

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director



Mayor Timothy M. Keller

September 30, 2022

Ronald Bohannon, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

**RE: Keystone Heritage Marketplace
Conceptual Grading and Drainage Plans
Engineer's Stamp Date: 09/30/22
Hydrology File: H09D029**

Dear Mr. Bohannon:

Based upon the information provided in your submittal received 07/25/2022, the Conceptual Grading & Drainage Plans are approved for action by the DRB on Site Plan for Building Permit. However, the following comments need to be addressed prior to Building Permit approval of the above referenced project:

PRIOR TO BUILDING PERMIT:

1. Looking at this development, it appears that there are two drainage areas that drain to the two detention ponds. Please insure that all drainage (especially the edges along Hanover and Market) have some sort of drainage swales that collects the drainage so that it is captured by the detention pond and not just draining to the R.O.W.s.

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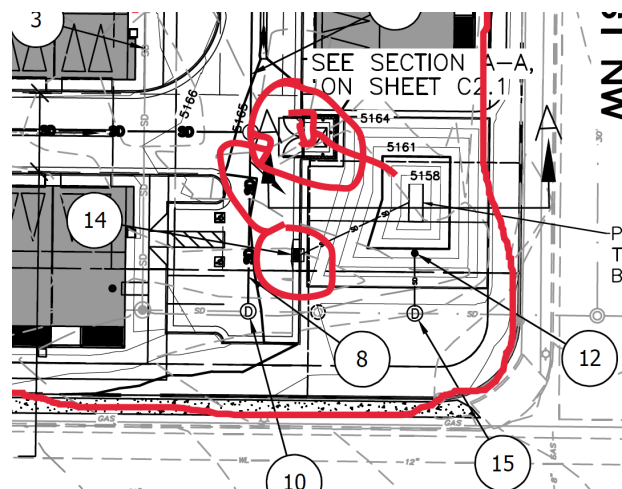
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- Evaluating the grades, there is a sump at the proposed dumpster and not uphill where you placed the inlet. Please look at flipping these two structures.



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3. Please analyze the HGL and EGL of the re-routed public 42-in storm pipe. There are four 90 degree turns proposed in the storm system. I do not want the HGL or EGL popping out of the manholes.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

Sincerely,

Renée C. Brissette

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department

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City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: KEYSTONE - HERITAGE MARKETPLACE **Building Permit #:** _____ **Hydrology File #:** H09D001C
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: TR B-1 PLAT OF TRACT B-1 HERITAGE MARKETPLACE **UPC#** 100905952600140105
City Address: 1700 UNSER BLVD NW ALBUQUERQUE, NM

Applicant: TIERRA WEST LLC **Contact:** VINNY PEREA
Address: 5571 MIDWAY PARK PLACE NE, ALBUQUERQUE, NM 87109
Phone#: (505) 858-3100 **Fax#:** _____ **E-mail:** vperea@tierrawestllc.com

Other Contact: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

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

IS THIS A RESUBMITTAL? _____ Yes ☒ No

DEPARTMENT _____ TRANSPORTATION ☒ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

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

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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

DATE SUBMITTED: JULY 22, 2022 **By:** VINNY PEREA

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

AHYMO PROGRAM (AHYMO-S4) - Version: S4.01a - Rel: 01a
 RUN DATE (MON/DAY/YR) = 06/30/2022
 START TIME (HR:MIN:SEC) = 11:58:21 USER NO.=
 AHYMO_Temp_User:20122010
 INPUT FILE = \2022\2022057 Keystone - Heritage
 Marketplace\Drainage\2022057 hymo 22-06-27.txt

