

CITY OF ALBUQUERQUE



May 13, 2015

Reza Afaghpour, PE
through SBS Construction and Engineering, LLC
10209 Snowflake Court NW
Albuquerque, NM 87114

**RE: Lot 15, Block 2, Unit 3, Tract 3, Eagle Rock Avenue
Grading and Drainage Plan
Engineer's Stamp Date 5-12-2015 (File: C20-D056B)**

Dear Mr. Afaghpour:

Based upon the information provided in your submittal received 4-14-15, the above referenced plan is approved for Building Permit. Please attach a copy of this approved plan in the construction sets when submitting for a building permit.

PO Box 1293

Prior to Certificate of Occupancy release, Engineer Certification per the DPM Checklist will be required. Additionally, it will be required to submit the construction work within COA right-of-way through the DRC Process.

Albuquerque

If you have any questions, you can contact me at 924-3924.

New Mexico 87103

Sincerely,

Jeanne Wolfenbarger, P.E.
Senior Engineer, Planning Dept.
Development Review Services

www.cabq.gov

Orig: Drainage file
c.pdf Addressee via Email

* ZONE 4, ON-SITE
*

* 100-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.23 IN RAIN SIX=2.90 IN
RAIN DELAY=3.65 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=101.1 AREA=0.001385 SQ MI
PER A=100.0 PER B=0.0 PER C=0.0 PER D=0.0
TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER HISTORICAL CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.49 IN RAIN SIX=1.93 IN
RAIN DELAY=2.43 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=111.1 AREA=0.001385 SQ MI
PER A=100.0 PER B=0.0 PER C=0.0 PER D=0.0
TP=0.1333 HR MASS RAINFALL=-1

* 100-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.23 IN RAIN SIX=2.90 IN
RAIN DELAY=3.65 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=102.1 AREA=0.001385 SQ MI
PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0
TP=0.1333 HR MASS RAINFALL=-1

* OFFSITE 111.0-A
COMPUTE NM HYD ID=1 HYD NO=103.2 AREA=0.000839 SQ MI
PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0
TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER ALLOWABLE CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.49 IN RAIN SIX=1.93 IN
RAIN DELAY=2.43 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=112.1 AREA=0.001385 SQ MI
PER A=43.0 PER B=20.0 PER C=20.0 PER D=17.0
TP=0.1333 HR MASS RAINFALL=-1

* 100-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.23 IN RAIN SIX=2.90 IN
RAIN DELAY=3.65 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=101.2 AREA=0.001385 SQ MI
PER A=0.0 PER B=32.0 PER C=10.0 PER D=58.0
TP=0.1333 HR MASS RAINFALL=-1

* 10-YEAR, 6-HR STORM (UNDER PROPOSED CONDITIONS)

START
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.49 IN RAIN SIX=1.93 IN
RAIN DELAY=2.43 IN DT=0.03333 HR
* ON-SITE
COMPUTE NM HYD ID=1 HYD NO=111.2 AREA=0.001385 SQ MI
PER A=0.0 PER B=32.0 PER C=10.0 PER D=58.0
TP=0.1333 HR MASS RAINFALL=-1

