

# CITY OF ALBUQUERQUE



May 21, 2018

Hugh Floyd  
Respec  
5971 Jefferson St NE  
Albuquerque, NM 87109

RE: **Bosque Brewery**  
**I-25 west Frontage Rd between Venice & Pasadena**  
**Grading and Drainage Plan**  
**Stamp Date: 5/10/18**  
**Hydrology File: B18D022**

Dear Mr. Floyd:

Based upon the information provided in your submittal received 5/10/17, the above referenced submittal is approved for Building Permit.

If you have any questions, please contact me at 924-3695 or [dpeterson@cabq.gov](mailto:dpeterson@cabq.gov).

PO Box 1293

Albuquerque

NM 87103

[www.cabq.gov](http://www.cabq.gov)

Sincerely,

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



### Hydrology Calculations

The following calculations are based on Albuquerque's Development Process Manual, Section 22.2

### Runoff Rate:

#### Treatment Type Areas

Subbasin	Area <sub>x</sub> (ac)	Area <sub>a</sub> (ac)	Area <sub>b</sub> (ac)	Area <sub>c</sub> (ac)	Area <sub>d</sub> (ac)	Total (ac)
Subbasin-1.1	0	0.0862	0.0862	0.6551	0.8275	
Subbasin-1.2	0	0.0141	0.0141	0.1212	0.1494	
Subbasin-1.3	0	0.0133	0.0133	0.1218	0.1484	
Subbasin-1.4	0	0	0	0.0791	0.0791	
Subbasin-2	0	0.0654	0.0654	0.0810	0.2117	
Subbasin-3.1	0	0.0242	0.0242	0.0483	0.0967	
Subbasin-3.2	0	0.0310	0.0310	0.3933	0.4553	
Subbasin-4.1	0	0.0217	0.0217	0.0608	0.1042	
Subbasin-4.2	0	0.0469	0.0469	0.1513	0.2451	

Peak Discharge values based on Zone 3 from Table A-9

$$Q_{A1} = 1.87 \text{ cfs/ac}$$

$$Q_{B1} = 2.60 \text{ cfs/ac}$$

$$Q_{C1} = 3.45 \text{ cfs/ac}$$

$$Q_{D1} = 5.02$$

Peak Discharge calculation for a 100-yr, 24-hr storm event from equation A-10

Subbasin	Discharge (cfs)
Subbasin-1.1	3.8
Subbasin-1.2	0.7
Subbasin-1.3	0.7
Subbasin-1.4	0.4
Subbasin-2	0.8
Subbasin-3.1	0.4
Subbasin-3.2	2.2
Subbasin-4.1	0.4
Subbasin-4.2	1.0

### Water Quality:

Required Water Quality volume for first flush of 0.34"

Subbasin	Required Volume (cu. ft.)	Drains to	Volume Provided (cu. ft.)
Subbasin-1.1	808	WQ Pond 1	846
Subbasin-1.2	150	WQ Pond 2	-
Subbasin-1.3	150	WQ Pond 2	-
Subbasin-1.4	98	WQ Pond 2	-
Subbasin-1.2 thru 1.4	398	WQ Pond 2	449
Subbasin-3.1	60	WQ Pond 3	339
Subbasin-3.2	485	WQ Pond 4	3744
Total	1,751	WQ Ponds 1-4	5,378

