.37	cfs/ac.

EXISTING CONDITIONS:		PROPOSED CONDITIONS:
	AREA	AREA
TREATMENT A	0 ac.	0 ac.
TREATMENT B	0 ac.	0.12 ac.
TREATMENT C	0.89 ac.	0 ac.
TREATMENT D	0 ac.	0.77 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.00)+(0.99)x(0.89)+(1.97)x(0.00)/ 0.89 ac.
= 0.99 in.

V100-360 = (0.99)x(0.89)/ 12 = 0.073425 ac-ft = 3198 cf

EXISTING PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.00)+(2.87)x(0.89)+(4.37)x(0.00)= 2.55 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.12)+(0.99)x(0.00)+(1.97)x(0.77)/ 0.89 ac.
= 1.79 in.

V100-360 = (1.79)x(0.89)/ 12.0 = 0.133108 ac-ft = 5798 cf

V100-1440 = (0.13)+(0.77)x(2.66 - 2.20)/ 12 = 0.162625 ac-ft = 7084 cf

V100-10day = (0.13)+(0.77)x(3.67 - 2.20)/ 12 = 0.227433 ac-ft = 9907 cf

PROPOSED PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.12)+(2.87)x(0.00)+(4.37)x(0.77)= 3.61 cfs

ONSITE AREA 2 AREA = 2.04 ac.

DRAINAGE ZONE 1

PRECIPITATION:

360 =	2.20	in.
1140 =	2.66	in.
10day =	3.67	in.

	EXCESS PRECIPITATION:	PEAK DISCHARGE:	
TREATMENT A	0.44 in.	1.29	cfs/ac.
TREATMENT B	0.67 in.	2.03	cfs/ac.
TREATMENT C	0.99 in.	2.87	cfs/ac.
TREATMENT D	1.97 in.	4.37	cfs/ac.

EXISTING CONDITIONS:		PROPOSED CONDITIONS:
	AREA	AREA
TREATMENT A	0 ac.	0 ac.
TREATMENT B	0 ac.	0.19 ac.
TREATMENT C	2.04 ac.	0 ac.
TREATMENT D	0 ac.	1.85 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.00)+(0.99)x(2.04)+(1.97)x(0.00)/ 2.04 ac.
= 0.99 in.

V100-360 = (0.99)x(2.04)/ 12 = 0.168300 ac-ft = 7331 cf

EXISTING PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.00)+(2.87)x(2.04)+(4.37)x(0.00)= 5.85 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.19)+(0.99)x(0.00)+(1.97)x(1.85)/ 2.04 ac.
= 1.85 in.

V100-360 = (1.85)x(2.04)/ 12.0 = 0.314317 ac-ft = 13692 cf

V100-1440 = (0.31)+(1.85)x(2.66 - 2.20)/ 12 = 0.385233 ac-ft = 16781 cf

V100-10day = (0.31)+(1.85)x(3.67 - 2.20)/ 12 = 0.540942 ac-ft = 23563 cf

PROPOSED PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.19)+(2.87)x(0.00)+(4.37)x(1.85)= 8.47 cfs

ONSITE AREA 4 AREA = 0.14 ac.

DRAINAGE ZONE 1
PRECIPITATION: 360 = 2.20 in.
1140 = 2.66 in.
10day = 3.67 in.

EXCESS PRECIPITATION:

PEAK DISCHARGE:

TREATMENT A	0.44 in.	1.29 cfs/ac.
TREATMENT B	0.67 in.	2.03 cfs/ac.
TREATMENT C	0.99 in.	2.87 cfs/ac.
TREATMENT D	1.97 in.	4.37 cfs/ac.