FINISH

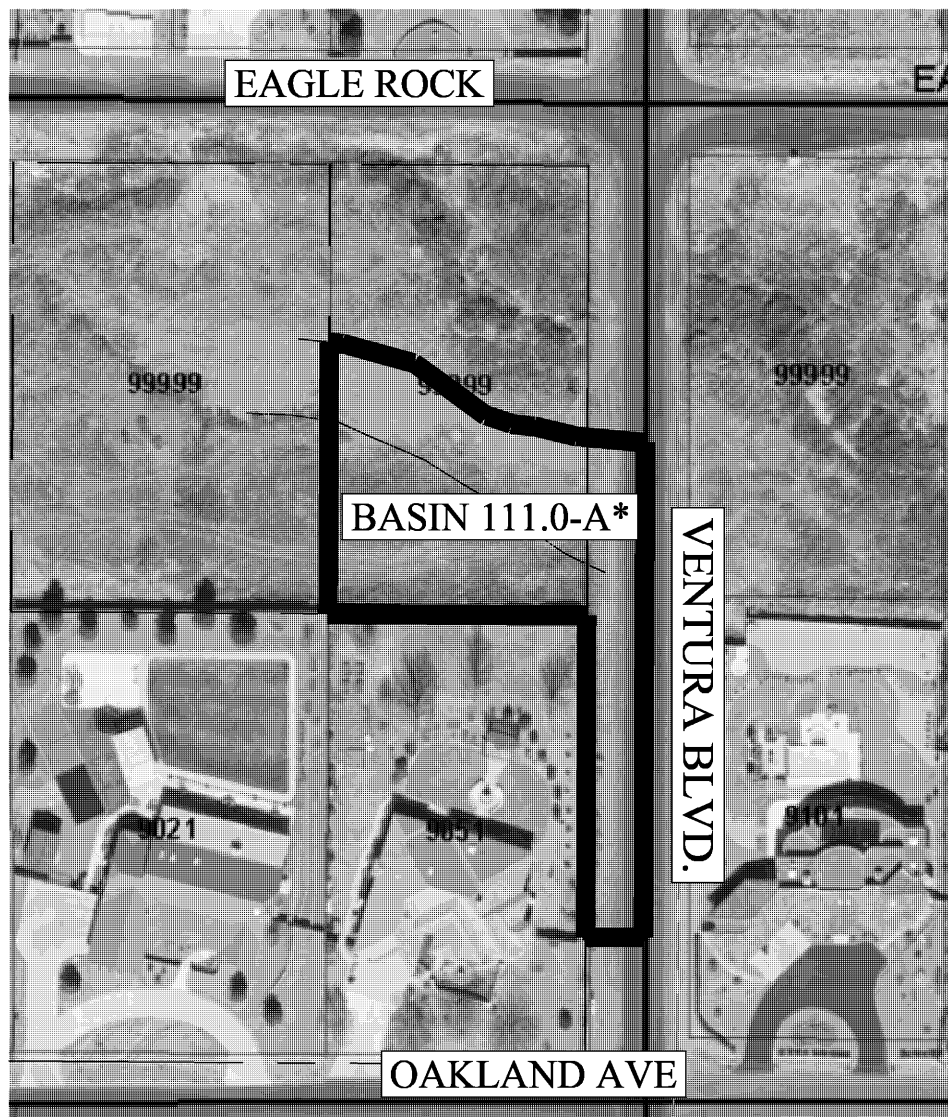
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulevard contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

Purpose
The purpose of this drainage report is to present a grading and drainage solution for the proposed buildings.

Existing Drainage Conditions
This site is undeveloped and falls within the NAA Master Drainage Plan prepared by RTI. The site is within Basin 111.0 of the RTI report and is subject to 108.83 cfs which passes through the lot at the northerly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRN Map 33001C0141G (revised September 26, 2008) the site does not fall within a 100-year floodplain.

Proposed Conditions and On-Site Drainage Management Plan
The developed runoff generated from this site will have to comply with the land treatments set as part of the NAA Master Drainage Plan. Additional runoff volume generated by this development will be retained on site. Therefore, a retention pond with a volume of 2,467.38 cfs is designed to retain the additional volume. The total retention volume required is only 2,395.08 cfs. The off-site flow of 1.71 cfs will enter the site to a pond and then intercepted by the beehive inlets and then discharged to the west via 10" pipe. The 108.83 cfs off-site runoff from Basin 111.0, NAA Master Drainage Plan Basin #101.10 will be intercepted by 2-36" CMPs and will be carried across the property.

Calculations
City of Albuquerque, Development Process Manual, Section 22.2, Hydrology Section, was used for runoff calculations. See this plan for AHYMO input and Summary output files.