### HEC-HMS Input Summary Table

100-yr storm depths based on Zone 3 from Table A-2

$$P_{60} = 2.14 \text{ in}$$

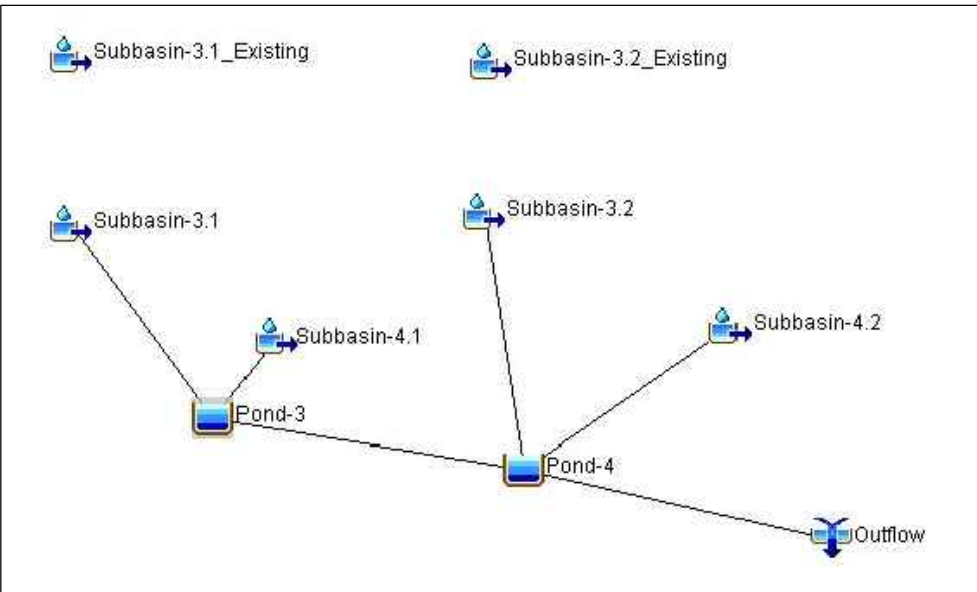
$$P_{360} = 2.60 \text{ in}$$

$$P_{1440} = 3.10 \text{ in}$$

Subbasin	IA (in)	INF (in/hr)	T <sub>c</sub> (hr)	R (hr)
Subbasin 3.1 Existing	0.65	1.67	0.133	0.195
Subbasin 3.1	0.43	1.04	0.133	0.122
Subbasin 3.2 Existing	0.65	1.67	0.133	0.195
Subbasin 3.2	0.43	1.04	0.133	0.114
Subbasin 4.1	0.43	1.04	0.133	0.120
Subbasin 4.2	0.43	1.04	0.133	0.119

### HEC-HMS Output Summary Table

Hydraulic Element	Drainage Area (mi <sup>2</sup> )	Peak Discharge (cfs)	Time of Peak (h:mm)	Volume (cu. ft.)
Subbasin 3.1 Existing	0.00015	0.2	1:33	227
Subbasin 3.1	0.00015	0.4	1:30	728
Subbasin 3.2 Existing	0.00071	0.9	1:33	1072
Subbasin 3.2	0.00071	2.0	1:30	4652
Subbasin 4.1	0.00016	0.4	1:30	840
Subbasin 4.2	0.00038	1.0	1:30	2057
Pond 3	0.00031	0.8	1:33	1232
Pond 4	0.00140	2.4	1:42	4196



HEC-HMS Model Schematic

### Water Quality Pond Rating Curves

#### WQ Pond 1

Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)
5192.0	23	0	0
5192.4	293	63	63
5192.5	411	35	98
5193.0	1063	369	467
5193.3	1466	379	846

#### WQ Pond 2

Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)
5189.0	0	0	0
5190.0	73	37	37
5191.0	251	162	198
5192.0	251	251	449