 * KEYSTONE HERITAGE MARKETPLACE, ALBUQUERQUE, NM *

 * 100-YEAR 24-HR STORM (UNDER PROPOSED CONDITIONS) W/ ROUTING *

START TIME=0.0

*

*

RAINFALL TYPE=2 RAIN QUARTER=0.0 IN
 RAIN ONE=1.69 IN RAIN SIX=2.17 IN
 RAIN DAY=2.49 IN DT=0.05 HR

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

DT =	0.050000 HOURS	END TIME =	24.000002 HOURS
0.0000	0.0032	0.0065	0.0100
0.0032	0.0100	0.0138	0.0178
0.0100	0.0138	0.0178	0.0222
0.0138	0.0178	0.0222	0.0285
0.0178	0.0222	0.0285	0.0385
0.0222	0.0285	0.0385	0.0492
0.0285	0.0385	0.0492	0.0603
0.0385	0.0492	0.0603	0.0723
0.0492	0.0603	0.0723	0.0845
0.0603	0.0723	0.0845	0.0971
0.0723	0.0845	0.0971	0.1101
0.0845	0.0971	0.1101	0.1233
0.0971	0.1101	0.1233	0.1379
0.1101	0.1233	0.1379	0.1531
0.1233	0.1379	0.1531	0.1696
0.1379	0.1531	0.1696	0.1914
0.1531	0.1696	0.1914	0.2158
0.1696	0.1914	0.2158	0.2486
0.1914	0.2158	0.2486	0.2857
0.2158	0.2486	0.2857	0.3315
0.2486	0.2857	0.3315	0.3926
0.2857	0.3315	0.3926	0.4614
0.3315	0.3926	0.4614	0.5802
0.3926	0.4614	0.5802	0.7649
0.4614	0.5802	0.7649	1.0813
0.5802	0.7649	1.0813	1.3037
0.7649	1.0813	1.3037	1.4791
1.0813	1.3037	1.4791	1.5672
1.3037	1.4791	1.5672	1.6444
1.4791	1.5672	1.6444	1.6999
1.5672	1.6444	1.6999	1.7441
1.6444	1.6999	1.7441	1.7826
1.6999	1.7441	1.7826	1.8108
1.7441	1.7826	1.8108	1.8366
1.7826	1.8108	1.8366	1.8580
1.8108	1.8366	1.8580	1.8754
1.8366	1.8580	1.8754	1.8909
1.8580	1.8754	1.8909	1.9048
1.8754	1.8909	1.9048	1.9178
1.8909	1.9048	1.9178	1.9294
1.9048	1.9178	1.9294	1.9403
1.9178	1.9294	1.9403	1.9510
1.9294	1.9403	1.9510	1.9613
1.9403	1.9510	1.9613	1.9698
1.9510	1.9613	1.9698	1.9746
1.9613	1.9698	1.9746	1.9793
1.9698	1.9746	1.9793	1.9839
1.9746	1.9793	1.9839	1.9882
1.9793	1.9839	1.9882	1.9925
1.9839	1.9882	1.9925	1.9967
1.9882	1.9925	1.9967	2.0008
1.9925	1.9967	2.0008	2.0048
1.9967	2.0008	2.0048	2.0087
2.0008	2.0048	2.0087	2.0124
2.0048	2.0087	2.0124	2.0162
2.0087	2.0124	2.0162	2.0198
2.0124	2.0162	2.0198	2.0234
2.0162	2.0198	2.0234	2.0269
2.0198	2.0234	2.0269	2.0303
2.0234	2.0269	2.0303	2.0336
2.0269	2.0303	2.0336	2.0369
2.0303	2.0336	2.0369	2.0402
2.0336	2.0369	2.0402	2.0433
2.0369	2.0402	2.0433	2.0464
2.0402	2.0433	2.0464	2.0495
2.0433	2.0464	2.0495	2.0525
2.0464	2.0495	2.0525	2.0555
2.0495	2.0525	2.0555	2.0584
2.0525	2.0555	2.0584	2.0613
2.0555	2.0584	2.0613	2.0642
2.0584	2.0613	2.0642	2.0670
2.0613	2.0642	2.0670	2.0698
2.0642	2.0670	2.0698	2.0725
2.0670	2.0698	2.0725	2.0753
2.0698	2.0725	2.0753	2.0780
2.0725	2.0753	2.0780	2.0806
2.0753	2.0780	2.0806	2.0833
2.0780	2.0806	2.0833	2.0859
2.0806	2.0833	2.0859	2.0884
2.0833	2.0859	2.0884	2.0910
2.0859	2.0884	2.0910	2.0935
2.0884	2.0910	2.0935	2.0960
2.0910	2.0935	2.0960	2.0985
2.0935	2.0960	2.0985	2.1009
2.0960	2.0985	2.1009	2.1033
2.0985	2.1009	2.1033	2.1057
2.1009	2.1033	2.1057	2.1081
2.1033	2.1057	2.1081	2.1104
2.1057	2.1081	2.1104	2.1128
2.1081	2.1104	2.1128	2.1151
2.1104	2.1128	2.1151	2.1173
2.1128	2.1151	2.1173	2.1196
2.1151	2.1173	2.1196	2.1218
2.1173	2.1196	2.1218	2.1240
2.1196	2.1218	2.1240	2.1262
2.1218	2.1240	2.1262	2.1284
2.1240	2.1262	2.1284	2.1306
2.1262	2.1284	2.1306	2.1327
2.1284	2.1306	2.1327	2.1348
2.1306	2.1327	2.1348	2.1369
2.1327	2.1348	2.1369	2.1390
2.1348	2.1369	2.1390	2.1410
2.1369	2.1390	2.1410	2.1431
2.1390	2.1410	2.1431	2.1451
2.1410	2.1431	2.1451	2.1471
2.1431	2.1451	2.1471	2.1491
2.1451	2.1471	2.1491	2.1511
2.1471	2.1491	2.1511	2.1530
2.1491	2.1511	2.1530	2.1550
2.1511	2.1530	2.1550	2.1569
2.1530	2.1550	2.1569	2.1588
2.1550	2.1569	2.1588	2.1607
2.1569	2.1588	2.1607	2.1626
2.1588	2.1607	2.1626	2.1645
2.1607	2.1626	2.1645	2.1663
2.1626	2.1645	2.1663	2.1682
2.1645	2.1663	2.1682	2.1700
2.1663	2.1682	2.1700	2.1709
2.1682	2.1700	2.1709	2.1718
2.1700	2.1709	2.1718	2.1727
2.1709	2.1718	2.1727	2.1736
2.1718	2.1727	2.1736	2.1744
2.1727	2.1736	2.1744	2.1753
2.1736	2.1744	2.1753	2.1762
2.1744	2.1753	2.1762	2.1771
2.1753	2.1762	2.1771	2.1780
2.1762	2.1771	2.1780	2.1789
2.1771	2.1780	2.1789	2.1798
2.1780	2.1789	2.1798	2.1807
2.1789	2.1798	2.1807	2.1816
2.1798	2.1807	2.1816	2.1824
2.1807	2.1816	2.1824	2.1833
2.1816	2.1833	2.1842	2.1851
2.1833	2.1842	2.1851	2.1860
2.1842	2.1851	2.1860	2.1869
2.1851	2.1860	2.1869	2.1878
2.1860	2.1869	2.1878	2.1887
2.1869	2.1878	2.1887	2.1896
2.1878	2.1887	2.1896	2.1904
2.1887	2.1896	2.1904	2.1913
2.1896	2.1904	2.1913	2.1922
2.1904	2.1913	2.1922	2.1931
2.1913	2.1922	2.1931	2.1940
2.1922	2.1931	2.1940	2.1949
2.1931	2.1940	2.1949	2.1958
2.1940	2.1949	2.1958	2.1967
2.1949	2.1958	2.1967	2.1976
2.1958	2.1967	2.1976	2.1984
2.1967	2.1976	2.1984	2.1993
2.1976	2.1984	2.1993	2.2002
2.1984	2.1993	2.2002	2.2011
2.1993	2.2002	2.2011	2.2020
2.2002	2.2011	2.2020	2.2029
2.2011	2.2020	2.2029	2.2038
2.2020	2.2029	2.2038	2.2047
2.2029	2.2038	2.2047	2.2056
2.2038	2.2047	2.2056	2.2064
2.2047	2.2056	2.2064	2.2073
2.2056	2.2064	2.2073	2.2082
2.2064	2.2073	2.2082	2.2091
2.2073	2.2082	2.2091	2.2100
2.2082	2.2091	2.2100	2.2109
2.2091	2.2100	2.2109	2.2118
2.2100	2.2109	2.2118	2.2127
2.2109	2.2118	2.2127	2.2136
2.2118	2.2127	2.2136	2.2144
2.2127	2.2136	2.2144	2.2153
2.2136	2.2144	2.2153	2.2162
2.2144	2.2153	2.2162	2.2171
2.2153	2.2162	2.2171	2.2180
2.2162	2.2171	2.2180	2.2189
2.2171	2.2180	2.2189	2.2198
2.2180	2.2189	2.2198	2.2207
2.2189	2.2198	2.2207	2.2216
2.2198	2.2207	2.2216	2.2224
2.2207	2.2216	2.2224	2.2233
2.2216	2.2224	2.2233	2.2242
2.2224	2.2233	2.2242	2.2251
2.2233	2.2242	2.2251	2.2260
2.2242	2.2251	2.2260	2.2269
2.2251	2.2260	2.2269	2.2278
2.2260	2.2269	2.2278	2.2287
2.2269	2.2278	2.2287	2.2296
2.2278	2.2287	2.2296	2.2304

2.2313	2.2322	2.2331	2.2340	2.2349	2.2358	2.2367
2.2376	2.2384	2.2393	2.2402	2.2411	2.2420	2.2429
2.2438	2.2447	2.2456	2.2464	2.2473	2.2482	2.2491
2.2500	2.2509	2.2518	2.2527	2.2536	2.2544	2.2553
2.2562	2.2571	2.2580	2.2589	2.2598	2.2607	2.2616
2.2624	2.2633	2.2642	2.2651	2.2660	2.2669	2.2678
2.2687	2.2696	2.2704	2.2713	2.2722	2.2731	2.2740
2.2749	2.2758	2.2767	2.2776	2.2784	2.2793	2.2802
2.2811	2.2820	2.2829	2.2838	2.2847	2.2856	2.2864
2.2873	2.2882	2.2891	2.2900	2.2909	2.2918	2.2927
2.2936	2.2944	2.2953	2.2962	2.2971	2.2980	2.2989
2.2998	2.3007	2.3016	2.3024	2.3033	2.3042	2.3051
2.3060	2.3069	2.3078	2.3087	2.3096	2.3104	2.3113
2.3122	2.3131	2.3140	2.3149	2.3158	2.3167	2.3176
2.3185	2.3193	2.3202	2.3211	2.3220	2.3229	2.3238
2.3247	2.3256	2.3265	2.3273	2.3282	2.3291	2.3300
2.3309	2.3318	2.3327	2.3336	2.3345	2.3353	2.3362
2.3371	2.3380	2.3389	2.3398	2.3407	2.3416	2.3425
2.3433	2.3442	2.3451	2.3460	2.3469	2.3478	2.3487
2.3496	2.3505	2.3513	2.3522	2.3531	2.3540	2.3549
2.3558	2.3567	2.3576	2.3585	2.3593	2.3602	2.3611
2.3620	2.3629	2.3638	2.3647	2.3656	2.3665	2.3673
2.3682	2.3691	2.3700	2.3709	2.3718	2.3727	2.3736
2.3745	2.3753	2.3762	2.3771	2.3780	2.3789	2.3798
2.3807	2.3816	2.3825	2.3833	2.3842	2.3851	2.3860
2.3869	2.3878	2.3887	2.3896	2.3905	2.3913	2.3922
2.3931	2.3940	2.3949	2.3958	2.3967	2.3976	2.3985
2.3993	2.4002	2.4011	2.4020	2.4029	2.4038	2.4047
2.4056	2.4065	2.4073	2.4082	2.4091	2.4100	2.4109
2.4118	2.4127	2.4136	2.4145	2.4153	2.4162	2.4171
2.4180	2.4189	2.4198	2.4207	2.4216	2.4225	2.4233
2.4242	2.4251	2.4260	2.4269	2.4278	2.4287	2.4296
2.4305	2.4313	2.4322	2.4331	2.4340	2.4349	2.4358
2.4367	2.4376	2.4385	2.4393	2.4402	2.4411	2.4420
2.4429	2.4438	2.4447	2.4456	2.4465	2.4473	2.4482
2.4491	2.4500	2.4509	2.4518	2.4527	2.4536	2.4545
2.4553	2.4562	2.4571	2.4580	2.4589	2.4598	2.4607
2.4616	2.4625	2.4633	2.4642	2.4651	2.4660	2.4669
2.4678	2.4687	2.4696	2.4705	2.4713	2.4722	2.4731
2.4740	2.4749	2.4758	2.4767	2.4776	2.4785	2.4793
2.4802	2.4811	2.4820	2.4829	2.4838	2.4847	2.4856
2.4865	2.4873	2.4882	2.4891	2.4900		

