

CITY OF ALBUQUERQUE



October 20, 2016

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

**Re: Starbucks
1000 Rio Grande NW
Request Permanent C.O. - Accepted
Engineer's Stamp dated: 6-17-16 (H13D021)
Certification dated: 9-7-16**

Dear Mr. Afaghpour,

Based on the Certification received 10/20/2016, the site is acceptable for release of Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3686 or Totten Elliott at 924-3982.

PO Box 1293

Sincerely,

Albuquerque

Abiel Carrillo, P.E.
Principal Engineer, Planning Department
Development and Review Services

New Mexico 87103

www.cabq.gov

TE/AC

C: email, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Blocker,
Lois

Location
Tract 338-B, M.R.G.C.D Map 35 contains +/- 1.3844 acre and is located at 1000 Rio Grande Boulevard. 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 to replace existing improvements with this new building.

Existing Drainage Conditions
The site was an existing service station. The portion to the east is undeveloped. Portion of the site fall with a Flood Plain Zone AH, FIRM Map No. 35001C0331H (elevation 4961). The existing grades are more than 1' above Flood Plain Elevation, and this existing elevation after the existing asphalt and concrete has been removed from the site. The site historically (gas station) drained to Rio Grande Boulevard and Aspen Avenue.

Proposed Conditions and On-Site Drainage Management Plan
The finished floor of the building is going to be 2' above the flood plain elevation. The site drain to a series of inlets and then will overflow through a curb opening at the entrance from Rio Grande Boulevard. Ponds A and B will overflow to Pond C. Pond C, D and E are connected via 12" SD pipe and will function as one big pond. The total pond volume provided is 5,795.18 CF and the 1/2 inch ponding volume required for the valley is 2,512.76 CF. Since the site at its current elevation is higher than the floodplain elevation, the proposed development will not be encroaching into the existing floodplain volume. But for sake of conservancy a total area of 3,000.00 sf will be raised approximately 6" (a total volume of 1,500 cf). Furthermore, the total volume required can be (2,512.76 + 1,500.00) 4,012.76 cf which is less than 5,795.18 cf (volume provided).

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.

POND A VOLUME CALCULATION (SAMPLE CALCULATION)

BOTTOM AREA = 134.14 SF, TOP AREA = 469.61 SF, DEPTH = 1.0'
VOLUME PROVIDED = $(134.14 + 469.61)/2 \times 1 = 301.88$ CF

POND A: TOP=62.20 (469.61 SF), BOTTOM=61.20 (134.14 SF), VOLUME=301.88 CF
POND B: TOP=62.20 (679.72), BOTTOM=61.20 (327.91 SF), VOLUME=503.82 CF
POND C: TOP=61.80 (1,849.13 SF), BOTTOM=59.80 (698.42 SF), VOLUME=2547.55 CF
POND D: TOP=61.80 (2,041.85 SF), MIDDLE= 60.80 (789.02 SF),
BOTTOM=59.80 (267.16 SF), VOLUME=1943.53 CF
POND E: TOP=61.80 (489.53 SF), BOTTOM=59.80 (8.87 SF), VOLUME=498.40 CF

TOTAL POND VOLUME PROVIDED = POND A + B + C + D + E
= 301.88 + 503.82 + 2547.55 + 1943.53 + 498.40 = 5,795.18 CF

PONDING REQUIREMENT CALCULATION

TOTAL PONDING VOLUME REQUIRED = VOL. PROPOSED CONDITIONS - VOL. EXISTING CONDITIONS
= 0.053 - 0.023 = 0.03 AC-FT = 1,306.80 CF

TOTAL PONDING VOLUME REQUIRED (VALLEY):
0.5 INCHES x AREA = $(0.5/12 \times 60,306.32) = 2,512.76$ CF

TOTAL PONDING VOLUME REQUIRED (90TH PERCENTILE/FIRST FLUSH):
0.34 INCHES x IMPERVIOUS AREA = $(0.34/12 \times 48,245.06) = 1,366.94$ CF

