```
*
* 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=20.00 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=20.00 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
```

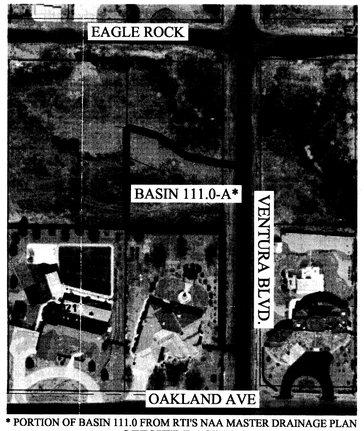
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulverad contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

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 throught the lot at the notherly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRM Map 35001C0141G (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 treaments set as part of the NAA Master Drainage Plan. Acditional runoff volume generated by this development will be retained on site. Therefore, a retention pond with a volume of 3,545.01 cf is desinged to retain the additional volume. The total retention volume required is only 2,395.08 cf. The offsite flow of 1.71 cfs will intercepted by a beehive inlet and then routed throught the site. The 108.83 cfs will be intercepted by 2-36" CMPs and will be carried acrros the property.

Calculations
City of Albuquerque, Development Process Manuel, 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) – – VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/12/2015
INPUT FILE = sant.txt USER NO.= AHYMO-I-9702c01000R31-AH

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										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.10	–	1	.00139	1.96	.059	.79828	1.500	2.213	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.10	–	1	.00139	.71	.020	.26998	1.533	.796	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	102.10	–	1	.00139	2.81	.094	1.27203	1.500	3.168	PER IMP= 17.00
COMPUTE NM HYD	103.20	–	1	.00084	1.71	.057	1.27203	1.500	3.184	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	112.10	–	1	.00139	1.44	.045	.61083	1.500	1.624	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.20	–	1	.00139	3.87	.149	2.01759	1.500	4.367	PER IMP= 58.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.20	–	1	.00139	2.40	.087	1.18437	1.500	2.709	PER IMP= 58.00
FINISH										

PIPE & GRATE CAPACITY CALULATIONS

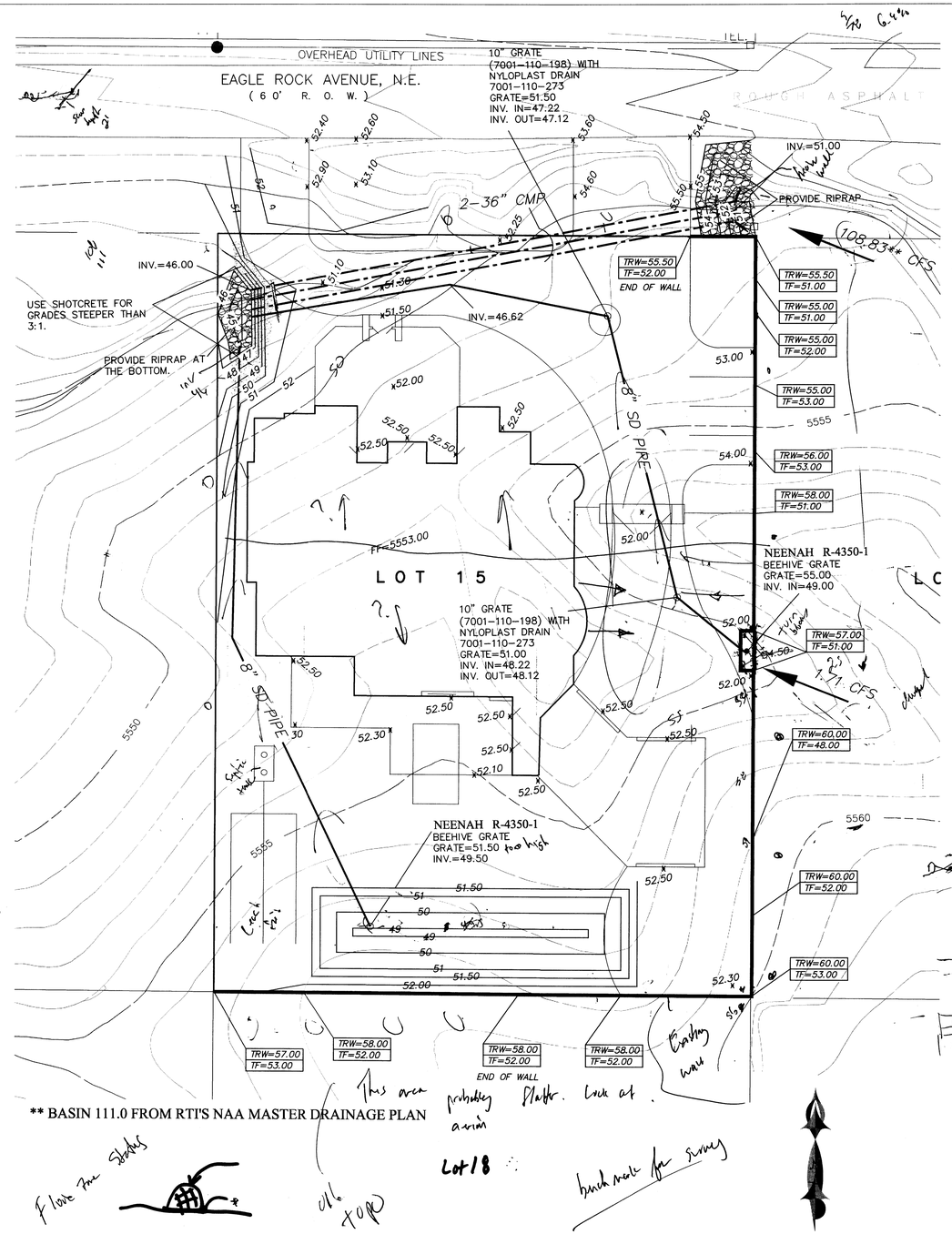
CALCULATING PIPE CAPACITY UTING ORFICIE EQUATION: Q = CA(2gh)^0.50