*

*BASIN P1

*

COMPUTE NM HYD

ID=1 HYD NO=100.1 AREA=0.00518 SQ MI

PER A=0.0 PER B=25.00 PER C=10.0 PER D=65.0

TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 13.293 CFS UNIT VOLUME = 0.9983 B = 526.28
 P60 = 1.6900
 AREA = 0.003367 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.125496HR TP = 0.133300HR K/TP RATIO = 0.941452 SHAPE
 CONSTANT, N = 3.755535
 UNIT PEAK = 4.6044 CFS UNIT VOLUME = 0.9985 B = 338.53
 P60 = 1.6900
 AREA = 0.001813 SQ MI IA = 0.45714 INCHES INF = 1.13000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 100.10

RUNOFF VOLUME = 1.73130 INCHES = 0.4783 ACRE-FEET
 PEAK DISCHARGE RATE = 11.40 CFS AT 1.500 HOURS BASIN AREA =
 0.0052 SQ. MI.

*
 *
 *BASIN P2
 *

COMPUTE NM HYD ID=2 HYD NO=200.1 AREA=0.00797 SQ MI
 PER A=0.0 PER B=17.00 PER C=6.00 PER D=77.0
 TP=-0.1333 HR MASS RAINFALL=-1

K = 0.072649HR TP = 0.133300HR K/TP RATIO = 0.545000 SHAPE
 CONSTANT, N = 7.106428
 UNIT PEAK = 24.229 CFS UNIT VOLUME = 0.9987 B = 526.28
 P60 = 1.6900
 AREA = 0.006137 SQ MI IA = 0.10000 INCHES INF = 0.04000
 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
 0.050000

K = 0.126249HR TP = 0.133300HR K/TP RATIO = 0.947103 SHAPE
 CONSTANT, N = 3.732246

UNIT PEAK = 4.6331 CFS UNIT VOLUME = 0.9984 B = 336.91
P60 = 1.6900
AREA = 0.001833 SQ MI IA = 0.46087 INCHES INF = 1.14043
INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
0.050000

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 200.10

RUNOFF VOLUME = 1.90440 INCHES = 0.8095 ACRE-FEET
PEAK DISCHARGE RATE = 18.57 CFS AT 1.500 HOURS BASIN AREA =
0.0080 SQ. MI.

*
*
*ROUTE BASIN P1 TO POND 1
*

ROUTE RESERVOIR	ID=11	HYD NO=101.1	INFLOW ID=1	CODE=24
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)	
	00.0000	0.0000	5062.70	
	00.0100	0.0176	5063.20	
	00.0101	0.0395	5063.70	
	00.0102	0.0659	5064.20	
	00.0103	0.0746	5064.35	
	05.0339	0.0966	5064.70	
	07.8447	0.1317	5065.20	
	09.8863	0.1711	5065.70	
	10.7628	0.1925	5065.95	

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5062.70	0.000	0.00
1.20	1.40	5063.34	0.024	0.01
2.40	0.53	5064.39	0.077	0.61
3.60	0.06	5064.35	0.075	0.06
4.80	0.06	5064.35	0.075	0.06
6.00	0.08	5064.35	0.075	0.08
7.20	0.04	5064.35	0.075	0.04
8.40	0.04	5064.35	0.075	0.04
9.60	0.04	5064.35	0.075	0.04
10.80	0.04	5064.35	0.075	0.04
12.00	0.04	5064.35	0.075	0.04

13.20	0.04	5064.35	0.075	0.04
14.40	0.04	5064.35	0.075	0.04
15.60	0.04	5064.35	0.075	0.04
16.80	0.04	5064.35	0.075	0.04
18.00	0.04	5064.35	0.075	0.04
19.20	0.04	5064.35	0.075	0.04
20.40	0.04	5064.35	0.075	0.04
21.60	0.04	5064.35	0.075	0.04
22.80	0.04	5064.35	0.075	0.04
24.00	0.04	5064.35	0.075	0.04
25.20	0.00	5064.34	0.074	0.01
26.40	0.00	5064.32	0.073	0.01
27.60	0.00	5064.30	0.072	0.01
28.80	0.00	5064.29	0.071	0.01
30.00	0.00	5064.27	0.070	0.01
31.20	0.00	5064.25	0.069	0.01
32.40	0.00	5064.23	0.068	0.01
33.60	0.00	5064.22	0.067	0.01
34.80	0.00	5064.20	0.066	0.01
36.00	0.00	5064.18	0.065	0.01
37.20	0.00	5064.16	0.064	0.01
38.40	0.00	5064.14	0.063	0.01
39.60	0.00	5064.12	0.062	0.01
40.80	0.00	5064.10	0.061	0.01
42.00	0.00	5064.08	0.060	0.01
43.20	0.00	5064.06	0.059	0.01
44.40	0.00	5064.04	0.058	0.01
45.60	0.00	5064.03	0.057	0.01
46.80	0.00	5064.01	0.056	0.01
48.00	0.00	5063.99	0.055	0.01
49.20	0.00	5063.97	0.054	0.01
50.40	0.00	5063.95	0.053	0.01
51.60	0.00	5063.93	0.052	0.01
52.80	0.00	5063.91	0.051	0.01
54.00	0.00	5063.89	0.050	0.01
55.20	0.00	5063.87	0.049	0.01
56.40	0.00	5063.85	0.048	0.01
57.60	0.00	5063.83	0.047	0.01
58.80	0.00	5063.82	0.046	0.01
60.00	0.00	5063.80	0.045	0.01
61.20	0.00	5063.78	0.044	0.01
62.40	0.00	5063.76	0.043	0.01
63.60	0.00	5063.74	0.042	0.01
64.80	0.00	5063.72	0.041	0.01
66.00	0.00	5063.70	0.040	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
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67.20	0.00	5063.68	0.039	0.01
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68.40	0.00	5063.66	0.038	0.01
69.60	0.00	5063.63	0.037	0.01
70.80	0.00	5063.61	0.036	0.01
72.00	0.00	5063.59	0.035	0.01
73.20	0.00	5063.56	0.034	0.01
74.40	0.00	5063.54	0.033	0.01
75.60	0.00	5063.52	0.032	0.01
76.80	0.00	5063.50	0.031	0.01
78.00	0.00	5063.47	0.030	0.01
79.20	0.00	5063.45	0.029	0.01
80.40	0.00	5063.43	0.028	0.01
81.60	0.00	5063.41	0.027	0.01
82.80	0.00	5063.38	0.026	0.01
84.00	0.00	5063.36	0.025	0.01
85.20	0.00	5063.34	0.024	0.01
86.40	0.00	5063.31	0.023	0.01
87.60	0.00	5063.29	0.022	0.01
88.80	0.00	5063.27	0.021	0.01
90.00	0.00	5063.25	0.020	0.01
91.20	0.00	5063.22	0.019	0.01
92.40	0.00	5063.20	0.018	0.01
93.60	0.00	5063.17	0.017	0.01
94.80	0.00	5063.15	0.016	0.01
96.00	0.00	5063.12	0.015	0.01
97.20	0.00	5063.10	0.014	0.01
98.40	0.00	5063.08	0.013	0.01
99.60	0.00	5063.06	0.013	0.01
100.80	0.00	5063.04	0.012	0.01
102.00	0.00	5063.02	0.011	0.01
103.20	0.00	5063.00	0.011	0.01
104.40	0.00	5062.99	0.010	0.01
105.60	0.00	5062.97	0.010	0.01
106.80	0.00	5062.96	0.009	0.01
108.00	0.00	5062.94	0.008	0.00

PEAK DISCHARGE = 8.225 CFS - PEAK OCCURS AT HOUR 1.60

MAXIMUM WATER SURFACE ELEVATION = 5065.293

MAXIMUM STORAGE = 0.1390 AC-FT INCREMENTAL TIME= 0.050000HRS

*

PRINT HYD ID=11 CODE=1

PARTIAL HYDROGRAPH 101.10

RUNOFF VOLUME = 1.73083 INCHES = 0.4782 ACRE-FEET

PEAK DISCHARGE RATE = 8.23 CFS AT 1.600 HOURS BASIN AREA = 0.0052 SQ. MI.

