

CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

November 7, 2017

Fred C. Arfman, P.E.
Isaacson & Arfman, P.A.
128 Monroe St. N.E
Albuquerque, NM, 87108

RE: Lot 9, McMahon Market Place – New Shell Buildings
Conceptual Grading and Drainage Plan
Stamp Date: 11/01/17
Hydrology File: A11D0111

Dear Mr. Arfman:

PO Box 1293

Based upon the information provided in your resubmittal received 11/02/2017, the Conceptual Grading and Drainage Plan is approved for action by the DRB on the Site Plan for Building Permit.

Albuquerque

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

NM 87103

Sincerely,

Renée C. Brissette

www.cabq.gov

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: _____ **Building Permit #:** _____ **City Drainage #:** _____
DRB#: _____ **EPC#:** _____ **Work Order#:** _____
Legal Description: _____
City Address: _____

Engineering Firm: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____
bryanb@iacivil.com

Owner: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Architect: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: _____ **Contact:** _____
Address: _____
Phone#: _____ **Fax#:** _____ **E-mail:** _____

Check all that Apply:

DEPARTMENT:

☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

☒ ENGINEER ARCHITECT CERTIFICATION
☒ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☐ DRAINAGE REPORT
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

CHECK 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
☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

DATE SUBMITTED: November 2, 2017 By: Fred C. Arfman

COA STAFF: _____ ELECTRONIC SUBMITTAL RECEIVED: _____



November 1, 2017

Renéé Brissette, P.E.
Senior Engineer, Hydrology
City of Albuquerque, Planning Dept.

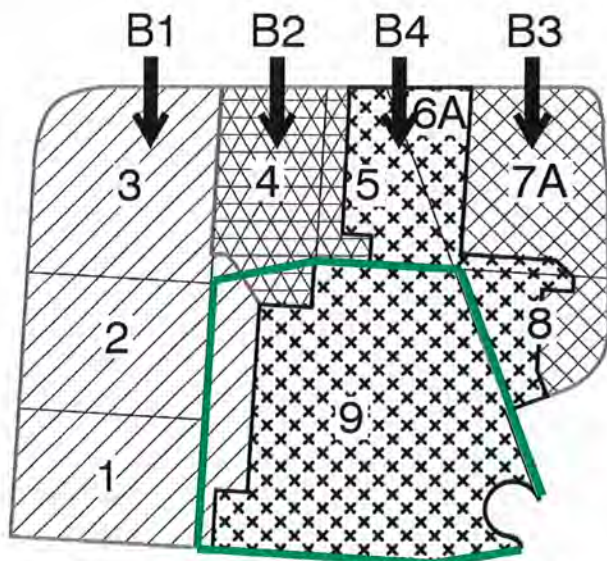
RE: McMahon Market Place LOT 9

Dear Ms. Brissette,

Included with this letter is a copy of the proposed Conceptual Drainage and Grading Plan for the above referenced project.

As noted in the McMahon Marketplace DMP which governs the entire 12.13 acre McMahon Marketplace, as the overall property continues to develop, the 41.55 cfs maximum discharge rate will be adhered to.

Per the approved DMP image below, Lot 9 (replatted to 9A, 9B, 9C and 9D) fall within drainage sub-basins B1 (free discharge), B2 (free discharge) and B4 (proposed on-site detention pond). B3 will continue to drain to the basin B3 detention pond with outlet structure controlling discharge to 4.07 cfs during the 100-year 6-hour storm event. This outlet structure will discharge to the detention pond on Lots 5 / 6A per the recently approved Tap Room and Shell Building project (A11D011G).



MCMAHON MARKETPLACE - OVERALL

The fully developed Lot 9 property (3.98 acres) will generate 16.3 cfs during the 100-year 6-hour storm event (based on 5% Land Treatment B, 10% C and 85% D)..

CALCULATIONS: McMahon Marketplace - Lot 9 (overall) : October 30, 2017			
Based on Drainage Design Criteria for City of Albuquerque Section 22.2, DPM, Vol 2, dated Jan., 1993			
ON-SITE			

AREA OF SITE: 173576 SF = 3.98

100-year, 6-hour

DEVELOPED FLOWS:

EXCESS PRECIP:

	Treatment	SF	%	Precip. Zone	1
Area A	=	0	0%	E _A	= 0.44
Area B	=	8679	5%	E _B	= 0.67
Area C	=	17358	10%	E _C	= 0.99
Area D	=	147539	85%	E _D	= 1.97
Total Area	=	173576	100%		

On-Site Weighted Excess Precipitation (100-Year, 6-Hour Storm)

$$\text{Weighted E} = \frac{E_A A_A + E_B A_B + E_C A_C + E_D A_D}{A_A + A_B + A_C + A_D}$$

Developed E = 1.81 in.

