

CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Interim Director



Mayor Timothy M. Keller

January 14, 2022

Jesus Lopez, P.E.
Respec
5971 Jefferson St. NE
Albuquerque, NM 8710

**RE: Allaso Vineyards Apartments
Grading and Drainage Plans
Engineer's Stamp Date: 11/19/21
Hydrology File: C20D086**

Dear Mr. Lopez:

Based upon the information provided in your submittal received 12/07/2021, the Grading & Drainage Plans is approved for Building Permit, Grading Permit, and Work Order. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the Drainage Covenant with Exhibit A for the detention ponds per Article 6-15(C) of the DPM prior to Permanent Release of Occupancy. Please submit the original copies along with the \$ 25.00 recording fee check made payable to Bernalillo County to Marion G. Velasquez (mgvelasquez@cabq.gov) on the 4th floor of Plaza de Sol. Please note that Hydrology will need a pdf copy of the recorded Drainage Covenant prior to Hydrology's approval of Permanent Release of Occupancy.

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.

CITY OF ALBUQUERQUE

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Mayor Timothy M. Keller

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

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 11/2018)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Owner: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF SUBMITTAL: _____ PLAT (___# OF LOTS) _____ RESIDENCE _____ DRB SITE _____ ADMIN SITE

IS THIS A RESUBMITTAL?: _____ Yes _____ No

DEPARTMENT: _____ TRAFFIC/ TRANSPORTATION _____ HYDROLOGY/ DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- _____ ENGINEER/ARCHITECT CERTIFICATION
- _____ PAD CERTIFICATION
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ DRAINAGE MASTER PLAN
- _____ DRAINAGE REPORT
- _____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- _____ ELEVATION CERTIFICATE
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ TRAFFIC IMPACT STUDY (TIS)
- _____ 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: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____



11/16/2021

Renee Brissette, PE, CFM
Senior Engineer, Hydrology
Planning Department, COA

RE: Allaso Vineyards G&D Plans – Hydrology File C20D086

Dear Ms. Brissette,

RESPEC has revised the grading & drainage plans to accommodate hydrology's comments on 10/18/21. We have included the additional drainage plans for the offsite work as well as the interim grading plan. All of Hydrology's comments have been revised with exceptions and/or clarifications below:

Comment 9:

"At two locations there seems to be missing a segment of pipe from on-site type D inlet to curb line?? If this is what you are doing, than a sidewalk culvert is not need but a pipe through curb per COA drawing 2235."

Response:

The on-site modified type D inlet is intended to function as a french drain and infiltrate stormwater. When the water surface in the inlet exceeds the inlet's grate elevation, then the water will spill through sidewalk culverts into Holly Avenue. The flows have been calculated such that the stormwater discharged over these grates will not exceed the parameters as outlined in the drainage plan.

Should you have any questions or further comments on this project please do not hesitate to contact me at your convenience.

Sincerely,

Jesus Lopez, PE

5971 JEFFERSON ST., NE
SUITE 101
ALBUQUERQUE, NM 87109
505.268.2661



ALLASO VINEYARDS APARTMENTS

HYDROLOGIC SUPPORTING CALCULATIONS

Date: 11/18/2021

Dear Ms. Brissette,

Attached are the AHYMO calculations for the Allaso Vineyards drainage report. Included are both the onsite specific modeling and the offsite calculations encompassing Ventura street and Holly avenue.

Sincerely,

Jesus Lopez



11/19/2021

5971 JEFFERSON ST., NE
SUITE 101
ALBUQUERQUE, NM 87109
505.268.2661



ONSITE AHYMO CALCULATIONS

* 100 YEAR RAINFALL TABLE

RAINFALL TYPE=13 RAIN QUARTER=1.12 IN
RAIN ONE=1.87 IN RAIN SIX=2.41 IN
RAIN DAY=2.94 IN DT=0.05 HR

*S Titan Holly Apt EXISTING

*S COMPUTE HYD EX 1

COMPUTE NM HYD ID=1 HYDNO=101 DA=0.00572SQ MI
PER A=90.7 PER B=0 PER C=9.3 PER D=0
TP=-0.13 RAIN=-1

PRINT HYD ID=1 CODE=10

*S Titan Holly Apt PROPOSED

*S COMPUTE HYD DEV A

COMPUTE NM HYD ID=2 HYDNO=102 DA=0.00227SQ MI
PER A=0 PER B=15.1 PER C=15.1 PER D=69.8
TP=-0.13 RAIN=-1

PRINT HYD ID=2 CODE=10

*S COMPUTE HYD DEV B

COMPUTE NM HYD ID=3 HYDNO=103 DA=0.00217 MI
PER A=0 PER B=9.1 PER C=9.1 PER D=81.8
TP=-0.13 RAIN=-1

PRINT HYD ID=3 CODE=10

*S COMPUTE HYD DEV C

COMPUTE NM HYD ID=4 HYDNO=104 DA=0.00074 MI
PER A=0 PER B=8.2 PER C=8.2 PER D=83.6
TP=-0.13 RAIN=-1

PRINT HYD ID=4 CODE=10

*S ROUTE DEV A THROUGH DETENTION POND

ROUTE RESERVOIR ID=5 HYDNO=501 INFLOW ID=2 CODE=5
OUTFLOW (CFS) STORAGE (AC-FT) ELEV (FT)
0.00 0.000 0
0.01 0.003 1
0.02 0.013 2
0.03 .038 3
0.04 0.058 3.5
5.0 0.083 4

PRINT HYD ID=5 CODE=5

*S COMPUTE HYD OFF 1

COMPUTE NM HYD ID=6 HYDNO=105 DA=0.00027 MI

```
PER A=0 PER B=5.8 PER C=5.8 PER D=88.4
TP=-0.13 RAIN=-1
PRINT HYD ID=6 CODE=10

*S COMPUTE HYD OFF 2
COMPUTE NM HYD ID=7 HYDNO=106 DA=0.00022 MI
PER A=0 PER B=15.6 PER C=15.6 PER D=68.8
TP=-0.13 RAIN=-1
PRINT HYD ID=7 CODE=10

FINISH
```


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=13									RAIN24= 2.940
*S Titan Holly Apt EXISTING										
*S COMPUTE HYD EX 1										
COMPUTE NM HYD	101.00	-	1	0.00572	6.01	0.168	0.55115	1.500	1.642	PER IMP= 0.00
*S Titan Holly Apt PROPOSED										
*S COMPUTE HYD DEV A										
COMPUTE NM HYD	102.00	-	2	0.00227	5.58	0.260	2.14614	1.500	3.840	PER IMP= 69.80
*S COMPUTE HYD DEV B										
COMPUTE NM HYD	103.00	-	3	0.00217	5.62	0.273	2.36145	1.500	4.045	PER IMP= 81.80
*S COMPUTE HYD DEV C										
COMPUTE NM HYD	104.00	-	4	0.00074	1.94	0.094	2.39375	1.500	4.099	PER IMP= 83.60
*S ROUTE DEV A THROUGH DETENTION POND										
ROUTE RESERVOIR	501.00	2	5	0.00227	4.04	0.260	2.14600	1.600	2.778	AC-FT= 0.078
*S COMPUTE HYD OFF 1										
COMPUTE NM HYD	105.00	-	6	0.00027	0.73	0.036	2.47988	1.500	4.234	PER IMP= 88.40
*S COMPUTE HYD OFF 2										
COMPUTE NM HYD	106.00	-	7	0.00022	0.55	0.025	2.12819	1.500	3.927	PER IMP= 68.80
FINISH										

AHYMO PROGRAM (AHYMO-S4) - Version: S4.02a - Rel: 02a
RUN DATE (MON/DAY/YR) = 11/18/2021
START TIME (HR:MIN:SEC) = 12:38:48 USER NO.= AHYMO-S4TempUser05901704
INPUT FILE = N:\CDS Library\Engineering Tools\AHYMO-S4\04012 Titan Holly Apt Onsite Input.hmi

* 100 YEAR RAINFALL TABLE
RAINFALL TYPE=13 RAIN QUARTER=1.12 IN
RAIN ONE=1.87 IN RAIN SIX=2.41 IN
RAIN DAY=2.94 IN DT=0.05 HR

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

DT =	0.050000 HOURS	END TIME =	24.000002 HOURS
0.0000	0.0064	0.0130	0.0198
0.0493	0.0573	0.0657	0.0745
0.1137	0.1248	0.1365	0.1490
0.2002	0.2089	0.2341	0.2938
1.0955	1.3418	1.4531	1.5460
1.8261	1.8813	1.9321	1.9789
2.0818	2.0908	2.0992	2.1073
2.1365	2.1431	2.1496	2.1558
2.1792	2.1846	2.1900	2.1952
2.2152	2.2199	2.2246	2.2291
2.2467	2.2509	2.2551	2.2592
2.2751	2.2789	2.2827	2.2865
2.3010	2.3045	2.3080	2.3115
2.3250	2.3283	2.3315	2.3348
2.3474	2.3505	2.3535	2.3566
2.3685	2.3714	2.3743	2.3771
2.3884	2.3912	2.3939	2.3966
2.4074	2.4100	2.4123	2.4145
2.4234	2.4256	2.4278	2.4300
2.4387	2.4408	2.4430	2.4451
2.4536	2.4557	2.4578	2.4599
2.4681	2.4702	2.4722	2.4743
2.4824	2.4844	2.4864	2.4884
2.4963	2.4983	2.5003	2.5022
2.5100	2.5119	2.5138	2.5157
2.5233	2.5252	2.5271	2.5290
2.5364	2.5383	2.5401	2.5420
2.5493	2.5511	2.5529	2.5547
2.5619	2.5637	2.5654	2.5672
2.5742	2.5760	2.5777	2.5795
2.5864	2.5881	2.5898	2.5915
2.5983	2.6000	2.6016	2.6033
2.6100	2.6116	2.6133	2.6149
2.6215	2.6231	2.6247	2.6263
2.6328	2.6344	2.6360	2.6376
2.6439	2.6455	2.6470	2.6486

2.6548	2.6564	2.6579	2.6595	2.6610	2.6625	2.6641
2.6656	2.6671	2.6686	2.6701	2.6716	2.6732	2.6747
2.6762	2.6777	2.6792	2.6807	2.6821	2.6836	2.6851
2.6866	2.6881	2.6895	2.6910	2.6925	2.6939	2.6954
2.6969	2.6983	2.6998	2.7012	2.7027	2.7041	2.7055
2.7070	2.7084	2.7098	2.7113	2.7127	2.7141	2.7155
2.7169	2.7184	2.7198	2.7212	2.7226	2.7240	2.7254
2.7268	2.7282	2.7296	2.7309	2.7323	2.7337	2.7351
2.7365	2.7378	2.7392	2.7406	2.7419	2.7433	2.7447
2.7460	2.7474	2.7487	2.7501	2.7514	2.7528	2.7541
2.7554	2.7568	2.7581	2.7594	2.7608	2.7621	2.7634
2.7647	2.7660	2.7674	2.7687	2.7700	2.7713	2.7726
2.7739	2.7752	2.7765	2.7778	2.7791	2.7804	2.7817
2.7829	2.7842	2.7855	2.7868	2.7881	2.7893	2.7906
2.7919	2.7931	2.7944	2.7957	2.7969	2.7982	2.7994
2.8007	2.8019	2.8032	2.8044	2.8057	2.8069	2.8082
2.8094	2.8106	2.8119	2.8131	2.8143	2.8156	2.8168
2.8180	2.8192	2.8205	2.8217	2.8229	2.8241	2.8253
2.8265	2.8277	2.8289	2.8301	2.8313	2.8325	2.8337
2.8349	2.8361	2.8373	2.8385	2.8397	2.8408	2.8420
2.8432	2.8444	2.8456	2.8467	2.8479	2.8491	2.8502
2.8514	2.8526	2.8537	2.8549	2.8561	2.8572	2.8584
2.8595	2.8607	2.8618	2.8630	2.8641	2.8652	2.8664
2.8675	2.8687	2.8698	2.8709	2.8721	2.8732	2.8743
2.8755	2.8766	2.8777	2.8788	2.8799	2.8811	2.8822
2.8833	2.8844	2.8855	2.8866	2.8877	2.8888	2.8899
2.8910	2.8921	2.8932	2.8943	2.8954	2.8965	2.8976
2.8987	2.8998	2.9009	2.9020	2.9031	2.9041	2.9052
2.9063	2.9074	2.9085	2.9095	2.9106	2.9117	2.9127
2.9138	2.9149	2.9159	2.9170	2.9181	2.9191	2.9202
2.9212	2.9223	2.9233	2.9244	2.9255	2.9265	2.9275
2.9286	2.9296	2.9307	2.9317	2.9328	2.9338	2.9348
2.9359	2.9369	2.9379	2.9390	2.9400		

*S Titan Holly Apt EXISTING

*S COMPUTE HYD EX 1

COMPUTE NM HYD ID=1 HYDNO=101 DA=0.00572SQ MI
PER A=90.7 PER B=0 PER C=9.3 PER D=0
TP=-0.13 RAIN=-1

K = 0.154388HR TP = 0.130000HR K/TP RATIO = 1.187598 SHAPE CONSTANT, N = 2.989496
UNIT PEAK = 12.363 CFS UNIT VOLUME = 0.9978 B = 280.97 P60 = 1.8700
AREA = 0.005720 SQ MI IA = 0.62210 INCHES INF = 1.59188 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	1.000	0.0	2.000	0.5	3.000	0.1	4.000	0.0
0.500	0.0	1.500	6.0	2.500	0.2	3.500	0.0		

RUNOFF VOLUME = 0.55115 INCHES = 0.1681 ACRE-FEET
PEAK DISCHARGE RATE = 6.01 CFS AT 1.500 HOURS BASIN AREA = 0.0057 SQ. MI.