PIPE CAPACITY CALCULATION USING ORIFICE EQUATION

$Q = CAV2GH = 0.60 \times 0.785 \sqrt{2} \times 32.2 \times 2.5 = 5.98$ cfs
PIPE SIZE = 12", AREA = $3.14 \times (12/24)^2 = 0.875$ sf
H = 2.0'

CURB OPENING CAPACITY CALCULATION USING WEIR EQUATION

$Q = CLH^{2/3} = 3.10 \times 2 \times 0.5^{2/3} = 3.91$ cfs
L = 2', H = 0.50'

* ZONE 2

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

START TIME=0.0
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=2.01 IN RAIN SIX=2.35 IN
RAIN DAY=2.75 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=100.0 AREA=0.002163 SQ MI
PER A=20.00 PER B=20.00 PER C=20.00 PER D=40.00
TP=0.1333 HR MASS RAINFALL=-1
6-HR STORM (UNDER PROPOSED CONDITIONS) *

START TIME=0.0
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=110.0 AREA=0.002163 SQ MI
PER A=20.00 PER B=20.00 PER C=20.00 PER D=40.00
TP=0.1333 HR MASS RAINFALL=-1
6-HR STORM (UNDER PROPOSED CONDITIONS) *

START TIME=0.0
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.34 IN RAIN SIX=1.57 IN
RAIN DAY=1.83 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=100.1 AREA=0.002163 SQ MI
PER A=0.00 PER B=10.00 PER C=10.00 PER D=80.00
TP=0.1333 HR MASS RAINFALL=-1
6-HR STORM (UNDER PROPOSED CONDITIONS) *

START TIME=0.0
RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
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RAIN DAY=1.83 IN DT=0.03333 HR

* ON-SITE COMPUTE NM HYD ID=1 HYD NO=110.1 AREA=0.002163 SQ MI
PER A=0.00 PER B=10.00 PER C=10.00 PER D=80.00
TP=0.1333 HR MASS RAINFALL=-1

FINISH

DRAINAGE CERTIFICATION

I, REZA AFAGHPUR, 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 06-17-2015. THE RECORD INFORMATION EDITED onto the ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY NMPS 14269, OF WAYJOHNS SURVEYING, INC. 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.

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.