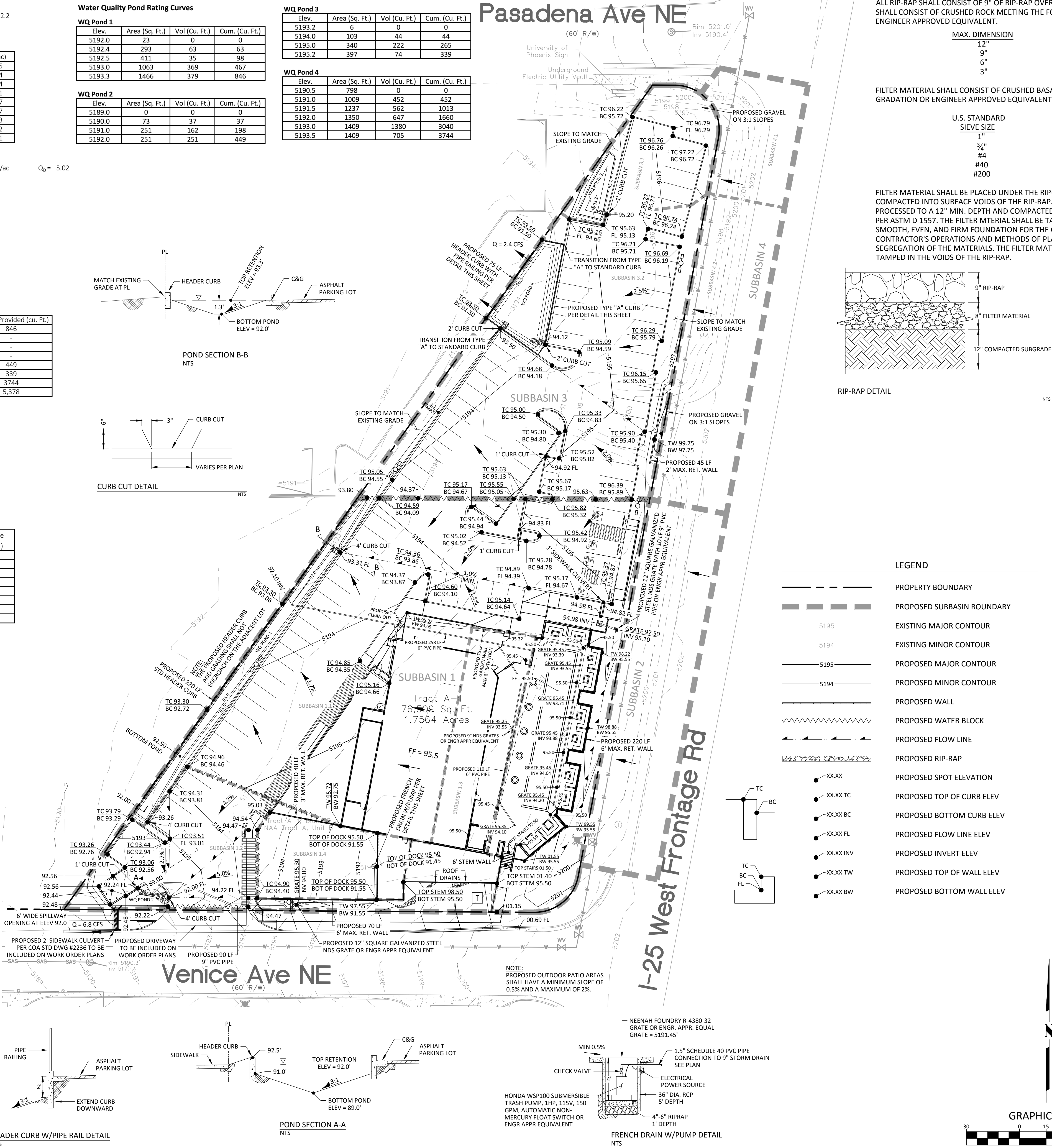
#### WQ Pond 3

Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)
5193.2	6	0	0
5194.0	103	44	44
5195.0	340	222	265
5195.2	397	74	339

#### WQ Pond 4

Elev.	Area (Sq. Ft.)	Vol (Cu. Ft.)	Cum. (Cu. Ft.)
5190.5	798	0	0
5191.0	1009	452	452
5191.5	1237	562	1013
5192.0	1350	647	1660
5193.0	1409	1380	3040
5193.5	1409	705	3744