NEENAH R-4350-1 BEEHIVE GRATE:
Q = 0.6x0.30 (2x32.2x2.0)^0.50 = 2.04 cfs

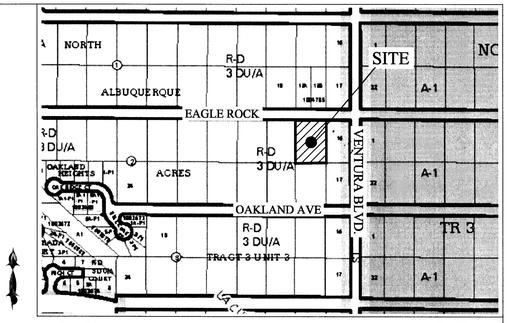
NYLOPLAST 10" GRATE (7001-110-198):
Q = 0.6x0.20 (2x32.2x1.0)^0.50 = 0.95 cfs

8" PVC:
Q = 0.6x0.35 (2x32.2x2.88)^0.50 = 2.85 cfs

2-36" PVC:
Q = 2 x 0.6x7.07 (2x32.2x4.0)^0.50 = 136.07 cfs



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



VICINITY MAP: C-20-Z

LEGAL DESCRIPTION:

Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres
CONTAINING 0.89 ACRE

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
* 85.46	PROPOSED SPOT ELEVATION
× 5265.16	EXISTING GRADE
× 5284.43 FL	EXISTING FLOWLINE 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

POND CALCULATIONS

BOTTOM AREA = 179.29 SF (@ 49.00), TOP AREA = 2,672.22 SF (@ 51.50), DEPTH = 2.5'
VOLUME PROVIDED = (179.29 + 2,672.22)/2 X 2.5 = 3,564.39 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 x 22,393.80) = 634.49 CF

GRAPHIC SCALE
10 5 0 10
SCALE: 1"=10'

REZA AFAGHPOUR NEW MEXICO 11814 2/22/2015 LICENSED PROFESSIONAL ENGINEER
REZA AFAGHPOUR
P.E. #11814

RECEIVED FEB 23 2015 LAND DEVELOPMENT SECTION

SBS CONSTRUCTION AND ENGINEERING, LLC
10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-5570

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	

LAST REVISION: 2/21/2015

```
*
* 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=20.00 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=20.00 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
```

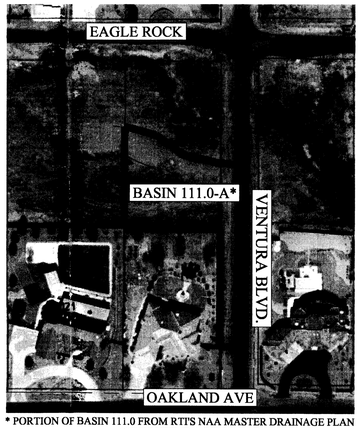
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulverad contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

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 throught the lot at the notherly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRM Map 35001C0141G (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 treaments 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 cf is desinged to retain the additional volume. The total retention volume required is only 2,395.08 cf. The offsite 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 offsite runoff from Basin 111.0, NAA Master Drainage Plan Basin #101.10 will be intercepted by 2-36" CMPs and will be carried acrros the property.