* PORTION OF BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN
OFFSITE BASIN MAP

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
INPUT FILE = sant.txt

PAGE = 1										
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	NOTATION
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		101.10	-	1	.00139	1.96	.059	.79828	1.500	2.213 PER IMP=
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		111.10	-	1	.00139	.71	.020	.26998	1.533	.796 PER IMP=
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		102.10	-	1	.00139	2.81	.094	1.27203	1.500	3.168 PER IMP=
COMPUTE NM HYD		103.20	-	1	.00084	1.71	.057	1.27203	1.500	3.184 PER IMP=
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		112.10	-	1	.00139	1.44	.045	.61083	1.500	1.624 PER IMP=
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		101.20	-	1	.00139	3.87	.149	2.01759	1.500	4.367 PER IMP=
START	RAINFALL	TYPE= 1								TIME=
COMPUTE NM HYD		111.20	-	1	.00139	2.40	.087	1.18437	1.500	2.709 PER IMP=

PIPE & GRATE CAPACITY CALCULATIONS

CALCULATING PIPE CAPACITY USING ORFICIE EQUATION: $Q = CA(2gh)^{0.50}$

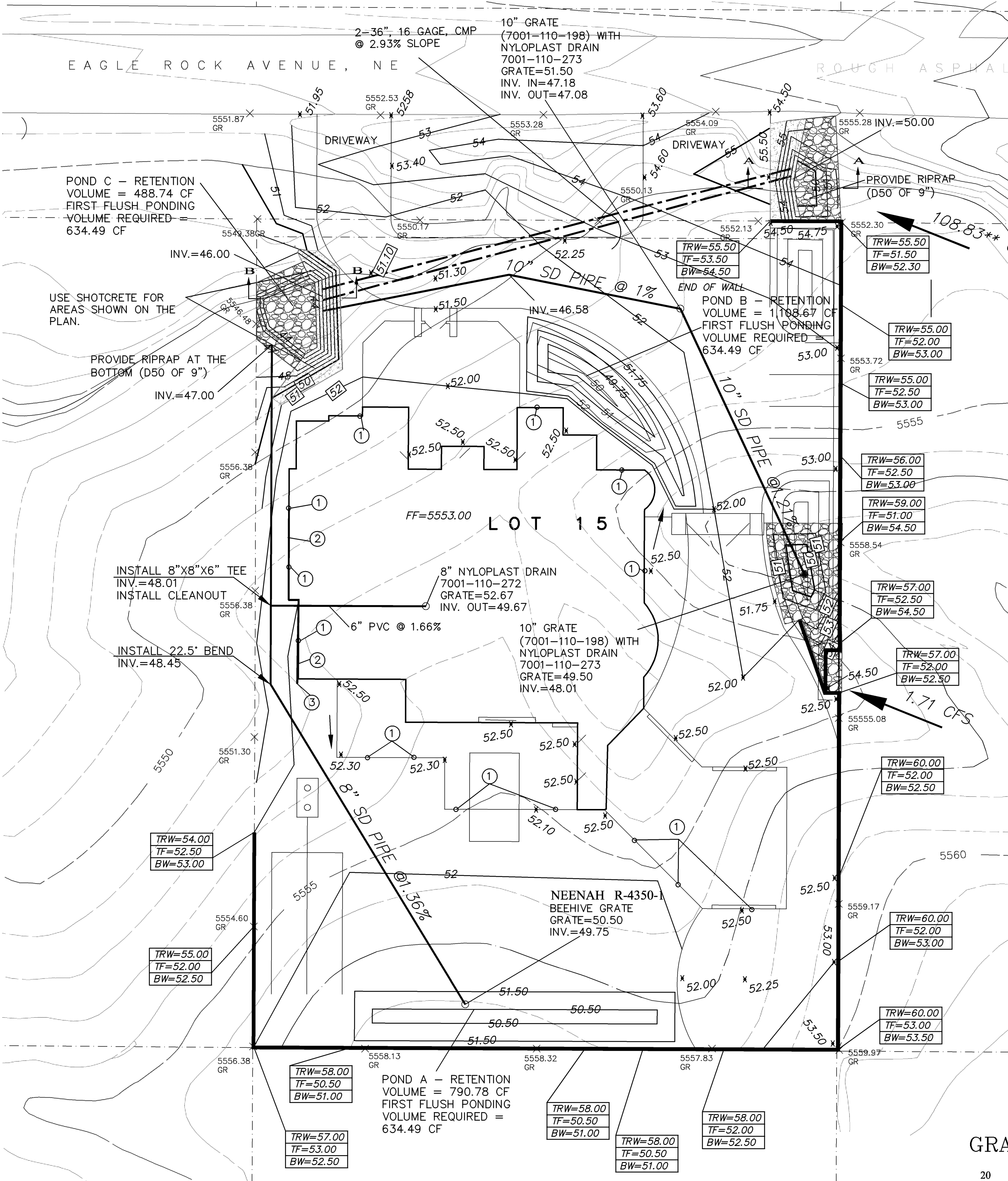
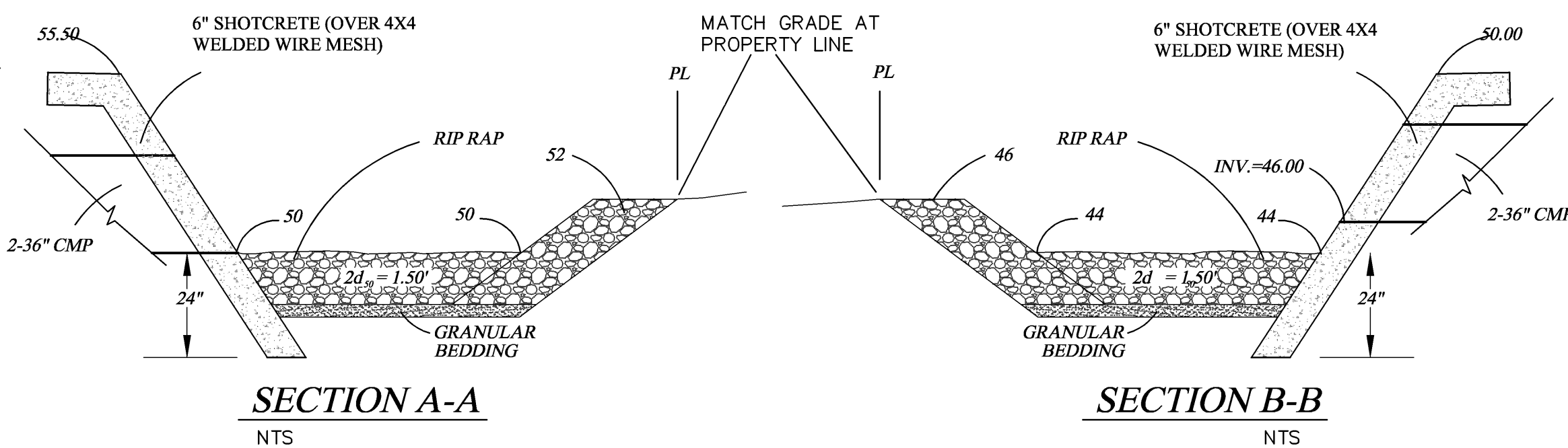
NEENAH R-4350-1 BEEHIVE GRATE:
 $Q = 0.6 \times 0.30 (2 \times 32.2 \times 1.0)^{0.50} = 2.04 \text{ cfs}$

NYLOPLAST 10" GRATE (7001-110-198):
 $Q = 0.6 \times 0.20 (2 \times 32.2 \times 1.0)^{0.50} = 0.95 \text{ cfs}$

8" PVC:
 $Q = 0.6 \times 0.35 (2 \times 32.2 \times 1.50)^{0.50} = 2.06 \text{ cfs}$

10" PVC:
 $Q = 2 \times 0.6 \times 0.55 (2 \times 32.2 \times 2.0)^{0.50} = 3.79 \text{ cfs}$

