



Richard J. Berry, Mayor

February 17, 2017

Ron Hensley, P.E.
GND Engineering
11032 Dreamy Way Dr. NW
Albuquerque, NM, 87114

**RE: Coors Pavilion Subdivision
9154 Coors Blvd
Grading Plan
Engineer's Stamp Date: 1/31/2017
Hydrology File: G11D069**

Dear Mr. Hensley:

Based upon the information provided in your submittal received 2/1/17, the Grading Plan is not approved for Grading Permit. The following comments need to be addressed for approval of the above referenced project:

1. AHYMO Model.

- a. The rainfall command calls RAIN ONE=1.84 IN, instead of RAIN ONE=1.87 IN for Zone 1.
- b. Sub-basins D1 through D8 call for land treatments A=0%, B=5%, C=5%, D=90%. This conflicts with what is reported in the Hydrologic Data Table on the Master Drainage Plan: A=0%, B=0%, C=10%, D=90%. Either land treatment is acceptable for what is proposed, however it must be consistent.
- c. The print hydrograph command for sub-basin D2, calls on ID=1, instead of ID=2.
- d. Descriptive text “*S Add D6 (D6 + SUMA)” does not match code. Code looks correct based on routing scheme and your clarifying memo. This appears to be only a typo.
- e. The maximum water surface elevation per the model is 5011.40', but is stated as 5011.50' on the drainage master plan. This can be changed to 5011.40' if desired, or left as conservative rounding.



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- f. Provide a stamped copy of the AHYMO model files to support the approval of the drawing.

2. Hydrologic Data Table.

- a. The area for the church basin appears too low and is not consistent with the AHYMO model.
- b. Land treatments should be consistent with the AHYMO model.

3. Outlet Structure.

- a. Specify RCP Class IV for the storm drain passing under the garden wall, assuming the garden wall will remain over the pipe.
- b. Add a manhole and a polyline with annotation at the public/private interface of the storm drain.
- c. Provide storm drain invert elevation and grate elevations for the outlet structure.
- d. Detaining the first flush volume in a 3 inch deep by 2.6 acre uniformly flat earth surface pond is not feasible from a construction standpoint. Excavate an additional 0.2 feet to provide for the allowable error in construction finished grades.
- e. A local depression, 2 feet beneath the PVC pipe inverts, needs to be provided for erosion and sediment control. This depression must be maintainable with 3:1 or flatter slopes and at least 4 feet of flat bottom around the outlet structure to prevent the storm drain from silting in.

4. Pond

- a. No ponding will be allowed over the 20 foot ABCWUA easement. The pond boundary will need to be adjusted to avoid this.
- b. The maximum water surface elevation of the pond (5011.50 ft) will need to be restricted to the private access and cannot encroach into lots 1 and 2 beyond the drainage easement boundary.
- c. Provide additional elevation data along the private access and lots 1 and 2 showing that ponding will be restricted to the private access easement and pond.

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New Mexico 87103

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5. Other Drawing Notes.

- a. The AHYMO model determined a contribution of 10.68 cfs from the church and the drawing shows a contribution of 29.26 cfs.
- b. Reorient the flow arrows to make it clear that each lot (for lots 1-7) will discharge directly to the private access as modeled and not across adjacent lots.
- c. Lot 2 shows a peak discharge of 6.65 cfs, not 2.99 cfs as shown in the model.
- d. Lot 4 shows a peak discharge of 6.93 cfs, not 4.07 cfs as shown in the model.
- e. Line types are difficult to discern and ambiguous, especially along Coors. Screen-back (gray) existing contours and existing features, change line types to improve clarity, update the legend, and label all easements and ROWs.
- f. Add spot elevations though the deceleration lane along Coors for top of curb and flow line.
- g. Add to the narrative clarification that this master drainage plan is only for grading of the road and pond.

6. Coordination.

- a. Provide proof of correspondence with NMDOT for work along Coors Blvd. Coors Blvd is NMDOT ROW and the City does not approve work in NMDOT ROW.
- b. Provide proof of correspondence with the fence owner, most likely the homeowners association, for permission to remove the fence at the end of Quaker Heights.

7. Submittal of an erosion and sediment control plan is required prior to grading permit approval as the disturbed area is over 1 acre. Please contact Curtis Cherne P.E at 924-3420 for question regarding ESC plans.

The following comments do not need to be addressed a part of this submittal for grading permit:

CITY OF ALBUQUERQUE



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1. This master plan allows cross-lot drainage from lot 7 through lot 8 and lot 9 to the pond. As this was not part of the conceptual grading and drainage plan used for preliminary plat, a new cross lot drainage easement for lots 8 and 9 for the benefit of lots 7 and 8 will be required for final plat.
2. Shared maintenance agreements will be required for the private access and the pond.