EXISTING CONDITIONS:	AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0 ac.	0 ac.
TREATMENT B	0 ac.	0.03 ac.
TREATMENT C	0.14 ac.	0 ac.
TREATMENT D	0 ac.	0.11 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.00)+(0.99)x(0.14)+(1.97)x(0.00)/ 0.14 ac.
= 0.99 in.
V100-360 = (0.99)x(0.14)/ 12 = 0.011550 ac-ft = 503 cf

EXISTING PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.00)+(2.87)x(0.14)+(4.37)x(0.00)= 0.40 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.03)+(0.99)x(0.00)+(1.97)x(0.11)/ 0.14 ac.
= 1.69 in.
V100-360 = (1.69)x(0.14)/ 12.0 = 0.019733 ac-ft = 860 cf

V100-1440 = (0.02)+(0.11)x(2.66 - 2.20)/ 12 = 0.023950 ac-ft = 1043 cf

V100-10day = (0.02)+(0.11)x(3.67 - 2.20)/ 12 = 0.033208 ac-ft = 1447 cf

PROPOSED PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.03)+(2.87)x(0.00)+(4.37)x(0.11)= 0.54 cfs

OFFSITE (WEST) AREA = 3.80 ac.

DRAINAGE ZONE 1
PRECIPITATION: 360 = 2.20 in.
1140 = 2.66 in.
10day = 3.67 in.

EXCESS PRECIPITATION:

		PEAK DISCHARGE:	
TREATMENT A	0.44 in.	1.29	cfs/ac.
TREATMENT B	0.67 in.	2.03	cfs/ac.
TREATMENT C	0.99 in.	2.87	cfs/ac.
TREATMENT D	1.97 in.	4.37	cfs/ac.

EXISTING CONDITIONS:	AREA	PROPOSED CONDITIONS: AREA
TREATMENT A	0 ac.	0 ac.
TREATMENT B	0 ac.	0.38 ac.
TREATMENT C	3.8 ac.	0 ac.
TREATMENT D	0 ac.	3.42 ac.

EXISTING EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.00)+(0.99)x(3.80)+(1.97)x(0.00)/ 3.80 ac.
= 0.99 in.
V100-360 = (0.99)x(3.80)/ 12 = 0.313500 ac-ft = 13656 cf

EXISTING PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.00)+(2.87)x(3.80)+(4.37)x(0.00)= 10.91 cfs

PROPOSED EXCESS PRECIPITATION:

Weighted E = (0.44)x(0.00)+(0.67)x(0.38)+(0.99)x(0.00)+(1.97)x(3.42)/ 3.80 ac.
= 1.84 in.
V100-360 = (1.84)x(3.80)/ 12.0 = 0.582667 ac-ft = 25381 cf

V100-1440 = (0.58)+(3.42)x(2.66 - 2.20)/ 12 = 0.713767 ac-ft = 31092 cf

V100-10day = (0.58)+(3.42)x(3.67 - 2.20)/ 12 = 1.001617 ac-ft = 43630 cf

PROPOSED PEAK DISCHARGE:

Q100 = (1.29)x(0.00)+(2.03)x(0.38)+(2.87)x(0.00)+(4.37)x(3.42)= 15.72 cfs

TRAPEZOIDAL CHANNEL ANALYSIS
RATING CURVE COMPUTATION

July 28, 2000
DEFINED FITNESS
SOUTH CONC. RUNDOWN

==========

PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Channel Bottom Slope (feet per foot)	0.0400
Manning`s Roughness Coefficient (n-value)	0.0150
Channel Side Slope - Left Side (horizontal/vertical)	0.01
Channel Side Slope - Right Side (horizontal/vertical)	0.01
Channel Bottom Width (feet)	2.0

==========

PROGRAM RESULTS:

Depth (ft)	Flow Rate (cfs)	Velocity (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sq ft)	Top Width (ft)
0.1	0.8	4.01	2.234	0.249	0.349	0.2	2.0
0.2	2.4	6.00	2.367	0.560	0.760	0.4	2.0
0.3	4.5	7.46	2.403	0.865	1.165	0.6	2.0
0.4	6.9	8.61	2.400	1.150	1.550	0.8	2.0
0.5	9.6	9.54	2.381	1.414	1.914	1.0	2.0
0.6	12.4	10.32	2.352	1.655	2.255	1.2	2.0

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TRAPEZOIDAL CHANNEL ANALYSIS
RATING CURVE COMPUTATION

July 28, 2000
DEFINED FITNESS
NORTH

==========

PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Channel Bottom Slope (feet per foot)	0.0320
Manning`s Roughness Coefficient (n-value)	0.0150
Channel Side Slope - Left Side (horizontal/vertical)	0.01
Channel Side Slope - Right Side (horizontal/vertical)	0.01
Channel Bottom Width (feet)	2.0

