

L10D030
DRAINAGE SUPPLEMENT
SAGE PARK SUBDIVISION
FOR
SAGE / COORS POND
CAPACITY & DISCHARGE ANALYSIS
ALBUQUERQUE, NM
March 2020



The HENSLEY ENGINEERING GROUP

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ATTACHMENT

[Sage Pond Basin Map.pdf](#)

I. PURPOSE

This report is submitted in support for the Grading and Drainage Plan of Sage Park Subdivision. The report provides a description and summary of the hydrology and hydraulic conditions of the drainage design of Sage Pond depicted below

II. INTRODUCTION

The Sage Pond, shown below, is located at the intersection of Sage Road and Coors Blvd. The pond was constructed in association with the extension and widening of Coors Blvd. The intent of the pond, as designed and constructed circa 1988 under City project North / South Coors Connection #189389, is to capture all flows within the area east of the Amole channel to Coors Blvd encompassing approximately 50 acres. Runoff from the basin surface flows to the southwest with the area north of San Ygnacio Road combining with Coors runoff to be captured by the storm drain with outflow to Sage Pond.



Figure 1 - Sage Pond 2014

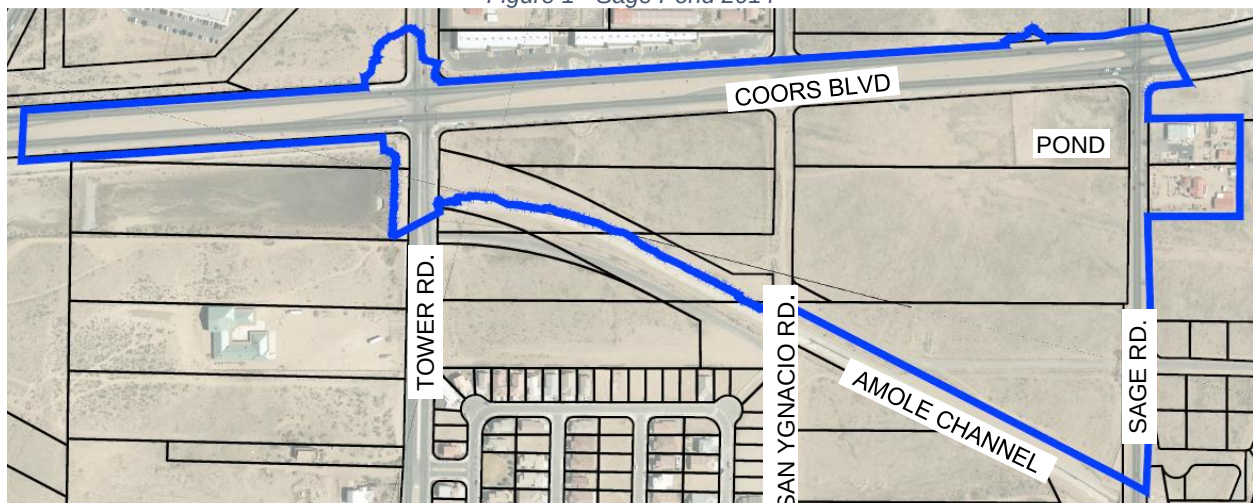


Figure 2 - Sage Pond Basin

III. HYDROLOGY

This report assumes a fully developed condition of the basin being analyzed. The table below summarizes the runoff from the conditions as depicted on the attached Basin Map.

BASIN	AREA (ACRES)	LAND TREATMENT PERCENTAGES BY TYPE				YIELD (CFS/AC)	Q ¹⁰⁰ (CFS)	V ¹⁰⁰⁻²⁴ (AC.FT.)
1	14.88	0	0	10	90	3.82	56.76	2.74
2	2.61	0	0	10	90	3.82	9.97	0.48
3	8.49	0	0	15	85	3.74	31.78	1.52
4	6.36	0	0	15	85	3.74	23.82	1.14
5	1.99	0	0	15	85	3.74	7.46	0.36
6	13.58	0	0	15	85	3.74	50.81	2.42
7	1.63	0	0	15	85	3.74	6.13	0.29
TOTAL	49.55					3.78	186.73	8.94

Table 1 - SAGE POND RUNOFF SUMMARY

IV. HYDRAULICS

The Sage Pond was constructed to have a maximum depth of 9.5 feet with a maximum volume of 8.4-acre feet.

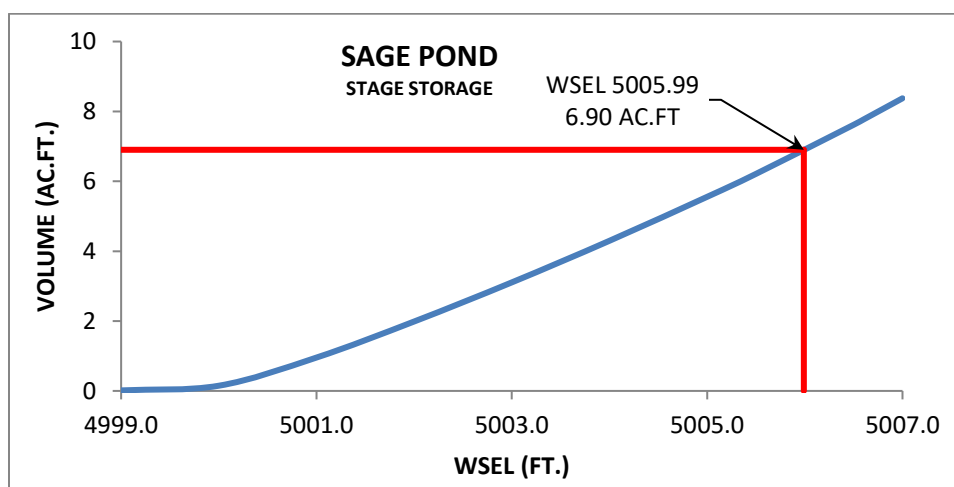


Figure 3 – Sage Pond Storage Curve

As outlined above, the pond has a high volume to basin area ratio. The detained volume is in excess of 75% of the total developed runoff from the basin. This is due to the design of the outflow restriction. The limited capacity of the downstream storm drain from the pond discharge required limiting the outflow from the pond to minimal levels.

As shown above, the outfall restriction detains 6.9 acre feet to 80% of the pond capacity with a WSEL 1 foot below the pond rim. The hydraulic analysis of the following section demonstrates how the discharge is limited to less than 3 cfs within an overflow elevation of 5006.00.

As shown below, the majority of the runoff from the basin is detained with an average discharge rate from the pond of 1.82 cfs. This rate discharges approximately half of the runoff during the duration of the storm. The remaining detained volume is discharged over the following 24 hours.

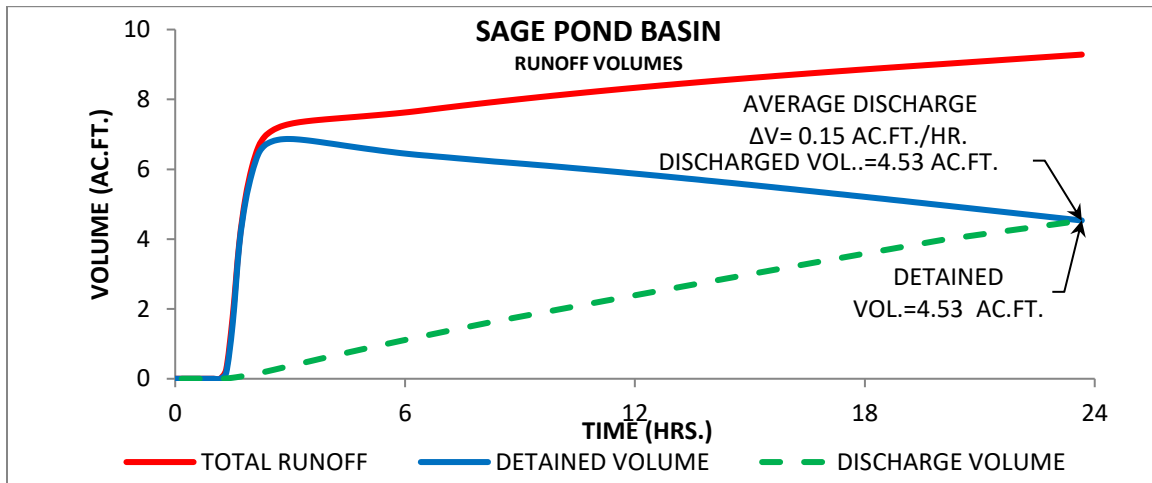


Figure 4 – Runoff Volume vs. Detained and Discharge Volume

The pond outflow and over flow structure, as detailed on the attached Sage Pond Basin Map, consists of an 18" CMP standpipe projecting from the junction box of the 24" RCP outflow pipe. As shown below, the rating curve of the outflow is based on the flow through 28 1-½ inch orifice openings in the side of the CMP standpipe.