## Pasadena Ave NE



### RIP-RAP NOTES:

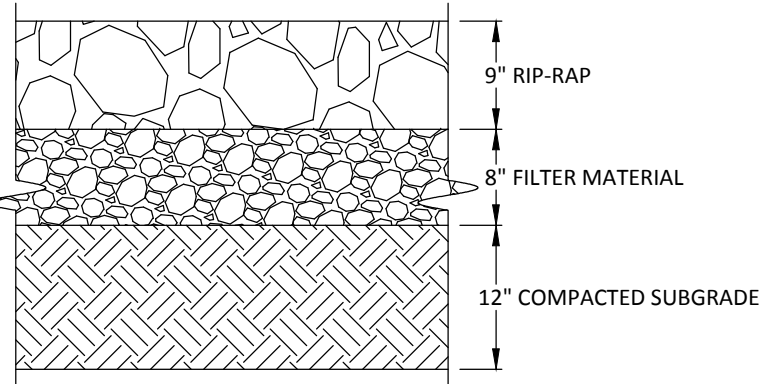
ALL RIP-RAP SHALL CONSIST OF 9" OF RIP-RAP OVER 8" OF FILTER MATERIAL. RIP-RAP SHALL CONSIST OF CRUSHED ROCK MEETING THE FOLLOWING GRADATION OR ENGINEER APPROVED EQUIVALENT.

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

FILTER MATERIAL SHALL CONSIST OF CRUSHED BASALT ROCK MEETING THE FOLLOWING GRADATION OR ENGINEER APPROVED EQUIVALENT.

U.S. STANDARD SIEVE SIZE	PASSING BY WEIGHT
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 PAVEMENT AND COMPACTED INTO SURFACE VOIDS OF THE RIP-RAP. THE SUBGRADES 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 OVERLYING 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.



### Background

Tract A-1 accounts for approximately 1.75 acres in Block 3, NAA Tract A, Unit B within the City of Albuquerque, Bernalillo County, New Mexico. This property is located west of the I-25 West Frontage Road between Venice Avenue and Pasadena Avenue. The site is currently undeveloped. The site receives offsite flows from the I-25 West Frontage Road located east of the property. The flow rate from the frontage road is accounted for in the runoff calculations. There is no floodplain on the site.

The southern portion of Tract A-1 is allowed free discharge to Venice Avenue and the northern portion of Tract A-1 is allowed free discharge to Pasadena Avenue per the San Mateo Business Park Drainage Report (SMBPDR) by C.L. Weiss Engineering, Inc. 1999 (B18-D008). Other background reports include the Citicorp Site Drainage Report (CSDR) by Bohannon Huston, Inc. 1996, which is referenced in the SMBPDR, and the Drainage Report for Beverly Hills Ave & Venice Ave Office/Warehouse Public Improvements (BVOWPIDR) by Isaacson & Arfman, P.A. 2000 (B18-D007), which references both the SMBPDR and CSDR.

### Methodology

Hydrology Calculations for the site are performed in accordance with the Albuquerque Development Process Manual (DPM) Section 22.2 using the Rational Method to calculate peak flow rates in order to ensure all flow paths are sufficient to carry flows effectively throughout the site. The water quality pond volumes are calculated using a first flush runoff value of 0.34". Pond routing for the northern portion of the property is modeled using HEC-HMS 4.1. This methodology is consistent with SSCAFCA's DPM methodology which in turn is intended to match AHYMO results as modeled using COA DPM Chapter 22.2 methods. All hydrologic and hydraulic calculations can be found on this sheet.

### Existing Conditions

The existing property slopes from east to west at approximately 3%. Historically, the site drains across the adjacent property to the west. Runoff eventually reaches Venice Avenue and enters a storm drain system designed in the BVOWPIDR.

### Proposed Conditions

The property has been split into four separate subbasins. See the Hydrology Calculations located at the top left corner of this sheet for peak flow rates and required water quality volumes.