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*ROUTE BASIN P2 TO POND 2

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ROUTE RESERVOIR	ID=22	HYD NO=201.1	INFLOW ID=2	CODE=24
	OUTFLOW(CFS)	STORAGE(AC-FT)	ELEVATION(FT)	
	00.0000	0.0000	5057.15	
	00.0100	0.0018	5057.65	
	00.0101	0.0060	5058.15	
	00.0102	0.0125	5058.65	
	00.0103	0.0214	5059.15	
	00.0104	0.0327	5059.65	
	00.0105	0.0463	5060.15	
	00.0106	0.0624	5060.65	
	00.0105	0.0807	5061.15	
	00.0106	0.1015	5061.65	
	00.0107	0.1246	5062.15	
	00.0108	0.1370	5062.40	
	05.2523	0.1501	5062.65	
	09.0973	0.1779	5063.15	
	11.7446	0.2081	5063.65	
	13.8963	0.2407	5064.15	

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	5057.15	0.000	0.00
1.20	2.55	5060.03	0.043	0.01
2.40	0.91	5062.45	0.139	0.98
3.60	0.11	5062.40	0.137	0.11
4.80	0.11	5062.40	0.137	0.11
6.00	0.14	5062.41	0.137	0.14
7.20	0.07	5062.40	0.137	0.07
8.40	0.07	5062.40	0.137	0.07
9.60	0.07	5062.40	0.137	0.07
10.80	0.07	5062.40	0.137	0.07
12.00	0.07	5062.40	0.137	0.07
13.20	0.07	5062.40	0.137	0.07
14.40	0.07	5062.40	0.137	0.07
15.60	0.07	5062.40	0.137	0.07
16.80	0.07	5062.40	0.137	0.07
18.00	0.07	5062.40	0.137	0.07
19.20	0.07	5062.40	0.137	0.07
20.40	0.07	5062.40	0.137	0.07
21.60	0.07	5062.40	0.137	0.07
22.80	0.07	5062.40	0.137	0.07
24.00	0.07	5062.40	0.137	0.07
25.20	0.00	5062.39	0.136	0.01

26.40	0.00	5062.36	0.135	0.01
27.60	0.00	5062.34	0.134	0.01
28.80	0.00	5062.32	0.133	0.01
30.00	0.00	5062.30	0.132	0.01
31.20	0.00	5062.28	0.131	0.01
32.40	0.00	5062.26	0.130	0.01
33.60	0.00	5062.24	0.129	0.01
34.80	0.00	5062.21	0.128	0.01
36.00	0.00	5062.19	0.127	0.01
37.20	0.00	5062.17	0.126	0.01
38.40	0.00	5062.15	0.125	0.01
39.60	0.00	5062.13	0.124	0.01
40.80	0.00	5062.10	0.122	0.01
42.00	0.00	5062.08	0.121	0.01
43.20	0.00	5062.06	0.120	0.01
44.40	0.00	5062.04	0.119	0.01
45.60	0.00	5062.01	0.118	0.01
46.80	0.00	5061.99	0.117	0.01
48.00	0.00	5061.97	0.116	0.01
49.20	0.00	5061.94	0.115	0.01
50.40	0.00	5061.92	0.114	0.01
51.60	0.00	5061.90	0.113	0.01
52.80	0.00	5061.88	0.112	0.01
54.00	0.00	5061.85	0.111	0.01
55.20	0.00	5061.83	0.110	0.01
56.40	0.00	5061.81	0.109	0.01
57.60	0.00	5061.78	0.108	0.01
58.80	0.00	5061.76	0.107	0.01
60.00	0.00	5061.74	0.106	0.01
61.20	0.00	5061.72	0.105	0.01
62.40	0.00	5061.69	0.103	0.01
63.60	0.00	5061.67	0.102	0.01
64.80	0.00	5060.65	0.062	0.01
66.00	0.00	5060.62	0.061	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
67.20	0.00	5060.60	0.061	0.01
68.40	0.00	5060.57	0.060	0.01
69.60	0.00	5060.55	0.059	0.01
70.80	0.00	5060.52	0.058	0.01
72.00	0.00	5060.50	0.057	0.01
73.20	0.00	5060.47	0.057	0.01
74.40	0.00	5060.45	0.056	0.01
75.60	0.00	5060.42	0.055	0.01
76.80	0.00	5060.40	0.054	0.01
78.00	0.00	5060.37	0.053	0.01
79.20	0.00	5060.34	0.053	0.01
80.40	0.00	5060.32	0.052	0.01

81.60	0.00	5060.29	0.051	0.01
82.80	0.00	5060.27	0.050	0.01
84.00	0.00	5060.24	0.049	0.01
85.20	0.00	5060.22	0.049	0.01
86.40	0.00	5060.19	0.048	0.01
87.60	0.00	5060.17	0.047	0.01
88.80	0.00	5060.16	0.047	0.01
90.00	0.00	5060.19	0.047	0.01
91.20	0.00	5060.21	0.048	0.01
92.40	0.00	5060.24	0.049	0.01
93.60	0.00	5060.27	0.050	0.01
94.80	0.00	5060.30	0.051	0.01
96.00	0.00	5060.33	0.052	0.01
97.20	0.00	5060.36	0.053	0.01
98.40	0.00	5060.38	0.054	0.01
99.60	0.00	5060.41	0.055	0.01
100.80	0.00	5060.44	0.056	0.01
102.00	0.00	5060.47	0.057	0.01
103.20	0.00	5060.50	0.058	0.01
104.40	0.00	5060.53	0.058	0.01
105.60	0.00	5060.56	0.059	0.01
106.80	0.00	5060.58	0.060	0.01
108.00	0.00	5060.61	0.061	0.01
109.20	0.00	5060.64	0.062	0.01
110.40	0.00	5060.63	0.062	0.01
111.60	0.00	5060.59	0.061	0.01
112.80	0.00	5060.56	0.060	0.01
114.00	0.00	5060.53	0.058	0.01
115.20	0.00	5060.50	0.057	0.01
116.40	0.00	5060.46	0.056	0.01
117.60	0.00	5060.43	0.055	0.01
118.80	0.00	5060.40	0.054	0.01
120.00	0.00	5060.37	0.053	0.01
121.20	0.00	5060.33	0.052	0.01
122.40	0.00	5060.30	0.051	0.01
123.60	0.00	5060.27	0.050	0.01
124.80	0.00	5060.24	0.049	0.01
126.00	0.00	5060.20	0.048	0.01
127.20	0.00	5060.17	0.047	0.01
128.40	0.00	5060.14	0.046	0.01
129.60	0.00	5060.10	0.045	0.01
130.80	0.00	5060.06	0.044	0.01
132.00	0.00	5060.02	0.043	0.01
133.20	0.00	5059.98	0.042	0.01

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
134.40	0.00	5059.95	0.041	0.01
135.60	0.00	5059.91	0.040	0.01