On-Site Volume of Runoff: V₃₆₀ =

$$E \cdot A / 12$$

Developed V₃₆₀ = 26138 CF

On-Site Peak Discharge Rate: Q_p = Q_{pA}A_A+Q_{pB}A_B+Q_{pC}A_C+Q_{pD}A_D / 43,560

For Precipitation Zone 1

$$Q_{pA} = 1.29$$

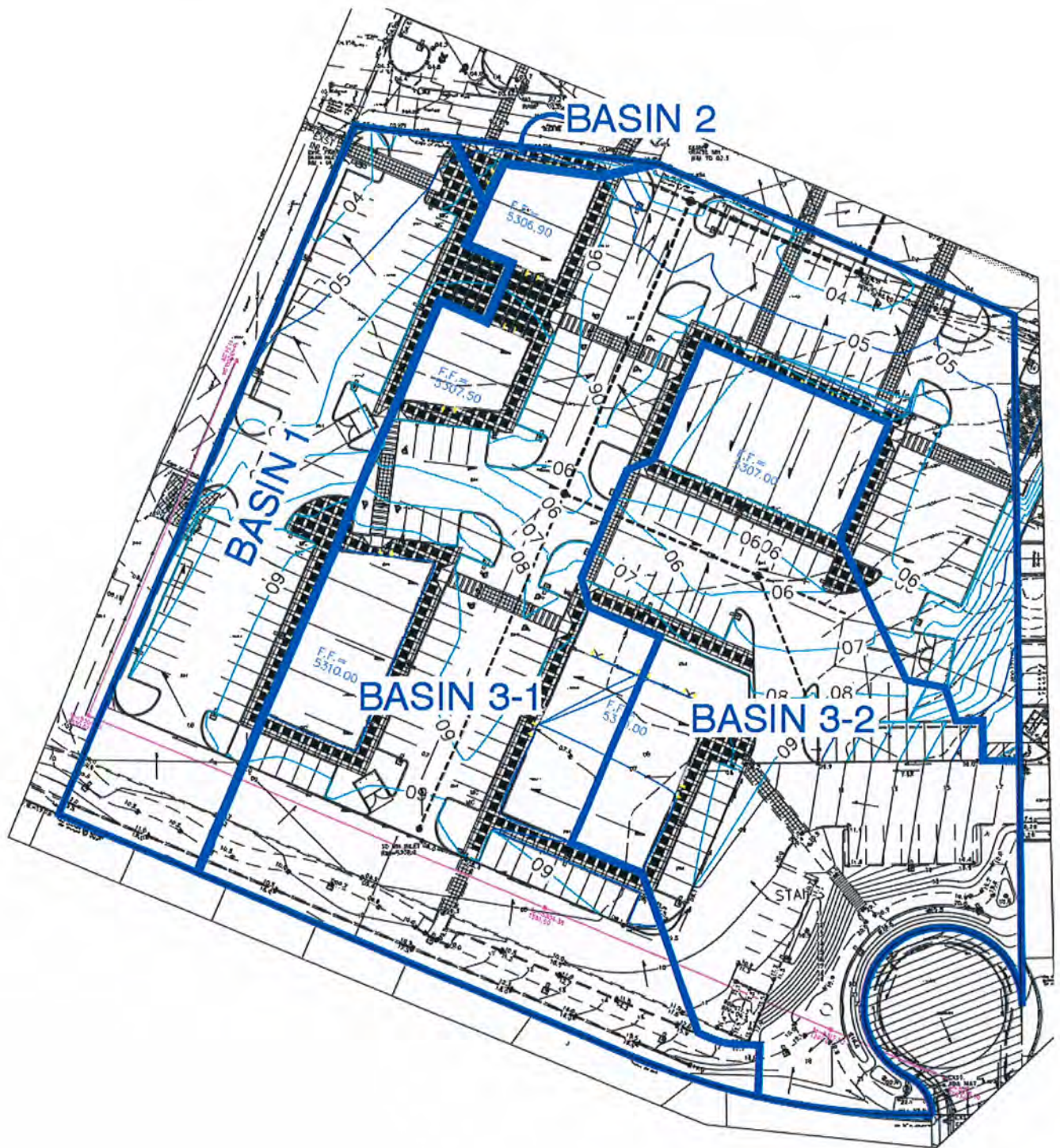
$$Q_{pC} = 2.87$$

$$Q_{pB} = 2.03$$

$$Q_{pD} = 4.37$$

Developed Q_p = 16.3 CFS

This on-site flow will be divided into four drainage basins as follows:



BASIN 1: The west portion of the site will free discharge 2.8 cfs to McMahon Blvd. via DMP Basin B1

BASIN NO.	1	DESCRIPTION	MDP Basin B1
Area of basin flows =	30177 SF	=	0.7 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E = 1.81 in.			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 5%
V ₃₆₀ = 4544 CF			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 85%
Q _P = 2.8 cfs			FIRST FLUSH VOL.
			727 CF

BASIN 2: The small northerly portion of Lot 9 (0.1 cfs) will drain through the Starbucks property (Lot 4) and free discharge to McMahon Blvd. via DMP Basin B2.