*S Titan Holly Apt PROPOSED

*S COMPUTE HYD DEV A
COMPUTE NM HYD ID=2 HYDNO=102 DA=0.00227SQ MI
PER A=0 PER B=15.1 PER C=15.1 PER D=69.8
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 6.4143 CFS UNIT VOLUME = 0.9976 B = 526.28 P60 = 1.8700
AREA = 0.001584 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115497HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
UNIT PEAK = 1.8703 CFS UNIT VOLUME = 0.9949 B = 354.66 P60 = 1.8700
AREA = 0.000686 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.1	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.2	6.000	0.1	11.000	0.0	16.000	0.0	21.000	0.0
1.500	5.6	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	1.2	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.2	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.1	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.1	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.1	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.14614 INCHES = 0.2598 ACRE-FEET

PEAK DISCHARGE RATE = 5.58 CFS AT 1.500 HOURS BASIN AREA = 0.0023 SQ. MI.

*S COMPUTE HYD DEV B
COMPUTE NM HYD ID=3 HYDNO=103 DA=0.00217 MI
PER A=0 PER B=9.1 PER C=9.1 PER D=81.8
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 7.1859 CFS UNIT VOLUME = 0.9980 B = 526.28 P60 = 1.8700
AREA = 0.001775 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115497HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
UNIT PEAK = 1.0775 CFS UNIT VOLUME = 0.9895 B = 354.66 P60 = 1.8700
AREA = 0.000395 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
0.000	0.0	5.000	0.1	10.000	0.0	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.1	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.2	6.000	0.1	11.000	0.0	16.000	0.0	21.000	0.0
1.500	5.6	6.500	0.1	11.500	0.0	16.500	0.0	21.500	0.0
2.000	1.3	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.2	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.1	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.1	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.1	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.1	9.500	0.0	14.500	0.0	19.500	0.0	24.500	0.0

RUNOFF VOLUME = 2.36145 INCHES = 0.2733 ACRE-FEET
PEAK DISCHARGE RATE = 5.62 CFS AT 1.500 HOURS BASIN AREA = 0.0022 SQ. MI.

*S COMPUTE HYD DEV C
COMPUTE NM HYD ID=4 HYDNO=104 DA=0.00074 MI
PER A=0 PER B=8.2 PER C=8.2 PER D=83.6
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 2.5044 CFS UNIT VOLUME = 0.9949 B = 526.28 P60 = 1.8700
AREA = 0.000619 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115498HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
UNIT PEAK = 0.33109 CFS UNIT VOLUME = 0.9630 B = 354.66 P60 = 1.8700
AREA = 0.000121 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=4 CODE=10

PARTIAL HYDROGRAPH 104.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.0	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.1	6.000	0.0	11.000	0.0	16.000	0.0	21.000	0.0
1.500	1.9	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	0.4	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.1	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.0	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.0	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.0	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.39375 INCHES = 0.0945 ACRE-FEET
PEAK DISCHARGE RATE = 1.94 CFS AT 1.500 HOURS BASIN AREA = 0.0007 SQ. MI.

*S ROUTE DEV A THROUGH DETENTION POND

ROUTE RESERVOIR	ID=5	HYDNO=501	INFLOW	ID=2	CODE=5
	OUTFLOW (CFS)	STORAGE (AC-FT)	ELEV (FT)		
	0.00	0.000	0		
	0.01	0.003	1		
	0.02	0.013	2		
	0.03	.038	3		
	0.04	0.058	3.5		
	5.0	0.083	4		

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
0.00	0.00	0.00	0.000	0.00
0.25	0.00	0.00	0.000	0.00
0.50	0.00	0.00	0.000	0.00
0.75	0.07	0.08	0.000	0.00
1.00	0.21	1.03	0.003	0.01
1.25	0.59	1.53	0.008	0.02
1.50	5.58	3.66	0.066	1.65
1.75	2.08	3.76	0.071	2.59
2.00	1.18	3.63	0.065	1.36
2.25	0.36	3.55	0.060	0.51
2.50	0.18	3.52	0.059	0.22
2.75	0.11	3.51	0.058	0.12
3.00	0.07	3.50	0.058	0.08
3.25	0.06	3.50	0.058	0.07
3.50	0.06	3.50	0.058	0.06
3.75	0.05	3.50	0.058	0.05
4.00	0.05	3.50	0.058	0.05
4.25	0.05	3.50	0.058	0.05
4.50	0.05	3.50	0.058	0.05
4.75	0.05	3.50	0.058	0.05
5.00	0.05	3.50	0.058	0.05
5.25	0.05	3.50	0.058	0.05
5.50	0.05	3.50	0.058	0.05
5.75	0.05	3.50	0.058	0.05
6.00	0.05	3.50	0.058	0.05
6.25	0.05	3.50	0.058	0.05
6.50	0.05	3.50	0.058	0.05
6.75	0.04	3.50	0.058	0.04
7.00	0.04	3.50	0.058	0.04
7.25	0.04	3.50	0.058	0.04
7.50	0.04	3.50	0.058	0.04
7.75	0.04	3.50	0.058	0.04
8.00	0.04	3.50	0.058	0.04
8.25	0.04	3.50	0.058	0.04
8.50	0.04	3.50	0.058	0.04
8.75	0.04	3.50	0.058	0.04
9.00	0.04	3.50	0.058	0.04
9.25	0.04	3.50	0.058	0.04
9.50	0.04	3.50	0.058	0.04
9.75	0.04	3.50	0.058	0.04
10.00	0.04	3.49	0.058	0.04
10.25	0.04	3.49	0.058	0.04
10.50	0.04	3.49	0.058	0.04
10.75	0.03	3.49	0.057	0.04
11.00	0.03	3.48	0.057	0.04
11.25	0.03	3.48	0.057	0.04

11.50	0.03	3.48	0.057	0.04
11.75	0.03	3.48	0.057	0.04
12.00	0.03	3.47	0.057	0.04
12.25	0.03	3.47	0.057	0.04
12.50	0.03	3.47	0.057	0.04
12.75	0.03	3.46	0.056	0.04
13.00	0.03	3.46	0.056	0.04
13.25	0.03	3.45	0.056	0.04
13.50	0.03	3.45	0.056	0.04
13.75	0.03	3.44	0.056	0.04

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
14.00	0.03	3.44	0.056	0.04
14.25	0.03	3.44	0.055	0.04
14.50	0.03	3.43	0.055	0.04
14.75	0.03	3.43	0.055	0.04
15.00	0.03	3.42	0.055	0.04
15.25	0.03	3.42	0.055	0.04
15.50	0.03	3.41	0.054	0.04
15.75	0.03	3.41	0.054	0.04
16.00	0.03	3.40	0.054	0.04
16.25	0.03	3.39	0.054	0.04
16.50	0.03	3.39	0.054	0.04
16.75	0.03	3.38	0.053	0.04
17.00	0.03	3.38	0.053	0.04
17.25	0.03	3.37	0.053	0.04
17.50	0.03	3.37	0.053	0.04
17.75	0.03	3.36	0.052	0.04
18.00	0.03	3.35	0.052	0.04
18.25	0.03	3.35	0.052	0.04
18.50	0.03	3.34	0.052	0.04
18.75	0.03	3.34	0.051	0.04
19.00	0.02	3.33	0.051	0.04
19.25	0.02	3.32	0.051	0.04
19.50	0.02	3.32	0.051	0.04
19.75	0.02	3.31	0.050	0.04
20.00	0.02	3.31	0.050	0.04
20.25	0.02	3.30	0.050	0.04
20.50	0.02	3.29	0.050	0.04
20.75	0.02	3.29	0.049	0.04
21.00	0.02	3.28	0.049	0.04
21.25	0.02	3.27	0.049	0.04
21.50	0.02	3.27	0.049	0.04
21.75	0.02	3.26	0.048	0.04
22.00	0.02	3.25	0.048	0.04
22.25	0.02	3.25	0.048	0.03
22.50	0.02	3.24	0.048	0.03

22.75	0.02	3.23	0.047	0.03
23.00	0.02	3.23	0.047	0.03
23.25	0.02	3.22	0.047	0.03
23.50	0.02	3.21	0.047	0.03
23.75	0.02	3.21	0.046	0.03
24.00	0.02	3.20	0.046	0.03
24.25	0.00	3.19	0.046	0.03
24.50	0.00	3.17	0.045	0.03
24.75	0.00	3.16	0.044	0.03
25.00	0.00	3.14	0.044	0.03
25.25	0.00	3.12	0.043	0.03
25.50	0.00	3.11	0.042	0.03
25.75	0.00	3.09	0.042	0.03
26.00	0.00	3.07	0.041	0.03
26.25	0.00	3.06	0.040	0.03
26.50	0.00	3.04	0.040	0.03
26.75	0.00	3.03	0.039	0.03
27.00	0.00	3.01	0.038	0.03
27.25	0.00	2.99	0.038	0.03
27.50	0.00	2.97	0.037	0.03
27.75	0.00	2.94	0.037	0.03

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
28.00	0.00	2.92	0.036	0.03
28.25	0.00	2.89	0.035	0.03
28.50	0.00	2.87	0.035	0.03
28.75	0.00	2.85	0.034	0.03
29.00	0.00	2.82	0.034	0.03
29.25	0.00	2.80	0.033	0.03
29.50	0.00	2.78	0.032	0.03
29.75	0.00	2.75	0.032	0.03
30.00	0.00	2.73	0.031	0.03
30.25	0.00	2.71	0.031	0.03
30.50	0.00	2.69	0.030	0.03
30.75	0.00	2.66	0.030	0.03
31.00	0.00	2.64	0.029	0.03
31.25	0.00	2.62	0.029	0.03
31.50	0.00	2.60	0.028	0.03
31.75	0.00	2.58	0.027	0.03
32.00	0.00	2.56	0.027	0.03
32.25	0.00	2.53	0.026	0.03
32.50	0.00	2.51	0.026	0.03
32.75	0.00	2.49	0.025	0.02
33.00	0.00	2.47	0.025	0.02
33.25	0.00	2.45	0.024	0.02
33.50	0.00	2.43	0.024	0.02
33.75	0.00	2.41	0.023	0.02

34.00	0.00	2.39	0.023	0.02
34.25	0.00	2.37	0.022	0.02
34.50	0.00	2.35	0.022	0.02
34.75	0.00	2.33	0.021	0.02
35.00	0.00	2.31	0.021	0.02
35.25	0.00	2.30	0.020	0.02
35.50	0.00	2.28	0.020	0.02
35.75	0.00	2.26	0.019	0.02
36.00	0.00	2.24	0.019	0.02
36.25	0.00	2.22	0.019	0.02
36.50	0.00	2.20	0.018	0.02
36.75	0.00	2.18	0.018	0.02
37.00	0.00	2.17	0.017	0.02
37.25	0.00	2.15	0.017	0.02
37.50	0.00	2.13	0.016	0.02
37.75	0.00	2.11	0.016	0.02
38.00	0.00	2.10	0.015	0.02
38.25	0.00	2.08	0.015	0.02
38.50	0.00	2.06	0.015	0.02
38.75	0.00	2.04	0.014	0.02
39.00	0.00	2.03	0.014	0.02
39.25	0.00	2.01	0.013	0.02
39.50	0.00	1.99	0.013	0.02
39.75	0.00	1.95	0.012	0.02
40.00	0.00	1.91	0.012	0.02
40.25	0.00	1.87	0.012	0.02
40.50	0.00	1.83	0.011	0.02
40.75	0.00	1.79	0.011	0.02
41.00	0.00	1.76	0.011	0.02
41.25	0.00	1.72	0.010	0.02
41.50	0.00	1.68	0.010	0.02
41.75	0.00	1.65	0.009	0.02

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
42.00	0.00	1.62	0.009	0.02
42.25	0.00	1.58	0.009	0.02
42.50	0.00	1.55	0.009	0.02
42.75	0.00	1.52	0.008	0.02
43.00	0.00	1.49	0.008	0.01
43.25	0.00	1.46	0.008	0.01
43.50	0.00	1.43	0.007	0.01
43.75	0.00	1.40	0.007	0.01
44.00	0.00	1.37	0.007	0.01
44.25	0.00	1.34	0.006	0.01
44.50	0.00	1.31	0.006	0.01
44.75	0.00	1.29	0.006	0.01
45.00	0.00	1.26	0.006	0.01

45.25	0.00	1.24	0.005	0.01
45.50	0.00	1.21	0.005	0.01
45.75	0.00	1.19	0.005	0.01
46.00	0.00	1.16	0.005	0.01
46.25	0.00	1.14	0.004	0.01
46.50	0.00	1.11	0.004	0.01
46.75	0.00	1.09	0.004	0.01
47.00	0.00	1.07	0.004	0.01
47.25	0.00	1.05	0.003	0.01
47.50	0.00	1.03	0.003	0.01
47.75	0.00	1.00	0.003	0.01
48.00	0.00	0.95	0.003	0.01
48.25	0.00	0.88	0.003	0.01
48.50	0.00	0.83	0.002	0.01
48.75	0.00	0.77	0.002	0.01
49.00	0.00	0.72	0.002	0.01
49.25	0.00	0.67	0.002	0.01
49.50	0.00	0.63	0.002	0.01
49.75	0.00	0.59	0.002	0.01
50.00	0.00	0.55	0.002	0.01
50.25	0.00	0.51	0.002	0.01
50.50	0.00	0.48	0.001	0.00

PEAK DISCHARGE = 4.036 CFS - PEAK OCCURS AT HOUR 1.60
 MAXIMUM WATER SURFACE ELEVATION = 3.903
 MAXIMUM STORAGE = 0.0781 AC-FT INCREMENTAL TIME= 0.050000HRS