Work within the City Right-of-Way will require a city work order. It is Hydrology's understanding that this grading plan is for grading permit of only the private access and pond improvements. No lots will be graded under this permit; individual lots will be required to submit grading and drainage plans separately.

If you have any questions, contact me at 924-3695 or dpeterson@cabq.gov.

Sincerely,

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

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REQUIRED FIRST FLUSH VOLUME
 LOT DRAINAGE ROUTING AS DEPICTED ON THIS PLAN SHALL BE MAINTAINED.
 FLUSH VOLUME = IMPERVIOUS AREA * (0.44-0.10)/12 IN CUBIC FEET.
 TOTAL REQUIRED FLUSH VOLUME = 826,812 * (0.44-0.10)/12 = 23,426 CU.FT.
 SITE POND FLUSH VOLUME PROVIDED = 24,344 CU.FT.

[illegible]

January 31, 2017

Dana Peterson P.E.
Hydrology Development
City of Albuquerque
PO Box 1293
Albuquerque, NM 87103

Re: Coors Pavilion Subdivision – Master Grading and Drainage Plan

Mr. Peterson,

We are requesting a review of the attached plan in support of the Grading Permit of the Coors Pavilion Subdivision. We are providing the following response to your comments:

1. The AHYMO model has been modified to reflect the described conditions.
2. The plan depicts the discharge from Lot7 and the adjacent drive being directed to a low point with curb openings.
3. The grade break elevations at the entrances are depicted on the plan and show the site discharge is prevented from entering the adjacent streets.
4. The Church drainage plan with retention pond has restricted the discharge from the site to historic rates. Therefore, the flow into the Coors Pavilion Pond has been modeled to accommodate flows entering the site from the retention pond overflow.
5. The legend has been corrected.
6. The alley will be cut into the existing ground. Prior to the development of the lots, the water surface will be contained within the alley. As the lots adjacent to the pond are developed, it is anticipated that the rim of the water surface will extend into parking areas. Pad elevations for these lots will be at least 1 foot above the water surface.
7. The first flush volumes and accommodations are depicted on the plan. The pond will have 3” below the outfall elevation for retention volume.
8. A detail of the modified Type D inlet has been included. The rating curve for the six pipe penetrations into the inlet is included in the AHYMO model. The downstream effects of the discharge from the site are minimal. There is a significant time differential in peak flow between the basins contributing to the storm drain system at the point of connection. Peak discharge from the existing basins contributing to the storm drain occurs at approximately 1.5 hours with a flow of 15.2 cfs in a 30” pipe. The capacity of the pipe flowing full is 18.95 cfs. Discharge from the

site at 1.5 hours is 1.06 cfs. Therefore, the nominal flow from the site can be conveyed by the existing system. The peak discharge from the site of 4.92 cfs is delayed 0.85 hours from the maximum flow in the storm drain.

9. The AHYMO files are attached.

Please contact me at 410-1622 or via email if you have any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Ron E. Hensley". The signature is written in a cursive, flowing style.

Ron E. Hensley P.E.
ron@thegroup.cc

AHYMO INPUT

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*
START                TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
RAINFALL             TYPE=2 RAIN QUARTER=0.0
                     RAIN ONE=1.84 IN RAIN SIX=2.20 IN
                     RAIN DAY=2.66 IN DT=0.05 HRS
*
*** Sub-BASIN D1 ***
COMPUTE NM HYD       ID=1 HYD NO=LOTS89 DA=0.0222234 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=1 CODE=1
*** Sub-BASIN D2 ***
COMPUTE NM HYD       ID=2 HYD NO=LOT1 DA=0.001589 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=1 CODE=1
*** Sub-BASIN D3 ***
COMPUTE NM HYD       ID=3 HYD NO=LOT2 DA=0.001148 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=3 CODE=1
*** Sub-BASIN D4 ***
COMPUTE NM HYD       ID=4 HYD NO=LOT3 DA=0.001407 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=4 CODE=1
*** Sub-BASIN D5 ***
COMPUTE NM HYD       ID=5 HYD NO=LOT4 DA=0.001565 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=5 CODE=1
*** Sub-BASIN D6 ***
COMPUTE NM HYD       ID=6 HYD NO=LOT5 DA=0.001097 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=6 CODE=1
*** Sub-BASIN D7 ***
COMPUTE NM HYD       ID=7 HYD NO=LOT6 DA=0.001819 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=7 CODE=1
*** Sub-BASIN D8 ***
COMPUTE NM HYD       ID=8 HYD NO=LOT7 DA=0.002116 SQ MI
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=-0.1333 HR MASS RAIN=-1
*
PRINT HYD            ID=8 CODE=1
*
*S Flow at SW Intersection (D1 + D8)
ADD HYD              ID=20 HYD NO=20SUMA IDS=1 AND 8
PRINT HYD            ID=20 CODE=1
*
*S Add D6 (D6 + 20SUMA)
ADD HYD              ID=21 HYD NO=20SUMB IDS=6 AND 7
PRINT HYD            ID=21 CODE=1
*
*S Add D5 (D5 + 20SUMB)
ADD HYD              ID=22 HYD NO=20SUMC IDS=21 AND 5
PRINT HYD            ID=22 CODE=1