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

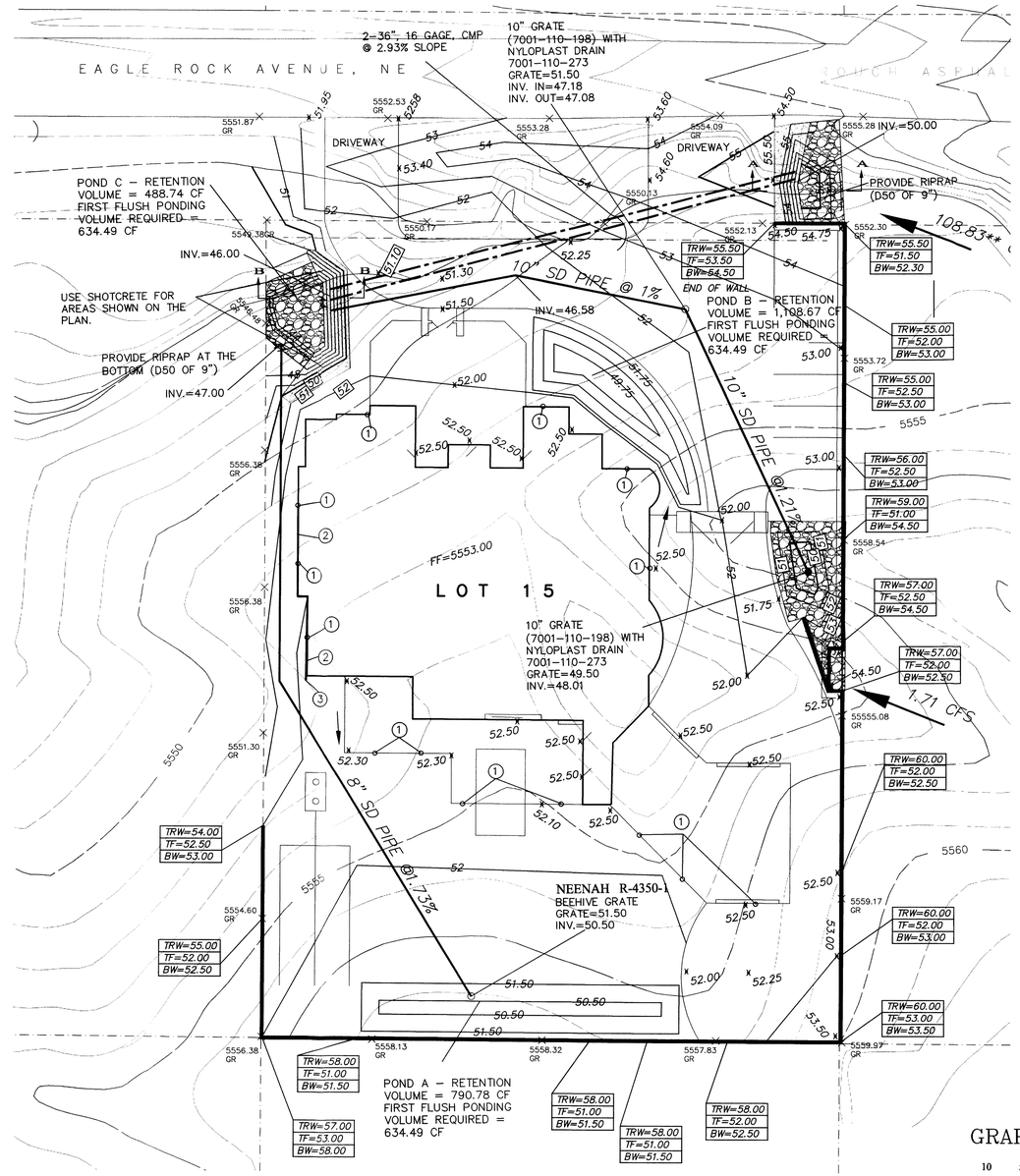


* PORTION OF BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN

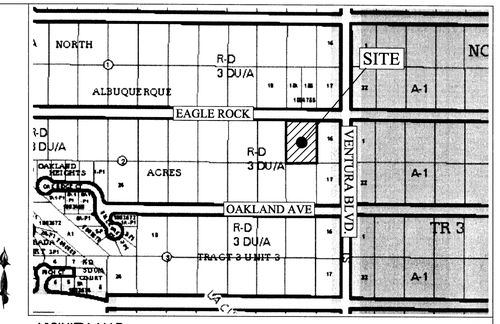
OFFSITE BASIN MAP

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) – VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/12/2015
INPUT FILE = sant.txt USER NO.= AHYMO-I-9702c01000R31-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.10	–	1	.00139	1.96	.059	.79828	1.500	2.213	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.10	–	1	.00139	.71	.020	.26998	1.533	.796	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	102.10	–	1	.00139	2.81	.094	1.27203	1.500	3.168	PER IMP= 17.00
COMPUTE NM HYD	103.20	–	1	.00084	1.71	.057	1.27203	1.500	3.184	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	112.10	–	1	.00139	1.44	.045	.61083	1.500	1.624	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.20	–	1	.00139	3.87	.149	2.01759	1.500	4.367	PER IMP= 58.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.20	–	1	.00139	2.40	.087	1.18437	1.500	2.709	PER IMP= 58.00
FINISH										



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



VICINITY MAP: C-20-Z

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.
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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
× 5265.16	EXISTING GRADE
× 5284.43 FL	EXISTING FLOWLINE ELEVATION
× 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
10 5 0 10
SCALE: 1"=10'

RECEIVED
APR 17 2015
LAND DEVELOPMENT SECTION

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

PIPE & GRATE CAPACITY CALULATIONS

CALCULATING PIPE CAPACITY UTING ORFICIE EQUATION: Q = CA(2gh)^0.50

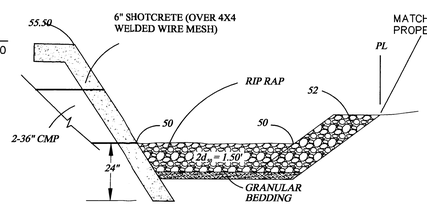
NEENAH R-4350-1 BEEHIVE GRATE:
Q = 0.6x0.30 (2x32.2x2.0)^0.50 = 2.04 cfs

NYLOPLAST 10" GRATE (7001-110-198):
Q = 0.6x0.20 (2x32.2x1.0)^0.50 = 0.95 cfs

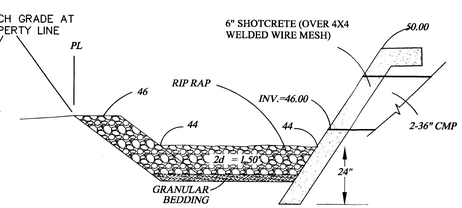
8" PVC:
Q = 0.6x0.35 (2x32.2x1.50)^0.50 = 2.06 cfs

10" PVC:
Q = 2 x 0.6x0.55 (2x32.2x2.0)^0.50 = 3.79 cfs

2-36" PVC:
Q = 2 x 0.6x7.07 (2x32.2x4.0)^0.50 = 136.07 cfs



SECTION A-A
NTS



SECTION B-B
NTS

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 X 1.0 = 790.78 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 X 2.0 = 1,108.67 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 X 2.0 = 567.93 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 x 22,393.80) = 634.49 CF