136.80	0.00	5059.87	0.039	0.01
138.00	0.00	5059.83	0.038	0.01
139.20	0.00	5059.79	0.037	0.01
140.40	0.00	5059.75	0.036	0.01
141.60	0.00	5059.72	0.035	0.01
142.80	0.00	5059.68	0.033	0.01
144.00	0.00	5059.64	0.032	0.01
145.20	0.00	5059.59	0.031	0.01
146.40	0.00	5059.55	0.030	0.01
147.60	0.00	5059.50	0.029	0.01
148.80	0.00	5059.46	0.028	0.01
150.00	0.00	5059.41	0.027	0.01
151.20	0.00	5059.37	0.026	0.01
152.40	0.00	5059.32	0.025	0.01
153.60	0.00	5059.28	0.024	0.01
154.80	0.00	5059.23	0.023	0.01
156.00	0.00	5059.19	0.022	0.01
157.20	0.00	5059.14	0.021	0.01
158.40	0.00	5059.08	0.020	0.01
159.60	0.00	5059.02	0.019	0.01
160.80	0.00	5058.97	0.018	0.01
162.00	0.00	5058.91	0.017	0.01
163.20	0.00	5058.85	0.016	0.01
164.40	0.00	5058.79	0.015	0.01
165.60	0.00	5058.74	0.014	0.01
166.80	0.00	5058.68	0.013	0.01
168.00	0.00	5058.61	0.012	0.01
169.20	0.00	5058.54	0.011	0.01
170.40	0.00	5058.46	0.010	0.01
171.60	0.00	5058.38	0.009	0.01
172.80	0.00	5058.30	0.008	0.01
174.00	0.00	5058.23	0.007	0.01
175.20	0.00	5058.15	0.006	0.01
176.40	0.00	5058.03	0.005	0.01
177.60	0.00	5057.91	0.004	0.01
178.80	0.00	5057.79	0.003	0.01
180.00	0.00	5057.67	0.002	0.01
181.20	0.00	5057.47	0.001	0.01
182.40	0.00	5057.34	0.001	0.00

Total Peak Discharge from
Pond 1 & 2 = 8.2 + 13.5 =
21.7 cfs
Therefore, OK

PEAK DISCHARGE = 13.554 CFS - PEAK OCCURS AT HOUR 1.60

MAXIMUM WATER SURFACE ELEVATION = 5064.070

MAXIMUM STORAGE = 0.2355 AC-FT INCREMENTAL TIME= 0.050000HRS

*

PRINT HYD ID=22 CODE=1

PARTIAL HYDROGRAPH 201.10

RUNOFF VOLUME = 1.90436 INCHES = 0.8095 ACRE-FEET

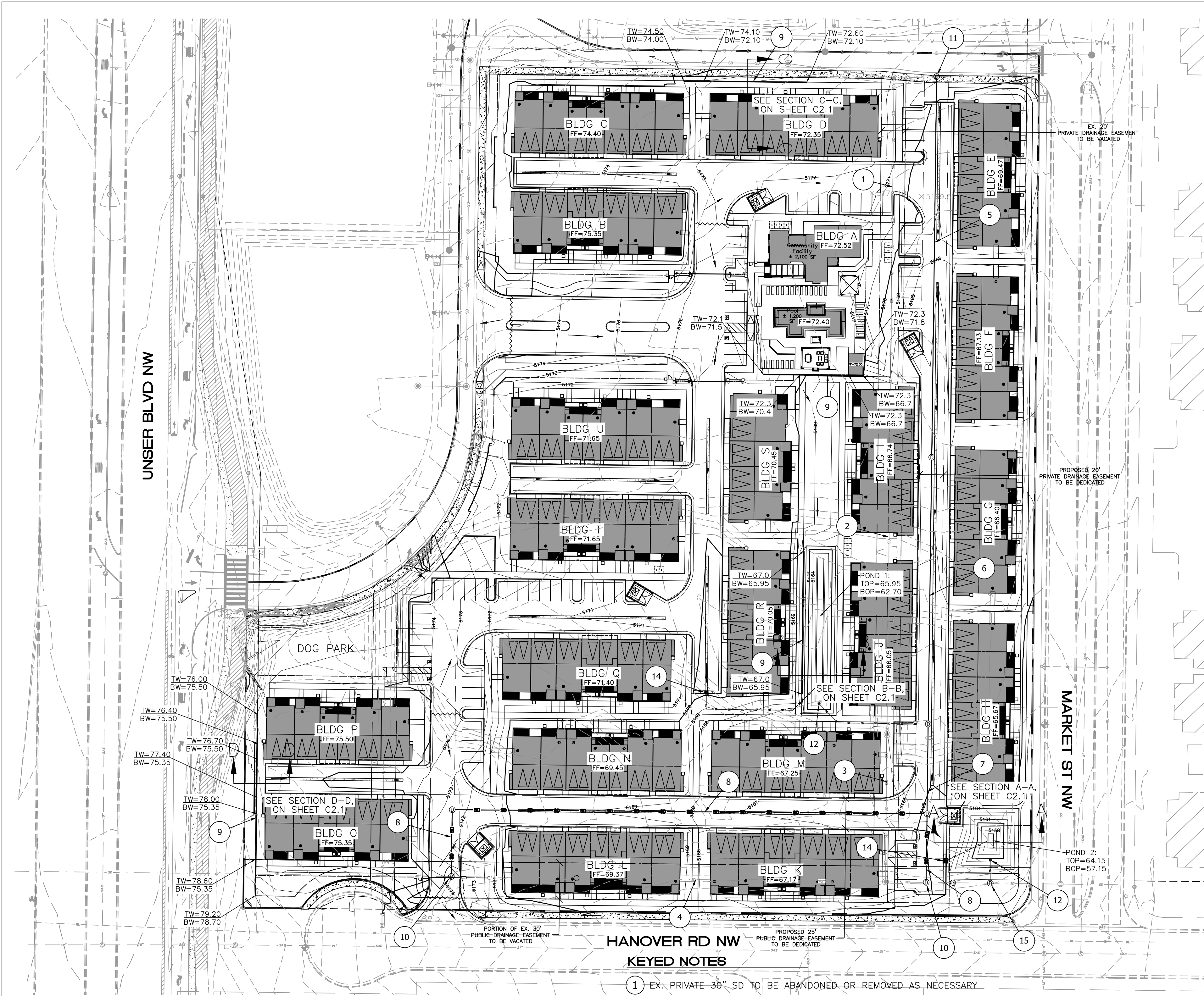
PEAK DISCHARGE RATE = 13.55 CFS AT 1.600 HOURS BASIN AREA =
0.0080 SQ. MI.

*

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:58:21



SPOT ELEVATION NOTES

1. ADD 5100 TO ALL SPOT ELEVATIONS
2. ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.
6. ALL SLOPES NOT STABILIZED AT THE END OF THE PROJECT SHALL BE STABILIZED IN ACCORDANCE WITH THE CITY OF RIO RANCHO SPECS OR 3" GRAVEL

NOTICE TO CONTRACTORS

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HERON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF RIO RANCHO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONNECTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