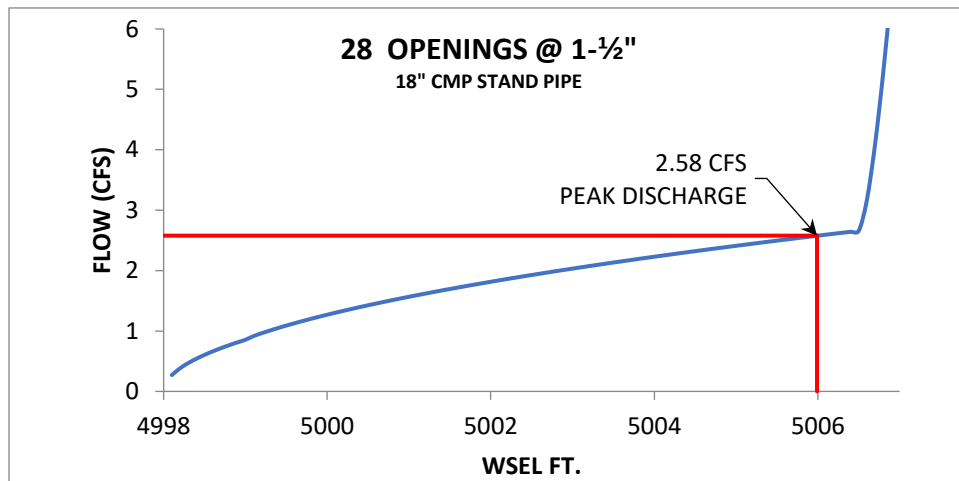


Figure 5 – Pond Discharge Rating Curve

V. CURRENT CONDITION HYDRAULICS

As depicted below, the Sage / Coors Pond was modified in approximately. The maintenance plug was removed from the outfall structure to fully open the 24" RCP as the control for discharge.



Figure 6 - Damaged Outfall



Figure 7 - Erosion from Modified Outfall

Given the original design and the flow constraints of the downstream storm drain, this change seems inappropriate. As can be seen in the figure below, this discharge configuration has essentially minimized the outflow restriction leading to a discharge rate in excess of 25 cfs. The rate of discharge detains a minimal volume within the pond.

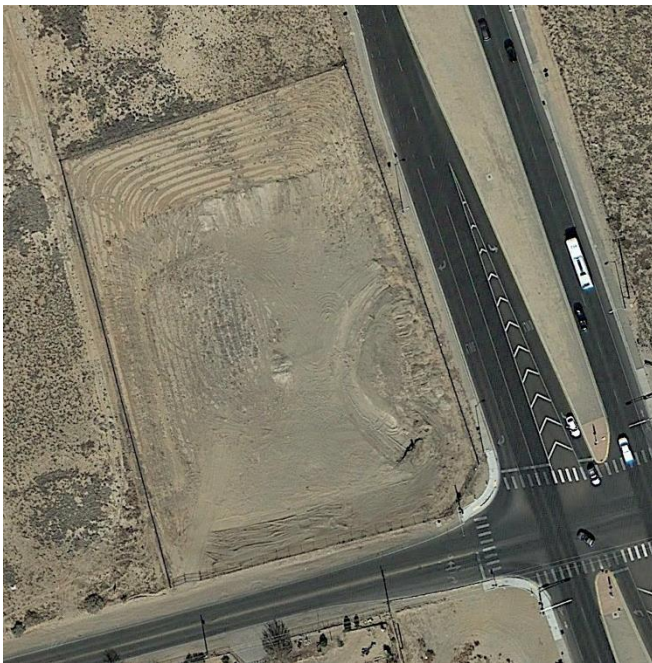


Figure 8 Sage Pond 2017

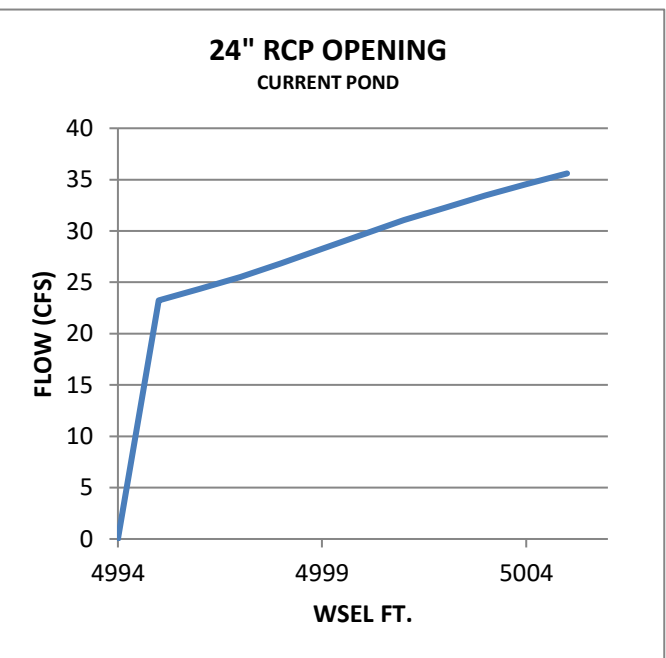


Figure 9 Sage Pond Modified Discharge Curve

The erosion due to the removal of the maintenance plug is apparent in the above figures and is detrimental to the drainage system.

VI. SUMMARY AND CONCLUSION

The Sage Pond, as designed, functions adequately to accept the prescribed flows from the basin. However, the design condition must be restored to provide protections of the downstream system.

VII. APPENDIX

Runoff Calculations / AHYMO

```

* Project SAGE POND
* DESIGNED 24 HOUR RAINFALL TABLE
RAINFALL          TYPE=2  RAIN QUARTER=0
                   RAIN ONE=1.87 IN  RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN  DT=0.03333 HRS
*****

*S  COMPUTE HYD BASIN UNSER STORM DRAIN
COMPUTE NM HYD    ID=1  HYDNO=101  AREA=0.023247 SQ MI
                  PER A=0 PER B=0 PER C=10 PER D=90
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=1  CODE=1
*

*S  COMPUTE HYD BASIN SAGE ROAD
COMPUTE NM HYD    ID=2  HYDNO=102  AREA=0.004078 SQ MI
                  PER A=0 PER B=0 PER C=10 PER D=90
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=2  CODE=1
*

*S  COMPUTE HYD BASIN TRACTS 359 TO 361
COMPUTE NM HYD    ID=3  HYDNO=103  AREA=0.013268 SQ MI
                  PER A=0 PER B=0 PER C=15 PER D=85
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=3  CODE=1
*

*S  COMPUTE HYD BASIN TRACT 400A
COMPUTE NM HYD    ID=4  HYDNO=104  AREA=0.009943 SQ MI
                  PER A=0 PER B=0 PER C=15 PER D=85
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=3  CODE=1
*

*S  COMPUTE HYD BASIN TRACT DEVELOPED LOTS
COMPUTE NM HYD    ID=5  HYDNO=105  AREA=0.003108 SQ MI
                  PER A=0 PER B=0 PER C=15 PER D=85
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=5  CODE=1
*

*S  COMPUTE HYD BASIN TRACTSS 401 AND 402A

COMPUTE NM HYD    ID=6  HYDNO=106  AREA=0.02122 SQ MI
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                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=6  CODE=1
*

*S  COMPUTE HYD BASIN POND
COMPUTE NM HYD    ID=7  HYDNO=107  AREA=0.002554 SQ MI
                  PER A=0 PER B=0 PER C=15 PER D=85
                  TP=.1667 HR MASS RAIN=-1

PRINT HYD        ID=7  CODE=1

