

CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



Mayor Timothy M. Keller

January 3, 2019

Hugh Floyd, P.E.
Respec
5971 Jefferson St. NE
Albuquerque, NM, 87109

RE: Cool Springz Trampoline Park (Tract C-1)
5205 San Mateo Blvd NE
Permanent C.O. - Accepted
Engineer's Stamp Date: 10/16/17
Engineer's Certification Date: 12/27/18
Hydrology File: F17D095B

PO Box 1293

Dear Mr. Floyd:

Albuquerque

Based on the Certification received 12/27/18 and site visit on 01/03/19, this certification is approved in support of Permanent Release of Occupancy by Hydrology.

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

NM 87103

Sincerely,

www.cabq.gov

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

Hydrology Calculations

The following calculations are based on Albuquerque's DPM Section 22.2

Subbasin	Area (ac)	Treatment Type Area (ac)				Q _s (cfs)	WQ Vol (cu.ft.)
		A	B	C	D		
P1	1.40	0	0	0	1.40	7	0.08
P2	0.97	0	0	0	0.97	5	
P3	2.50	0	0.16	0.16	2.18	11	
Total	4.87					22	

Q values based on equation A-11, rounded to nearest whole number

WQ vol. from "Drainage Report for Tracts A, B-1, and C-1 Sandia Addition"

Description	Existing	Proposed
Bot Pond	5192	5189
Water Quality	5194	5191.15
Max Retention	5194	5194
Top of Pond	5196.39	5196.39

(Max 100-yr WSEL)

Weir Calculation for 1' Curb Cut

Head Water Depth (h): 0.5 ft

Discharge Coeff. (C_w): 3.367

Length (L): 1 ft

Flow (Q) = C_w · L · h^{1.5}

Flow (Q) = 1.2 cfs

Weir Calculation for 3' Curb Cut

Head Water Depth (h): 0.5 ft

Discharge Coeff. (C_w): 3.367

Length (L): 3 ft

Flow (Q) = C_w · L · h^{1.5}

Flow (Q) = 3.6 cfs

Capacity of North Drive Aisle

Input	Output
Flow Slope	5 cfs
Manning's n	0.017
Base Width	44 ft
Right Side Slope	0:1
Left Side Slope	0:1

Depth	0.074 ft
Flow Area	3.25 sf
Velocity	1.54 fps
Velocity Head	0.0367 ft
Top Width	44.0 ft
Froude Number	0.896
Critical Depth	0.074 ft
Critical Slope	0.0101 ft/ft

Capacity of East Drive Aisle

Input	Output
Flow Slope	11 cfs
Manning's n	0.0307 ft/ft
Base Width	11 ft
Right Side Slope	3:1
Left Side Slope	3:1

WSElev	0.379 ft
Flow Area	2.18 sf
Velocity	5.05 fps
Velocity Head	0.397 ft
Top Width	11.5 ft
Froude Number	2.04
Critical WSElev	0.505 ft
Critical Slope	0.0303 ft/ft

Capacity of South Drive Aisle

Input	Output
Flow Slope	11 cfs
Manning's n	0.021 ft/ft
Base Width	11 ft
Right Side Slope	3:1
Left Side Slope	3:1

WSElev	0.332 ft
Flow Area	2.87 sf
Velocity	3.83 fps
Velocity Head	0.228 ft
Top Width	17.3 ft
Froude Number	1.66
Critical WSElev	0.407 ft
Critical Slope	0.0190 ft/ft

Swale for 1' Curb Cut

apezoidal Channel

Depth	0.5 ft
Slope	0.333 ft/ft
Manning's n	0.035
Base Width	1 ft
Right Side Slope	3:1
Left Side Slope	3:1