PRINT HYD ID=5 CODE=5

OUTFLOW HYDROGRAPH RESERVOIR 501.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	11.250	0.0	22.500	0.0	33.750	0.0	45.000	0.0
0.250	0.0	11.500	0.0	22.750	0.0	34.000	0.0	45.250	0.0
0.500	0.0	11.750	0.0	23.000	0.0	34.250	0.0	45.500	0.0
0.750	0.0	12.000	0.0	23.250	0.0	34.500	0.0	45.750	0.0
1.000	0.0	12.250	0.0	23.500	0.0	34.750	0.0	46.000	0.0
1.250	0.0	12.500	0.0	23.750	0.0	35.000	0.0	46.250	0.0
1.500	1.6	12.750	0.0	24.000	0.0	35.250	0.0	46.500	0.0
1.750	2.6	13.000	0.0	24.250	0.0	35.500	0.0	46.750	0.0
2.000	1.4	13.250	0.0	24.500	0.0	35.750	0.0	47.000	0.0
2.250	0.5	13.500	0.0	24.750	0.0	36.000	0.0	47.250	0.0
2.500	0.2	13.750	0.0	25.000	0.0	36.250	0.0	47.500	0.0
2.750	0.1	14.000	0.0	25.250	0.0	36.500	0.0	47.750	0.0
3.000	0.1	14.250	0.0	25.500	0.0	36.750	0.0	48.000	0.0
3.250	0.1	14.500	0.0	25.750	0.0	37.000	0.0	48.250	0.0
3.500	0.1	14.750	0.0	26.000	0.0	37.250	0.0	48.500	0.0
3.750	0.1	15.000	0.0	26.250	0.0	37.500	0.0	48.750	0.0
4.000	0.1	15.250	0.0	26.500	0.0	37.750	0.0	49.000	0.0

4.250	0.0	15.500	0.0	26.750	0.0	38.000	0.0	49.250	0.0
4.500	0.0	15.750	0.0	27.000	0.0	38.250	0.0	49.500	0.0
4.750	0.0	16.000	0.0	27.250	0.0	38.500	0.0	49.750	0.0
5.000	0.0	16.250	0.0	27.500	0.0	38.750	0.0	50.000	0.0
5.250	0.0	16.500	0.0	27.750	0.0	39.000	0.0	50.250	0.0
5.500	0.1	16.750	0.0	28.000	0.0	39.250	0.0	50.500	0.0
5.750	0.1	17.000	0.0	28.250	0.0	39.500	0.0	50.750	0.0
6.000	0.1	17.250	0.0	28.500	0.0	39.750	0.0	51.000	0.0
6.250	0.0	17.500	0.0	28.750	0.0	40.000	0.0	51.250	0.0
6.500	0.0	17.750	0.0	29.000	0.0	40.250	0.0	51.500	0.0
6.750	0.0	18.000	0.0	29.250	0.0	40.500	0.0	51.750	0.0
7.000	0.0	18.250	0.0	29.500	0.0	40.750	0.0	52.000	0.0
7.250	0.0	18.500	0.0	29.750	0.0	41.000	0.0	52.250	0.0
7.500	0.0	18.750	0.0	30.000	0.0	41.250	0.0	52.500	0.0
7.750	0.0	19.000	0.0	30.250	0.0	41.500	0.0	52.750	0.0
8.000	0.0	19.250	0.0	30.500	0.0	41.750	0.0	53.000	0.0
8.250	0.0	19.500	0.0	30.750	0.0	42.000	0.0	53.250	0.0
8.500	0.0	19.750	0.0	31.000	0.0	42.250	0.0	53.500	0.0
8.750	0.0	20.000	0.0	31.250	0.0	42.500	0.0	53.750	0.0
9.000	0.0	20.250	0.0	31.500	0.0	42.750	0.0	54.000	0.0
9.250	0.0	20.500	0.0	31.750	0.0	43.000	0.0	54.250	0.0
9.500	0.0	20.750	0.0	32.000	0.0	43.250	0.0	54.500	0.0
9.750	0.0	21.000	0.0	32.250	0.0	43.500	0.0	54.750	0.0
10.000	0.0	21.250	0.0	32.500	0.0	43.750	0.0	55.000	0.0
10.250	0.0	21.500	0.0	32.750	0.0	44.000	0.0	55.250	0.0
10.500	0.0	21.750	0.0	33.000	0.0	44.250	0.0	55.500	0.0
10.750	0.0	22.000	0.0	33.250	0.0	44.500	0.0	55.750	0.0
11.000	0.0	22.250	0.0	33.500	0.0	44.750	0.0	56.000	0.0

RUNOFF VOLUME = 2.14600 INCHES = 0.2598 ACRE-FEET
PEAK DISCHARGE RATE = 4.04 CFS AT 1.600 HOURS BASIN AREA = 0.0023 SQ. MI.

*S COMPUTE HYD OFF 1
COMPUTE NM HYD ID=6 HYDNO=105 DA=0.00027 MI
PER A=0 PER B=5.8 PER C=5.8 PER D=88.4
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.96624 CFS UNIT VOLUME = 0.9878 B = 526.28 P60 = 1.8700
AREA = 0.000239 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115497HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
UNIT PEAK = 0.85447E-01CFS UNIT VOLUME = 0.8788 B = 354.66 P60 = 1.8700

AREA = 0.000031 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=6 CODE=10

PARTIAL HYDROGRAPH 105.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.0	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.0	6.000	0.0	11.000	0.0	16.000	0.0	21.000	0.0
1.500	0.7	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	0.2	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.0	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.0	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.0	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.0	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.47988 INCHES = 0.0357 ACRE-FEET
PEAK DISCHARGE RATE = 0.73 CFS AT 1.500 HOURS BASIN AREA = 0.0003 SQ. MI.

*S COMPUTE HYD OFF 2
COMPUTE NM HYD ID=7 HYDNO=106 DA=0.00022 MI
PER A=0 PER B=15.6 PER C=15.6 PER D=68.8
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 0.61275 CFS UNIT VOLUME = 0.9809 B = 526.28 P60 = 1.8700
AREA = 0.000151 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115497HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
UNIT PEAK = 0.18726 CFS UNIT VOLUME = 0.9327 B = 354.66 P60 = 1.8700
AREA = 0.000069 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=7 CODE=10

PARTIAL HYDROGRAPH 106.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0

0.500	0.0	5.500	0.0	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.0	6.000	0.0	11.000	0.0	16.000	0.0	21.000	0.0
1.500	0.6	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	0.1	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.0	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.0	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.0	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.0	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.12819 INCHES = 0.0250 ACRE-FEET
 PEAK DISCHARGE RATE = 0.55 CFS AT 1.500 HOURS BASIN AREA = 0.0002 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:38:49



OFFSITE AHYMO CALCULATIONS

* 100 YEAR RAINFALL TABLE

RAINFALL TYPE=13 RAIN QUARTER=1.12 IN
 RAIN ONE=1.87 IN RAIN SIX=2.41 IN
 RAIN DAY=2.94 IN DT=0.05 HR

*S COMPUTE HYD OFF 1

COMPUTE NM HYD ID=1 HYDNO=101 DA=0.00273 MI
 PER A=0 PER B=0 PER C=6.7 PER D=93.3
 TP=-0.13 RAIN=-1
PRINT HYD ID=1 CODE=10

*S COMPUTE HYD OFF 2

COMPUTE NM HYD ID=2 HYDNO=102 DA=0.00108 MI
 PER A=0 PER B=0 PER C=11.8 PER D=88.2
 TP=-0.13 RAIN=-1
PRINT HYD ID=2 CODE=10

*S COMPUTE HYD OFF 3

COMPUTE NM HYD ID=3 HYDNO=103 DA=0.00133 MI
 PER A=0 PER B=16.5 PER C=16.5 PER D=67.0
 TP=-0.13 RAIN=-1
PRINT HYD ID=3 CODE=10

FINISH

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=13									RAIN24= 2.940
*S	COMPUTE HYD OFF 1									
COMPUTE NM HYD	101.00	-	1	0.00273	7.45	0.376	2.57977	1.500	4.266	PER IMP= 93.30
*S	COMPUTE HYD OFF 2									
COMPUTE NM HYD	102.00	-	2	0.00108	2.91	0.144	2.49738	1.500	4.213	PER IMP= 88.20
*S	COMPUTE HYD OFF 3									
COMPUTE NM HYD	103.00	-	3	0.00133	3.23	0.149	2.09590	1.500	3.798	PER IMP= 67.00
FINISH										

AHYMO PROGRAM (AHYMO-S4) - Version: S4.02a - Rel: 02a
RUN DATE (MON/DAY/YR) = 11/18/2021
START TIME (HR:MIN:SEC) = 12:44:58 USER NO.= AHYMO-S4TempUser05901704
INPUT FILE = :\\CDS Library\\Engineering Tools\\AHYMO-S4\\04012 Titan Holly Apt Offsite Input.hmi

* 100 YEAR RAINFALL TABLE
RAINFALL TYPE=13 RAIN QUARTER=1.12 IN
RAIN ONE=1.87 IN RAIN SIX=2.41 IN
RAIN DAY=2.94 IN DT=0.05 HR

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

DT =	0.050000	HOURS	END TIME =	24.000002	HOURS	
0.0000	0.0064	0.0130	0.0198	0.0268	0.0340	0.0415
0.0493	0.0573	0.0657	0.0745	0.0836	0.0931	0.1031
0.1137	0.1248	0.1365	0.1490	0.1624	0.1768	0.1923
0.2002	0.2089	0.2341	0.2938	0.3963	0.5549	0.7833
1.0955	1.3418	1.4531	1.5460	1.6274	1.7001	1.7660
1.8261	1.8813	1.9321	1.9789	2.0222	2.0623	2.0724
2.0818	2.0908	2.0992	2.1073	2.1150	2.1224	2.1296
2.1365	2.1431	2.1496	2.1558	2.1619	2.1678	2.1735
2.1792	2.1846	2.1900	2.1952	2.2004	2.2054	2.2103
2.2152	2.2199	2.2246	2.2291	2.2336	2.2381	2.2424
2.2467	2.2509	2.2551	2.2592	2.2633	2.2673	2.2712
2.2751	2.2789	2.2827	2.2865	2.2902	2.2938	2.2974
2.3010	2.3045	2.3080	2.3115	2.3149	2.3183	2.3217
2.3250	2.3283	2.3315	2.3348	2.3380	2.3411	2.3443
2.3474	2.3505	2.3535	2.3566	2.3596	2.3626	2.3655
2.3685	2.3714	2.3743	2.3771	2.3800	2.3828	2.3856
2.3884	2.3912	2.3939	2.3966	2.3994	2.4020	2.4047
2.4074	2.4100	2.4123	2.4145	2.4167	2.4190	2.4212
2.4234	2.4256	2.4278	2.4300	2.4322	2.4343	2.4365
2.4387	2.4408	2.4430	2.4451	2.4472	2.4493	2.4515
2.4536	2.4557	2.4578	2.4599	2.4619	2.4640	2.4661
2.4681	2.4702	2.4722	2.4743	2.4763	2.4784	2.4804
2.4824	2.4844	2.4864	2.4884	2.4904	2.4924	2.4944
2.4963	2.4983	2.5003	2.5022	2.5042	2.5061	2.5081
2.5100	2.5119	2.5138	2.5157	2.5177	2.5196	2.5215
2.5233	2.5252	2.5271	2.5290	2.5309	2.5327	2.5346
2.5364	2.5383	2.5401	2.5420	2.5438	2.5456	2.5475
2.5493	2.5511	2.5529	2.5547	2.5565	2.5583	2.5601
2.5619	2.5637	2.5654	2.5672	2.5690	2.5707	2.5725
2.5742	2.5760	2.5777	2.5795	2.5812	2.5829	2.5846
2.5864	2.5881	2.5898	2.5915	2.5932	2.5949	2.5966
2.5983	2.6000	2.6016	2.6033	2.6050	2.6066	2.6083
2.6100	2.6116	2.6133	2.6149	2.6166	2.6182	2.6198
2.6215	2.6231	2.6247	2.6263	2.6279	2.6296	2.6312
2.6328	2.6344	2.6360	2.6376	2.6391	2.6407	2.6423
2.6439	2.6455	2.6470	2.6486	2.6502	2.6517	2.6533