```


DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

```

*
ADD HYD                      ID=10 HYDNO=201
                             ID=1 ID=2
PRINT HYD                    ID=10 CODE=5
*
ADD HYD                      ID=11 HYDNO=201
                             ID=10 ID=3
PRINT HYD                    ID=11 CODE=5
*
ADD HYD                      ID=12 HYDNO=301
                             ID=11 ID=4
PRINT HYD                    ID=12 CODE=5
*
ADD HYD                      ID=13 HYDNO=301
                             ID=12 ID=5
PRINT HYD                    ID=13 CODE=5
*
ADD HYD                      ID=14 HYDNO=301
                             ID=13 ID=6
PRINT HYD                    ID=14 CODE=5
*
ADD HYD                      ID=15 HYDNO=301
                             ID=14 ID=7
PRINT HYD                    ID=15 CODE=5
*
*****
ROUTE RESERVOIR             ID=20 HYD=301 INFLOW ID=15 CODE=5
      OUTFLOW                STORAGE          ELEV
      (CFS)                  (AC-FT)          (FT)
      0.00                   0.0000          4998
      0.85                   0.0153          4999
      1.27                   0.1487          5000
      1.57                   0.9548          5001
      1.81                   1.9868          5002
      2.03                   3.1062          5003
      2.23                   4.2974          5004
      2.41                   5.5558          5005
      2.50                   6.2122          5005.5
      2.66                   7.6172          5006.5
      3.17                   7.7668          5006.6
      8.28                   8.3754          5007
                             PRINT HYD                ID=20 CODE=5
*****
*
FINISH

```

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
 INPUT FILE = C:\DOCUME~1\Ron\Desktop\SAGEPO~1.HMI

- VERSION: 1997.02c

RUN DATE (MON/DAY/YR) =03/14/2020
 USER NO.= AHYMO-I-9702c01000Q29-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
RAINFALL TYPE= 2										RAIN24= 2.660
*S COMPUTE HYD BASIN UNSE	STORM DRAIN									
COMPUTE NM HYD	101.00	-	1	.02325	56.76	2.739	2.20911	1.533	3.815	PER IMP= 90.00
*S COMPUTE HYD BASIN SAGE ROAD										
COMPUTE NM HYD	102.00	-	2	.00408	9.97	.480	2.20913	1.533	3.821	PER IMP= 90.00
*S COMPUTE HYD BASIN TRACTS 359 TO 361										
COMPUTE NM HYD	103.00	-	3	.01327	31.78	1.515	2.14163	1.533	3.742	PER IMP= 85.00
*S COMPUTE HYD BASIN TRACT 400A										
COMPUTE NM HYD	104.00	-	4	.00994	23.82	1.136	2.14163	1.533	3.743	PER IMP= 85.00
*S COMPUTE HYD BASIN TRACT DEVELOPED LOTS										
COMPUTE NM HYD	105.00	-	5	.00311	7.46	.355	2.14166	1.533	3.749	PER IMP= 85.00
*S COMPUTE HYD BASIN TRACTS 401 AND 402A										
COMPUTE NM HYD	106.00	-	6	.02122	50.81	2.424	2.14162	1.533	3.741	PER IMP= 85.00
*S COMPUTE HYD BASIN POND										
COMPUTE NM HYD	107.00	-	7	.00255	6.13	.292	2.14166	1.533	3.751	PER IMP= 85.00
ADD HYD	201.00	1&	2 10	.02733	66.73	3.219	2.20911	1.533	3.816	
ADD HYD	201.00	10&	3 11	.04059	98.51	4.735	2.18705	1.533	3.792	
ADD HYD	301.00	11&	4 12	.05054	122.33	5.871	2.17812	1.533	3.782	
ADD HYD	301.00	12&	5 13	.05364	129.79	6.226	2.17600	1.533	3.780	
ADD HYD	301.00	13&	6 14	.07486	180.60	8.649	2.16626	1.533	3.769	
ADD HYD	301.00	14&	7 15	.07742	186.73	8.941	2.16545	1.533	3.769	
ROUTE RESERVOIR	301.00	15	20	.07742	2.58	3.807	.92193	3.066	.052	AC-FT= 6.901
FINISH										

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

AHYMO PROGRAM (AHYMO_97) -

- Version: 1997.02c

RUN DATE (MON/DAY/YR) = 03/14/2020

START TIME (HR:MIN:SEC) = 19:52:43 USER NO.= AHYMO-I-9702c01000Q29-AH

INPUT FILE = C:\DOCUME~1\Ron\Desktop\SAGEPO~1.HMI

* Project SAGE POND

* DESIGNED 24 HOUR RAINFALL TABLE

RAINFALL

TYPE=2 RAIN QUARTER=0

RAIN ONE=1.87 IN RAIN SIX=2.20 IN

RAIN DAY=2.66 IN DT=0.03333 HRS

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033330 HOURS END TIME = 19.964670 HOURS

.0000	.0016	.0033	.0050	.0067	.0085	.0103
.0122	.0141	.0160	.0180	.0201	.0222	.0243
.0266	.0289	.0312	.0337	.0362	.0388	.0415
.0443	.0472	.0502	.0534	.0567	.0601	.0637
.0675	.0715	.0758	.0809	.0865	.0924	.1050
.1334	.1771	.2398	.3254	.4379	.5814	.7600
.9780	1.1804	1.2649	1.3363	1.3997	1.4575	1.5106
1.5600	1.6061	1.6493	1.6900	1.7284	1.7646	1.7989
1.8314	1.8623	1.8915	1.9193	1.9456	1.9518	1.9576
1.9630	1.9682	1.9732	1.9780	1.9825	1.9869	1.9912
1.9953	1.9993	2.0031	2.0068	2.0104	2.0140	2.0174
2.0207	2.0240	2.0272	2.0303	2.0333	2.0363	2.0392
2.0420	2.0448	2.0475	2.0502	2.0528	2.0554	2.0580
2.0605	2.0629	2.0653	2.0677	2.0700	2.0723	2.0746
2.0768	2.0790	2.0812	2.0833	2.0855	2.0875	2.0896
2.0916	2.0936	2.0956	2.0976	2.0995	2.1014	2.1033
2.1051	2.1070	2.1088	2.1106	2.1124	2.1141	2.1159
2.1176	2.1193	2.1210	2.1227	2.1244	2.1260	2.1276
2.1292	2.1308	2.1324	2.1340	2.1355	2.1371	2.1386
2.1401	2.1416	2.1431	2.1446	2.1460	2.1475	2.1489
2.1504	2.1518	2.1532	2.1546	2.1560	2.1573	2.1587
2.1600	2.1614	2.1627	2.1640	2.1654	2.1667	2.1680
2.1692	2.1705	2.1718	2.1731	2.1743	2.1756	2.1768
2.1780	2.1792	2.1804	2.1817	2.1829	2.1840	2.1852
2.1864	2.1876	2.1887	2.1899	2.1910	2.1922	2.1933
2.1944	2.1956	2.1967	2.1978	2.1989	2.2000	2.2013
2.2026	2.2039	2.2052	2.2065	2.2078	2.2091	2.2103
2.2116	2.2129	2.2142	2.2155	2.2167	2.2180	2.2193
2.2205	2.2218	2.2230	2.2243	2.2255	2.2268	2.2280
2.2293	2.2305	2.2318	2.2330	2.2342	2.2354	2.2367