HANOVER RD NW

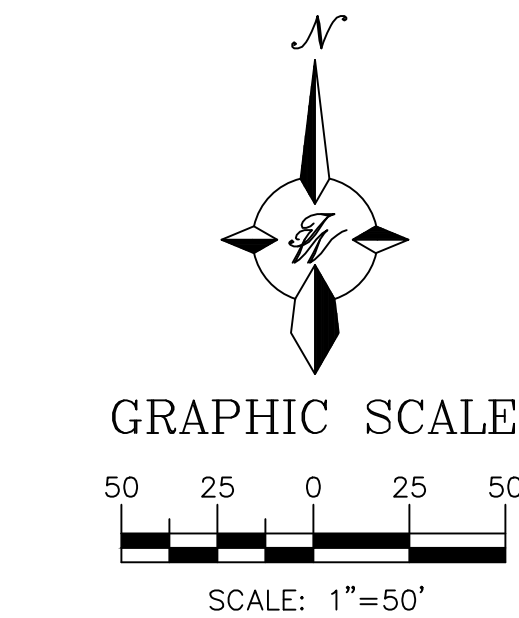
KEYED NOTES

- 1 EX-PRIVATE 30" SD TO BE ABANDONED OR REMOVED AS NECESSARY
- 2 EX. PRIVATE 36" SD TO BE ABANDONED OR REMOVED AS NECESSARY
- 3 EX. PRIVATE 42" SD TO BE ABANDONED OR REMOVED AS NECESSARY
- 4 EX. PUBLIC 42" SD TO BE ABANDONED OR REMOVED AS NECESSARY
- 5 NEW PRIVATE 30" SD
- 6 NEW PRIVATE 36" SD
- 7 NEW PRIVATE 42" SD
- 8 NEW PUBLIC 42" SD
- 9 RETAINING WALL
- 10 TIE NEW PUBLIC 42" SD TO EX. 42" SD VIA MANHOLE CONNECTION
- 11 TIE NEW PRIVATE 30" SD TO EX. 30" SD VIA MANHOLE CONNECTION
- 12 NEW 18" STANDPIPE W/ TRASHRACK, TOP OF PIPE EL=64.35
- 13 NEW 24" STANDPIPE W/ TRASHRACK & 20" ORIFICE PLATE, TOP OF PIPE EL=62.40
- 14 NEW CURB INLET
- 15 TIE NEW PRIVATE SD TO EX. 42 SD VIA MANHOLE CONNECTION

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
PRELIMINARY APPROVED
DATE: 09/30/22
BY: *Ronald R. Bohannon*
HydroTrans # H09D029
THESE PLANS AND/OR REPORT ARE
CONCEPTUAL ONLY. MORE INFORMATION MAY
BE NEEDED IN THEM AND SUBMITTED TO
HYDROLOGY FOR BUILDING PERMIT APPROVAL.

LEGEND

- CURB & GUTTER
- BOUNDARY LINE
- EASEMENT
- CENTERLINE
- RIGHT-OF-WAY
- BUILDING
- PROPOSED SIDEWALK
- EXISTING CURB & GUTTER
- WATER BLOCK
- LANDSCAPING
- EXISTING INDEX CONTOUR
- EXISTING CONTOUR
- PROPOSED INDEX CONTOUR
- PROPOSED CONTOUR
- FLOW



PUBLIC STORM DRAIN NOTE

RELOCATION OF PUBLIC STORM DRAIN LINE WILL REQUIRE AN APPROVED CITY WORK ORDER AND INFRASTRUCTURE IMPROVEMENTS AGREEMENT WITH THE CITY OF ALBUQUERQUE DRC.

CONCEPTUAL GRADING & DRAINAGE NARRATIVE

The purpose of this submittal is to provide a conceptual drainage management plan for EPC approval of the Site Plan for Building Permit for the Keystone Residential Development to be located within Tract B-1 of Heritage Marketplace. This project lies within a 9.05 acre area previously analyzed as part of the Heritage Marketplace Drainage Study by Tierra West, LLC and designated as "Basin B4" anticipated for residential or office development with discharge limited to 21.7 CFS (2.4 CFS/acre) so as not to exceed the total allowable 50 CFS by existing infrastructure constructed by SAD 212.

FLOOD PLAIN

The site is not within a floodplain as shown on FIRM Map 35001C0326J.

EXISTING CONDITIONS

The property over which the Townhome Residential Development will be constructed is currently undeveloped, although the backbone drainage improvements traversing this property to serve the commercial pads to the north and east have been installed. An existing 42 inch RCP storm drain pipe anticipated to accept runoff from the site was constructed with SAD 212 and runs within a drainage easement along the north side of Hanover Road which borders the southerly portion of the site. An existing private 30 inch/36 inch/42inch RCP storm drain pipe runs from north to south through the property for conveying developed flows from the already developed portions of Heritage Marketplace and connects to the public 42 inch RCP along the southern portion of the site. The property generally drains from the northwest to the southeast into an existing inlet connected to the Hanover Road Storm Sewer.

The SAD 212 improvements are configured to accept 50 CFS of runoff from the overall development of approximately 20.8 acres (average rate of 2.4 CFS/acre). Flows from Market Street are contained within the public right-of-way and do not drain into this segment of the SAD 212 storm sewer.

PROPOSED CONDITIONS

Onsite drainage improvements will be configured to not exceed the 21.7 CFS (2.4 CFS/acre) so as not to exceed the total allowable 50 CFS for the overall development. The existing public 42 inch RCP and the privat3 30 inch/36 inch/42 inch RCP pipes will be relocated due conflicting locations with several of the townhome residence buildings. These pipes will be relocated with new dedications for a 25-foot public storm drain easement and a 20-foot private storm drain easement. Developed flows from this site will be attenuated through the use of two above-ground detention/retention pond to be located centrally in the site and at the southeast corner of the site. The ponds will contain standpipes with raised outfalls to retain the first flush water quality volume and then attenuate flows into the public 42 inch storm drain pipe at a combined discharge rate of 21.7 cfs.

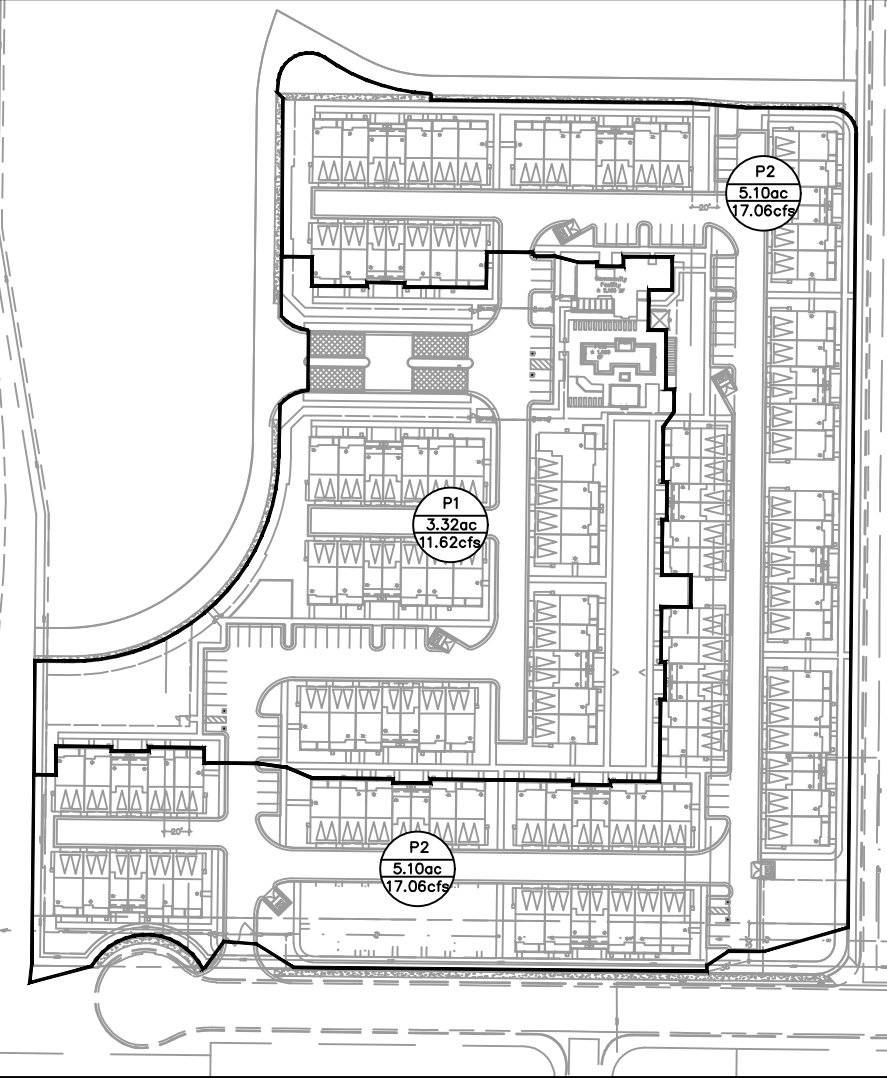
CAUTION

ALL EXISTING UTILITIES SHOWN WERE OBTAINED FROM RESEARCH, AS-BUILTS, SURVEYS OR INFORMATION PROVIDED BY OTHERS. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CONDUCT ALL NECESSARY FIELD INVESTIGATIONS PRIOR TO AND INCLUDING ANY EXCAVATION, TO DETERMINE THE ACTUAL LOCATION OF UTILITIES AND OTHER IMPROVEMENTS, PRIOR TO STARTING THE WORK. ANY CHANGES FROM THIS PLAN SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER.