2-36" PVC:
 $Q = 2 \times 0.6 \times 7.07 (2 \times 32.2 \times 4.0)^{0.50} = 136.07 \text{ cfs}$



** BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN

NOTES:

- 1: ROOF DRAIN LOCATION
- 2: EXTEND ROOF GUTTERS TO THE BACK OF THE HOUSE
- 3: DAYLIGHT ROOF GUTTER TO THE BACK OF THE HOUSE

POND CALCULATIONS

POND A - BOTTOM AREA = 318.72 SF (@ 50.50), TOP AREA = 1,262.83 SF (@ 51.50), DEPTH = 1.0' VOLUME PROVIDED = $(318.72 + 1262.83)/2 \times 1.0 = 790.78 \text{ CF}$

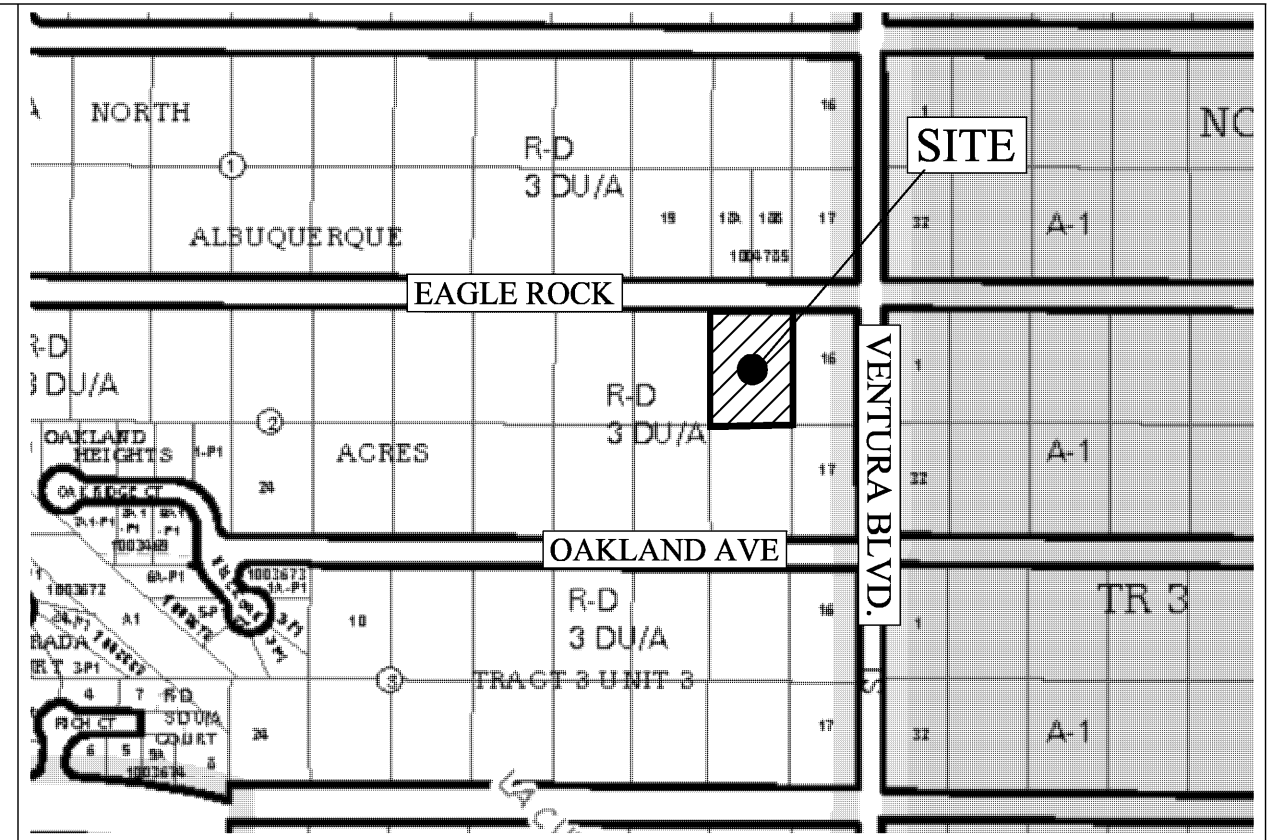
POND B - BOTTOM AREA = 168.30 SF (@ 49.75), TOP AREA = 940.37 SF (@ 51.75), DEPTH = 2.0' VOLUME PROVIDED = $(168.30 + 940.37)/2 \times 2.0 = 1,108.67 \text{ CF}$