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2.2379	2.2391	2.2403	2.2415	2.2428	2.2440	2.2452
2.2464	2.2476	2.2488	2.2500	2.2512	2.2524	2.2536
2.2547	2.2559	2.2571	2.2583	2.2595	2.2606	2.2618
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2.2791	2.2802	2.2813	2.2825	2.2836	2.2847	2.2858
2.2870	2.2881	2.2892	2.2903	2.2914	2.2925	2.2936
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2.3100	2.3110	2.3121	2.3132	2.3142	2.3153	2.3164
2.3174	2.3185	2.3195	2.3206	2.3216	2.3227	2.3237
2.3248	2.3258	2.3269	2.3279	2.3290	2.3300	2.3310
2.3321	2.3331	2.3341	2.3352	2.3362	2.3372	2.3382
2.3392	2.3403	2.3413	2.3423	2.3433	2.3443	2.3453
2.3463	2.3473	2.3483	2.3493	2.3503	2.3513	2.3523
2.3533	2.3543	2.3553	2.3563	2.3573	2.3583	2.3593
2.3603	2.3612	2.3622	2.3632	2.3642	2.3651	2.3661
2.3671	2.3681	2.3690	2.3700	2.3710	2.3719	2.3729
2.3738	2.3748	2.3758	2.3767	2.3777	2.3786	2.3796
2.3805	2.3815	2.3824	2.3834	2.3843	2.3852	2.3862
2.3871	2.3881	2.3890	2.3899	2.3909	2.3918	2.3927
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2.4128	2.4137	2.4146	2.4155	2.4164	2.4173	2.4181
2.4190	2.4199	2.4208	2.4217	2.4226	2.4234	2.4243
2.4252	2.4261	2.4270	2.4278	2.4287	2.4296	2.4304
2.4313	2.4322	2.4331	2.4339	2.4348	2.4356	2.4365
2.4374	2.4382	2.4391	2.4399	2.4408	2.4416	2.4425
2.4434	2.4442	2.4450	2.4459	2.4467	2.4476	2.4484
2.4493	2.4501	2.4510	2.4518	2.4526	2.4535	2.4543
2.4551	2.4560	2.4568	2.4576	2.4585	2.4593	2.4601
2.4609	2.4618	2.4626	2.4634	2.4642	2.4651	2.4659
2.4667	2.4675	2.4683	2.4691	2.4700	2.4708	2.4716
2.4724	2.4732	2.4740	2.4748	2.4756	2.4764	2.4772
2.4780	2.4788	2.4796	2.4804	2.4812	2.4820	2.4828
2.4836	2.4844	2.4852	2.4860	2.4868	2.4876	2.4884
2.4892	2.4899	2.4907	2.4915	2.4923	2.4931	2.4939
2.4946	2.4954	2.4962	2.4970	2.4978	2.4985	2.4993
2.5001	2.5008	2.5016	2.5024	2.5032	2.5039	2.5047
2.5055	2.5062	2.5070	2.5078	2.5085	2.5093	2.5100
2.5108	2.5116	2.5123	2.5131	2.5138	2.5146	2.5153
2.5161	2.5168	2.5176	2.5183	2.5191	2.5198	2.5206

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2.5213	2.5221	2.5228	2.5236	2.5243	2.5250	2.5258
2.5265	2.5273	2.5280	2.5287	2.5295	2.5302	2.5309
2.5317	2.5324	2.5331	2.5339	2.5346	2.5353	2.5361
2.5368	2.5375	2.5382	2.5390	2.5397	2.5404	2.5411
2.5418	2.5426	2.5433	2.5440	2.5447	2.5454	2.5462
2.5469	2.5476	2.5483	2.5490	2.5497	2.5504	2.5511
2.5518	2.5526	2.5533	2.5540	2.5547	2.5554	2.5561
2.5568	2.5575	2.5582	2.5589	2.5596	2.5603	2.5610
2.5617	2.5624	2.5631	2.5638	2.5645	2.5652	2.5659
2.5665	2.5672	2.5679	2.5686	2.5693	2.5700	2.5707
2.5714	2.5721	2.5727	2.5734	2.5741	2.5748	2.5755
2.5761	2.5768	2.5775	2.5782	2.5789	2.5795	2.5802
2.5809	2.5816	2.5822	2.5829	2.5836		

*S COMPUTE HYD BASIN UNSER STORM DRAIN

COMPUTE NM HYD ID=1 HYDNO=101 AREA=0.023247 SQ MI

PER A=0 PER B=0 PER C=10 PER D=90

TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 66.052 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.8700
 AREA = .020922 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
 UNIT PEAK = 5.4128 CFS UNIT VOLUME = .9977 B = 388.14 P60 = 1.8700
 AREA = .002325 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = 2.20911 INCHES = 2.7389 ACRE-FEET
 PEAK DISCHARGE RATE = 56.76 CFS AT 1.533 HOURS BASIN AREA = .0232 SQ. MI.

*

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

*S COMPUTE HYD BASIN SAGE ROAD

COMPUTE NM HYD ID=2 HYDNO=102 AREA=0.004078 SQ MI
PER A=0 PER B=0 PER C=10 PER D=90
TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.587 CFS UNIT VOLUME = .9992 B = 526.28 P60 = 1.8700
AREA = .003670 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .94952 CFS UNIT VOLUME = .9861 B = 388.14 P60 = 1.8700
AREA = .000408 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 102.00

RUNOFF VOLUME = 2.20913 INCHES = .4805 ACRE-FEET
PEAK DISCHARGE RATE = 9.97 CFS AT 1.533 HOURS BASIN AREA = .0041 SQ. MI.

*

*S COMPUTE HYD BASIN TRACT A

COMPUTE NM HYD ID=3 HYDNO=103 AREA=0.013268 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 35.604 CFS UNIT VOLUME = .9999 B = 526.28 P60 = 1.8700
AREA = .011278 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = 4.6340 CFS UNIT VOLUME = .9973 B = 388.14 P60 = 1.8700
AREA = .001990 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 2.14163 INCHES = 1.5155 ACRE-FEET
PEAK DISCHARGE RATE = 31.78 CFS AT 1.533 HOURS BASIN AREA = .0133 SQ. MI.

*

*S COMPUTE HYD BASIN TRACT B
COMPUTE NM HYD ID=4 HYDNO=104 AREA=0.009943 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.682 CFS UNIT VOLUME = .9998 B = 526.28 P60 = 1.8700
AREA = .008452 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = 3.4727 CFS UNIT VOLUME = .9965 B = 388.14 P60 = 1.8700
AREA = .001491 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 103.00

RUNOFF VOLUME = 2.14163 INCHES = 1.5155 ACRE-FEET
PEAK DISCHARGE RATE = 31.78 CFS AT 1.533 HOURS BASIN AREA = .0133 SQ. MI.

*

*S COMPUTE HYD BASIN TRACT C
COMPUTE NM HYD ID=5 HYDNO=105 AREA=0.003108 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=.1667 HR MASS RAIN=-1

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.3402 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700
AREA = .002642 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = 1.0855 CFS UNIT VOLUME = .9883 B = 388.14 P60 = 1.8700
AREA = .000466 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=5 CODE=1

PARTIAL HYDROGRAPH 105.00

RUNOFF VOLUME = 2.14166 INCHES = .3550 ACRE-FEET
PEAK DISCHARGE RATE = 7.46 CFS AT 1.533 HOURS BASIN AREA = .0031 SQ. MI.

*

*S COMPUTE HYD BASIN TRACT D
COMPUTE NM HYD ID=6 HYDNO=106 AREA=0.02122 SQ MI
PER A=0 PER B=0 PER C=15 PER D=85
TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 56.943 CFS UNIT VOLUME = 1.000 B = 526.28 P60 = 1.8700
AREA = .018037 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = 7.4113 CFS UNIT VOLUME = .9984 B = 388.14 P60 = 1.8700
AREA = .003183 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 106.00

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

RUNOFF VOLUME = 2.14162 INCHES = 2.4237 ACRE-FEET
 PEAK DISCHARGE RATE = 50.81 CFS AT 1.533 HOURS BASIN AREA = .0212 SQ. MI.