Subbasin 1 consists of the southern portion of the site. This subbasin has been split into four smaller subbasins for water quality purposes. Subbasin 1.1 consists of the northern portion of Subbasin 1. It is 0.8 acres and generates 3.8 cfs. Subbasin 1.2 consists of the southwest corner of the property. It is 0.15 acres and generates 0.7 cfs. Subbasin 1.3 consists of the roof drainage discharging to the southern portion of the property. It is 0.15 acres and generates 0.7 cfs, as well. Subbasin 1.4 consists of the truck dock area southwest of the building. It is 0.1 acres and generates 0.4 cfs. Subbasin 2 consists of a portion of the I-25 West Frontage Road that enters Subbasin 1.1. Subbasin 2 is 0.2 acres and generates 0.8 cfs. Therefore, the southern portion of Tract A-1 has a peak rate of 6.4 cfs discharging into Venice Ave.

Water from Subbasin 1.1 enters WQ Pond 1 located along the western boundary of the property. There is also a small diameter storm drain that collects water in the patio area that discharges to WQ Pond 1. This pond holds 846 cubic feet, which is greater than the required 808 cubic feet. The water quality pond rating curves are included on the left side of this sheet. When full, water leaves WQ Pond 1 through a curb opening and enters subbasin 1.2. Runoff from WQ Pond 1 and Subbasin 1.2 then collects in the southwest corner of the property in WQ Pond 2. Subbasin 1.3 consists mostly of a portion of the roof that drains to the south. Once runoff discharges from the roof drains, water flows west in a swale along the southern property boundary. Runoff is collected by an inlet and storm drain that discharges to WQ Pond 2. Subbasin 1.4 drains to an inlet and french drain at the east end of the truck dock. A pump is proposed within the french drain in order to adequately drain the truck dock. See details this sheet. Runoff generated by Subbasin 1.4 eventually discharges to WQ Pond 2. This pond holds 449 cubic feet, which is greater than the required amount of 398 cubic feet for Subbasins 2-4. See pond details this sheet. Once WQ Pond 2 fills, water spills through a 6'x6" spillway at an elevation of 92.0'. Runoff is routed under the sidewalk in a 2' sidewalk culvert and discharges into Venice Avenue. Once the runoff is offsite, water flows west along proposed curb & gutter until reaching the proposed inlets located approximately 350' west of the subject property (see BVOWPIDR). These inlets will connect to an existing storm drain. This existing storm drain has capacity to accept the proposed flows from the southern portion of Tract A-1 per the BVOWPIDR referenced above. The offsite curb & gutter, asphalt, and storm drain facilities will be included on a public work order plan set.

Subbasin 3 consists of the northern portion of Tract A-1. It has been split into two separate subbasins for water quality purposes. Subbasin 3.1 is 0.1 acres and generates 0.4 cfs. Subbasin 3.2 is 0.5 acres and generates 2.2 cfs. Subbasin 4 consists of a portion of the I-25 West Frontage Road that enters Subbasin 3 and has also been split into two smaller subbasins. Subbasin 4.1 is 0.1 acres and generates 0.4 cfs. Subbasin 4.2 is 0.2 acres and generates 1.0 cfs. Therefore, the northern portion of Tract A-1 has a peak flow rate of 4.0 cfs.

Runoff generated by Subbasin 3.1 flows southwest and enters WQ Pond 3. WQ Pond 3 holds 339 cubic feet, which is greater than the required 60 cubic feet. Once the pond has filled, water bypasses the pond and continues into Subbasin 3.2. Runoff generated by Subbasin 3.2 and water that bypasses WQ Pond 3 is collected in WQ Pond 4. WQ Pond 4 has a retention volume of 3,744 cubic feet, which is greater than the 485 cubic feet of required volume. Once the pond fills to an elevation of 93.5', water spills over the header curb into the adjacent property to the west as runoff has done historically. A HEC-HMS analysis was performed for this case in order to discharge only the historic flow rate at this point. The HEC-HMS input and output tables are included under the hydrology calculations and a schematic of the model is included on the left side of this sheet. The historic flow rate is 2.5 cfs and is the summation of existing subbasins 3.1 and 3.2 in addition to subbasins 4.1 and 4.2. According to the HMS analysis the ponds are adequately sized to discharge only 2.4 cfs from WQ Pond 4, which is less than the historic flow rate of 2.5 cfs.