2.6548	2.6564	2.6579	2.6595	2.6610	2.6625	2.6641
2.6656	2.6671	2.6686	2.6701	2.6716	2.6732	2.6747
2.6762	2.6777	2.6792	2.6807	2.6821	2.6836	2.6851
2.6866	2.6881	2.6895	2.6910	2.6925	2.6939	2.6954
2.6969	2.6983	2.6998	2.7012	2.7027	2.7041	2.7055
2.7070	2.7084	2.7098	2.7113	2.7127	2.7141	2.7155
2.7169	2.7184	2.7198	2.7212	2.7226	2.7240	2.7254
2.7268	2.7282	2.7296	2.7309	2.7323	2.7337	2.7351
2.7365	2.7378	2.7392	2.7406	2.7419	2.7433	2.7447
2.7460	2.7474	2.7487	2.7501	2.7514	2.7528	2.7541
2.7554	2.7568	2.7581	2.7594	2.7608	2.7621	2.7634
2.7647	2.7660	2.7674	2.7687	2.7700	2.7713	2.7726
2.7739	2.7752	2.7765	2.7778	2.7791	2.7804	2.7817
2.7829	2.7842	2.7855	2.7868	2.7881	2.7893	2.7906
2.7919	2.7931	2.7944	2.7957	2.7969	2.7982	2.7994
2.8007	2.8019	2.8032	2.8044	2.8057	2.8069	2.8082
2.8094	2.8106	2.8119	2.8131	2.8143	2.8156	2.8168
2.8180	2.8192	2.8205	2.8217	2.8229	2.8241	2.8253
2.8265	2.8277	2.8289	2.8301	2.8313	2.8325	2.8337
2.8349	2.8361	2.8373	2.8385	2.8397	2.8408	2.8420
2.8432	2.8444	2.8456	2.8467	2.8479	2.8491	2.8502
2.8514	2.8526	2.8537	2.8549	2.8561	2.8572	2.8584
2.8595	2.8607	2.8618	2.8630	2.8641	2.8652	2.8664
2.8675	2.8687	2.8698	2.8709	2.8721	2.8732	2.8743
2.8755	2.8766	2.8777	2.8788	2.8799	2.8811	2.8822
2.8833	2.8844	2.8855	2.8866	2.8877	2.8888	2.8899
2.8910	2.8921	2.8932	2.8943	2.8954	2.8965	2.8976
2.8987	2.8998	2.9009	2.9020	2.9031	2.9041	2.9052
2.9063	2.9074	2.9085	2.9095	2.9106	2.9117	2.9127
2.9138	2.9149	2.9159	2.9170	2.9181	2.9191	2.9202
2.9212	2.9223	2.9233	2.9244	2.9255	2.9265	2.9275
2.9286	2.9296	2.9307	2.9317	2.9328	2.9338	2.9348
2.9359	2.9369	2.9379	2.9390	2.9400		

*S COMPUTE HYD OFF 1
COMPUTE NM HYD ID=1 HYDNO=101 DA=0.00273 MI
PER A=0 PER B=0 PER C=6.7 PER D=93.3
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 10.311 CFS UNIT VOLUME = 0.9982 B = 526.28 P60 = 1.8700
AREA = 0.002547 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.103246HR TP = 0.130000HR K/TP RATIO = 0.794199 SHAPE CONSTANT, N = 4.514592
UNIT PEAK = 0.54611 CFS UNIT VOLUME = 0.9801 B = 388.14 P60 = 1.8700

AREA = 0.000183 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=1 CODE=10

PARTIAL HYDROGRAPH 101.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.1	10.000	0.1	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.1	10.500	0.1	15.500	0.0	20.500	0.0
1.000	0.3	6.000	0.1	11.000	0.1	16.000	0.0	21.000	0.0
1.500	7.5	6.500	0.1	11.500	0.1	16.500	0.0	21.500	0.0
2.000	1.8	7.000	0.1	12.000	0.1	17.000	0.0	22.000	0.0
2.500	0.3	7.500	0.1	12.500	0.1	17.500	0.0	22.500	0.0
3.000	0.1	8.000	0.1	13.000	0.1	18.000	0.0	23.000	0.0
3.500	0.1	8.500	0.1	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.1	9.000	0.1	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.1	9.500	0.1	14.500	0.0	19.500	0.0	24.500	0.0

RUNOFF VOLUME = 2.57977 INCHES = 0.3756 ACRE-FEET
PEAK DISCHARGE RATE = 7.45 CFS AT 1.500 HOURS BASIN AREA = 0.0027 SQ. MI.

*S COMPUTE HYD OFF 2

COMPUTE NM HYD ID=2 HYDNO=102 DA=0.00108 MI
PER A=0 PER B=0 PER C=11.8 PER D=88.2
TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
UNIT PEAK = 3.8562 CFS UNIT VOLUME = 0.9965 B = 526.28 P60 = 1.8700
AREA = 0.000953 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.103246HR TP = 0.130000HR K/TP RATIO = 0.794199 SHAPE CONSTANT, N = 4.514592
UNIT PEAK = 0.38049 CFS UNIT VOLUME = 0.9668 B = 388.14 P60 = 1.8700
AREA = 0.000127 SQ MI IA = 0.35000 INCHES INF = 0.83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=2 CODE=10

PARTIAL HYDROGRAPH 102.00

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0

0.500	0.0	5.500	0.0	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.1	6.000	0.0	11.000	0.0	16.000	0.0	21.000	0.0
1.500	2.9	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	0.7	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.1	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.0	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.0	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.0	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.49738 INCHES = 0.1438 ACRE-FEET
 PEAK DISCHARGE RATE = 2.91 CFS AT 1.500 HOURS BASIN AREA = 0.0011 SQ. MI.

*S COMPUTE HYD OFF 3
 COMPUTE NM HYD ID=3 HYDNO=103 DA=0.00133 MI
 PER A=0 PER B=16.5 PER C=16.5 PER D=67.0
 TP=-0.13 RAIN=-1

K = 0.070850HR TP = 0.130000HR K/TP RATIO = 0.545000 SHAPE CONSTANT, N = 7.106428
 UNIT PEAK = 3.6074 CFS UNIT VOLUME = 0.9965 B = 526.28 P60 = 1.8700
 AREA = 0.000891 SQ MI IA = 0.10000 INCHES INF = 0.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

K = 0.115497HR TP = 0.130000HR K/TP RATIO = 0.888442 SHAPE CONSTANT, N = 3.992344
 UNIT PEAK = 1.1974 CFS UNIT VOLUME = 0.9912 B = 354.66 P60 = 1.8700
 AREA = 0.000439 SQ MI IA = 0.42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = 0.050000

PRINT HYD ID=3 CODE=10

PARTIAL HYDROGRAPH 103.00

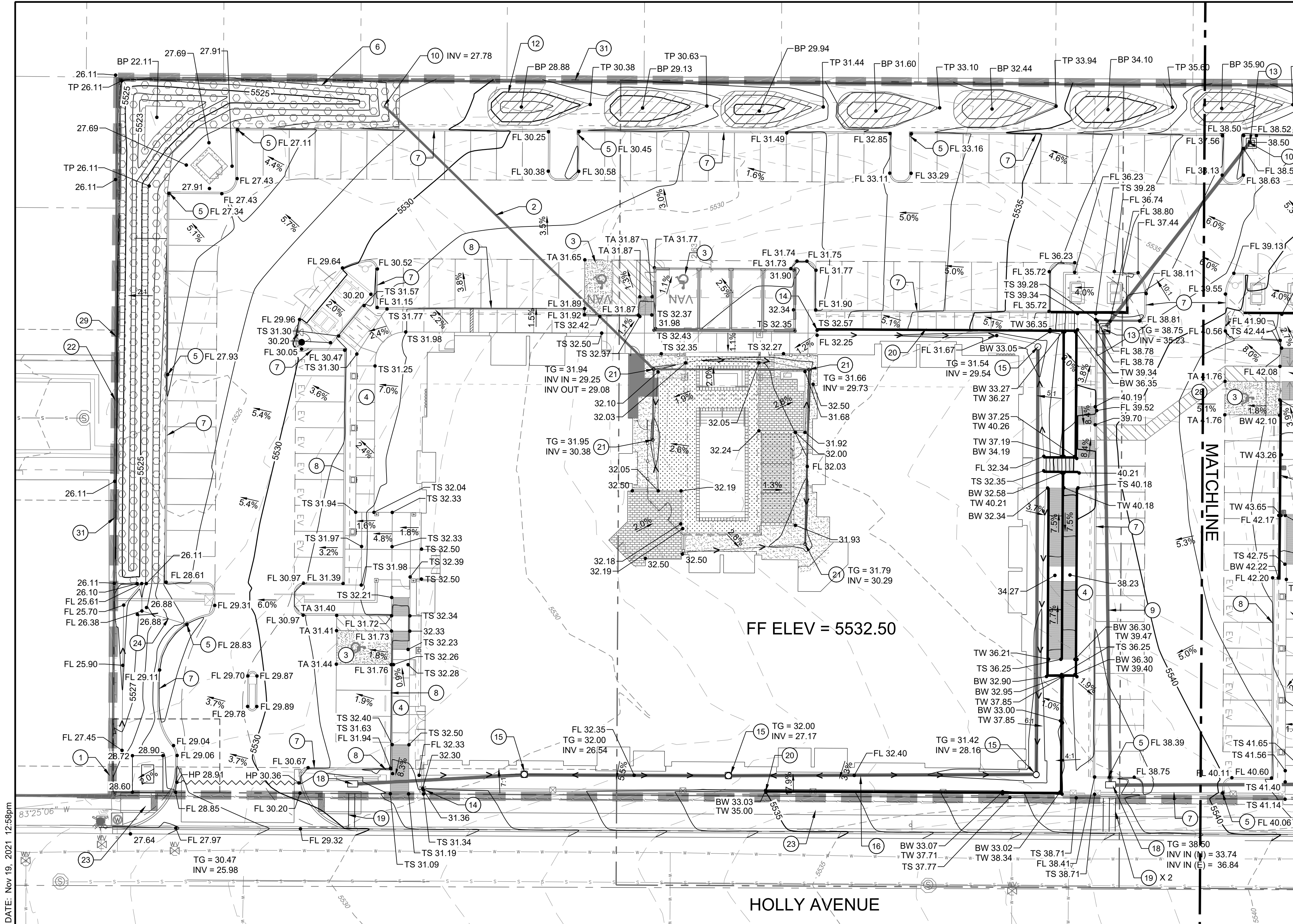
TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
0.000	0.0	5.000	0.0	10.000	0.0	15.000	0.0	20.000	0.0
0.500	0.0	5.500	0.0	10.500	0.0	15.500	0.0	20.500	0.0
1.000	0.1	6.000	0.0	11.000	0.0	16.000	0.0	21.000	0.0
1.500	3.2	6.500	0.0	11.500	0.0	16.500	0.0	21.500	0.0
2.000	0.7	7.000	0.0	12.000	0.0	17.000	0.0	22.000	0.0
2.500	0.1	7.500	0.0	12.500	0.0	17.500	0.0	22.500	0.0
3.000	0.0	8.000	0.0	13.000	0.0	18.000	0.0	23.000	0.0
3.500	0.0	8.500	0.0	13.500	0.0	18.500	0.0	23.500	0.0
4.000	0.0	9.000	0.0	14.000	0.0	19.000	0.0	24.000	0.0
4.500	0.0	9.500	0.0	14.500	0.0	19.500	0.0		

RUNOFF VOLUME = 2.09590 INCHES = 0.1487 ACRE-FEET
PEAK DISCHARGE RATE = 3.23 CFS AT 1.500 HOURS BASIN AREA = 0.0013 SQ. MI.

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:44:58

NAME: N:\Projects\04012_Titan_Holly_Apts3_DWG\Sheets\04012_Grading_Plan.dwg PLOT DATE: Nov 19, 2021 12:58pm



LEGEND

- EXISTING PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- LIMITS OF DISTURBANCE
- PROPOSED WATER BLOCK
- PROPOSED SWALE
- SLOPE ARROW
- PROPOSED RIP RAP PER SPEC
- WATER QUALITY POOL
- PROPOSED RETAINING WALL
- PROPOSED LANDSCAPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN CLEANOUT

KEYED NOTES

- LIMITS OF DISTURBANCE
- INSTALL 8" HDPE PIPE AT 1% SLOPE, TYP.
- 1.5% MIN. SLOPE 1.8% MAX. SLOPE ALL DIRECTIONS AT ACCESSIBLE PARKING SPACES
- 1.8% MAX. CROSS SLOPE AT ACCESSIBLE SIDEWALK
- INSTALL 1' WIDE CURB NOTCH PER DETAIL SHEET C-105
- INSTALL RIP RAP PER SPECIFICATIONS THIS SHEET
- INSTALL CONCRETE CURB & GUTTER PER DETAIL SHEET C-105
- INSTALL CONCRETE HEADER CURB PER DETAIL SHEET C-105
- INSTALL 6" HDPE PIPE AT 1% SLOPE, TYP.
- PIPE INVERT
- INSTALL RETAINING WALL PER DETAIL SHEET C-106 AND GENERAL NOTE 9 (THIS SHEET)
- INSTALL WATER QUALITY POOL, TYP.
- INSTALL 2' X 2' ADS STANDARD ROAD AND HIGHWAY GRATE
- BEGIN NON-PERMITTED RETAINING (2' MAX. HEIGHT)
- INSTALL ADS 24" DROP IN GRATE PER DETAIL SHEET C-105, TYP.
- INSTALL 12" HDPE PIPE AT 1% SLOPE, TYP.
- INSTALL DOUBLE CLEANOUT
- INSTALL MODIFIED TYPE D INLET PER DETAIL SHEET C-105
- INSTALL 2' WIDE SIDEWALK CULVERT PER COA DWG 2236
- END NON-PERMITTED RETAINING (2' MAX. HEIGHT)
- INSTALL ADS 12" DROP IN GRATE PER DETAIL SHEET C-105, TYP.
- INSTALL 5.25' X 0.5' WEIR, INVERT AT 5525.61, SEE DETAIL SHEET C-104.
- SIDEWALK AND ROADWAY IMPROVEMENTS BY SEPARATE PLANSET
- INSTALL 0.5' DEPTH SWALE
- INSTALL ADA LANDING, 1.8% MAX SLOPE IN ANY DIRECTION
- EXPOSE 6" MAXIMUM OF BUILDING FOOTER AS NECESSARY
- 3' SLOPE BUFFER FROM RETAINING WALL, MAX 3%
- ADA CROSSWALK 1.8% MAX CROSS SLOPE
- APPLY WATERPROOFING ON EXPOSED PRIVACY WALL BELOW TOP OF EXISTING WEIR PRIOR TO GRADING. WATERPROOFING SHALL BE HYDROCODE LIQUID MEMBRANE HLM 5000 OR APPROVED EQUAL.
- INSTALL 12" DEEP ROCK MULCH BENEATH PEE PAD
- EXISTING 6' TALL PRIVACY WALL ALONG PROPERTY LINE