*

*S COMPUTE HYD BASIN POND
 COMPUTE NM HYD ID=7 HYDNO=107 AREA=0.002554 SQ MI
 PER A=0 PER B=0 PER C=15 PER D=85
 TP=.1667 HR MASS RAIN=-1

K = .090852HR TP = .166700HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.8536 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
 AREA = .002171 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .132393HR TP = .166700HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
 UNIT PEAK = .89201 CFS UNIT VOLUME = .9849 B = 388.14 P60 = 1.8700
 AREA = .000383 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 107.00

RUNOFF VOLUME = 2.14166 INCHES = .2917 ACRE-FEET
 PEAK DISCHARGE RATE = 6.13 CFS AT 1.533 HOURS BASIN AREA = .0026 SQ. MI.

*

ADD HYD ID=10 HYDNO=201
 ID=1 ID=2
 PRINT HYD ID=10 CODE=5

PARTIAL HYDROGRAPH 201.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.4	7.999	.6	11.999	.4	15.998	.4
.167	.0	4.166	.4	8.166	.5	12.165	.4	16.165	.4

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

.333	.0	4.333	.4	8.332	.5	12.332	.4	16.332	.4
.500	.0	4.500	.4	8.499	.5	12.499	.4	16.498	.4
.667	.0	4.666	.4	8.666	.5	12.665	.4	16.665	.4
.833	.0	4.833	.4	8.832	.5	12.832	.4	16.832	.4
1.000	.0	4.999	.4	8.999	.5	12.999	.4	16.998	.4
1.167	.1	5.166	.4	9.166	.5	13.165	.4	17.165	.4
1.333	14.4	5.333	.4	9.332	.5	13.332	.4	17.332	.4
1.500	62.8	5.499	.4	9.499	.5	13.499	.4	17.498	.4
1.667	43.5	5.666	.5	9.666	.5	13.665	.4	17.665	.3
1.833	26.2	5.833	.5	9.832	.5	13.832	.4	17.832	.3
2.000	19.3	5.999	.5	9.999	.5	13.999	.4	17.998	.3
2.166	11.0	6.166	.6	10.166	.5	14.165	.4	18.165	.3
2.333	4.9	6.333	.6	10.332	.5	14.332	.4	18.331	.3
2.500	3.1	6.499	.6	10.499	.5	14.499	.4	18.498	.3
2.666	2.1	6.666	.6	10.666	.5	14.665	.4	18.665	.3
2.833	1.5	6.833	.6	10.832	.5	14.832	.4	18.831	.3
3.000	1.0	6.999	.6	10.999	.5	14.998	.4	18.998	.3
3.166	.8	7.166	.6	11.166	.5	15.165	.4	19.165	.3
3.333	.6	7.333	.6	11.332	.5	15.332	.4	19.331	.3
3.500	.5	7.499	.6	11.499	.5	15.498	.4	19.498	.3
3.666	.5	7.666	.6	11.665	.5	15.665	.4	19.665	.3
3.833	.4	7.833	.6	11.832	.4	15.832	.4	19.831	.3

RUNOFF VOLUME = 2.20911 INCHES = 3.2194 ACRE-FEET
 PEAK DISCHARGE RATE = 66.73 CFS AT 1.533 HOURS BASIN AREA = .0273 SQ. MI.

*

ADD HYD ID=11 HYDNO=201
 ID=10 ID=3
 PRINT HYD ID=11 CODE=5

PARTIAL HYDROGRAPH 201.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.6	7.999	.8	11.999	.6	15.998	.5
.167	.0	4.166	.6	8.166	.8	12.165	.6	16.165	.5
.333	.0	4.333	.6	8.332	.8	12.332	.6	16.332	.5
.500	.0	4.500	.6	8.499	.8	12.499	.6	16.498	.5
.667	.0	4.666	.6	8.666	.8	12.665	.6	16.665	.5
.833	.0	4.833	.6	8.832	.8	12.832	.6	16.832	.5

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

1.000	.0	4.999	.6	8.999	.8	12.999	.6	16.998	.5
1.167	.1	5.166	.6	9.166	.8	13.165	.6	17.165	.5
1.333	21.0	5.333	.6	9.332	.7	13.332	.6	17.332	.5
1.500	92.7	5.499	.6	9.499	.7	13.499	.6	17.498	.5
1.667	64.3	5.666	.7	9.666	.7	13.665	.6	17.665	.5
1.833	38.6	5.833	.7	9.832	.7	13.832	.6	17.832	.5
2.000	28.4	5.999	.7	9.999	.7	13.999	.6	17.998	.5
2.166	16.1	6.166	.8	10.166	.7	14.165	.6	18.165	.5
2.333	7.3	6.333	.9	10.332	.7	14.332	.6	18.331	.5
2.500	4.6	6.499	.9	10.499	.7	14.499	.6	18.498	.5
2.666	3.1	6.666	.9	10.666	.7	14.665	.6	18.665	.5
2.833	2.1	6.833	.9	10.832	.7	14.832	.6	18.831	.5
3.000	1.5	6.999	.9	10.999	.7	14.998	.6	18.998	.5
3.166	1.2	7.166	.8	11.166	.7	15.165	.6	19.165	.5
3.333	.9	7.333	.8	11.332	.7	15.332	.6	19.331	.5
3.500	.8	7.499	.8	11.499	.7	15.498	.6	19.498	.5
3.666	.7	7.666	.8	11.665	.7	15.665	.6	19.665	.5
3.833	.6	7.833	.8	11.832	.7	15.832	.5	19.831	.5

RUNOFF VOLUME = 2.18705 INCHES = 4.7349 ACRE-FEET
 PEAK DISCHARGE RATE = 98.51 CFS AT 1.533 HOURS BASIN AREA = .0406 SQ. MI.

*

ADD HYD ID=12 HYDNO=301
 ID=11 ID=4
 PRINT HYD ID=12 CODE=5

HYDROGRAPH FROM AREA 301.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.7	7.999	1.0	11.999	.8	15.998	.7
.167	.0	4.166	.7	8.166	1.0	12.165	.8	16.165	.7
.333	.0	4.333	.7	8.332	1.0	12.332	.8	16.332	.7
.500	.0	4.500	.7	8.499	1.0	12.499	.8	16.498	.7
.667	.0	4.666	.7	8.666	1.0	12.665	.8	16.665	.7
.833	.0	4.833	.7	8.832	.9	12.832	.8	16.832	.6
1.000	.0	4.999	.7	8.999	.9	12.999	.8	16.998	.6
1.167	.1	5.166	.8	9.166	.9	13.165	.8	17.165	.6
1.333	26.0	5.333	.8	9.332	.9	13.332	.7	17.332	.6
1.500	115.1	5.499	.8	9.499	.9	13.499	.7	17.498	.6

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

1.667	79.9	5.666	.8	9.666	.9	13.665	.7	17.665	.6
1.833	48.0	5.833	.9	9.832	.9	13.832	.7	17.832	.6
2.000	35.2	5.999	.9	9.999	.9	13.999	.7	17.998	.6
2.166	20.0	6.166	1.0	10.166	.9	14.165	.7	18.165	.6
2.333	9.0	6.333	1.1	10.332	.9	14.332	.7	18.331	.6
2.500	5.7	6.499	1.1	10.499	.9	14.499	.7	18.498	.6
2.666	3.8	6.666	1.1	10.666	.9	14.665	.7	18.665	.6
2.833	2.6	6.833	1.1	10.832	.9	14.832	.7	18.831	.6
3.000	1.9	6.999	1.1	10.999	.8	14.998	.7	18.998	.6
3.166	1.5	7.166	1.0	11.166	.8	15.165	.7	19.165	.6
3.333	1.2	7.333	1.0	11.332	.8	15.332	.7	19.331	.6
3.500	1.0	7.499	1.0	11.499	.8	15.498	.7	19.498	.6
3.666	.9	7.666	1.0	11.665	.8	15.665	.7	19.665	.6
3.833	.8	7.833	1.0	11.832	.8	15.832	.7	19.831	.6

RUNOFF VOLUME = 2.17812 INCHES = 5.8705 ACRE-FEET
 PEAK DISCHARGE RATE = 122.33 CFS AT 1.533 HOURS BASIN AREA = .0505 SQ. MI.