REZA AFAGHPUR, NMPE 11814
DATE 3/24/2016

NOTICE TO CONTRACTORS

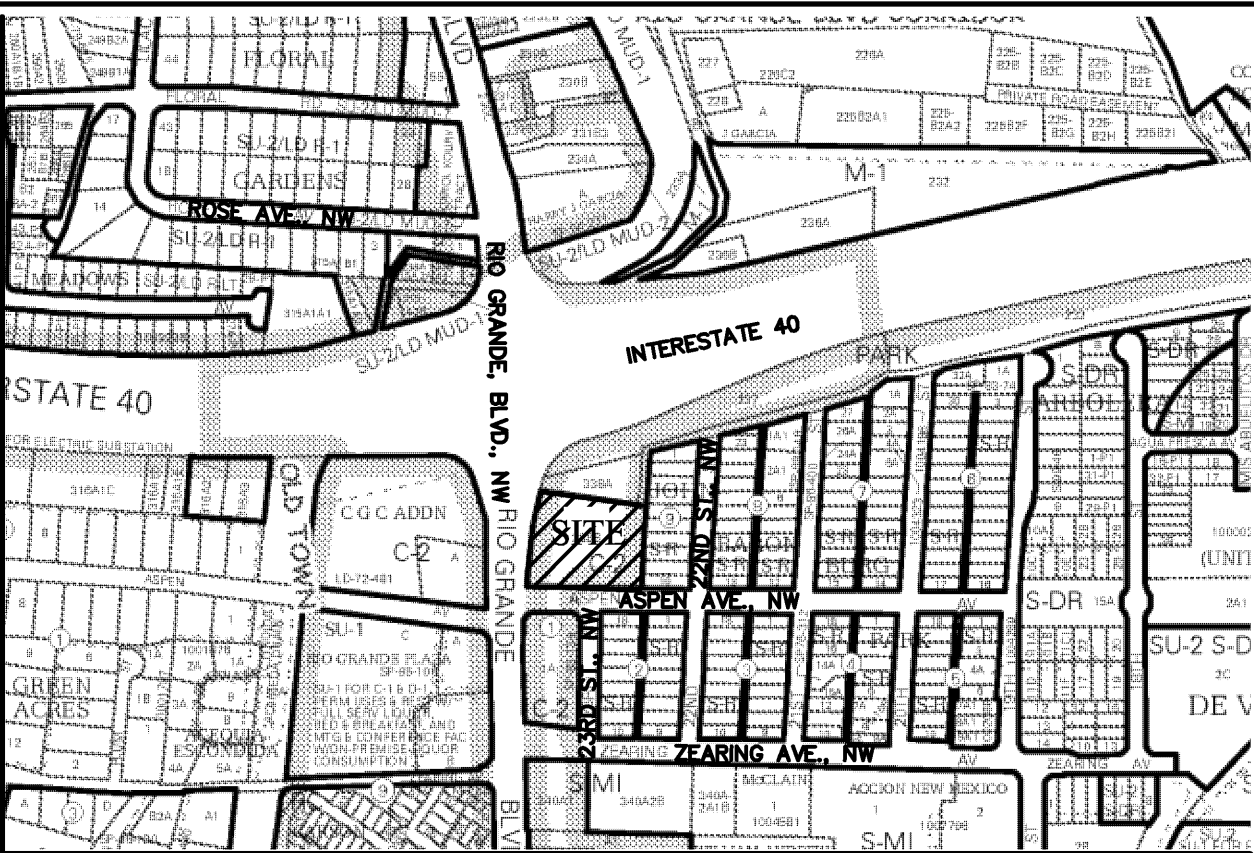
- AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
- ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
- TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
- 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.
- BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
- MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
- WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

NOTES:

- PROVIDE 24" CURB OPENING, PROVIDE RIPRAP FROM CURB OPENING TO THE BOTTOM OF POND, 4-6" ROCK SIZE, 12" DEEP AND 2' WIDE.
- 12" SD PIPE, INV. @ BOTH ENDS =4959.80
- DEPRESSED LANDSCAPING AREA (6" MIN.)
- PROVIDE SWALE FROM THE POND TO CURB CUT DELINEATING A CLEAR PATH FOR STORMWATER TO SPILL FROM POND
- PROVIDE A GREASE TRAP FOR TRASH/RECYCLE BIN