GRADING NOTES

- CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING DRY AND WET UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY ISSUES. UTILITY RELOCATION MAY BE REQUIRED.
- PARKING LOT STRIPING AND SITE PLAN HAVE BEEN SCREENED BACK FOR VISUAL CLARITY
- GRADES SHOWN ARE FINAL SURFACE GRADES AFTER COMPLETION OF SURFACE IMPROVEMENTS.
- GRADE AREAS AT SITE PERIMETER TO MATCH GRADES OF ADJACENT PARCELS.
- REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF PROPERLY IN ACCORDANCE WITH APPLICABLE REGULATIONS.
- PROVIDE TEMPORARY GRADING FEATURES SUCH AS BERMS, SWALES, SUMPS AND BASINS TO MANAGE INTERIM STORM WATER RUNOFF DURING CONSTRUCTION PROCESS. STORM WATER RUNOFF LEAVING THE SITE SHALL MEET ALL FEDERAL, STATE AND LOCAL QUALITY REQUIREMENTS.
- ALL DISTURBED AREAS TO BE RE-SEEDED PER LANDSCAPE PLAN PROVIDED BY OTHERS.
- ALL AREAS WITH SLOPES GREATER THAN 3:1 SHALL BE LANDSCAPED WITH 3/4" MINUS ALL FACED FRACTURED GRAVEL AND SEPARATION FABRIC.
- INSTALL L-TOE TYPE RETAINING WALLS FOR ALL RETAINING WALLS ADJACENT TO THE PROPERTY BOUNDARY. FOOTER SHALL NOT EXTEND OUTSIDE OF THE PROPERTY. INSTALL TYPE E-3-S RETAINING WALL WHERE FINISHED GRADE AT THE TOP OF WALL EXCEEDS 10%. FOR ALL OTHER RETAINING WALLS USE RETAINING WALL TYPES A THROUGH TYPE D. RETAINING WALL TYPE VARIES WITH WALL HEIGHT (SEE RETAINING WALL DETAIL SHEET C-106).
- ALL SIDE SLOPES NEED TO BE STABILIZED WITH NATIVE GRASS SEED WITH AGGREGATE MULCH OR EQUAL (MUST SATISFY THE "FINAL STABILIZATION CRITERIA" CONSTRUCTION GENERAL PERMIT 2.2.14.B).

SPOT ELEVATION SYMBOLS

- TA 66.00 TOP OF ASPHALT
- 66.00± MATCH EX. GRADE ELEV. (APPROXIMATE)
- TP 66.00 TOP OF POND
- BP 66.00 BOTTOM OF POND
- TS 66.00 TOP OF SIDEWALK
- FL 66.00 FLOWLINE
- BW 66.00 BOTTOM OF WALL
- TW 66.00 TOP OF WALL
- TC 66.00 TOP OF CURB
- FG 66.00 FINISHED GROUND
- TG 66.00 TOP OF GRATE

RIP RAP SPECIFICATIONS

RIP RAP SHALL BE OVER FILTER MATERIAL AND CONSIST OF RIP RAP AND CRUSHED ROCK MEETING THE FOLLOWING GRADATION OR ENGINEER-APPROVED EQUAL:

MAX DIMENSION	% SMALLER
12"	100
9"	50-60
6"	35-45
3"	10

FILTER MATERIAL SHALL CONSIST OF CRUSHED ROCK MEETING THE FOLLOWING GRADATION OR ENGINEER-APPROVED EQUAL:

U.S. STANDARD SIEVE SIZE	% PASS BY WT
1"	100
3/4"	45-65
#4	25-45
#40	0-20
#200	0-5

FILTER MATERIAL SHALL BE PLACED UNDER THE RIP RAP CHANNEL AND COMPACTED INTO SURFACE VOIDS OF THE RIP RAP. THE SUBGRADE SHALL BE PROCESSED TO A 12" MIN. DEPTH AND COMPACTED TO 95% MIN. RELATIVE DENSITY PER ASTM D 1557. THE FILTER MATERIAL SHALL BE TAMPED AND SHAPED TO FORM A SMOOTH, EVEN, AND FIRM FOUNDATION FOR THE OVERLAYING RIP RAP. THE CONTRACTOR'S OPERATIONS AND METHODS OF PLACING SHALL PREVENT SEGREGATION OF THE MATERIALS. THE FILTER MATERIAL SHALL BE PLACED AND TAMPED IN THE VOIDS OF THE RIP RAP.



DESIGNED JL
DRAWN JMS
CHECKED JL
DATE 11.19.2021

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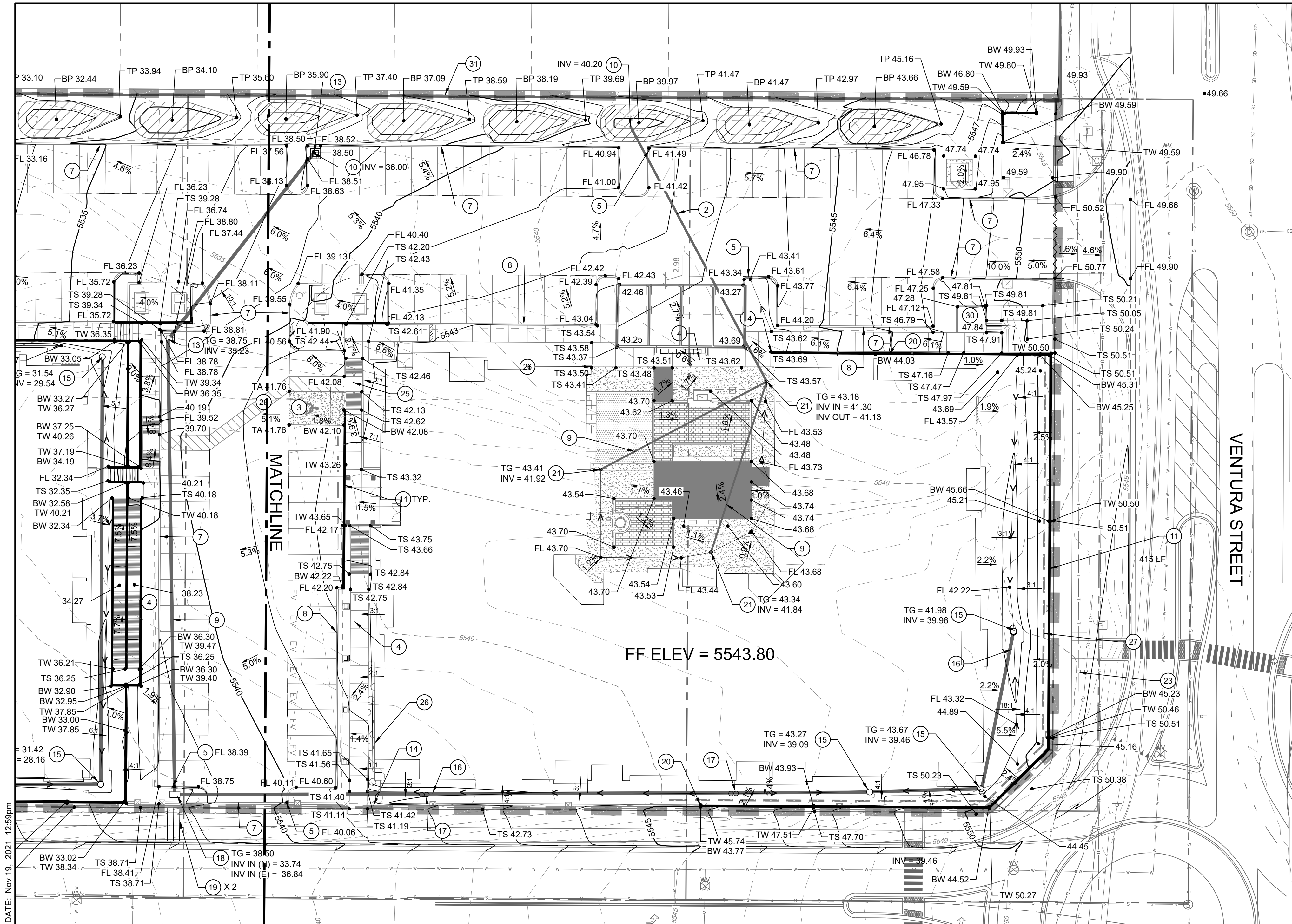
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ALLASO VINEYARDS

GRADING 1

BUILDING PERMIT

SHEET NUMBER:
C-101



LEGEND

- EXISTING PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- LIMITS OF DISTURBANCE
- PROPOSED WATER BLOCK
- PROPOSED SWALE
- SLOPE ARROW
- PROPOSED RIP RAP PER SPEC
- WATER QUALITY POOL
- PROPOSED RETAINING WALL
- PROPOSED LANDSCAPE
- PROPOSED STORM DRAIN INLET
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN CLEANOUT

KEYED NOTES

- LIMITS OF DISTURBANCE
- INSTALL 8" HDPE PIPE AT 1% SLOPE, TYP.
- 1.5% MIN. SLOPE 1.8% MAX. SLOPE ALL DIRECTIONS AT ACCESSIBLE PARKING SPACES
- 1.8% MAX. CROSS SLOPE AT ACCESSIBLE SIDEWALK
- INSTALL 1' WIDE CURB NOTCH PER DETAIL SHEET C-105
- INSTALL RIP RAP PER SPECIFICATIONS THIS SHEET
- INSTALL CONCRETE CURB & GUTTER PER DETAIL SHEET C-105
- INSTALL CONCRETE HEADER CURB PER DETAIL SHEET C-105
- INSTALL 6" HDPE PIPE AT 1% SLOPE, TYP.
- PIPE INVERT
- INSTALL RETAINING WALL PER DETAIL SHEET C-106 AND GENERAL NOTE 9 (THIS SHEET)
- INSTALL WATER QUALITY POOL, TYP.
- INSTALL 2' X 2' ADS STANDARD ROAD AND HIGHWAY GRATE
- BEGIN NON-PERMITTED RETAINING (2' MAX. HEIGHT)
- INSTALL ADS 24" DROP IN GRATE PER DETAIL SHEET C-105, TYP.
- INSTALL 12" HDPE PIPE AT 1% SLOPE, TYP.
- INSTALL DOUBLE CLEANOUT
- INSTALL MODIFIED TYPE D INLET PER DETAIL SHEET C-105
- INSTALL 2' WIDE SIDEWALK CULVERT PER COA DWG 2236
- END NON-PERMITTED RETAINING (2' MAX. HEIGHT)
- INSTALL ADS 12" DROP IN GRATE PER DETAIL SHEET C-105, TYP.
- INSTALL 5.25' X 0.5' WEIR. INVERT AT 5525.61. SEE DETAIL SHEET C-104.
- SIDEWALK AND ROADWAY IMPROVEMENTS BY SEPARATE PLANSET
- INSTALL 0.5' DEPTH SWALE
- INSTALL ADA LANDING, 1.8% MAX SLOPE IN ANY DIRECTION
- EXPOSE 6" MAXIMUM OF BUILDING FOOTER AS NECESSARY
- 3' SLOPE BUFFER FROM RETAINING WALL, MAX 3%
- ADA CROSSWALK 1.8% MAX CROSS SLOPE
- APPLY WATERPROOFING ON EXPOSED PRIVACY WALL BELOW TOP OF EXISTING WEIR PRIOR TO GRADING. WATERPROOFING SHALL BE HYDROCODE LIQUID MEMBRANE HLM 5000 OR APPROVED EQUAL.
- INSTALL 12" DEEP ROCK MULCH BENEATH PEE PAD
- EXISTING 6' TALL PRIVACY WALL ALONG PROPERTY LINE

GRADING NOTES

- CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF ALL EXISTING DRY AND WET UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY ISSUES. UTILITY RELOCATION MAY BE REQUIRED.
- PARKING LOT STRIPING AND SITE PLAN HAVE BEEN SCREENED BACK FOR VISUAL CLARITY
- GRADES SHOWN ARE FINAL SURFACE GRADES AFTER COMPLETION OF SURFACE IMPROVEMENTS.
- GRADE AREAS AT SITE PERIMETER TO MATCH GRADES OF ADJACENT PARCELS.
- REMOVE EXCESS SOIL FROM SITE AND DISPOSE OF PROPERLY IN ACCORDANCE WITH APPLICABLE REGULATIONS.
- PROVIDE TEMPORARY GRADING FEATURES SUCH AS BERMS, SWALES, SUMPS AND BASINS TO MANAGE INTERIM STORM WATER RUNOFF DURING CONSTRUCTION PROCESS. STORM WATER RUNOFF LEAVING THE SITE SHALL MEET ALL FEDERAL, STATE AND LOCAL QUALITY REQUIREMENTS.
- ALL DISTURBED AREAS TO BE RE-SEEDED PER LANDSCAPE PLAN PROVIDED BY OTHERS.
- ALL AREAS WITH SLOPES GREATER THAN 3:1 SHALL BE LANDSCAPED WITH 3/4" MINUS ALL FACED FRACTURED GRAVEL AND SEPARATION FABRIC.
- INSTALL L-TOE TYPE RETAINING WALLS FOR ALL RETAINING WALLS ADJACENT TO THE PROPERTY BOUNDARY. FOOTER SHALL NOT EXTEND OUTSIDE OF THE PROPERTY. INSTALL TYPE E-3-S RETAINING WALL WHERE FINISHED GRADE AT THE TOP OF WALL EXCEEDS 10%. FOR ALL OTHER RETAINING WALLS USE RETAINING WALL TYPES A THROUGH TYPE D. RETAINING WALL TYPE VARIES WITH WALL HEIGHT (SEE RETAINING WALL DETAIL SHEET C-106).
- ALL SIDE SLOPES NEED TO BE STABILIZED WITH NATIVE GRASS SEED WITH AGGREGATE MULCH OR EQUAL (MUST SATISFY THE "FINAL STABILIZATION CRITERIA" CONSTRUCTION GENERAL PERMIT 2.2.14.B).