*

ADD HYD ID=13 HYDNO=301
 ID=12 ID=5
 PRINT HYD ID=13 CODE=5

HYDROGRAPH FROM AREA 301.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	.8	7.999	1.1	11.999	.8	15.998	.7
.167	.0	4.166	.8	8.166	1.0	12.165	.8	16.165	.7
.333	.0	4.333	.7	8.332	1.0	12.332	.8	16.332	.7
.500	.0	4.500	.7	8.499	1.0	12.499	.8	16.498	.7
.667	.0	4.666	.7	8.666	1.0	12.665	.8	16.665	.7
.833	.0	4.833	.8	8.832	1.0	12.832	.8	16.832	.7
1.000	.0	4.999	.8	8.999	1.0	12.999	.8	16.998	.7
1.167	.1	5.166	.8	9.166	1.0	13.165	.8	17.165	.7
1.333	27.6	5.333	.8	9.332	1.0	13.332	.8	17.332	.7
1.500	122.1	5.499	.8	9.499	1.0	13.499	.8	17.498	.7
1.667	84.8	5.666	.9	9.666	1.0	13.665	.8	17.665	.7
1.833	50.9	5.833	.9	9.832	1.0	13.832	.8	17.832	.7
2.000	37.3	5.999	1.0	9.999	.9	13.999	.8	17.998	.7
2.166	21.2	6.166	1.1	10.166	.9	14.165	.8	18.165	.7

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

2.333	9.6	6.333	1.1	10.332	.9	14.332	.8	18.331	.7
2.500	6.0	6.499	1.1	10.499	.9	14.499	.8	18.498	.6
2.666	4.0	6.666	1.1	10.666	.9	14.665	.8	18.665	.6
2.833	2.8	6.833	1.1	10.832	.9	14.832	.7	18.831	.6
3.000	2.0	6.999	1.1	10.999	.9	14.998	.7	18.998	.6
3.166	1.5	7.166	1.1	11.166	.9	15.165	.7	19.165	.6
3.333	1.2	7.333	1.1	11.332	.9	15.332	.7	19.331	.6
3.500	1.0	7.499	1.1	11.499	.9	15.498	.7	19.498	.6
3.666	.9	7.666	1.1	11.665	.9	15.665	.7	19.665	.6
3.833	.8	7.833	1.1	11.832	.9	15.832	.7	19.831	.6

RUNOFF VOLUME = 2.17600 INCHES = 6.2255 ACRE-FEET
 PEAK DISCHARGE RATE = 129.79 CFS AT 1.533 HOURS BASIN AREA = .0536 SQ. MI.

*

ADD HYD ID=14 HYDNO=301
 ID=13 ID=6
 PRINT HYD ID=14 CODE=5

HYDROGRAPH FROM AREA 301.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	1.1	7.999	1.5	11.999	1.2	15.998	1.0
.167	.0	4.166	1.1	8.166	1.4	12.165	1.2	16.165	1.0
.333	.0	4.333	1.0	8.332	1.4	12.332	1.2	16.332	1.0
.500	.0	4.500	1.0	8.499	1.4	12.499	1.1	16.498	1.0
.667	.0	4.666	1.0	8.666	1.4	12.665	1.1	16.665	1.0
.833	.0	4.833	1.1	8.832	1.4	12.832	1.1	16.832	1.0
1.000	.0	4.999	1.1	8.999	1.4	12.999	1.1	16.998	.9
1.167	.2	5.166	1.1	9.166	1.4	13.165	1.1	17.165	.9
1.333	38.2	5.333	1.1	9.332	1.3	13.332	1.1	17.332	.9
1.500	169.8	5.499	1.2	9.499	1.3	13.499	1.1	17.498	.9
1.667	118.0	5.666	1.2	9.666	1.3	13.665	1.1	17.665	.9
1.833	70.7	5.833	1.3	9.832	1.3	13.832	1.1	17.832	.9
2.000	51.8	5.999	1.3	9.999	1.3	13.999	1.1	17.998	.9
2.166	29.4	6.166	1.5	10.166	1.3	14.165	1.1	18.165	.9
2.333	13.3	6.333	1.6	10.332	1.3	14.332	1.1	18.331	.9
2.500	8.4	6.499	1.6	10.499	1.3	14.499	1.0	18.498	.9
2.666	5.6	6.666	1.6	10.666	1.3	14.665	1.0	18.665	.9
2.833	3.9	6.833	1.6	10.832	1.2	14.832	1.0	18.831	.9

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

3.000	2.8	6.999	1.6	10.999	1.2	14.998	1.0	18.998	.9
3.166	2.1	7.166	1.5	11.166	1.2	15.165	1.0	19.165	.9
3.333	1.7	7.333	1.5	11.332	1.2	15.332	1.0	19.331	.9
3.500	1.4	7.499	1.5	11.499	1.2	15.498	1.0	19.498	.9
3.666	1.3	7.666	1.5	11.665	1.2	15.665	1.0	19.665	.9
3.833	1.1	7.833	1.5	11.832	1.2	15.832	1.0	19.831	.9

RUNOFF VOLUME = 2.16626 INCHES = 8.6493 ACRE-FEET
 PEAK DISCHARGE RATE = 180.60 CFS AT 1.533 HOURS BASIN AREA = .0749 SQ. MI.

*

ADD HYD ID=15 HYDNO=301
 ID=14 ID=7
 PRINT HYD ID=15 CODE=5

HYDROGRAPH FROM AREA 301.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	4.000	1.1	7.999	1.5	11.999	1.2	15.998	1.0
.167	.0	4.166	1.1	8.166	1.5	12.165	1.2	16.165	1.0
.333	.0	4.333	1.1	8.332	1.5	12.332	1.2	16.332	1.0
.500	.0	4.500	1.1	8.499	1.5	12.499	1.2	16.498	1.0
.667	.0	4.666	1.1	8.666	1.4	12.665	1.2	16.665	1.0
.833	.0	4.833	1.1	8.832	1.4	12.832	1.2	16.832	1.0
1.000	.0	4.999	1.1	8.999	1.4	12.999	1.2	16.998	1.0
1.167	.2	5.166	1.1	9.166	1.4	13.165	1.1	17.165	1.0
1.333	39.5	5.333	1.2	9.332	1.4	13.332	1.1	17.332	1.0
1.500	175.6	5.499	1.2	9.499	1.4	13.499	1.1	17.498	1.0
1.667	122.0	5.666	1.3	9.666	1.4	13.665	1.1	17.665	1.0
1.833	73.1	5.833	1.3	9.832	1.4	13.832	1.1	17.832	1.0
2.000	53.5	5.999	1.4	9.999	1.3	13.999	1.1	17.998	.9
2.166	30.4	6.166	1.5	10.166	1.3	14.165	1.1	18.165	.9
2.333	13.7	6.333	1.6	10.332	1.3	14.332	1.1	18.331	.9
2.500	8.7	6.499	1.6	10.499	1.3	14.499	1.1	18.498	.9
2.666	5.8	6.666	1.6	10.666	1.3	14.665	1.1	18.665	.9
2.833	4.0	6.833	1.6	10.832	1.3	14.832	1.1	18.831	.9
3.000	2.9	6.999	1.6	10.999	1.3	14.998	1.1	18.998	.9
3.166	2.2	7.166	1.6	11.166	1.3	15.165	1.0	19.165	.9
3.333	1.8	7.333	1.6	11.332	1.3	15.332	1.0	19.331	.9
3.500	1.5	7.499	1.6	11.499	1.2	15.498	1.0	19.498	.9

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

3.666	1.3	7.666	1.5	11.665	1.2	15.665	1.0	19.665	.9
3.833	1.2	7.833	1.5	11.832	1.2	15.832	1.0	19.831	.9

RUNOFF VOLUME = 2.16545 INCHES = 8.9410 ACRE-FEET
 PEAK DISCHARGE RATE = 186.73 CFS AT 1.533 HOURS BASIN AREA = .0774 SQ. MI.