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Coors Pavilion Master Drainage Plan

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*
*S Add D4 (D4 + 20SUMC)
ADD HYD          ID=23 HYD NO=20SUMD  IDS=22 AND 4
PRINT HYD        ID=23 CODE=1
*
*S Add D2 (D3 + 20SUME)
ADD HYD          ID=24 HYD NO=20SUME  IDS=23 AND 3
PRINT HYD        ID=24 CODE=1
*
*S Add D2 for Total Street Flow (D2 + 20SUME)
ADD HYD          ID=25 HYD NO=20SUME  IDS=24 AND 2
PRINT HYD        ID=25 CODE=1
*
*S Add East and West for Total Site Flow (20TOT + 10TOT)
ADD HYD          ID=31 HYD NO=301SUMA  IDS=25 AND 20
PRINT HYD        ID=31 CODE=1
*
*S Sub-BASIN OFF SITE CHURCH AT HISTORIC UNDEVELOPED RATE****
COMPUTE NM HYD   ID=9 HYD NO=CHURCH DA=0.013240 SQ MI
                  PER A=100 PER B=0 PER C=0 PER D=0
                  TP=-0.1333 HR MASS RAIN=-1
                  *****
PRINT HYD        ID=9 CODE=1
*
*S Add for Total pond Inflow (CHURCH + 100TOT)
ADD HYD          ID=30 HYD NO=PONDIN  IDS=9 AND 31
PRINT HYD        ID=30 CODE=1
*
*
*****
ROUTE RESERVOIR  ID=40  HYD NO=PONDOUT  INFLOW=30  CODE=1
                  OUTFLOW(CFS)  STORAGE(AC-FT)  ELEV
                  0.0           0.0000          10.3
                  0.10          0.56            10.5
                  2.46          1.87            11.0
                  3.24          2.15            11.1
                  4.44          2.70            11.3
                  5.40          3.25            11.5
                  8.00          3.26            12.0
                  50.0          5.0000          12.1
*
*****
*PRINT HYD      ID=40 CODE=1