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DRAWN: JMS
CHECKED: JL
DATE: 11.19.2021

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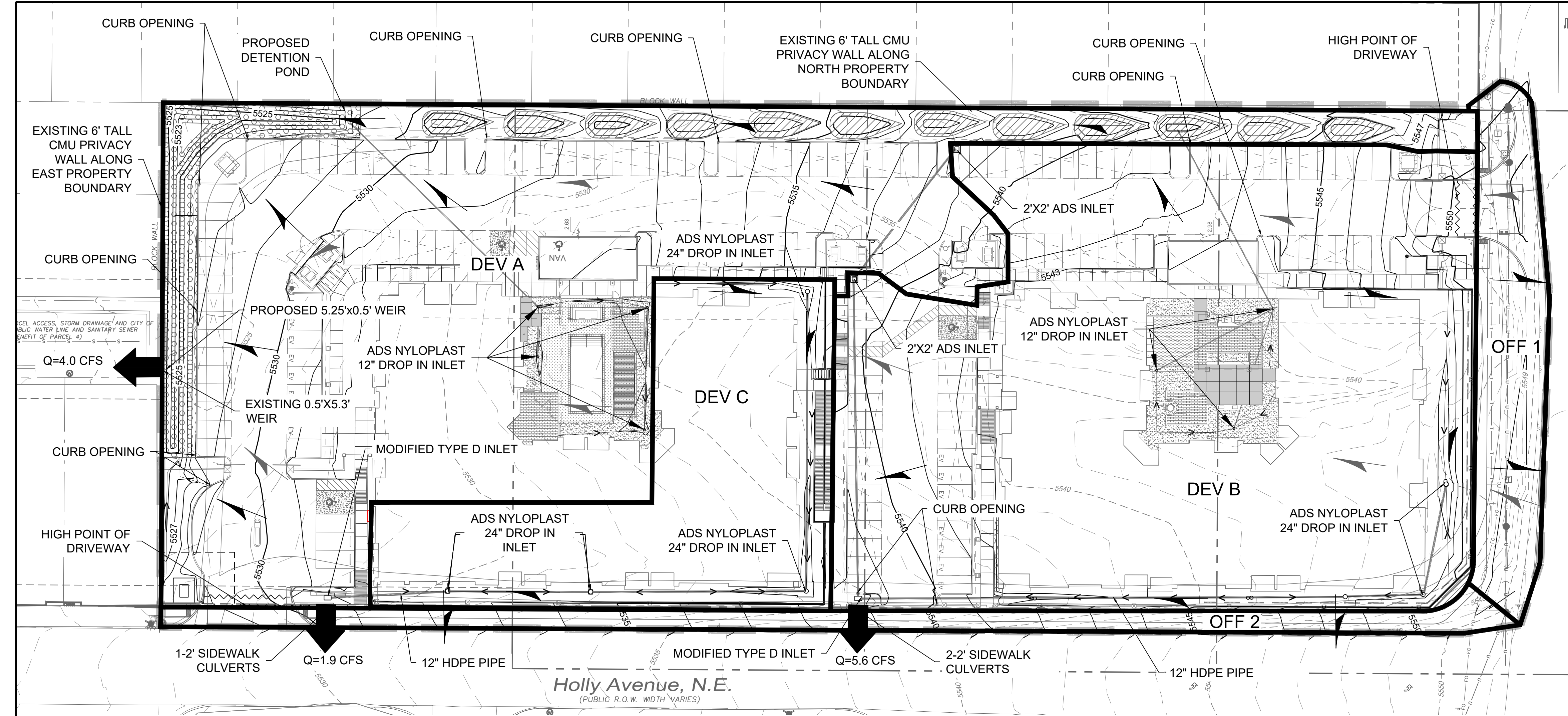
ALLASO VINEYARDS

GRADING 2

BUILDING PERMIT

SHEET NUMBER:
C-102

NAME: N:\Projects\04012 Tlan Holly Apts3 DWG\Sheets\04012 Drainage Plan.dwg PLOT DATE: Nov 19, 2021 12:59pm



DRAINAGE SUMMARY

Background

Lots 17-19 NAA Tract 3 Unit 3 Block 9 and Lot 4 Unit 1 Desert Ridge are located at the Northwest corner of Holly Ave. and Ventura St. NE in Albuquerque, New Mexico, and contains approximately 3.3 acres. The site is currently undeveloped and does not appear to receive substantial offsite flows. The proposed development is an approximately 110-unit apartment complex containing 2 buildings, asphalt paved parking lot, and landscaping areas. The drainage intent under developed conditions is to match the stormwater drainage characteristics as outlined in the approved "Desert Ridge Place Drainage Plan and Calculations" (JMA, 2002).

Methodology

The assumptions and criteria including land treatment types and impervious areas as well as the hydrologic analysis for the site were performed in accordance with the city of Albuquerque Development Process Manual (DPM), AHYMO-S4 (April 2018) was used to develop peak flow rates for the 100-year 24-hour design storm in accordance with Section 6 of the DPM. Hydraulic calculations were performed per section 6 of the DPM.

Existing Conditions

The existing site is currently undeveloped with moderate vegetation and has mild to steep slopes from east to west ranging from 3% to 50%. Most of the flows are conveyed to the west property line via two natural channels that run through the site from east to west. The flow discharges into Desert Finch Lane via a 5.3' wide by 0.5' tall weir in the block wall. Per the approved design for Desert Ridge Place (C20D034), Desert Finch Lane accepts 4.3 cfs through the weir.

Proposed Conditions

In general, Basin DEV A will surface drain via sheet flow and concentrated gutter flows towards the northern portion of the site. A landscape swale with retention pools will pick up first flush flows from the parking lot. The remainder of the flows will be conveyed to the detention and water quality pond at the west end of the site.

Basin DEV B includes the roof drainage of the east building, part of the parking lot, and the southeast area of the site. These flows will be conveyed towards a series of inlets and into two 12" storm drains that discharge into Holly Ave via a bubbler inlet and two sidewalk culverts.

Basin DEV C includes a portion of the roof drainage on the west building and the surrounding southern area. The flows in this area will also be intercepted by a series of inlets and a 12" storm drain, which discharge into Holly Ave via a bubbler inlet and one sidewalk culvert.

Basins OFF 1 and OFF 2 are encompassed in offsite improvements and will drain to Ventura St and Holly Ave, respectively.

Hydrologic and hydraulic calculations for the developed conditions can be found on this sheet.

DRAINAGE CALCULATIONS

AHYMO INPUT: EXISTING CONDITIONS

Subbasin	Area (ac)	Treatment Type Area (ac)				Treatment Type Area (%)			
		A	B	C	D	A	B	C	D
EX 1	3.66	3.32	0.00	0.34	0.00	90.7%	0.0%	9.3%	0.0%

AHYMO INPUT: PROPOSED CONDITIONS

Subbasin	Area (ac)	Treatment Type Area (ac)					Treatment Type Area (%)			
		A	B	C	D		A	B	C	D
DEV A	1.45	0.00	0.22	0.22	1.01		0.0%	15.1%	15.1%	69.7%
DEV B	1.39	0.00	0.13	0.13	1.14		0.0%	9.1%	9.1%	81.7%
DEV C	0.48	0.00	0.04	0.04	0.40		0.0%	8.2%	8.2%	83.6%
OFF 1	0.17	0.00	0.01	0.01	0.15		0.0%	5.8%	5.8%	88.4%
OFF 2	0.14	0.00	0.02	0.02	0.10		0.0%	15.6%	15.6%	68.8%

AHYMO OUTPUT: EXISTING CONDITIONS

Subbasin	A (ac)	Q (cfs)	V (acft)	Q/A (cfs/ac)
EX 1	3.66	6.0	0.168	1.6

AHYMO OUTPUT: PROPOSED CONDITIONS

Subbasin	A (ac)	Q (cfs)	V (acft)	Q/A (cfs/ac)
DEV A	1.45	5.6	0.260	3.8
DEV B	1.39	5.6	0.273	4.0
DEV C	0.48	1.9	0.094	4.1
DEV B + DEV C	1.93	7.5	0.367	3.9
DEV A (ROUTED)	1.93	4.0	0.260	2.1
OFF 1	0.17	0.7	0.036	4.2
OFF 2	0.14	0.6	0.025	3.9

DRAINAGE SUMMARY

Subbasin	Allowable (cfs)	Provided (cfs)
DEV A (ROUTED)	4.3	4.0
DEV B + DEV C	11.7	7.5

WATER QUALITY PONDING

Area (ac)	% Imp.	Imp. Area (ac)	WQ Depth (in)	Required WQ Vol (cu ft)	Provided WQ Vol (cu ft)
3.32	76.7%	2.55	0.42	3882	5255

Weir Flow Calcs: Pond Spillway

$$Q_w = 2.7P(h)^{1.5}$$

P = Perimeter (ft)

h = Head (ft)

3.3 = coefficient of discharge

Q_w = Capacity (cfs)

Weir Flow Calcs: Sidewalk Culvert

$$Q_w = 2.7P(h)^{1.5}$$

P = Perimeter (ft)

h = Head (ft)

3.3 = coefficient of discharge

Q_w = Capacity (cfs)

Weir Flow Calcs: Curb Cut

$$Q_w = 2.7P(h)^{1.5}$$

P = Perimeter (ft)

h = Head (ft)

3.3 = coefficient of discharge

Q_w = Capacity (cfs)

Manning Formula: 12" HDPE PIPE

Circular Channel

Input

Depth 1 ft
Slope 0.01 ft/ft
Manning's n 0.011
Diameter 12 in

Output

Flow 4.21 cfs
Flow Area 0.785 sf
Velocity 5.36 fps
Velocity Head 0.447 ft
Top Width 0.00 ft
Froude Number 0.00
Critical Depth 0.865 ft
Critical Slope 0.00919 ft/ft

Manning Formula: 2' SIDEWALK CULVERT

Rectangular Channel

Input

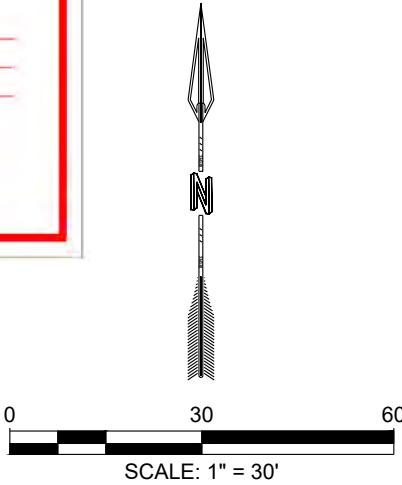
Depth 0.5 ft
Slope 0.01 ft/ft
Manning's n 0.013
Base Width 2 ft
Right Side Slope 0:1
Left Side Slope 0:1

Output

Flow 5.50 cfs
Flow Area 1.00 sf
Velocity 5.50 fps
Velocity Head 0.469 ft
Top Width 2.00 ft
Froude Number 1.37
Critical Depth 0.617 ft
Critical Slope 0.00549 ft/ft

LEGEND

- PROPERTY LINE
- 5380 ----- EX CONTOUR MAJOR
- 5379 ----- EX CONTOUR MINOR
- 5380 ----- PROP CONTOUR MAJOR
- 5379 ----- PROP CONTOUR MINOR
- EXISTING SUBBASIN
- PROPOSED SUBBASIN
- PROPOSED SWALE
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW
- PROPOSED DISCHARGE LOCATION



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DRAINAGE SUMMARY

Background
There are 4 offsite basins adjacent to lots 17-19 NAA Tract 3 Unit 3 Block 9 and Lot 4 Unit 1 Desert Ridge applicable to this project. A roundabout at the intersection of Holly Ave and Ventura St. will be constructed as part of the offsite improvements. The roundabout will not modify the offsite drainage conditions shown in this drainage plan.

Methodology
The assumptions and criteria including land treatment types and impervious areas as well as the hydrologic analysis for the site were performed in accordance with the city of Albuquerque Development Process Manual (DPM), AHYMO-S4 (April 2018) was used to develop peak flow rates for the 100-year 24-hour design storm in accordance with Section 6 of the DPM. Hydraulic calculations were performed per section 6 of the DPM.

Existing Conditions
There are four applicable offsite basins adjacent to the project site. OFF 1 encompasses the Ventura St right of way and a portion of the onsite area to be dedicated as right of way. This onsite portion shall drain towards Ventura St upon dedication of right of way and improvements to Ventura St. The remaining existing flows within Ventura St will continue to drain per existing conditions. This area surface flows from south to north and discharges these flows into inlets at the intersection of Ventura Street Carmel Avenue. OFF 1 also accepts 0.67 cfs from two 4" pipes that discharge flows from OFF 4 per the approved grading and drainage plan for Dr. Fanning Dental Office (Hydrology File C20D084).

OFF 2 encompasses the Holly Ave right of way and a portion of the onsite area to be dedicated as right of way. This onsite portion shall drain towards Holly Ave upon dedication of right of way and improvements to Holly Ave. The remaining existing flows within Holly Ave will continue to drain per existing conditions. This area surface flows from east to west with eventual discharge into inlets in Holly Avenue 1000 LF west of the property line between the project site and Desert Ridge Place Subdivision. OFF 2 also accepts approximately 3.2 cfs from OFF 3 that surface flows into Holly Avenue per the approved grading and drainage plan for Ventura Place (Hydrology File C20D048). The drainage plan for Ventura Place does not quantify the discharge into Holly Avenue from OFF 3. Consequently, the discharge was calculated as part of this drainage report.