BASIN NO.	2	DESCRIPTION	MDP Basin B2
Area of basin flows =	1079 SF	=	0.0 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E = 1.81 in.			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 5%
V ₃₆₀ = 162 CF			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 85%
Q _P = 0.1 cfs			FIRST FLUSH VOL.
			26 CF

BASINS 3-1 AND 3-2: The remainder of the property including all buildings and the central parking areas fall within Basins 3-1 and 3-2. These basins will be collected within the proposed on-site storm drain system, routed through underground retention / detention (Stormtech Chambers) and released at a rate (when added to the 100-year 6-hour discharge of McMahon Marketplace Lots 1 through 8) not to exceed the total allowable discharge rate for the fully developed property of 41.55 cfs.

BASIN NO.	3-1	DESCRIPTION	MDP B4
Area of basin flows =	89912 SF	=	2.1 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E = 1.75 in.			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 5%
V ₃₆₀ = 13096 CF			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 82%
Q _P = 8.2 cfs			FIRST FLUSH VOL.
			2089 CF

BASIN NO.	3-2	DESCRIPTION	MDP B4
Area of basin flows =	52407 SF	=	1.2 Ac.
The following calculations are based on Treatment areas as shown in table to the right			
Sub-basin Weighted Excess Precipitation (see formula above)			LAND TREATMENT
Weighted E = 1.81 in.			A = 0%
Sub-basin Volume of Runoff (see formula above)			B = 5%
V ₃₆₀ = 7892 CF			C = 10%
Sub-basin Peak Discharge Rate: (see formula above)			D = 85%
Q _P = 4.9 cfs			FIRST FLUSH VOL.
			1262 CF

With the upcoming construction of Lots 5A and 6A1, the discharge from the McMahon Marketplace property prior to the Lot 9 full development will be:

DMP Basin B1 (4.6 acre) will continue to drain to the west private storm drain system free discharging to McMahon Blvd. Based on fully developed land treatment ratio of 0 : 5 : 10 : 85, the discharge = 19.1 cfs.

DMP Basin B2 (1.2 acre) will free discharge 4.8 cfs to McMahon Blvd. based on an approved land treatment ratio of 0 : 15 : 11 : 74.

DMP Basin B3 (1.5 acre) is detained within the McDonald's detention pond and released via orifice control at a rate of 4.07 cfs via an 18" RCP extended to into the Lot 5/6A pond. The outflow from this pond has been sized (orifice control) to discharge the allowable portion of Basin B4 plus the full 4.07 cfs from Basin B3.

As noted on the DMP, the fully developed property is permitted a total discharge of 41.55 cfs.

DMP Basin B1	19.1 cfs
DMP Basin B2	4.8 cfs
DMP Basin B3	0 cfs (routed through DMP Basin B4)
MDP Basin B4	Permitted discharge = $41.55 - 19.1 - 4.8 = 17.65$ cfs

The new pond on Lots 5 and 6A is designed to provide first flush retention of 1,901 cf. Lots 5A and 6A1 require 898 cf of first flush storage. The remaining 1003 cf will be utilized by Lot 9 Basins 3-1 and 3-2. Total first flush required for Lot 9, Basins 3-1 and 3-2 = $2089 + 1262 = 3351$ cf. Therefore, 2348 cf of first flush storage will be required on Lot 9 either within surface landscape areas or as part of the sub-surface stormtech chamber system.

The allowable discharge from Lot 9 to the Detention Pond on Lot 5/6A is 10.9 cfs. The 100-year 6-hour peak discharge from Lot 9 Basins 3-1 and 3-2 = 13.1 cfs. Therefore, the proposed manhole on Lot 9 tying to the Lot 5/6A storm drain will require orifice control and detention ponding to limit discharge to $13.1 - 10.9 = 2.2$ cfs. This orifice diameter and the detention / retention will be fully designed as part of the building

Please don't hesitate to call me or Fred Arfman with any questions.

Sincerely,
Isaacson & Arfman, PA


Bryan J. Bobrick
Project Manager



Fred C. Arfman, PE
Principal Engineer
11.01.17