==========

PROGRAM RESULTS:

Depth (ft)	Flow Rate (cfs)	Velocity (fps)	Froude Number	Velocity Head(ft)	Energy Head(ft)	Flow Area (sq ft)	Top Width (ft)
0.1	0.7	3.58	1.998	0.199	0.299	0.2	2.0
0.2	2.2	5.37	2.117	0.448	0.648	0.4	2.0
0.3	4.0	6.67	2.149	0.692	0.992	0.6	2.0
0.4	6.2	7.70	2.147	0.920	1.320	0.8	2.0
0.5	8.6	8.53	2.129	1.131	1.631	1.0	2.0
0.6	11.1	9.23	2.104	1.324	1.924	1.2	2.0

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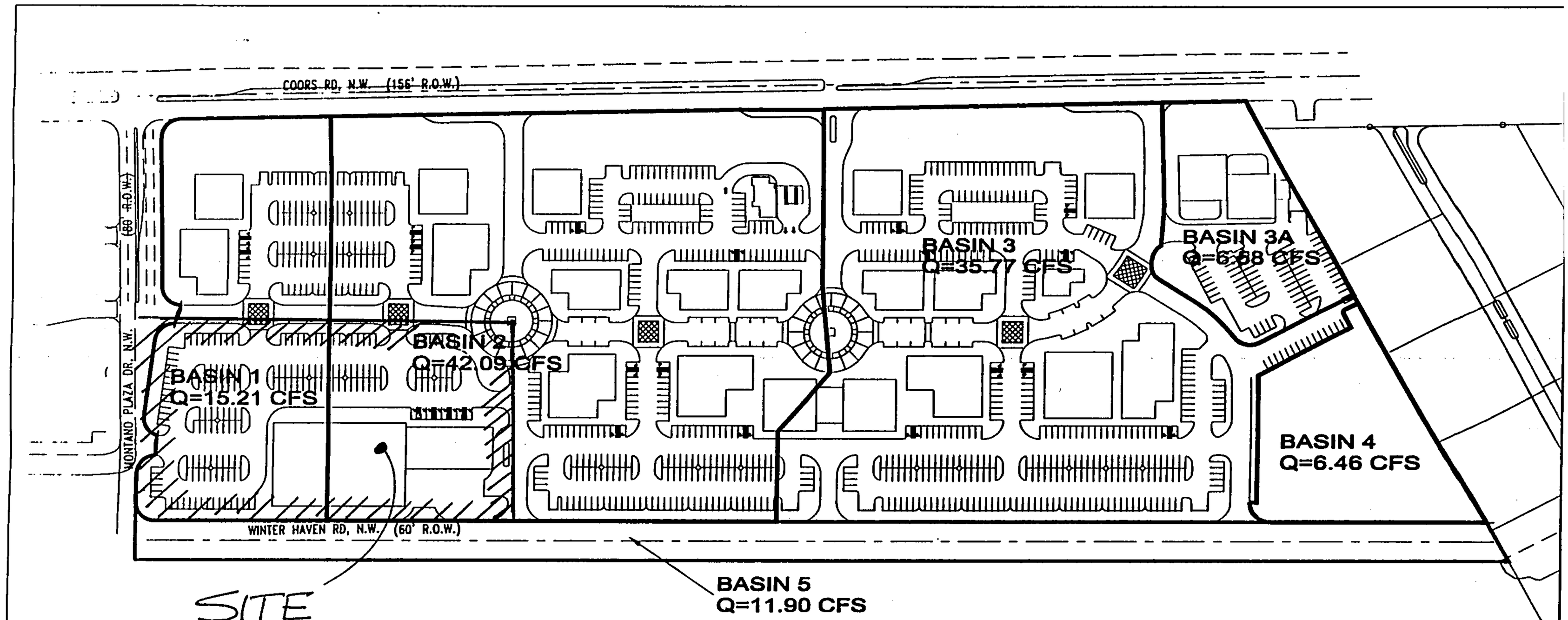

PROPOSED BASIN LAYOUT

FIGURE 1