FINISH

```

AHYMO SUMMARY

		FROM	TO		PEAK	RUNOFF		TIME TO	CFS	PAGE =	1
COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.660
COMPUTE NM HYD	LOTS89	-	1	.02222	57.59	2.682	2.26248	1.500	4.049	PER IMP=	90.00
COMPUTE NM HYD	LOT1	-	2	.00159	4.13	.192	2.26249	1.500	4.064	PER IMP=	90.00
COMPUTE NM HYD	LOT2	-	3	.00115	2.99	.139	2.26249	1.500	4.068	PER IMP=	90.00
COMPUTE NM HYD	LOT3	-	4	.00141	3.66	.170	2.26249	1.500	4.065	PER IMP=	90.00
COMPUTE NM HYD	LOT4	-	5	.00157	4.07	.189	2.26249	1.500	4.064	PER IMP=	90.00
COMPUTE NM HYD	LOT5	-	6	.00110	2.86	.132	2.26249	1.500	4.068	PER IMP=	90.00
COMPUTE NM HYD	LOT6	-	7	.00182	4.73	.219	2.26249	1.500	4.061	PER IMP=	90.00
COMPUTE NM HYD	LOT7	-	8	.00212	5.50	.255	2.26249	1.500	4.059	PER IMP=	90.00
*S Flow at SW Intersection (D1 + D8)											
ADD HYD	20SUMA	1& 8	20	.02434	63.09	2.937	2.26246	1.500	4.050		
*S Add D6 (D6 + 20SUMA)											
ADD HYD	20SUMB	6& 7	21	.00292	7.58	.352	2.26228	1.500	4.064		
*S Add D5 (D5 + 20SUMB)											
ADD HYD	20SUMC	21& 5	22	.00448	11.65	.541	2.26228	1.500	4.064		
*S Add D4 (D4 + 20SUMC)											
ADD HYD	20SUMD	22& 4	23	.00589	15.32	.710	2.26227	1.500	4.064		
*S Add D2 (D3 + 20SUME)											
ADD HYD	20SUME	23& 3	24	.00704	18.30	.849	2.26226	1.500	4.065		
*S Add D2 for Total Street Flow (D2 + 20SUME)											
ADD HYD	20SUME	24& 2	25	.00863	22.44	1.041	2.26227	1.500	4.065		
*S Add East and West for Total Site Flow (20TOT + 10TOT)											
ADD HYD	30ISUMA	25&20	31	.03296	85.53	3.978	2.26241	1.500	4.054		
*S Sub-BASIN OFF SITE CHURCH AT HISTORIC UNDEVELOPED RATE****											
COMPUTE NM HYD	CHURCH	-	9	.01324	10.68	.304	.43051	1.500	1.260	PER IMP=	.00
*S Add for Total pond Inflow (CHURCH + 100TOT)											
ADD HYD	PONDIN	9&31	30	.04620	96.21	4.282	1.73748	1.500	3.253		
ROUTE RESERVOIR	PONDOUT	30	40	.04620	4.92	3.695	1.49956	2.350	.166	AC-FT=	2.976
FINISH											

AHYMO OUPUT

*
START
RAINFALL

TIME=0.0 HR PUNCH CODE=0 PRINT LINES=-6
TYPE=2 RAIN QUARTER=0.0
RAIN ONE=1.84 IN RAIN SIX=2.20 IN
RAIN DAY=2.66 IN DT=0.05 HRS

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .050000 HOURS END TIME = 24.000000 HOURS

.0000	.0030	.0060	.0091	.0124	.0158	.0193
.0229	.0266	.0306	.0347	.0390	.0435	.0482
.0532	.0584	.0640	.0700	.0764	.0833	.0908
.0986	.1071	.1320	.1906	.2915	.4476	.6723
.9796	1.2219	1.3314	1.4228	1.5028	1.5744	1.6393
1.6984	1.7527	1.8027	1.8488	1.8914	1.9308	1.9400
1.9485	1.9564	1.9639	1.9709	1.9776	1.9839	1.9899
1.9957	2.0013	2.0066	2.0117	2.0167	2.0215	2.0261
2.0306	2.0350	2.0393	2.0434	2.0475	2.0514	2.0553
2.0590	2.0627	2.0663	2.0698	2.0732	2.0766	2.0799
2.0832	2.0864	2.0895	2.0926	2.0956	2.0986	2.1015
2.1044	2.1072	2.1100	2.1128	2.1155	2.1182	2.1208
2.1234	2.1260	2.1285	2.1310	2.1335	2.1359	2.1383
2.1407	2.1431	2.1454	2.1477	2.1500	2.1522	2.1544
2.1566	2.1588	2.1610	2.1631	2.1652	2.1673	2.1694
2.1714	2.1734	2.1754	2.1774	2.1794	2.1814	2.1833
2.1852	2.1871	2.1890	2.1909	2.1927	2.1946	2.1964
2.1982	2.2000	2.2020	2.2039	2.2059	2.2078	2.2097
2.2117	2.2136	2.2155	2.2174	2.2193	2.2212	2.2231
2.2249	2.2268	2.2287	2.2305	2.2324	2.2342	2.2361
2.2379	2.2398	2.2416	2.2434	2.2452	2.2470	2.2488
2.2506	2.2524	2.2542	2.2559	2.2577	2.2595	2.2612
2.2630	2.2647	2.2665	2.2682	2.2700	2.2717	2.2734
2.2751	2.2768	2.2785	2.2802	2.2819	2.2836	2.2853
2.2870	2.2887	2.2903	2.2920	2.2937	2.2953	2.2970
2.2986	2.3002	2.3019	2.3035	2.3051	2.3068	2.3084
2.3100	2.3116	2.3132	2.3148	2.3164	2.3180	2.3196
2.3212	2.3227	2.3243	2.3259	2.3274	2.3290	2.3305
2.3321	2.3336	2.3352	2.3367	2.3383	2.3398	2.3413
2.3428	2.3444	2.3459	2.3474	2.3489	2.3504	2.3519
2.3534	2.3549	2.3563	2.3578	2.3593	2.3608	2.3622
2.3637	2.3652	2.3666	2.3681	2.3695	2.3710	2.3724
2.3739	2.3753	2.3767	2.3782	2.3796	2.3810	2.3824
2.3839	2.3853	2.3867	2.3881	2.3895	2.3909	2.3923
2.3937	2.3951	2.3965	2.3978	2.3992	2.4006	2.4020
2.4033	2.4047	2.4061	2.4074	2.4088	2.4101	2.4115