REZA AFAGHPOUR NEW MEXICO 11814 REGISTERED PROFESSIONAL ENGINEER 4/14/2015
REZA AFAGHPOUR
P.E. #11814

SBS CONSTRUCTION AND ENGINEERING, LLC
10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-5570

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: 4/14/2015

```
*
* 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=20.00 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=20.00 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
```

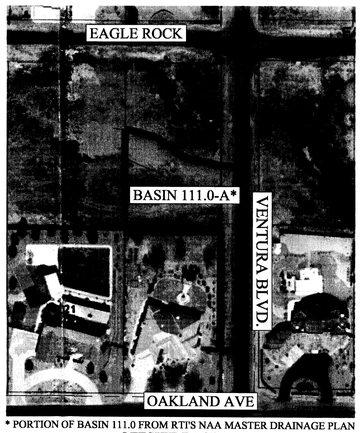
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulverad contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

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 throught the lot at the notherly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRM Map 35001C0141G (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 treaments set as part of the NAA Master Drainage Plan. Addtional runoff volume generated by this development will be retained on site. Therefore, a retention pond with a volume of 2,467.38 cf is desinged to retain the additional volume. The total retention volume required is only 2,395.08 cf. The offsite 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 offsite runoff from Basin 111.0, NAA Master Drainage Plan Basin #101.10 will be intercepted by 2-36" CMPs and will be carried acrros the property.

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



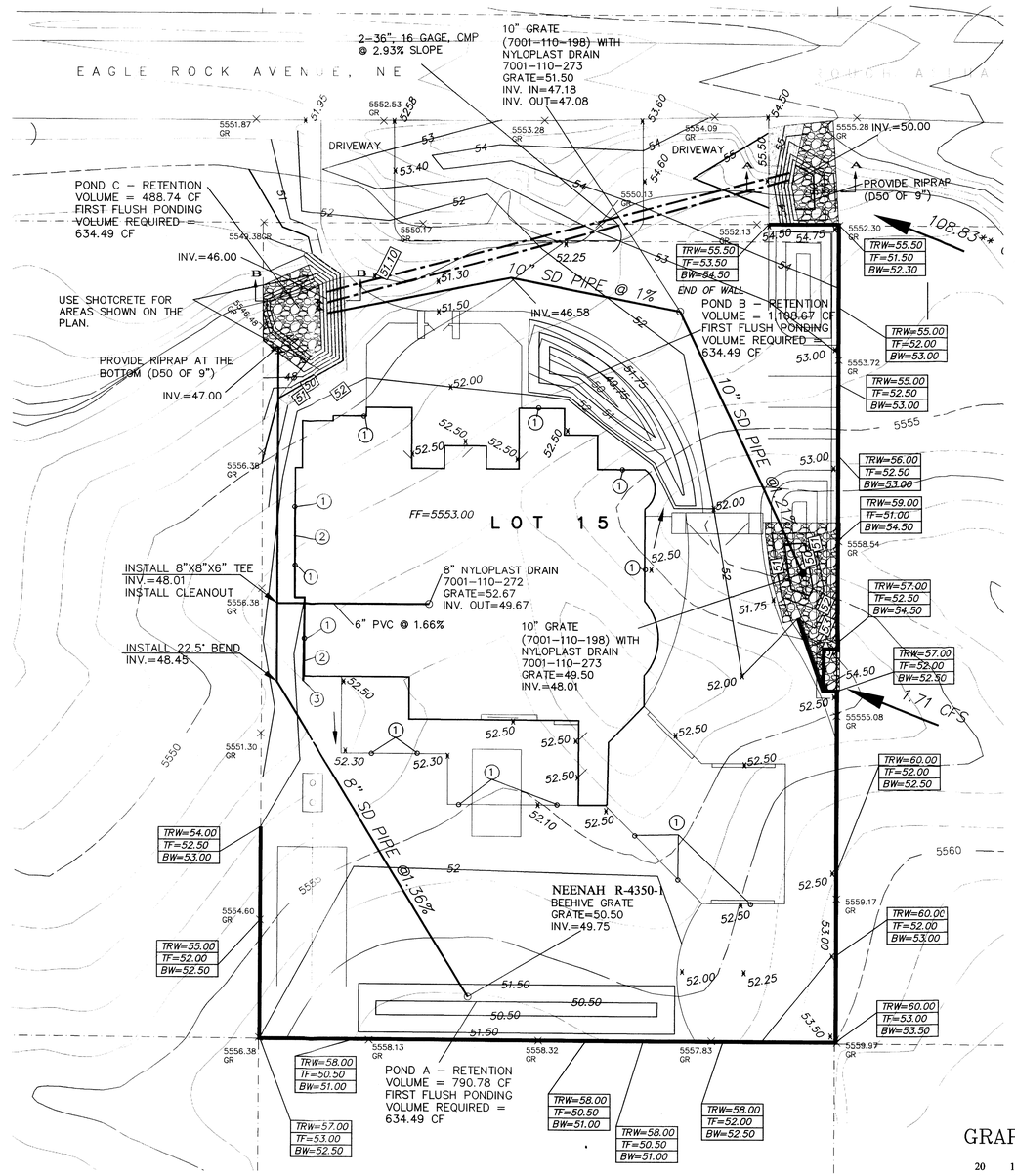
* PORTION OF BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN
OFFSITE BASIN MAP