RESPEC

ISSUED FOR CONSTRUCTION

DATE: 5/10/2018

SCALE: AS NOTED

SHEET: C1

PROJECT TITLE: Bosque Brewing the Open Space Project

PROJECT NO.: 8853

PROJECT MANAGER: DEVIN NGUYEN

DRAWN BY: JUS

JOB NO.: BOSQUE II

GRADING & DRAINAGE PLAN





1. ALL MECHANICAL JOINTS SHALL BE RESTRAINED AT THE FITTING.
2. THE CONTRACTOR SHALL PROVIDE A MINIMUM PIPE LENGTH OF 20 LF FROM ALL MECHANICAL JOINTS. ALL PIPE JOINTS WITHIN 20 LF OF A MECHANICAL JOINT SHALL BE RESTRAINED AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL RESTRAIN ALL PIPE JOINTS IN THE SPECIFIED DISTANCE LISTED IN THE TABLE ON THIS SHEET.
4. THE CONTRACTOR SHALL RESTRAIN ALL FIRE HYDRANT JOINTS FROM THE TEE ON THE MAIN TO THE FIRE HYDRANT FLEECE.

FITTING	LENGTH TO BE RESTRAINED	
	(4")	(6")
8" X 8" X 6"		26'
11.25" BEND	1'	1'
22.5" BEND	2'	2'
45° BEND	3'	3'
90° BEND	6'	8'
VALVE/DEAD END	15'	20'

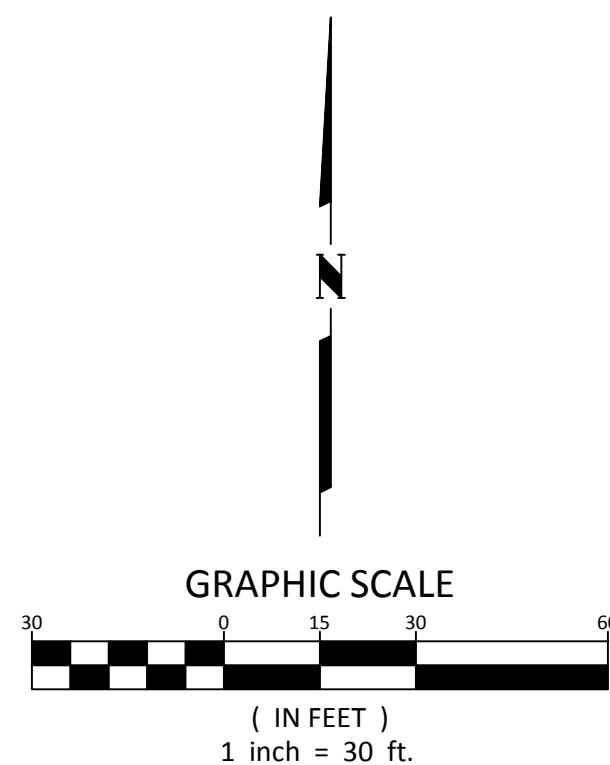


(60' R/W)