2.4128	2.4142	2.4155	2.4168	2.4182	2.4195	2.4208
2.4222	2.4235	2.4248	2.4261	2.4274	2.4287	2.4300
2.4314	2.4327	2.4340	2.4352	2.4365	2.4378	2.4391
2.4404	2.4417	2.4430	2.4442	2.4455	2.4468	2.4480
2.4493	2.4506	2.4518	2.4531	2.4543	2.4556	2.4568
2.4581	2.4593	2.4606	2.4618	2.4630	2.4643	2.4655
2.4667	2.4680	2.4692	2.4704	2.4716	2.4728	2.4740
2.4753	2.4765	2.4777	2.4789	2.4801	2.4813	2.4825
2.4837	2.4849	2.4860	2.4872	2.4884	2.4896	2.4908
2.4919	2.4931	2.4943	2.4955	2.4966	2.4978	2.4990
2.5001	2.5013	2.5024	2.5036	2.5047	2.5059	2.5070
2.5082	2.5093	2.5105	2.5116	2.5127	2.5139	2.5150
2.5161	2.5172	2.5184	2.5195	2.5206	2.5217	2.5229
2.5240	2.5251	2.5262	2.5273	2.5284	2.5295	2.5306
2.5317	2.5328	2.5339	2.5350	2.5361	2.5372	2.5383
2.5394	2.5404	2.5415	2.5426	2.5437	2.5448	2.5458
2.5469	2.5480	2.5490	2.5501	2.5512	2.5522	2.5533
2.5544	2.5554	2.5565	2.5575	2.5586	2.5596	2.5607
2.5617	2.5628	2.5638	2.5649	2.5659	2.5669	2.5680
2.5690	2.5700	2.5711	2.5721	2.5731	2.5741	2.5752
2.5762	2.5772	2.5782	2.5792	2.5803	2.5813	2.5823
2.5833	2.5843	2.5853	2.5863	2.5873	2.5883	2.5893

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

* *****
*

*** Sub-BASIN D1 ***

COMPUTE NM HYD ID=1 HYD NO=LOTS89 DA=0.0222234 SQ MI
PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 78.965 CFS UNIT VOLUME = .9990 B = 526.28 P60 = 1.8400
AREA = .020001 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = 5.9091 CFS UNIT VOLUME = .9991 B = 354.44 P60 = 1.8400
AREA = .002222 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

* *****
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA LOTS89

RUNOFF VOLUME = 2.26248 INCHES = 2.6816 ACRE-FEET
PEAK DISCHARGE RATE = 57.59 CFS AT 1.500 HOURS BASIN AREA = .0222 SQ. MI.

*
*** Sub-BASIN D2 ***

COMPUTE NM HYD ID=2 HYD NO=LOT1 DA=0.001589 SQ MI
PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.6461 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8400
AREA = .001430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .42251 CFS UNIT VOLUME = .9700 B = 354.44 P60 = 1.8400
AREA = .000159 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

* *****
PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA LOTS89

RUNOFF VOLUME = 2.26248 INCHES = 2.6816 ACRE-FEET
PEAK DISCHARGE RATE = 57.59 CFS AT 1.500 HOURS BASIN AREA = .0222 SQ. MI.

*

*** Sub-BASIN D3 ***

COMPUTE NM HYD ID=3 HYD NO=LOT2 DA=0.001148 SQ MI
PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.0791 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8400
AREA = .001033 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .30525 CFS UNIT VOLUME = .9599 B = 354.44 P60 = 1.8400
AREA = .000115 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

* *****
PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA LOT2

RUNOFF VOLUME = 2.26249 INCHES = .1385 ACRE-FEET
PEAK DISCHARGE RATE = 2.99 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

*
*** Sub-BASIN D4 ***

COMPUTE NM HYD ID=4 HYD NO=LOT3 DA=0.001407 SQ MI
PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.9994 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8400
AREA = .001266 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .37412 CFS UNIT VOLUME = .9653 B = 354.44 P60 = 1.8400
AREA = .000141 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

* *****
PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA LOT3

RUNOFF VOLUME = 2.26249 INCHES = .1698 ACRE-FEET
PEAK DISCHARGE RATE = 3.66 CFS AT 1.500 HOURS BASIN AREA = .0014 SQ. MI.

*
*** Sub-BASIN D5 ***

COMPUTE NM HYD ID=5 HYD NO=LOT4 DA=0.001565 SQ MI
PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.5608 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8400
AREA = .001409 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .41613 CFS UNIT VOLUME = .9700 B = 354.44 P60 = 1.8400
AREA = .000157 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