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

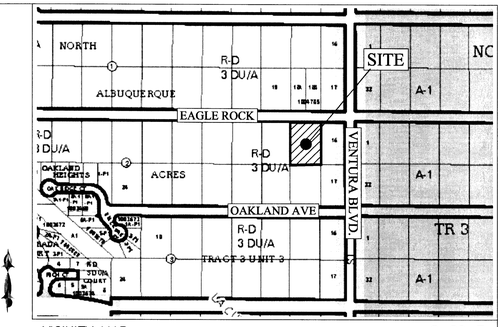
– VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/12/2015
USER NO.= AHYMO-I-9702c01000R31-AH

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										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.10	–	1	.00139	1.96	.059	.79828	1.500	2.213	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.10	–	1	.00139	.71	.020	.26998	1.533	.796	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	102.10	–	1	.00139	2.81	.094	1.27203	1.500	3.168	PER IMP= 17.00
COMPUTE NM HYD	103.20	–	1	.00084	1.71	.057	1.27203	1.500	3.184	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	112.10	–	1	.00139	1.44	.045	.61083	1.500	1.624	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.20	–	1	.00139	3.87	.149	2.01759	1.500	4.367	PER IMP= 58.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.20	–	1	.00139	2.40	.087	1.18437	1.500	2.709	PER IMP= 58.00
FINISH										



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



VICINITY MAP: C-20-Z

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
×5265.16	EXISTING GRADE
× 5284.43 FL	EXISTING FLOWLINE ELEVATION
× 5284.43 GR	EXISTING GROUND ELEVATION
▬ ▬ ▬	PROPOSED RETAINING WALL
BC=89.08	BOTTOM OF CHANEL
TRW=91.50 / TF=88.00	TOP OF RETAINING WALL / TOP OF FOOTING
HP	HIGH POINT

GRAPHIC SCALE
20 10 0 20
SCALE: 1"=20'

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

PIPE & GRATE CAPACITY CALULATIONS

CALCULATING PIPE CAPACITY UTING ORFICIE EQUATION: Q = CA(2gh)^0.50

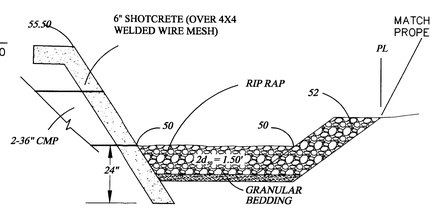
NEENAH R-4350-1 BEEHIVE GRATE:
Q = 0.6x0.30 (2x32.2x2.0)^0.50 = 2.04 cfs

NYLOPLAST 10" GRATE (7001-110-198):
Q = 0.6x0.20 (2x32.2x1.0)^0.50 = 0.95 cfs

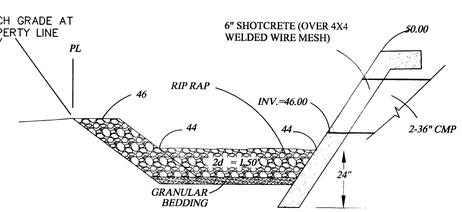
8" PVC:
Q = 0.6x0.35 (2x32.2x1.50)^0.50 = 2.06 cfs

10" PVC:
Q = 2 x 0.6x0.55 (2x32.2x2.0)^0.50 = 3.79 cfs

2-36" PVC:
Q = 2 x 0.6x7.07 (2x32.2x4.0)^0.50 = 136.07 cfs



SECTION A-A
NTS



SECTION B-B
NTS

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 X 1.0 = 790.78 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 X 2.0 = 1,108.67 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 X 2.0 = 567.93 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 x 22,393.80) = 634.49 CF

REZA AFAGHPOUR NEW MEXICO 11814 LICENSED PROFESSIONAL ENGINEER 5/12/2015
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P.E. #11814

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10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-5570