*

ROUTE RESERVOIR	ID=20	HYD=301	INFLOW	ID=15	CODE=5
OUTFLOW	STORAGE	ELEV			
(CFS)	(AC-FT)	(FT)			
0.00	0.0000	4998			
0.85	0.0153	4999			
1.27	0.1487	5000			
1.57	0.9548	5001			
1.81	1.9868	5002			
2.03	3.1062	5003			
2.23	4.2974	5004			
2.41	5.5558	5005			
2.50	6.2122	5005.5			
2.66	7.6172	5006.5			
3.17	7.7668	5006.6			
8.28	8.3754	5007			

PRINT HYD ID=20 CODE=5

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	4998.00	.000	.00
.17	.00	4998.00	.000	.00
.33	.00	4998.00	.000	.00
.50	.00	4998.00	.000	.00
.67	.00	4998.00	.000	.00
.83	.00	4998.00	.000	.00
1.00	.00	4998.00	.000	.00
1.17	.18	4998.02	.000	.01
1.33	39.47	5000.02	.164	1.28
1.50	175.60	5001.59	1.565	1.71
1.67	122.01	5003.58	3.792	2.15

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
1.83	73.13	5004.59	5.040	2.34
2.00	53.52	5005.24	5.869	2.45
2.17	30.38	5005.66	6.436	2.53
2.33	13.75	5005.83	6.680	2.55
2.50	8.66	5005.91	6.795	2.57
2.67	5.79	5005.96	6.857	2.57
2.83	4.03	5005.98	6.889	2.58
3.00	2.90	5005.99	6.900	2.58
3.17	2.20	5005.99	6.900	2.58
3.33	1.76	5005.98	6.891	2.58
3.50	1.48	5005.97	6.878	2.58
3.67	1.30	5005.96	6.861	2.57
3.83	1.19	5005.95	6.843	2.57
4.00	1.12	5005.94	6.823	2.57
4.17	1.09	5005.92	6.803	2.57
4.33	1.07	5005.91	6.783	2.56
4.50	1.07	5005.89	6.762	2.56
4.67	1.07	5005.88	6.741	2.56
4.83	1.09	5005.86	6.721	2.56
5.00	1.10	5005.85	6.701	2.56
5.17	1.14	5005.83	6.681	2.55
5.33	1.18	5005.82	6.662	2.55
5.50	1.20	5005.81	6.643	2.55
5.67	1.25	5005.79	6.625	2.55
5.83	1.30	5005.78	6.608	2.55
6.00	1.36	5005.77	6.591	2.54
6.17	1.51	5005.76	6.575	2.54
6.33	1.62	5005.75	6.562	2.54
6.50	1.64	5005.74	6.550	2.54
6.67	1.63	5005.73	6.537	2.54
6.83	1.62	5005.72	6.525	2.54
7.00	1.61	5005.71	6.512	2.53
7.17	1.59	5005.70	6.499	2.53
7.33	1.58	5005.69	6.486	2.53
7.50	1.56	5005.69	6.473	2.53
7.67	1.55	5005.68	6.459	2.53
7.83	1.53	5005.67	6.446	2.53
8.00	1.51	5005.66	6.432	2.53
8.17	1.50	5005.65	6.418	2.52

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
8.33	1.48	5005.64	6.404	2.52
8.50	1.47	5005.63	6.389	2.52
8.67	1.44	5005.62	6.375	2.52
8.83	1.44	5005.60	6.360	2.52
9.00	1.43	5005.59	6.345	2.52
9.17	1.41	5005.58	6.330	2.51
9.33	1.39	5005.57	6.314	2.51
9.50	1.38	5005.56	6.299	2.51
9.67	1.37	5005.55	6.283	2.51
9.83	1.36	5005.54	6.268	2.51
10.00	1.35	5005.53	6.252	2.50
10.17	1.33	5005.52	6.236	2.50
10.33	1.31	5005.51	6.219	2.50
10.50	1.30	5005.49	6.203	2.50
10.67	1.30	5005.48	6.187	2.50
10.83	1.29	5005.47	6.170	2.49
11.00	1.27	5005.46	6.153	2.49
11.17	1.27	5005.44	6.137	2.49
11.33	1.25	5005.43	6.120	2.49
11.50	1.24	5005.42	6.103	2.48
11.67	1.23	5005.40	6.085	2.48
11.83	1.22	5005.39	6.068	2.48
12.00	1.21	5005.38	6.051	2.48
12.17	1.21	5005.36	6.033	2.48
12.33	1.19	5005.35	6.016	2.47
12.50	1.18	5005.34	5.998	2.47
12.67	1.17	5005.32	5.980	2.47
12.83	1.17	5005.31	5.962	2.47
13.00	1.16	5005.30	5.944	2.46
13.17	1.15	5005.28	5.926	2.46
13.33	1.14	5005.27	5.908	2.46
13.50	1.13	5005.25	5.890	2.46
13.67	1.12	5005.24	5.872	2.45
13.83	1.12	5005.23	5.853	2.45
14.00	1.10	5005.21	5.835	2.45
14.17	1.10	5005.20	5.816	2.45
14.33	1.09	5005.18	5.798	2.44
14.50	1.08	5005.17	5.779	2.44
14.67	1.07	5005.16	5.760	2.44