```

*
*****
PRINT HYD          ID=5 CODE=1

                      HYDROGRAPH FROM AREA LOT4

RUNOFF VOLUME =      2.26249 INCHES      =      .1888 ACRE-FEET
PEAK DISCHARGE RATE =      4.07 CFS AT 1.500 HOURS BASIN AREA = .0016 SQ. MI.

*
*** Sub-BASIN D6 ****
COMPUTE NM HYD      ID=6 HYD NO=LOT5 DA=0.001097 SQ MI
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.8979 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8400
AREA = .000987 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .29169 CFS UNIT VOLUME = .9599 B = 354.44 P60 = 1.8400
AREA = .000110 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

*
*****
PRINT HYD          ID=6 CODE=1

                      HYDROGRAPH FROM AREA LOT5

RUNOFF VOLUME =      2.26249 INCHES      =      .1324 ACRE-FEET
PEAK DISCHARGE RATE =      2.86 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

*
*** Sub-BASIN D7 ****
COMPUTE NM HYD      ID=7 HYD NO=LOT6 DA=0.001819 SQ MI
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.4634 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 1.8400
AREA = .001637 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .48367 CFS UNIT VOLUME = .9741 B = 354.44 P60 = 1.8400
AREA = .000182 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

*
*****
PRINT HYD          ID=7 CODE=1

                      HYDROGRAPH FROM AREA LOT6

RUNOFF VOLUME =      2.26249 INCHES      =      .2195 ACRE-FEET
PEAK DISCHARGE RATE =      4.73 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

*
*** Sub-BASIN D8 ****
COMPUTE NM HYD      ID=8 HYD NO=LOT7 DA=0.002116 SQ MI

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Coors Pavilion Master Drainage Plan

PER A=0 PER B=5 PER C=5 PER D=90
TP=-0.1333 HR MASS RAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.5187 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.8400
AREA = .001904 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118524HR TP = .133300HR K/TP RATIO = .889153 SHAPE CONSTANT, N = 3.989065
UNIT PEAK = .56264 CFS UNIT VOLUME = .9777 B = 354.44 P60 = 1.8400
AREA = .000212 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

* *****
PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA LOT7

RUNOFF VOLUME = 2.26249 INCHES = .2553 ACRE-FEET
PEAK DISCHARGE RATE = 5.50 CFS AT 1.500 HOURS BASIN AREA = .0021 SQ. MI.

*
*
*S Flow at SW Intersection (D1 + D8)
ADD HYD ID=20 HYD NO=20SUMA IDS=1 AND 8
PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 20SUMA

RUNOFF VOLUME = 2.26246 INCHES = 2.9369 ACRE-FEET
PEAK DISCHARGE RATE = 63.09 CFS AT 1.500 HOURS BASIN AREA = .0243 SQ. MI.

*
*S Add D6 (D6 + 20SUMA)
ADD HYD ID=21 HYD NO=20SUMB IDS=6 AND 7
PRINT HYD ID=21 CODE=1

HYDROGRAPH FROM AREA 20SUMB

RUNOFF VOLUME = 2.26228 INCHES = .3518 ACRE-FEET
PEAK DISCHARGE RATE = 7.58 CFS AT 1.500 HOURS BASIN AREA = .0029 SQ. MI.

*
*S Add D5 (D5 + 20SUMB)
ADD HYD ID=22 HYD NO=20SUMC IDS=21 AND 5
PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA 20SUMC

RUNOFF VOLUME = 2.26228 INCHES = .5407 ACRE-FEET
PEAK DISCHARGE RATE = 11.65 CFS AT 1.500 HOURS BASIN AREA = .0045 SQ. MI.

*
*S Add D4 (D4 + 20SUMC)
ADD HYD ID=23 HYD NO=20SUMD IDS=22 AND 4
PRINT HYD ID=23 CODE=1

HYDROGRAPH FROM AREA 20SUMD

RUNOFF VOLUME = 2.26227 INCHES = .7104 ACRE-FEET
 PEAK DISCHARGE RATE = 15.32 CFS AT 1.500 HOURS BASIN AREA = .0059 SQ. MI.

*

*S Add D2 (D3 + 20SUME)
 ADD HYD ID=24 HYD NO=20SUME IDS=23 AND 3
 PRINT HYD ID=24 CODE=1

HYDROGRAPH FROM AREA 20SUME

RUNOFF VOLUME = 2.26226 INCHES = .8489 ACRE-FEET
 PEAK DISCHARGE RATE = 18.30 CFS AT 1.500 HOURS BASIN AREA = .0070 SQ. MI.