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

```
*
* 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
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COMPUTE NM HYD      ID=1 HYD NO=102.1 AREA=0.001385 SQ MI
                  PER A=43.0 PER B=20.00 PER C=20.0 PER D=17.0
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COMPUTE NM HYD      ID=1 HYD NO=103.2 AREA=0.000839 SQ MI
                  PER A=43.0 PER B=20.00 PER C=20.0 PER D=17.0
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RAINFALL          TYPE=1 RAIN QUARTER=0.0 IN
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COMPUTE NM HYD      ID=1 HYD NO=112.1 AREA=0.001385 SQ MI
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*****************************************************************
*        100-YEAR,  6-HR STORM (UNDER PROPOSED CONDITIONS)       *
*****************************************************************
START
RAINFALL          TYPE=1 RAIN QUARTER=0.0 IN
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COMPUTE NM HYD      ID=1 HYD NO=101.2 AREA=0.001385 SQ MI
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The purpose of this drainage report is to present a grading and drainage solution for the proposed buildings.

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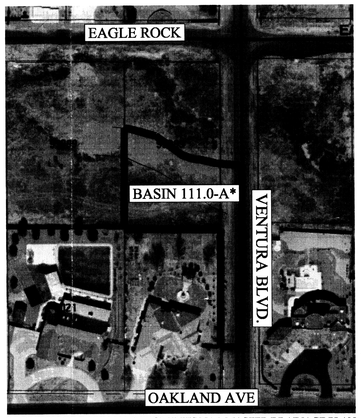

* PORTION OF BASIN 111.0 FROM RTI'S NAA MASTER DRAINAGE PLAN
OFFSITE BASIN MAP

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

– VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/12/2015
USER NO.= AHYMO-I-9702c01000R31-AH

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										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.10	–	1	.00139	1.96	.059	.79828	1.500	2.213	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.10	–	1	.00139	.71	.020	.26998	1.533	.796	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	102.10	–	1	.00139	2.81	.094	1.27203	1.500	3.168	PER IMP= 17.00