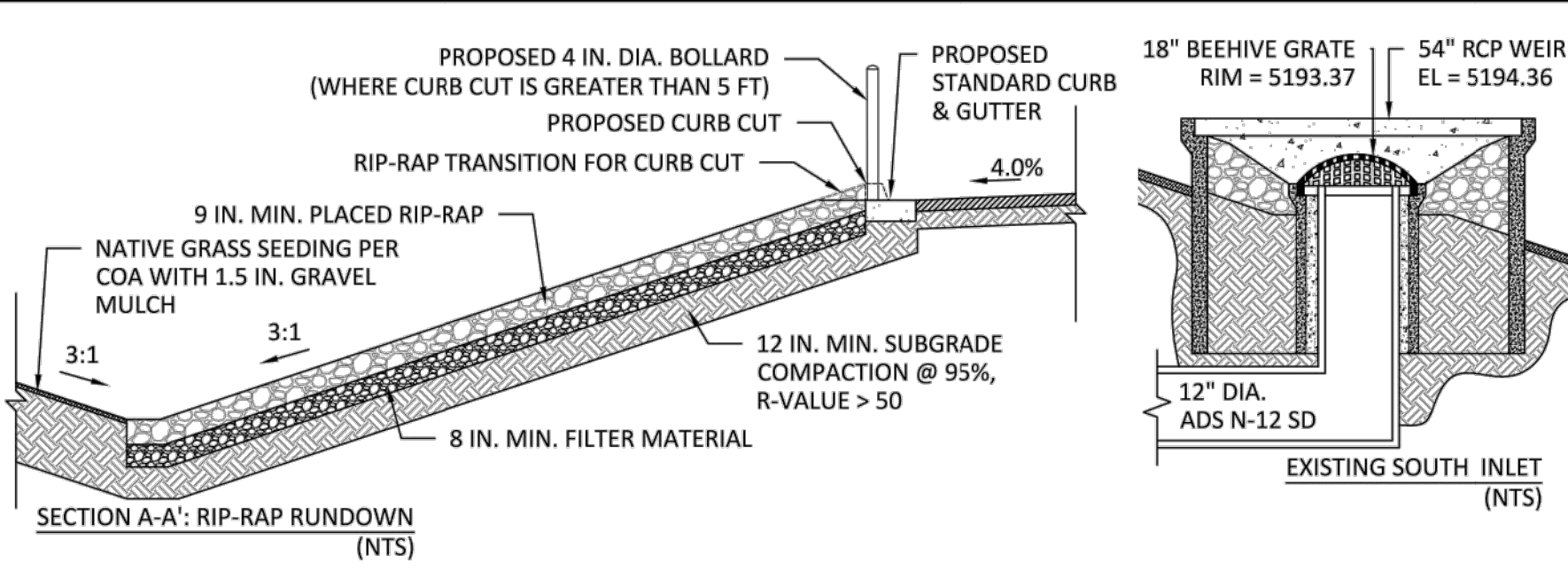
Flow	13.7 cfs
Flow Area	1.25 sf
Velocity	11.0 fps
Velocity Head	1.88 ft
Top Width	4.00 ft
Froude Number	3.46
Critical Depth	0.903 ft
Critical Slope	0.0235 ft/ft

Swale for 10' Curb Cut

Trapezoidal Channel

Depth	0.5 ft
Slope	0.333 ft/ft
Manning's n	0.035
Base Width	10 ft
Right Side Slope	3:1
Left Side Slope	3:1

Flow	81.1 cfs
Flow Area	5.75 sf
Velocity	14.1 fps
Velocity Head	13.0 ft
Top Width	3.74
Froude Number	1.127 ft
Critical Depth	0.0190 ft/ft
Critical Slope	



LEGEND

- PROPERTY LINE
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED 6" C&G
- SUBBASIN BOUNDARY
- PROPOSED FLOW LINE ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED TOP OF ASPHALT ELEVATION
- EXISTING ELEVATION
- PROPOSED BUILDING ELEVATION
- FLOW ARROW AND SLOPE

GENERAL NOTES:

- THE POND IS SUBJECT TO THE EXISTING PRIVATE RECIPROCAL BLANKET DRAINAGE EASEMENT GRANTED TO AND MAINTAINED BY TRACTS A, B AND C AS SHOWN AND DESIGNATED ON THE PLAT OF TRACTS A, B & C, SANDIA ADDITION FILED IN THE OFFICE OF THE COUNTY CLERK OF BERNALILLO COUNTY, NEW MEXICO ON JULY 9, 2010 IN BOOK 2010C, PAGE 0080 AS DOCUMENT NO. 2010068217.
- 15' PRIVATE DRAINAGE EASEMENT GRANTED WITH THE FILING OF PLAT OF TRACTS B-1 & C-1 SANDIA ADDITION TO REMAIN.

Background

Tract C-1 contains approximately 2.64 acres within the Plat of Tracts B-1 & C-1, Sandia Addition (a replat of Tracts B & C Sandia Addition). This site is located west of San Mateo Blvd. north of McLeod Rd. and south of Lincoln Rd. The site slopes to the west at approximately 3%. Referencing the "Drainage Report for Tracts A, B-1, and C-1 Sandia Addition" completed by Floyd Development Services in July 2015 (F170095B), the site receives offsite runoff from the developed sites (A and B-1) adjacent to the east. See the drainage report for additional background information.