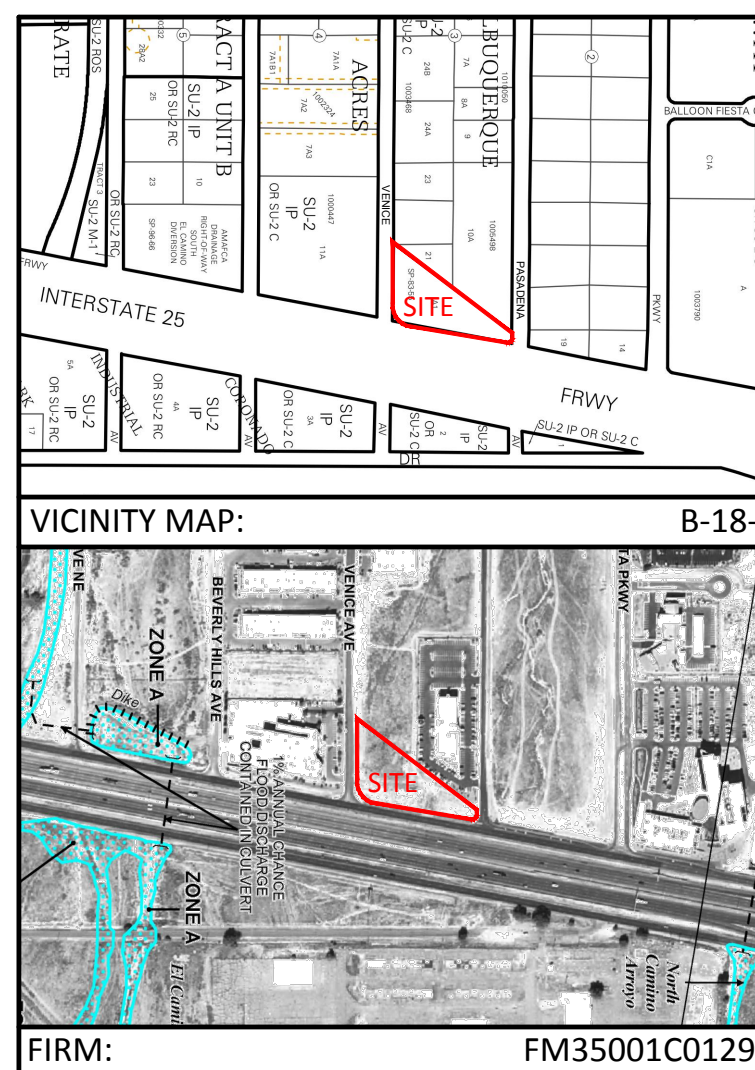
Phoenix Sign  
Underground  
Electric Utility Vault

Rim 5201.0  
Inv 5190.4'

PROPERTY BOUNDARY  
EXISTING WATER LINE  
PROPOSED WATER LINE  
EXISTING SAS LINE  
PROPOSED SAS LINE



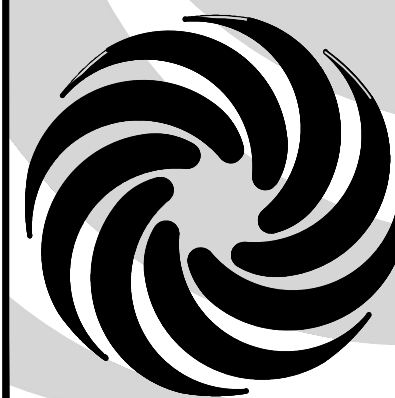
ISSUED FOR  
CONSTRUCTION



1. TYPE RPBA BACKFLOW PREVENTERS FOR THE DOMESTIC WATER AND FIRE LINES SHALL BE PROVIDED INTERNAL TO THE PROPOSED BUILDING PER COA STD DWG 2385. THE BACKFLOW PREVENTERS SHALL BE THE SAME SIZE AS THE TAP/CONNECTION AT THE MAIN LINE.

# MODULUS ARCHITECTS

100 SUN AVENUE N.E., Ste 305  
ALBUQUERQUE, NEW MEXICO 87109  
PHONE (505) 338-1499 FAX (505)



PROJECT TITLE  
Bosque Brewing the Open Space Project  
XXXX FRONTAGE ROAD

ALBUQUERQUE, NEW MEXICO 87113		
PROJECT MANAGER	JOB NO.	DRAWN BY:

DEVIN NGUYEN

BOSQUE II

JS

SHEET TITLE

## UTILITY PLAN

DATE:  
5/18/201

SCALE:  
**AS NOTED**

sheet-

of