COMPUTE NM HYD	103.20	–	1	.00084	1.71	.057	1.27203	1.500	3.184	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	112.10	–	1	.00139	1.44	.045	.61083	1.500	1.624	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.20	–	1	.00139	3.87	.149	2.01759	1.500	4.367	PER IMP= 58.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.20	–	1	.00139	2.40	.087	1.18437	1.500	2.709	PER IMP= 58.00
FINISH										

PIPE & GRATE CAPACITY CALULATIONS

CALCULATING PIPE CAPACITY UTING ORFICIE EQUATION: Q = CA(2gh)^0.50

NEENAH R-4350-1 BEEHIVE GRATE:
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NYLOPLAST 10" GRATE (7001-110-198):
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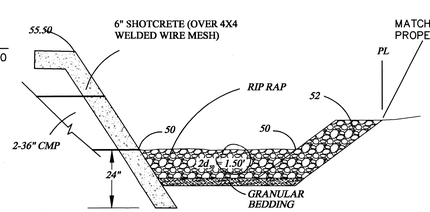
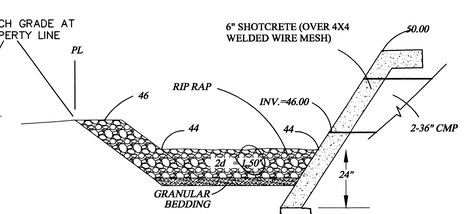
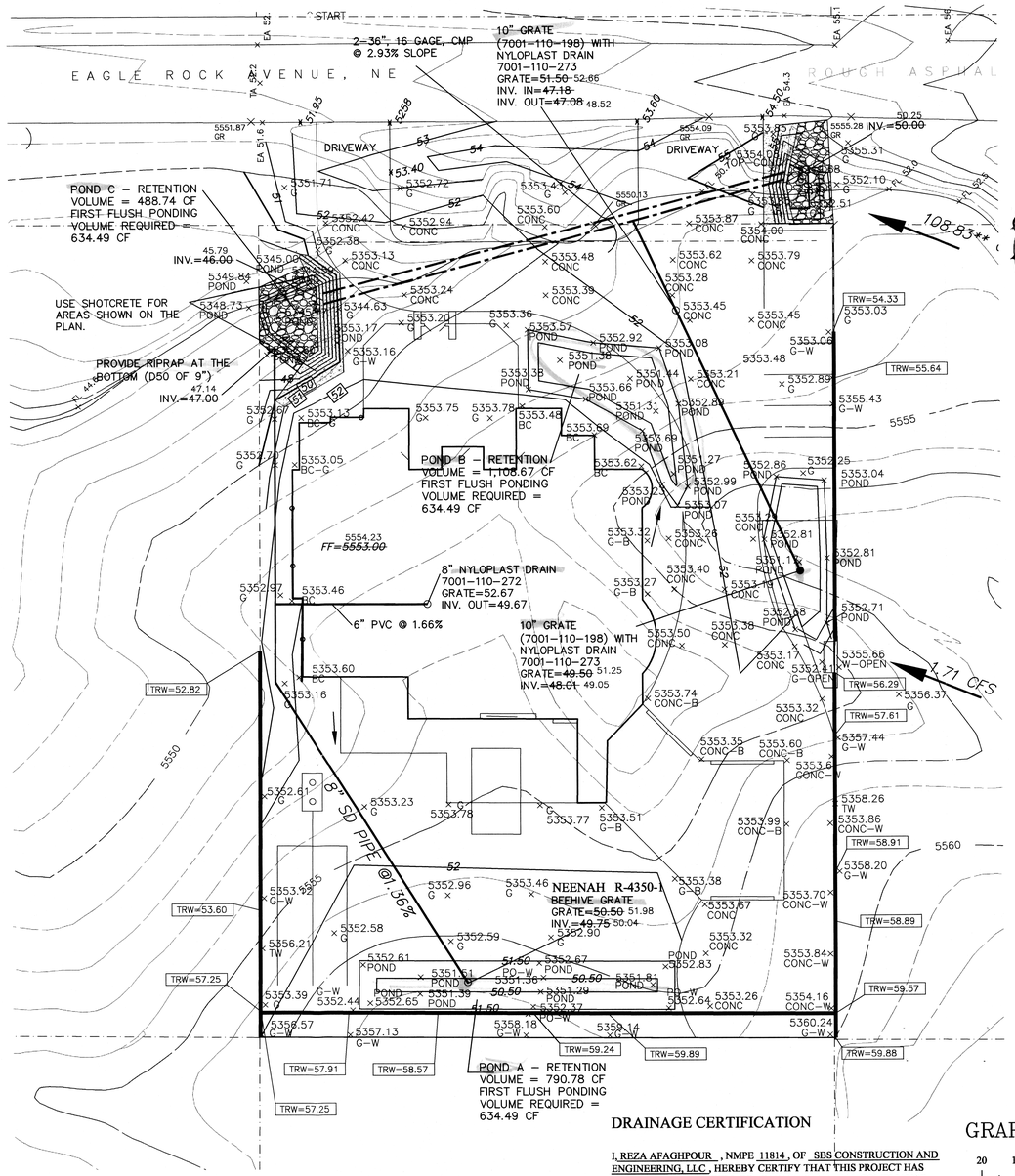


SECTION A-A
NTS



SECTION B-B
NTS



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

DRAINAGE CERTIFICATION

I, REZA AFAGHPOUR , NMPE 11814 , OF SBS CONSTRUCTION AND ENGINEERING, LLC , HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 05-12-2015 . THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY NMPS 9801 , OF SBS CONSTRUCTION AND ENGINEERING, LLC . I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR FINAL CERTIFICATE OF OCCUPANCY .

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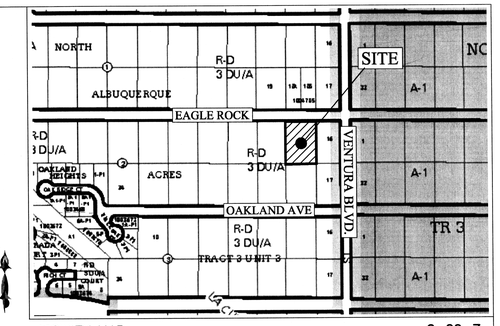
REZA AFAGHPOUR, NMPE 11814

REZA AFAGHPOUR NEW MEXICO 11814 REGISTERED PROFESSIONAL ENGINEER

7/01/2016
DATE

LAST REVISION: 5/12/2015



VICINITY MAP: C-20-Z

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
5265.16	EXISTING GRADE
× 5284.43 FL	EXISTING FLOWLINE ELEVATION
× 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
TRW=55.64	AS-BUILT RET. WALL
× 5353.05 POND	AS-BUILT GRADES

GRAPHIC SCALE
20 10 0 20
SCALE: 1"=20'

RECEIVED JUL - 1 2015 AND DEVELOPMENT SECTION

REZA AFAGHPOUR NEW MEXICO 11814 LICENSED PROFESSIONAL ENGINEER 5/12/2015

REZA AFAGHPOUR
P.E. #11814

SBS CONSTRUCTION AND ENGINEERING, LLC
10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-5570

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