POND C - BOTTOM AREA = 217.96 SF (@ 44.00), TOP AREA = 349.97 SF (@ 46.00), DEPTH = 2.0' VOLUME PROVIDED = $(217.96 + 349.97)/2 \times 2.0 = 567.93 \text{ CF}$

TOTAL RETENTION VOLUME PROVIDED = 790.78 + 1,108.67 + 567.93 = 2,467.38 CF

TOTAL PONDING VOLUME REQUIRED (NAA) = VOL. PROPOSED CONDITIONS - VOL. ALLOWABLE/NAA

= 0.149 - 0.094 = 0.055 AC-FT = 2,395.08 CF
TOTAL PONDING VOLUME REQUIRED (90TH PERCENTILE/FIRST FLUSH) = 0.34 INCHES x IMPERVIOUS AREA = $(0.34/12 \times 22,393.80) = 634.49 \text{ CF}$



VICINITY MAP:

LEGAL DESCRIPTION:

Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres
BURGS REPLAT, PERFECTO ARMIJO, CONTAINING 0.89 ACRE

BENCH MARK DESCRIPTION:

BM: 7_B20
X=1553078.775, Y=1524900.435, ELEV.=5566.658

GENERAL NOTES:

- 1: CONTOUR INTERVAL IS HALF (1.00) FOOT.
- 2: ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION 7_B20, HAVING AN ELEVATION OF 5566.658 FEET ABOVE SEA LEVEL.
- 3: UTILITIES SHOWN HEREON ARE IN THEIR APPROXIMATE LOCATION BASED ONLY ON ABOVE GROUND EVIDENCE FOUND IN THE FIELD AND AS-BUILT INFORMATION PROVIDED BY THE CLIENT. UTILITIES SHOWN HEREON, WHETHER INDICATED AS ABANDONED OR NOT, SHALL BE VERIFIED BY OTHERS FOR EXACT LOCATION AND/OR DEPTH PRIOR TO EXCAVATION OR DESIGN CONSIDERATIONS.
- 4: THIS IS NOT A BOUNDARY SURVEY, BEARINGS ARE ASSUMED, DISTANCES AND FOUND PROPERTY CORNERS ARE FOR INFORMATIONAL PURPOSES ONLY.
- 5: SLOPES ARE AT 3:1 MAXIMUM.

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 HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
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 CONSTRUCTIONS. 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.

LEGEND

- 5100--- EXISTING CONTOUR (MAJOR)
- 5102--- EXISTING CONTOUR (MINOR)
- BOUNDARY LINE
- X 85.46 PROPOSED SPOT ELEVATION
- X 5265.16 EXISTING GRADE
- X 5284.43 FL EXISTING FLOWLINE ELEVATION
- X 5284.43 GR EXISTING GROUND ELEVATION
- PROPOSED RETAINING WALL
- BC=89.08 BOTTOM OF CHANEL
- TRW=91.50 TOP OF RETAINING WALL
- TF=88.00 TOP OF FOOTING
- HP HIGH POINT

GRAPHIC SCALE

20 10 0 20
SCALE: 1"=20'



SBS CONSTRUCTION AND ENGINEERING, LLC

10209 SNOWFLAKE CT, NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-3570

LOT 15, BLOCK 2, UNIT3, TRACT 3, NAA

GRADING AND DRAINAGE PLAN

DRAWING:	DRAWN BY:	DATE:	SHEET #
201423-GR.DWG	SH-B	2-16-2015	1

LAST REVISION: 5/12/2015