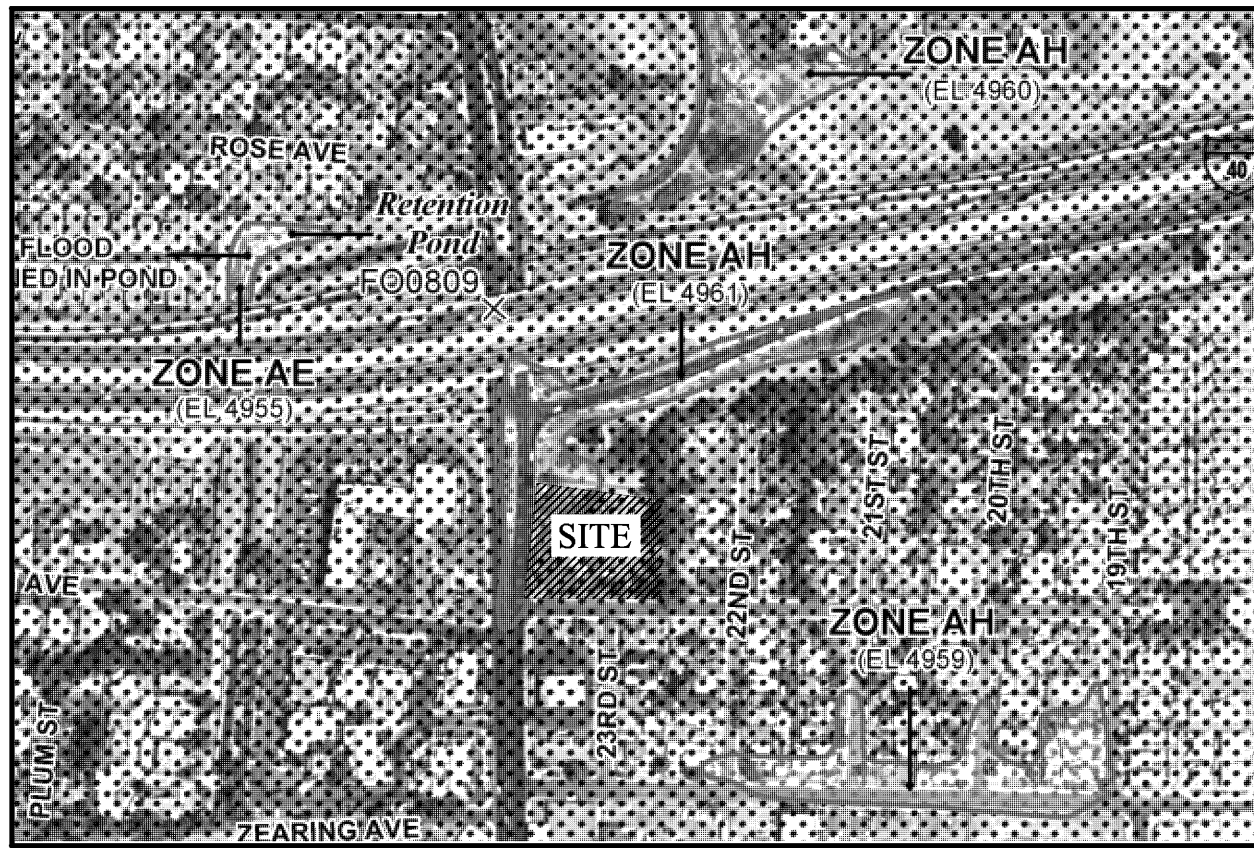
GENERAL NOTES:

- CONTOUR INTERVAL IS HALF (1.00) FOOT.
- ELEVATIONS ARE BASED ON CITY OF ALBUQUERQUE CONTROL STATION 6+15, HAVING AN ELEVATION OF 4978.419 FEET ABOVE SEA LEVEL.
- 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.
- THIS IS NOT A BOUNDARY SURVEY, BEARINGS ARE ASSUMED, DISTANCES AND FOUND PROPERTY CORNERS ARE FOR INFORMATIONAL PURPOSES ONLY.
- SLOPES ARE AT 3:1 MAXIMUM.



VICINITY MAP:

H-13-Z



FIRM MAP:

35001C0331H

LEGAL DESCRIPTION:

TRACTS 338-B-1 AND 338-B-2, M.R.G.C.D MAP 35
CONTAINING 60,306.32 S.F. (1.3844 ACRE)
ZONING: C-2

BENCHMARK 20-J13:

NAVD 88 ELEV.=4960.717

LEGEND

- 5100 EXISTING CONTOUR (MAJOR)
- 5102 EXISTING CONTOUR (MINOR)
- BOUNDARY LINE
- FLOODPLAIN BOUNDARY
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- AS-BUILT GRADES

GRAPHIC SCALE

20 10 0 20
SCALE: 1"=20'

SBS CONSTRUCTION AND ENGINEERING, LLC

REZA AFAGHPUR
P.E. #11814

10209 SNOWFLAKE CT., NW
ALBUQUERQUE, NEW MEXICO 87114
(505)804-5013

1000 AND 1010 RIO GRANDE BLVD., NW GRADING AND DRAINAGE PLAN

DRAWING: 201309-GD.DWG
DRAWN BY: SH-B
DATE: 10-25-2014
SHEET # 1

LAST REVISION: 05-16-15