```
*
* 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=20.00 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=20.00 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=20.00 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
```

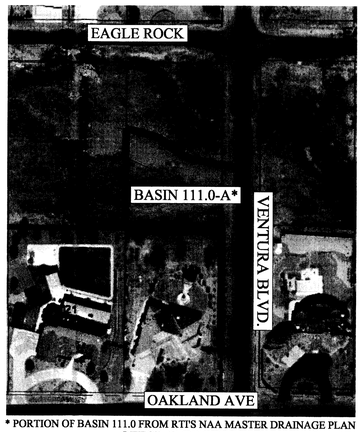
Location
Lot 15 Block 2, Unit 3, Tract 3, North Albuquerque Acres is located south side of Eagle Rock and west of Ventura Boulverad contains +/- 0.89. See attached portion of the Vicinity Map for exact location.

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 throught the lot at the notherly portion of the site. Another 1.71 cfs enters the mid portion of the lot from the east. Based on the FIRM Map 35001C0141G (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 treaments 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 cf is desinged to retain the additional volume. The total retention volume required is only 2,395.08 cf. The offsite 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 offsite rumoff 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 Manuel, 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) – – VERSION: 1997.02d RUN DATE (MON/DAY/YR) =02/12/2015
INPUT FILE = sant.txt USER NO.= AHYMO-I-9702c01000R31-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.10	–	1	.00139	1.96	.059	.79828	1.500	2.213	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	111.10	–	1	.00139	.71	.020	.26998	1.533	.796	PER IMP= .00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	102.10	–	1	.00139	2.81	.094	1.27203	1.500	3.168	PER IMP= 17.00
COMPUTE NM HYD	103.20	–	1	.00084	1.71	.057	1.27203	1.500	3.184	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
COMPUTE NM HYD	112.10	–	1	.00139	1.44	.045	.61083	1.500	1.624	PER IMP= 17.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.900
COMPUTE NM HYD	101.20	–	1	.00139	3.87	.149	2.01759	1.500	4.367	PER IMP= 58.00
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 1.930
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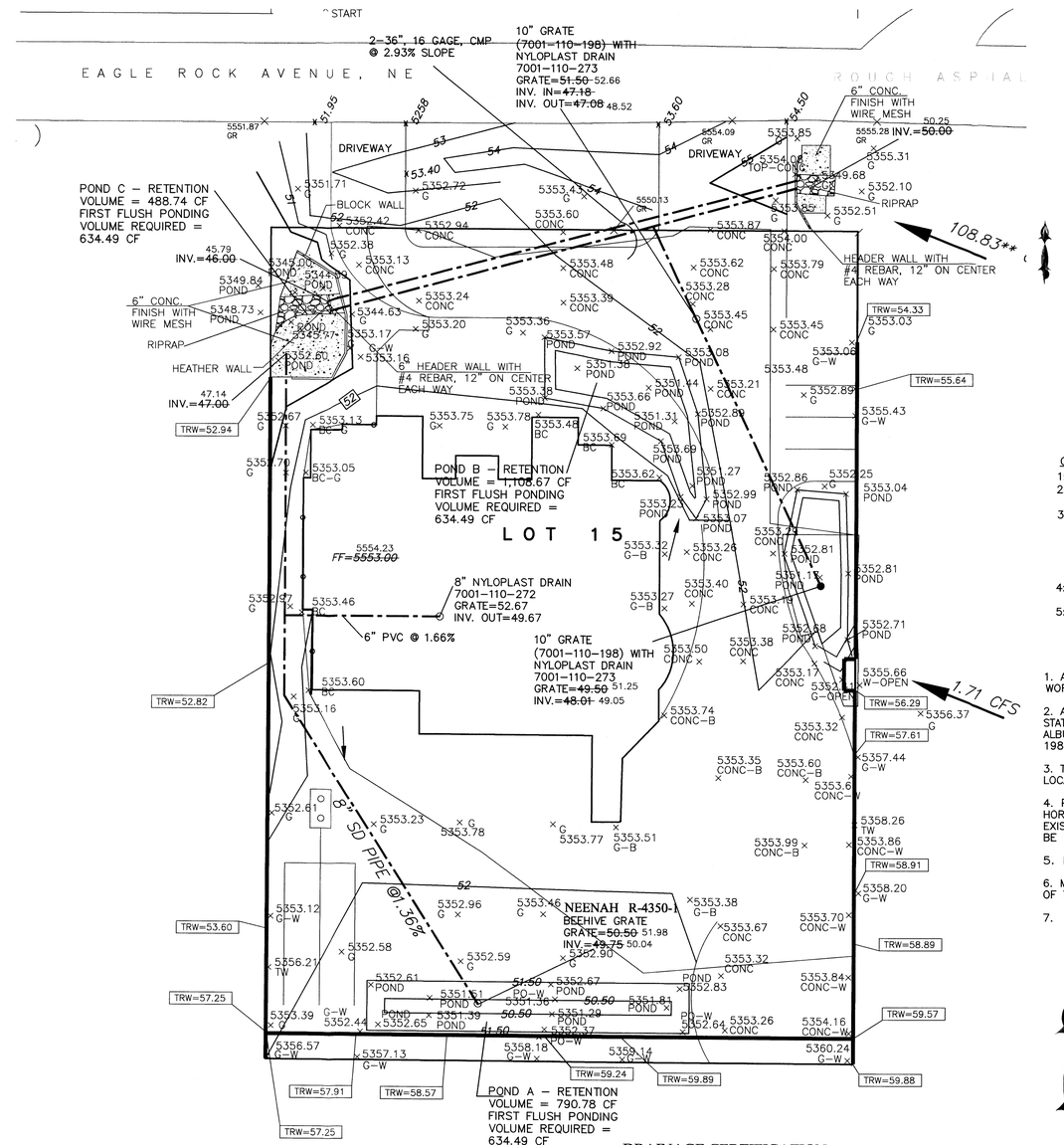
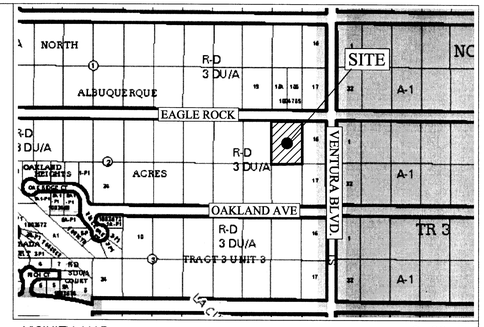
FINISH										





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× 5284.43 FL	EXISTING FLOWLINE ELEVATION
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BC=89.08	BOTTOM OF CHANEL
TRW=91.50	TOP OF RETAINING WALL
TF=88.00	TOP OF FOOTING
HP	HIGH POINT
TRW=55.64	AS-BUILT RET. WALL
× 5353.05 POND	AS-BUILT GRADES

GRAPHIC SCALE
20 10 0 20
SCALE: 1"=20'

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

NOTE:

ALL THE RETAINING WALLS THAT WAS CONSTRUCTED ON THIS SITE WERE PERMITED AND INSPECTED. ALL THE REMAINING STRUCTURES AND CONCRETE WORK ARE ADEQUATE AND THE HEADER WLL WAS BUILT WITH #4 REBAR AND 6" CONCRETE.

PIPE & GRATE CAPACITY CALULATIONS

CALCULATING PIPE CAPACITY UTING ORFICIE EQUATION: Q = CA(2gh)^0.50

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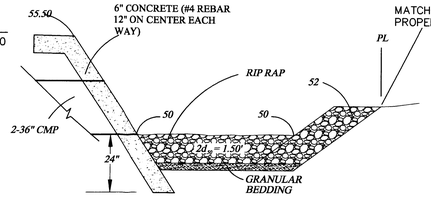
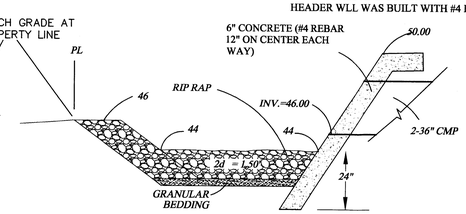


SECTION A-A
NTS



SECTION B-B
NTS

DRAINAGE CERTIFICATION

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REZA AFAGHPOUR, NMPE 11814 — 8/21/2016 DATE

REZA AFAGHPOUR NEW MEXICO 11814 REGISTERED PROFESSIONAL ENGINEER

REZA AFAGHPOUR NEW MEX.CO 11814 5/12/2015 REGISTERED PROFESSIONAL ENGINEER

REZA AFAGHPOUR
P.E. #11814

RECEIVED AUG 25 2015 LAND DEVELOPMENT SECTION

SBS CONSTRUCTION AND ENGINEERING, LLC
10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)899-5570

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