Proposed Conditions
The newly dedicated right of way within OFF 1 and OFF 2 will drain towards Ventura St and Holly Ave, respectively. The total flows for OFF 1 and OFF 2 can be found in the ensuing drainage calculations.

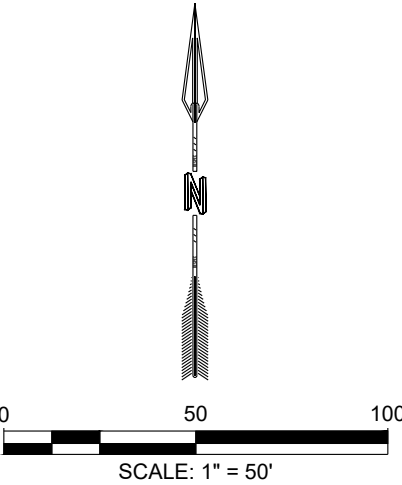
DRAINAGE CALCULATIONS

AHYMO INPUT: PROPOSED CONDITIONS									
Subbasin	Area (ac)	Treatment Type Area (ac)				Treatment Type Area (%)			
		A	B	C	D	A	B	C	D
OFF 1	1.75	0.00	0.00	0.12	1.63	0.0%	0.0%	6.7%	93.3%
OFF 2	0.69	0.00	0.00	0.08	0.61	0.0%	0.0%	11.8%	88.2%
OFF 3	0.85	0.00	0.14	0.14	0.57	0.0%	16.5%	16.5%	67.0%

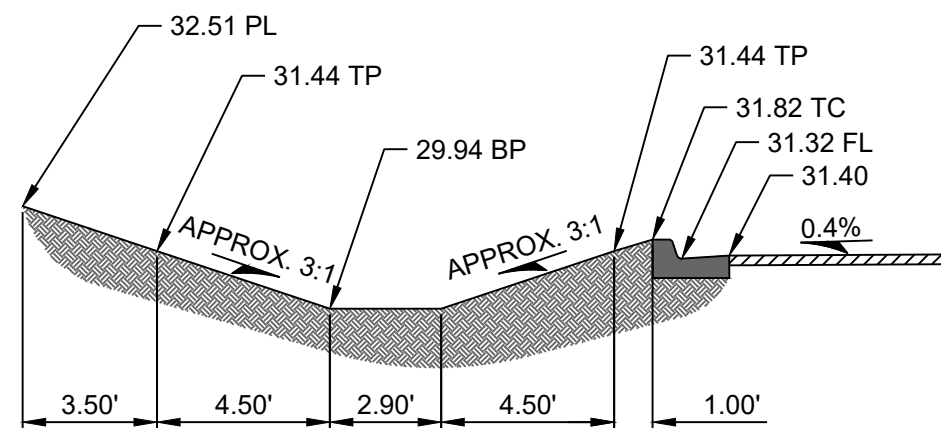
AHYMO OUTPUT: PROPOSED CONDITIONS				
Subbasin	A (ac)	Q (cfs)	V (acft)	Q/A (cfs/ac)
OFF 1	1.75	7.5	0.376	4.3
OFF 2	0.69	2.9	0.144	4.2
OFF 3	0.85	3.2	0.149	3.8
OFF 4	Q=0.67 cfs per Drainage Plan for Dr. Fanning Dental Office			

LEGEND

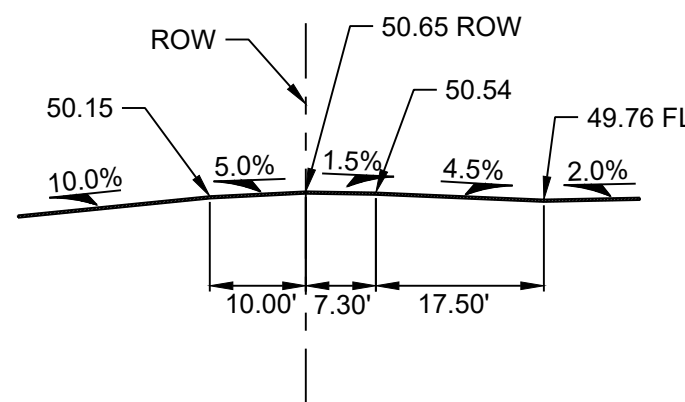
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- EX CONTOUR MAJOR
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- PROPOSED SWALE
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW



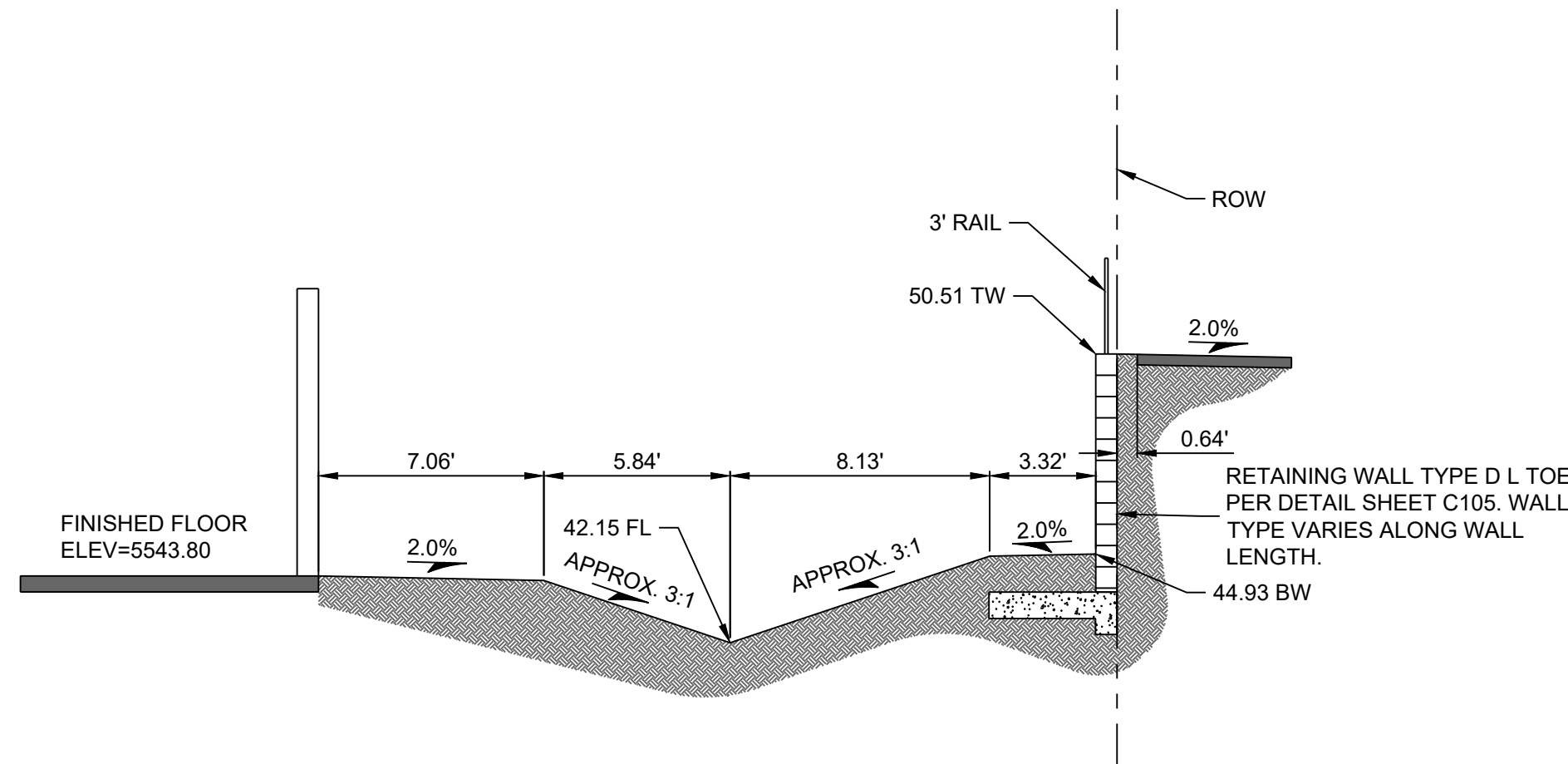
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SHEET TITLE: OFFSITE DRAINAGE			
SUBMITTED FOR: BUILDING PERMIT			
SHEET NUMBER: C-103A			