DRAINAGE SUPPLEMENT – SAGE PARK SUBDIVISION

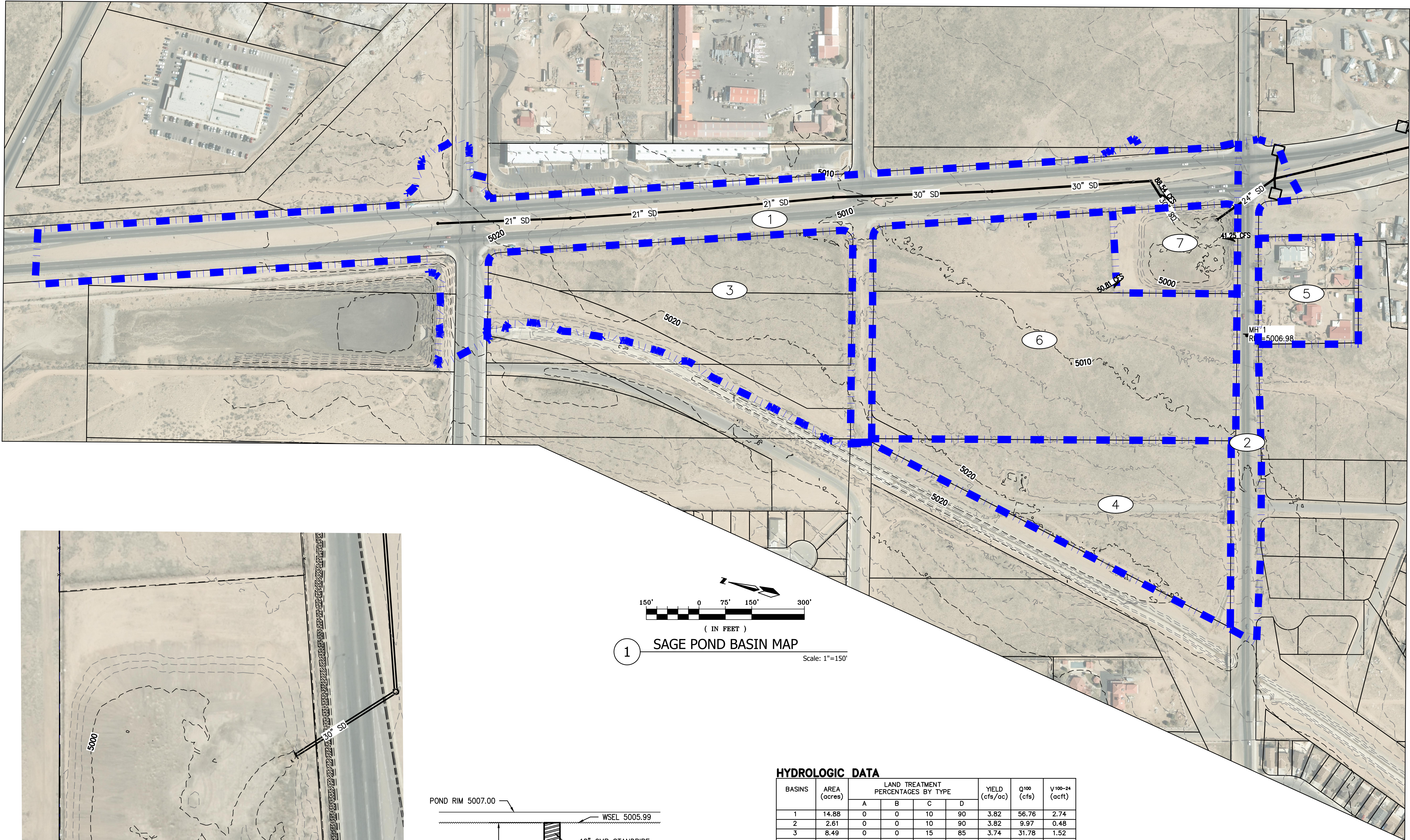
TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)	
14.83	1.06	5005.14	5.742	2.44	
15.00	1.06	5005.13	5.723	2.43	
15.17	1.05	5005.11	5.704	2.43	
15.33	1.04	5005.10	5.685	2.43	
15.50	1.04	5005.08	5.666	2.43	
15.67	1.04	5005.07	5.647	2.42	
15.83	1.02	5005.05	5.627	2.42	
16.00	1.01	5005.04	5.608	2.42	
16.17	1.01	5005.02	5.589	2.41	
16.33	1.01	5005.01	5.569	2.41	
16.50	1.00	5005.00	5.550	2.41	
16.67	.99	5004.98	5.531	2.41	
16.83	.98	5004.96	5.511	2.40	
17.00	.98	5004.95	5.491	2.40	
17.16	.98	5004.93	5.472	2.40	
17.33	.96	5004.92	5.452	2.40	
17.50	.96	5004.90	5.432	2.39	
17.66	.96	5004.89	5.413	2.39	
17.83	.95	5004.87	5.393	2.39	
18.00	.94	5004.85	5.373	2.38	
18.16	.94	5004.84	5.353	2.38	
18.33	.94	5004.82	5.333	2.38	
18.50	.92	5004.81	5.313	2.38	
18.66	.93	5004.79	5.293	2.37	
18.83	.91	5004.78	5.273	2.37	
19.00	.91	5004.76	5.253	2.37	
19.16	.91	5004.74	5.233	2.36	
19.33	.90	5004.73	5.213	2.36	
19.50	.90	5004.71	5.193	2.36	
19.66	.89	5004.70	5.173	2.36	
19.83	.89	5004.68	5.153	2.35	
PEAK DISCHARGE = 2.578 CFS - PEAK OCCURS AT HOUR 3.07					
MAXIMUM WATER SURFACE ELEVATION = 5005.990					
MAXIMUM STORAGE = 6.9011 AC-FT INCREMENTAL TIME= .033330HRS					

*

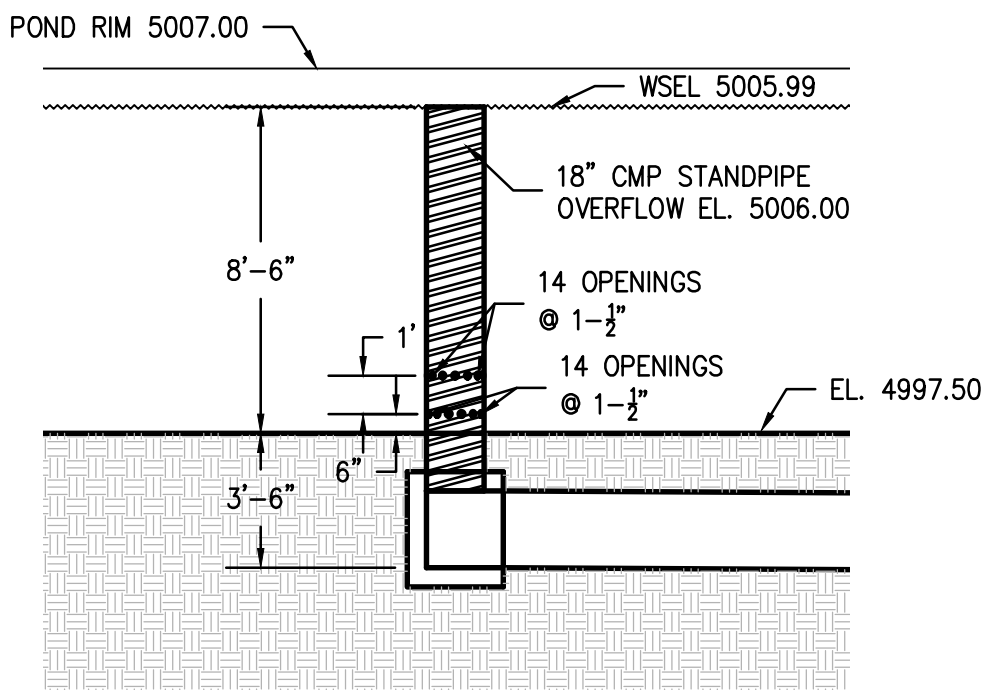
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 19:52:44



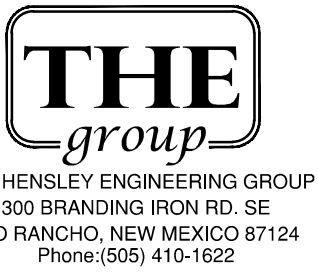
2 SAGE POND
Scale: 1"=50'



3 OUTFALL SECTION
Scale: 1"=5'

1 SAGE POND BASIN MAP
Scale: 1"=150'

BASINS	AREA (acres)	LAND TREATMENT PERCENTAGES BY TYPE				YIELD (cfs/ac)	Q ¹⁰⁰ (cfs)	V ¹⁰⁰⁻²⁴ (acft)
		A	B	C	D			
1	14.88	0	0	10	90	3.82	56.76	2.74
2	2.61	0	0	10	90	3.82	9.97	0.48
3	8.49	0	0	15	85	3.74	31.78	1.52
4	6.36	0	0	15	85	3.74	23.82	1.14
5	1.99	0	0	15	85	3.74	7.46	0.36
6	13.58	0	0	15	85	3.74	50.81	2.42
7	1.63	0	0	15	85	3.74	6.13	0.29
total	49.55					3.78	186.73	8.94



ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS BUILT INFORMATION		
		FIELD NOTES		DATE		CONTRACTOR		
		NO.	BY	DATE	DATE	STAKED BY	DATE	
		REMARKS		REVISIONS		INSPECTOR'S FIELD		DATE
DESIGNED BY: REH		DATE DEC. 2019		DATE		VERIFICATION BY		DATE
DRAWN BY: REH		DATE JAN. 2020		DATE		CORRECTED BY		DATE
CHECKED BY: REH		DATE JAN. 2020		DATE		MICRO-FILM INFORMATION		NO.