Methodology

The referenced drainage report provides all analysis and calculations for the development of Tract C-1. The development criteria including land treatment types and impervious areas are provided to ensure the calculations from the drainage report are accurate with the proposed development of Tract C-1 and any required water quality volumes are identical or greater than the drainage report requirements.

Existing Conditions

The existing pond was designed to retain 3718 cubic feet for water quality treatment. Two outlets allow water to discharge downstream through 12-inch diameter pipes. The first flush volumes for Tract B-1 and C-1 (assumed proposed conditions) are held with the current ponds, and detention ponding is provided to limit the maximum discharge to 10 cfs. The assumed impervious area for Tract C-1 is 75%. Additional details for the tract can be seen in the drainage report. There is an emergency spillway that discharges into a soil cement channel in case storms greater than the 100-year occur.

Proposed Conditions

The proposed site follows the assumptions set up by the drainage report. 75% of the site is treatment type "D", and the remaining portions are proposed to be landscaped. This allows the existing pond to continue operating as intended without having to be adjusted. The proposed drainage concepts are outlined below.

Subbasin P1: Per the drainage report, this basin incorporates a portion of Tract A as well as approximately 0.47 acres of Tract C-1. This basin runs along the north section of the property to the existing sidewalk that runs east-west approximately at the center of the property. The developed peak flow generated by this basin is 7 cfs for the 100-year storm. This flow rate is rounded up to the nearest whole number to be conservative. The flows are conveyed mostly via sheet flow across the existing parking lot to the pond on the northwest side of the property. Several curb cuts are proposed to allow runoff to bypass the parking islands. See plan and curb cut calculations on this sheet for additional information.

Subbasin P2: This subbasin incorporates the offsite flowrates coming from the developed Tract A and the proposed northern drive aisle in Tract C-1. The 100-year flow rate generated by these tracts is 5 cfs. The flows are conveyed through the access road on the north side of the proposed building. See the road capacity analysis on this sheet for additional information. These flows continue west and through the proposed curb cuts into the pond.

Subbasin P3: This basin includes the building roof drainage and the rest of the property south of the proposed access location. It also incorporates flows from the developed off-site Tract B-1. The subbasin area is approximately 2.5 acres. The 100-year flowrate generated by this subbasin is 11 cfs. The road south of the building is super-elevated and will convey flows through the southern gutter of the road, transporting water away from the building. These calculations can be seen on this sheet. Curb cuts are proposed at the west end of this road to allow runoff to discharge into the pond. Should the curb cuts fail or exceed capacity, the runoff will be conveyed to the north along the curb and gutter into an additional 1' curb cut. A landscape swale is proposed south of the curb along the south drive aisle. This swale will carry runoff that lands in the landscaping area along the south and east sections of the property.

Pond: It is proposed to pull the existing pond's east-side slopes further east to abut the proposed curb for the parking lot. This makes the pond bottom wider. In addition, it is proposed to make the pond deeper for additional retention volume. The additional volume added by these modifications is approximately 0.515 acre-feet. Overall, the pond volume is proposed to increase from the existing 0.501 acre-feet as stated in the drainage report to 1.016 acre-feet.

The existing midway runoff with riprap that channels runoff into the pond is to be removed. Where there are any added curb cuts to convey runoff into the pond, 9" rip-rap over 8" filter material shall be provided.

Summary

The proposed Tract C-1 site improvements follow the drainage requirements set forth by the drainage report mentioned previously. No variance from the criteria is necessary. All grading and drainage improvements are shown to adequately convey the developed peak flows for the 100-year storm without adverse effects to existing infrastructure.

RIP-RAP NOTES:

RIP-RAP SHALL BE OVER 8" FILTER MATERIAL AND CONSIST OF 9" RIP-RAP AND 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 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 OVERLAYING 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.



REVISION	DATE	DESCRIPTION
1	10/16/2017	FIELD GRADING REVISIONS 7/30/18
2	10/16/2017	CONTRACTOR REVISIONS 4/20/18
3	10/16/2017	ARCHITECTURAL REVISIONS 4/17/18
4	10/16/2017	REVISIONS FROM BIDS MODIFICATIONS 10/6/17



LEGAL DESCRIPTION:
TRACT C-1
SANDIA ADDITION
ALBUQUERQUE, BERNALILLO
COUNTY, NEW MEXICO

COOL SPRINGZ
TRAMPOLINE PARK
GRADING AND DRAINAGE PLAN

SHEET NUMBER: C-1