*

*S Add D2 for Total Street Flow (D2 + 20SUME)
 ADD HYD ID=25 HYD NO=20SUME IDS=24 AND 2
 PRINT HYD ID=25 CODE=1

HYDROGRAPH FROM AREA 20SUME

RUNOFF VOLUME = 2.26227 INCHES = 1.0406 ACRE-FEET
 PEAK DISCHARGE RATE = 22.44 CFS AT 1.500 HOURS BASIN AREA = .0086 SQ. MI.

*

*S Add East and West for Total Site Flow (20TOT + 10TOT)
 ADD HYD ID=31 HYD NO=301SUMA IDS=25 AND 20
 PRINT HYD ID=31 CODE=1

HYDROGRAPH FROM AREA 301SUMA

RUNOFF VOLUME = 2.26241 INCHES = 3.9775 ACRE-FEET
 PEAK DISCHARGE RATE = 85.53 CFS AT 1.500 HOURS BASIN AREA = .0330 SQ. MI.

*

*S Sub-BASIN OFF SITE CHURCH AT HISTORIC UNDEVELOPED RATE****
 COMPUTE NM HYD ID=9 HYD NO=CHURCH DA=0.013240 SQ MI
 PER A=100 PER B=0 PER C=0 PER D=0
 TP=-0.1333 HR MASS RAIN=-1

K = .164440HR TP = .133300HR K/TP RATIO = 1.233609 SHAPE CONSTANT, N = 2.887705
 UNIT PEAK = 27.069 CFS UNIT VOLUME = .9978 B = 272.53 P60 = 1.8400
 AREA = .013240 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

*

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA CHURCH

RUNOFF VOLUME = .43051 INCHES = .3040 ACRE-FEET
 PEAK DISCHARGE RATE = 10.68 CFS AT 1.500 HOURS BASIN AREA = .0132 SQ. MI.

*

*S Add for Total pond Inflow (CHURCH + 100TOT)
 ADD HYD ID=30 HYD NO=PONDIN IDS=9 AND 31

Coors Pavilion Master Drainage Plan

PRINT HYD

ID=30 CODE=1

HYDROGRAPH FROM AREA PONDIN

RUNOFF VOLUME = 1.73748 INCHES = 4.2815 ACRE-FEET
 PEAK DISCHARGE RATE = 96.21 CFS AT 1.500 HOURS BASIN AREA = .0462 SQ. MI.

*
 *

 ROUTE RESERVOIR ID=40 HYD NO=PONDOUT INFLOW=30 CODE=1
 OUTFLOW(CFS) STORAGE(AC-FT) ELEV
 0.0 0.0000 10.3
 0.10 0.49 10.5
 2.46 1.87 11.0
 3.24 2.15 11.1
 4.44 2.70 11.3
 5.40 3.25 11.5
 8.00 3.26 12.0
 50.0 5.0000 12.1

* * * * *
 TIME INFLOW ELEV VOLUME OUTFLOW
 (HRS) (CFS) (FEET) (AC-FT) (CFS)
 .00 .00 10.30 .000 .00
 1.40 56.75 10.46 .394 .08
 1.45 83.82 10.57 .684 .43
 1.50 96.21 10.70 1.053 1.06
 1.55 85.06 10.84 1.421 1.69
 1.60 66.35 10.95 1.726 2.21
 1.65 52.27 11.03 1.961 2.71
 1.70 43.14 11.10 2.146 3.23
 1.75 37.13 11.15 2.298 3.56
 1.80 32.70 11.20 2.427 3.84
 1.85 29.08 11.24 2.538 4.09
 1.90 26.07 11.28 2.635 4.30
 1.95 23.58 11.31 2.719 4.47
 2.00 21.49 11.33 2.793 4.60
 2.05 19.29 11.36 2.858 4.72
 2.10 15.12 11.38 2.910 4.81
 2.15 10.78 11.39 2.943 4.86
 2.20 8.04 11.40 2.962 4.90
 2.25 6.43 11.40 2.972 4.91
 2.30 5.41 11.40 2.976 4.92
 2.35 4.67 11.40 2.976 4.92
 2.40 4.05 11.40 2.974 4.92
 2.45 3.53 11.40 2.969 4.91
 2.50 3.10 11.40 2.963 4.90
 2.55 2.75 11.39 2.955 4.88
 2.60 2.44 11.39 2.945 4.87
 2.65 2.18 11.39 2.935 4.85
 2.70 1.96 11.38 2.923 4.83
 2.75 1.78 11.38 2.911 4.81
 2.80 1.62 11.37 2.898 4.79
 2.85 1.48 11.37 2.885 4.76
 2.90 1.36 11.36 2.871 4.74
 2.95 1.27 11.36 2.857 4.71
 3.00 1.17 11.35 2.843 4.69
 3.05 1.09 11.35 2.828 4.66
 3.10 1.03 11.34 2.813 4.64
 3.15 .97 11.34 2.798 4.61
 3.20 .92 11.33 2.783 4.58
 3.25 .87 11.32 2.768 4.56
 3.30 .83 11.32 2.753 4.53
 3.35 .80 11.31 2.737 4.51
 3.40 .76 11.31 2.722 4.48
 3.45 .74 11.30 2.707 4.45