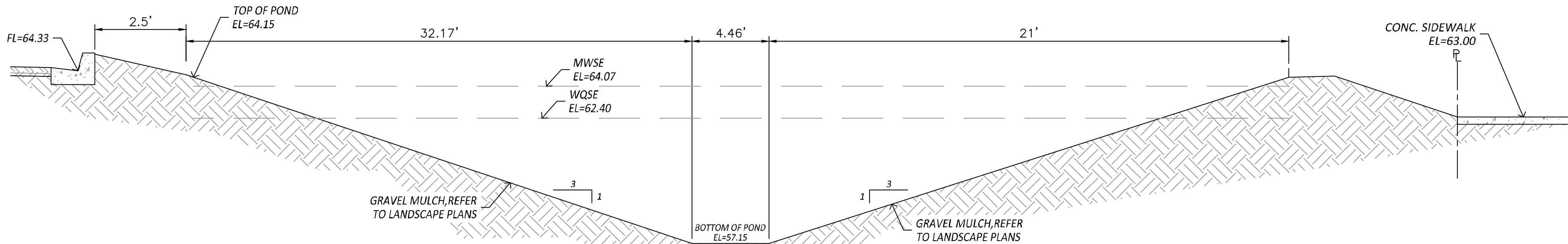
FIRM MAP:

35001C0326J

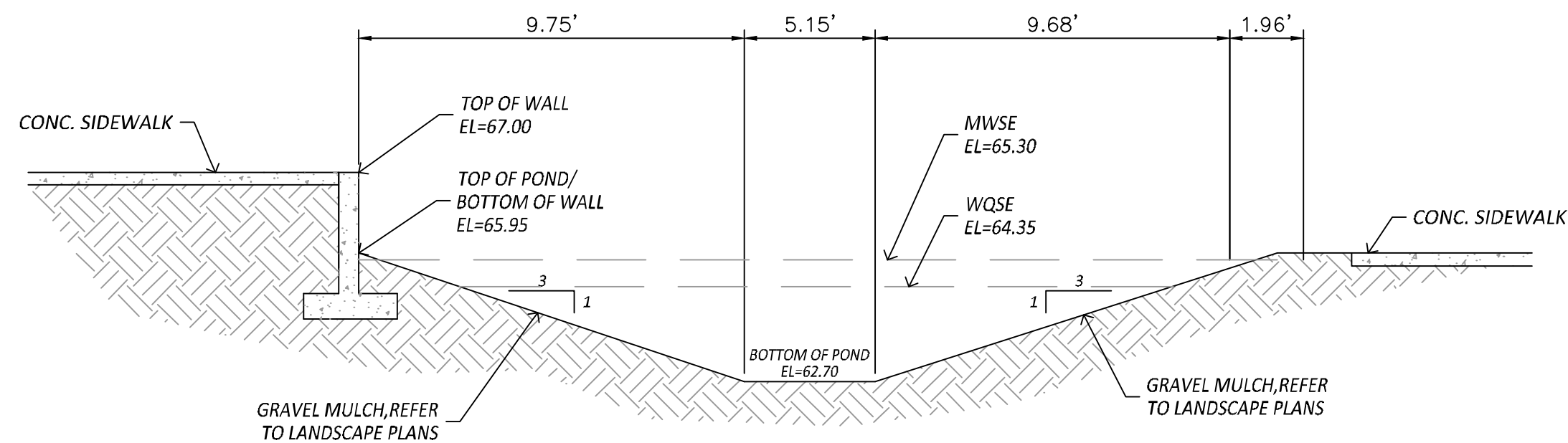


PROPOSED DRAINAGE BASIN MAP:

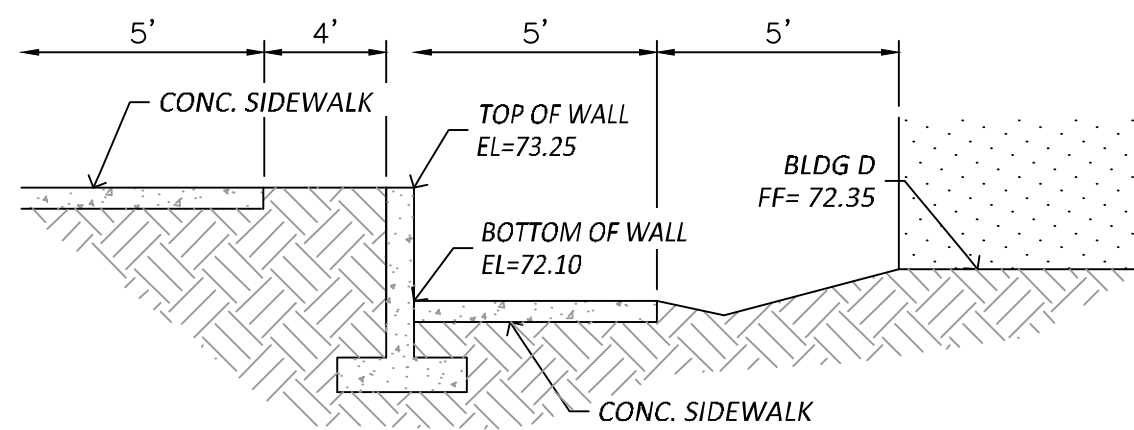
	KEYSTONE- HERITAGE MARKETPLACE ALBUQUERQUE, NM	DRAWN BY JL
	CONCEPTUAL GRADING AND DRAINAGE PLAN	DATE 9-30-22
	 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # C2.0
		JOB # 2022057



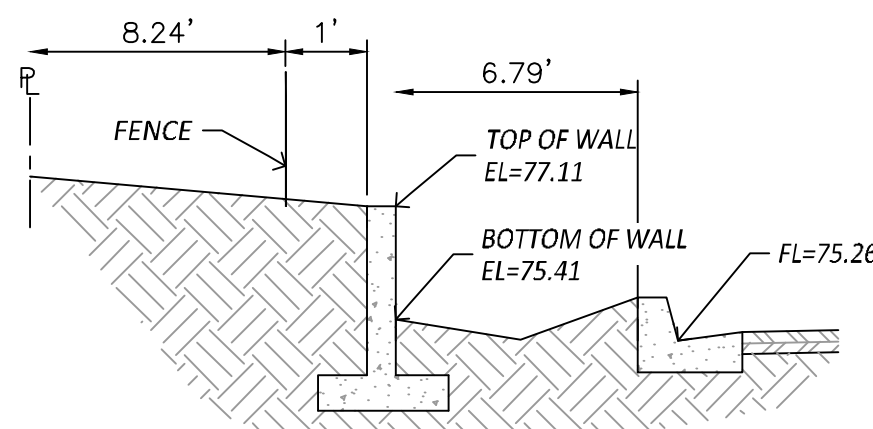
SECTION A-A
NTS



SECTION B-B
NTS



SECTION C-C
NTS



SECTION D-D
NTS

POND 1 (Detention & SWQ Retention)

Pond Volume Calculations

A_b - Bottom Of The Pond Surface Area

A_t - Top Of The Pond Surface Area

D - Water Depth

D_t - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = A_b \cdot D + 0.5 \cdot C \cdot D^2$$

$$C = (A_t - A_b) / D_t$$

$$A_b = 1,341.22 \text{ ft}^2$$

$$A_t = 3,818.78 \text{ ft}^2$$

$$D_t = 3.25 \text{ ft}$$

$$C = 762.33$$

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
62.70	0.00	0.0000	0.0000	BOP
63.20	0.50	0.0176	0.0000	
63.70	1.00	0.0395	0.0000	
64.20	1.50	0.0659	0.0000	
64.35	1.65	0.0746	0.0000	WQSE
64.70	2.00	0.0966	5.0339	
65.20	2.50	0.1317	7.8447	
65.70	3.00	0.1711	9.8863	
65.95	3.25	0.1925	10.7628	TOP