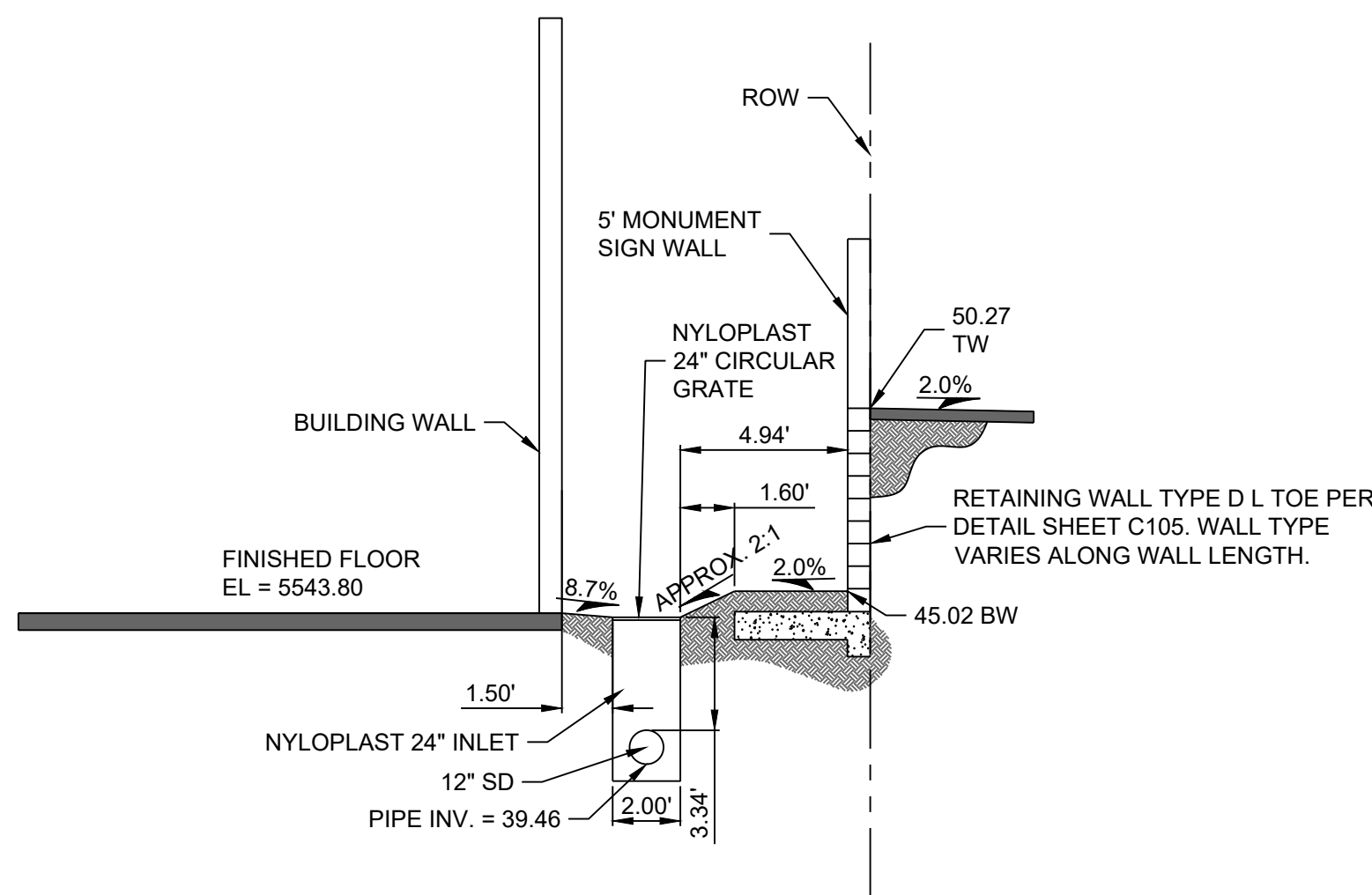
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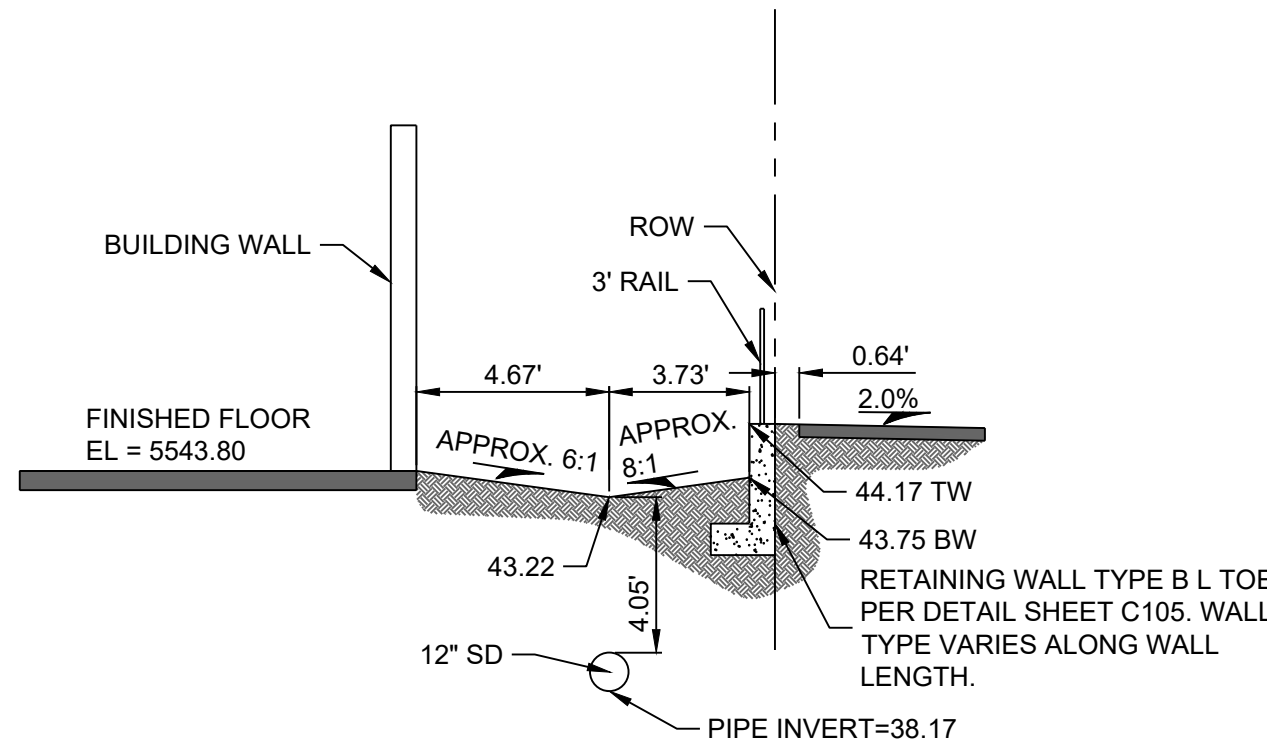
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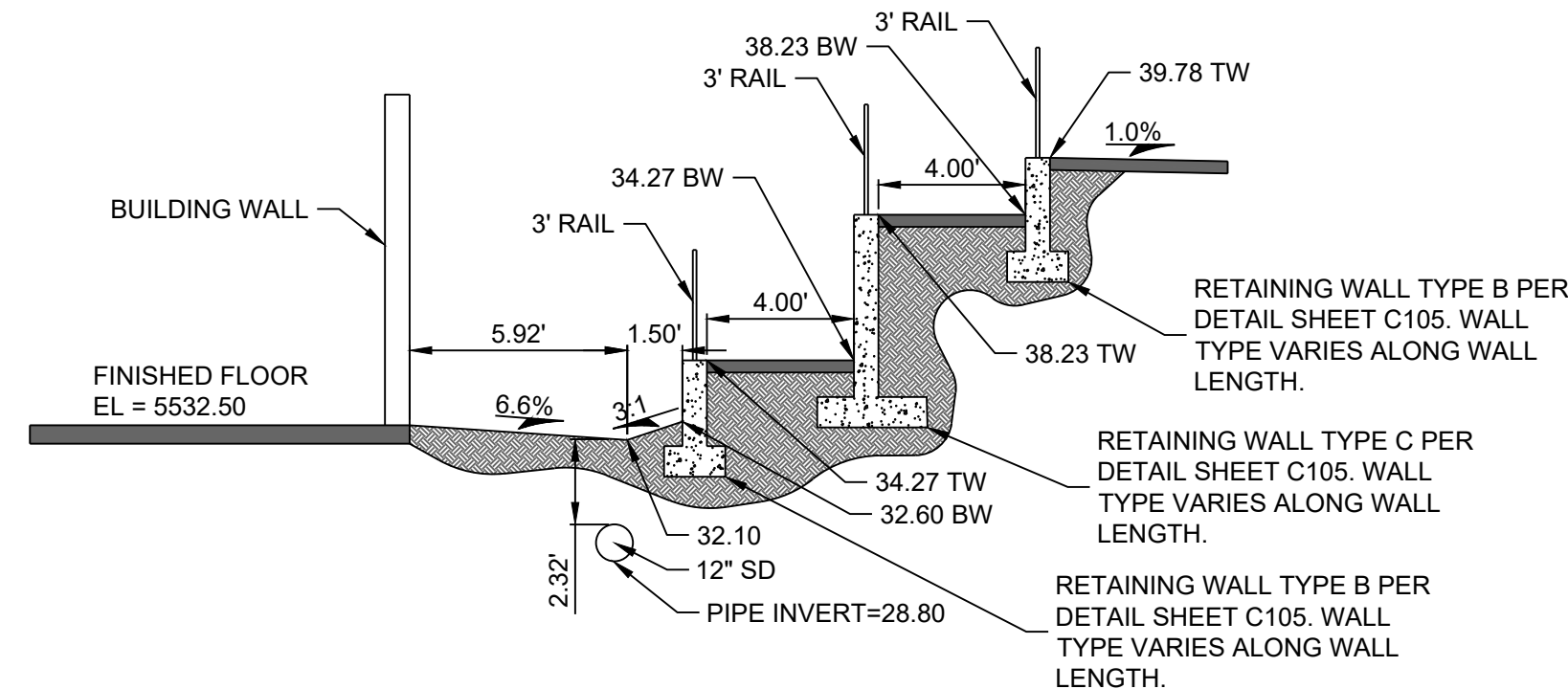
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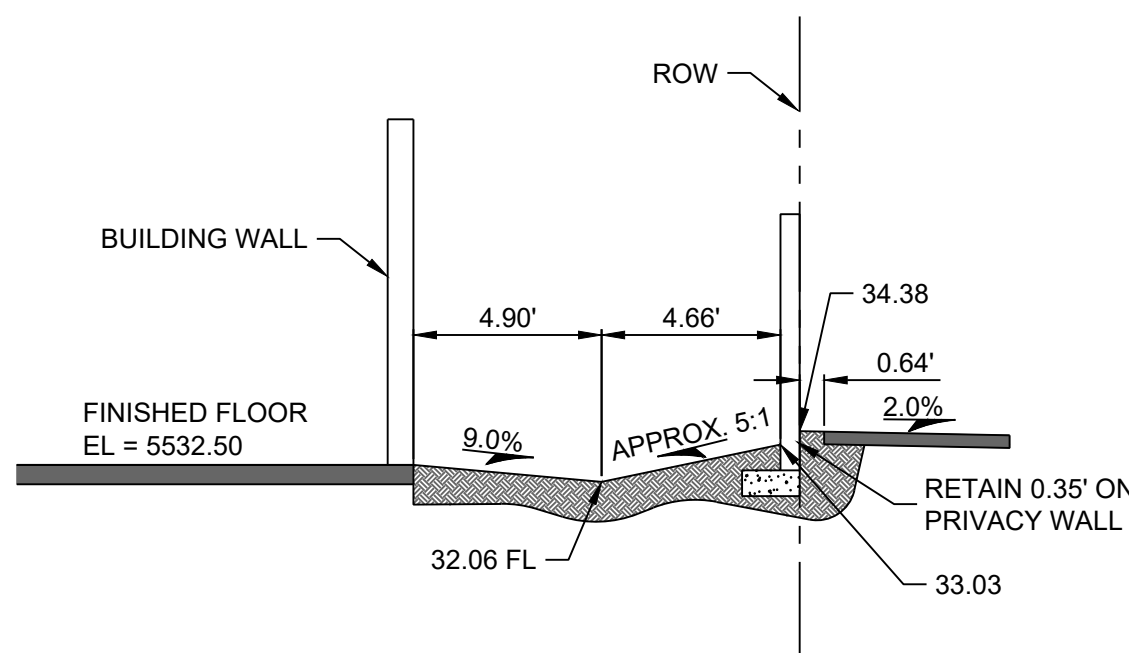
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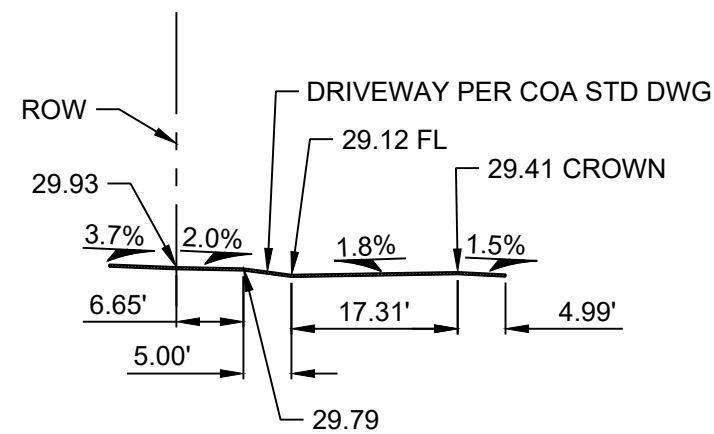
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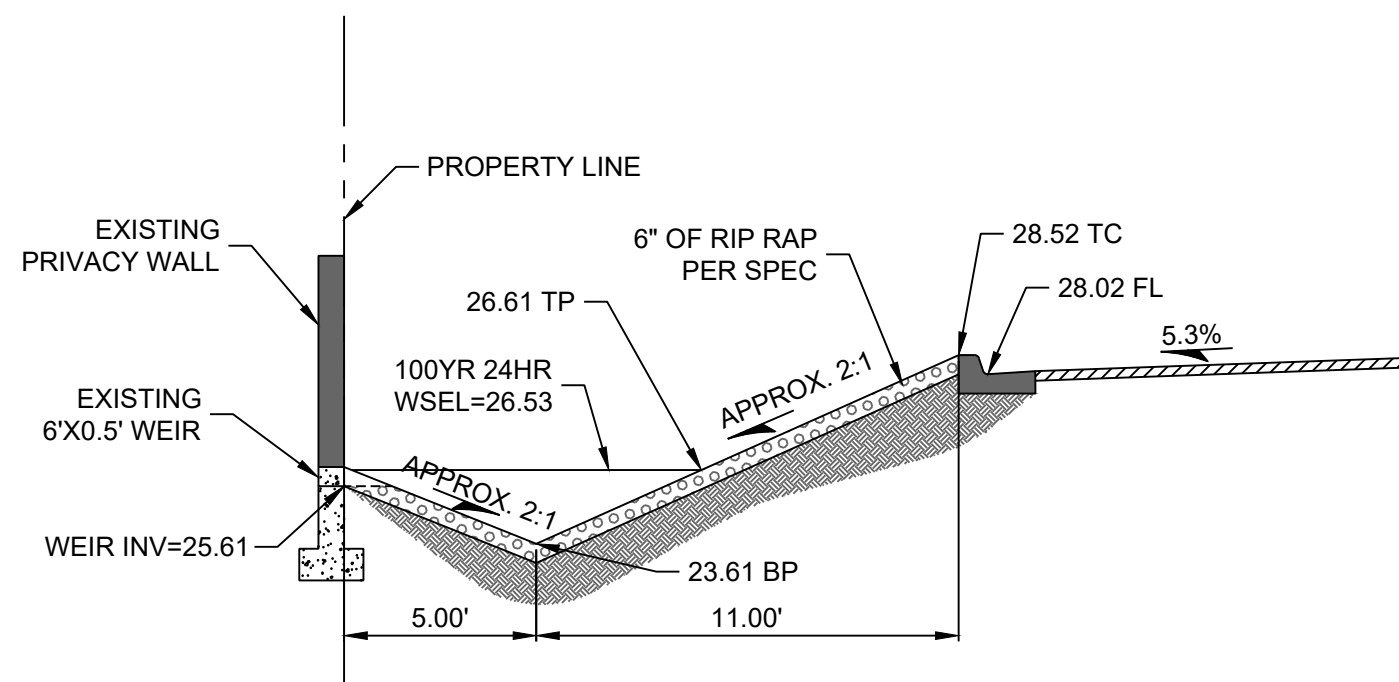
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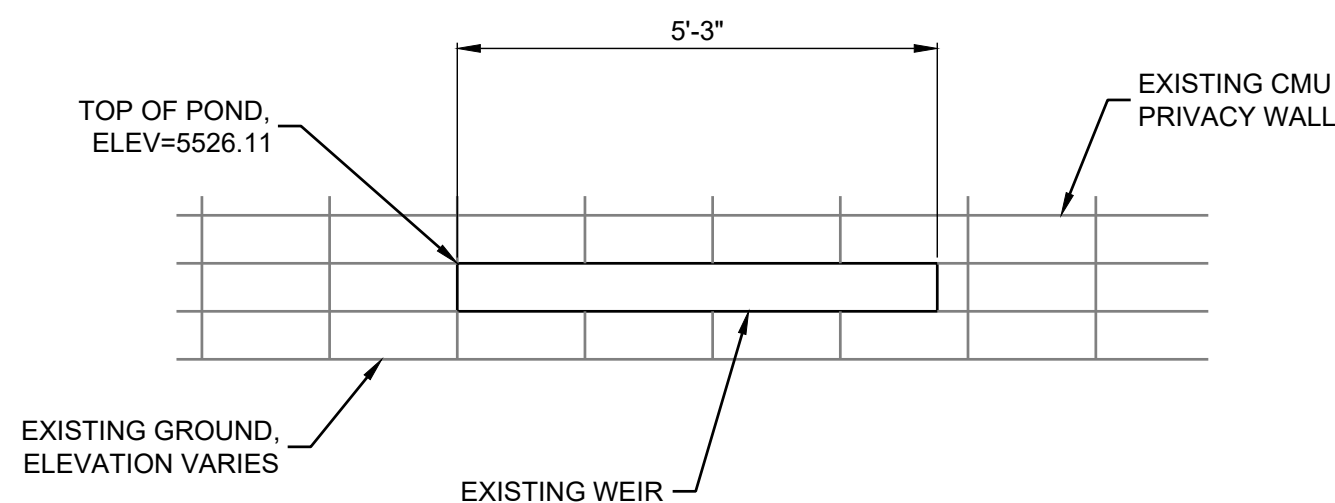
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CROSS-SECTION 8
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CROSS-SECTION 9
Scale: 1:5



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SHEET TITLE: BUILDING PERMIT	
SHEET NUMBER: C-104	