Coors Pavilion Master Drainage Plan

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
3.50	.72	11.30	2.691	4.42
3.55	.70	11.29	2.676	4.39
3.60	.69	11.29	2.661	4.35
3.65	.67	11.28	2.646	4.32
3.70	.65	11.27	2.631	4.29
3.75	.64	11.27	2.616	4.26
3.80	.62	11.26	2.601	4.22
3.85	.61	11.26	2.586	4.19
3.90	.60	11.25	2.571	4.16
3.95	.59	11.25	2.556	4.13
4.00	.59	11.24	2.542	4.10
4.05	.59	11.24	2.528	4.06
4.10	.58	11.23	2.513	4.03
4.15	.58	11.23	2.499	4.00
4.20	.57	11.22	2.485	3.97
4.25	.56	11.22	2.471	3.94
4.30	.56	11.21	2.457	3.91
4.35	.56	11.21	2.443	3.88
4.40	.56	11.20	2.430	3.85
4.45	.56	11.20	2.416	3.82
4.50	.56	11.19	2.403	3.79
4.55	.55	11.19	2.389	3.76
4.60	.56	11.18	2.376	3.73
4.65	.56	11.18	2.363	3.70
4.70	.56	11.17	2.350	3.68
4.75	.56	11.17	2.337	3.65
4.80	.56	11.16	2.325	3.62
4.85	.56	11.16	2.312	3.59
4.90	.56	11.15	2.300	3.57
4.95	.56	11.15	2.287	3.54
5.00	.57	11.15	2.275	3.51
5.05	.58	11.14	2.263	3.49
5.10	.58	11.14	2.251	3.46
5.15	.58	11.13	2.239	3.43
5.20	.59	11.13	2.227	3.41
5.25	.59	11.12	2.216	3.38
16.20	.44	10.70	1.054	1.06
16.25	.44	10.70	1.051	1.06
16.30	.44	10.70	1.049	1.06
16.35	.44	10.70	1.046	1.05
16.40	.44	10.70	1.044	1.05
16.45	.44	10.70	1.041	1.04
16.50	.44	10.70	1.039	1.04
16.55	.44	10.70	1.036	1.03
16.60	.44	10.70	1.034	1.03
16.65	.44	10.70	1.031	1.03
16.70	.43	10.70	1.029	1.02
16.75	.44	10.69	1.027	1.02
16.80	.44	10.69	1.024	1.01
16.85	.43	10.69	1.022	1.01
16.90	.43	10.69	1.019	1.01
16.95	.43	10.69	1.017	1.00
17.00	.43	10.69	1.015	1.00
17.05	.43	10.69	1.012	.99
17.10	.43	10.69	1.010	.99
17.15	.43	10.69	1.008	.99
17.20	.43	10.69	1.005	.98
17.25	.43	10.69	1.003	.98
17.30	.43	10.69	1.001	.97
17.35	.42	10.68	.999	.97
17.40	.42	10.68	.996	.97
17.45	.42	10.68	.994	.96
17.50	.42	10.68	.992	.96
17.55	.42	10.68	.990	.95
17.60	.42	10.68	.988	.95
17.65	.42	10.68	.985	.95
17.70	.42	10.68	.983	.94

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
17.75	.42	10.68	.981	.94
17.80	.42	10.68	.979	.94
17.85	.42	10.68	.977	.93
17.90	.42	10.68	.975	.93
17.95	.41	10.67	.973	.93
18.00	.41	10.67	.970	.92
24.00	.34	10.61	.786	.61
25.00	.00	10.59	.744	.53
26.00	.00	10.58	.703	.46
27.00	.00	10.56	.667	.40
28.00	.00	10.55	.636	.35
29.00	.00	10.54	.609	.30

PEAK DISCHARGE = 4.922 CFS - PEAK OCCURS AT HOUR 2.35
MAXIMUM WATER SURFACE ELEVATION = 11.400
MAXIMUM STORAGE = 2.9763 AC-FT INCREMENTAL TIME= .050000HRS

* *****
*PRINT HYD ID=40 CODE=1
*
*
*
FINISH