*Stormwater Quality Volume Retention Required = 0.075 Ac-Ft

Orifice Equation

$$Q = CA(2gH)^{1/2}$$

$$C = 0.6$$

$$\text{Diameter (in)} = 18$$

$$\text{Area (ft}^2\text{)} = 1.767$$

$$g = 32.2$$

$$H \text{ (ft)} = \text{Depth of water above center of orifice}$$

$$Q \text{ (cfs)} = \text{Flow}$$

POND 2 (Detention & SWQ Retention)

Pond Volume Calculations

A_b - Bottom Of The Pond Surface Area

A_t - Top Of The Pond Surface Area

D - Water Depth

D_t - Total Pond Depth

C - Change In Surface Area / Water Depth

$$\text{Volume} = A_b \cdot D + 0.5 \cdot C \cdot D^2$$

$$C = (A_t - A_b) / D_t$$

$$A_b = 54.05 \text{ ft}^2$$

$$A_t = 2,942.05 \text{ ft}^2$$

$$D_t = 7.00 \text{ ft}$$

$$C = 412.57$$

ACTUAL ELEVATION	DEPTH (ft)	VOLUME (ac-ft)	Q (cfs)	Note
57.15	0.00	0.0000	0.0000	BOP
57.65	0.50	0.0018	0.0000	
58.15	1.00	0.0060	0.0000	
58.65	1.50	0.0125	0.0000	
59.15	2.00	0.0214	0.0000	
59.65	2.50	0.0327	0.0000	
60.15	3.00	0.0463	0.0000	
60.65	3.50	0.0624	0.0000	
61.15	4.00	0.0807	0.0000	
61.65	4.50	0.1015	0.0000	
62.15	5.00	0.1246	0.0000	
62.40	5.25	0.1370	0.0000	WQSE
62.65	5.50	0.1501	5.2523	
63.15	6.00	0.1779	9.0973	
63.65	6.50	0.2081	11.7446	
64.15	7.00	0.2407	13.8963	

*Stormwater Quality Volume Retention Required = 0.137 Ac-Ft

Orifice Equation

$$Q = CA(2gH)^{1/2}$$

$$C = 0.6$$

$$\text{Diameter (in)} = 20$$

$$\text{Area (ft}^2\text{)} = 2.182$$

$$g = 32.2$$

$$H \text{ (ft)} = \text{Depth of water above center of orifice}$$

$$Q \text{ (cfs)} = \text{Flow}$$

DPM Weighted E Method

Precipitation Zone 1

SE Corner Unser & Ladera

Keystone - Heritage Marketplace

TWLLC

Date 6/24/2022

Existing Conditions

Basin Descriptions										100-Year, 6-Hr			10-Year, 6-Hr				
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
E1	37,962.28	0.871	0.00136	90%	0.784	10%	0.087	0%	0.000	0%	0.000	0.568	0.041	1.40	0.125	0.009	0.31
Total	37,962.28	0.871	0.00136		0.000		0.087		0.000		0.000		0.041	1.40		0.009	0.31

Proposed Conditions

Basin Descriptions											100-Year, 6-Hr			10-Year, 6-Hr			
Basin ID	Area (sf)	Area (acres)	Area (sq miles)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (in)	Volume (ac-ft)	Flow cfs	Weighted E (in)	Volume (ac-ft)	Flow cfs
				%	(acres)	%	(acres)	%	(acres)	%	(acres)						
P1 (West-Center)	144,465.11	3.316	0.00518	0%	0.000	25%	0.829	10%	0.332	65%	2.156	1.734	0.479	11.62	1.038	0.287	6.70
P2 (Perimeter)	222,224.28	5.102	0.00797	0%	0.000	17%	0.000	6%	0.306	77%	3.928	1.782	0.757	17.06	1.127	0.479	10.54
Total	366,689.39	8.418	0.01315	0.000	0.000	0.829	0.000	0.000	6.084				1.237	28.69		0.766	17.24

Equations:

$$\text{Weighted E} = E_a \cdot A_a + E_b \cdot A_b + E_c \cdot A_c + E_d \cdot A_d / (\text{Total Area})$$

$$\text{Volume} = \text{Weighted D} \cdot \text{Total Area}$$

$$\text{Flow} = Q_a \cdot A_a + Q_b \cdot A_b + Q_c \cdot A_c + Q_d \cdot A_d$$

Excess Precipitation, E (in.)			
Zone 1	100-Year	10-Year	
Ea	0.55	0.11	
Eb	0.73	0.26	
Ec	0.95	0.43	
Ed	2.24	1.43	

Peak Discharge (cfs/acre)			
Zone 1	100-Year	10-Year	
Qa	1.54	0.30	
Qb	2.16	0.81	
Qc	2.87	1.46	
Qd	4.12	2.57	

Water Quality Volume (Basin P1)

Total Impervious Area = 2.156 Acres = 93,915.36 SF

Retainage depth = 0.42" = 0.035' (COA DPM Article 6-12)

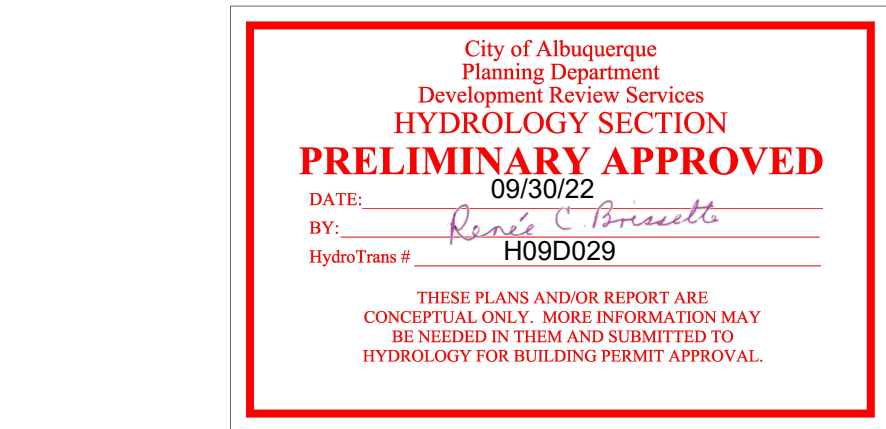
Retention Volume = 0.035 * 93,915.36 = **3,287.04 CF = 0.075 Ac-Ft**

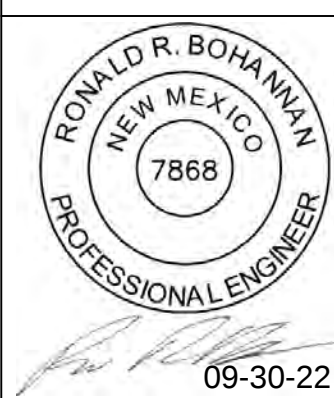
Water Quality Volume (Basin P2)

Total Impervious Area = 3.928 Acres = 171,103.68 SF

Retainage depth = 0.42" = 0.035' (COA DPM Article 6-12)

Retention Volume = 0.035 * 171,103.68 = **5,988.63 CF = 0.137 Ac-Ft**



ENGINEER'S SEAL  RONALD R. BOHANNAN P.E. #7868	KEYSTONE- HERITAGE MARKETPLACE ALBUQUERQUE, NM	DRAWN BY JL
	CONCEPTUAL GRADING AND DRAINAGE PLAN	DATE 6-9-22
	 TIERRA WEST, LLC 5571 MIDWAY PARK PL NE ALBUQUERQUE, NEW MEXICO 87109 (505) 858-3100 www.tierrawestllc.com	SHEET # C2.1
		JOB # 2022057