# ALBUQUERQUE INTERNATIONAL BALLOON FIESTA PARK GOLF CENTER GRADING AND DRAINAGE REPORT



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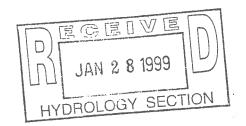
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PREPARED FOR:

DESIGN COLLABORATIVE SW 320 CENTRAL AVE. SW ALBUQUERQUE, NM 87102





# ALBUQUERQUE INTERNATIONAL BALLOON FIESTA PARK GOLF CENTER GRADING AND DRAINAGE REPORT

I, Craig W. Hoover, hereby certify that I am a Registered Professional Engineer, registered in the state of New Mexico, and that the following report was prepared under my direction and is true and correct to the best of my knowledge and belief.

Craig W. Hoover, P.E. NMPE No. 11848

# TABLE OF CONTENTS

<b>l.</b>	INTRODUCTION1
	A. Purpose
II. I	METHODOLOGY4
	A. Hydrology
III.	EXISTING CONDITIONS 6
	A. Launch Field Area
IV.	INTERIM CONDITIONS 8
	A. Golf Center Grading Plan
٧.	FUTURE CONDITIONS11
VI.	SUMMARY 12
<u>TAI</u>	<u>BLES</u>
2.P	Peak Flow Rates for Existing Conditions

# **FIGURES**

Figure 1- Vicinity Map ...... 3

# **APPENDICES**

APPENDIX A – Hydrologic Data APPENDIX B - Typical Street Section

# **PLATES**

PLATE 1 - Existing Conditions Drainage Plan Map PLATE 2 - Interim Conditions Drainage Plan Map

PLATE 3 – Future Conditions Drainage Plan

#### I. INTRODUCTION



The purpose of this report is to present the proposed grading and drainage plan for the Golf Center within the Albuquerque International Balloon Fiesta Park (BFP). A drainage management plan for the proposed development of the entire park, entitled Albuquerque International Balloon Fiesta

Park Conceptual Drainage Master Plan (February 13, 1998, Bohannan Huston), was approved by the City on March 25, 1998. It will henceforth be referred to as the BFP DMP. An amendment to the BFP DMP to reflect changes to the overall BFP grading is being submitted concurrently, under a separate cover. The Golf Center will involve development of a portion of the Launch Field Area and will include:

- Golf Center building (clubhouse)
- Temporary and permanent roads and parking lots
- Potentially three game fields
- Extension of existing potable water and water reuse lines
- Construction of sanitary sewer lines
- Construction of a sanitary sewer
- Construction of a sanitary sewer lift station and force main.

### A. Purpose

This report provides the site specific grading and drainage plan for the Golf Center at the BFP. The plan is in accordance with the BFP DMP. Future amendments to this report may be advanced by the Golf Center lessee. However, this report will provide the basis for rough grading in the Golf Center area to be completed by the City.

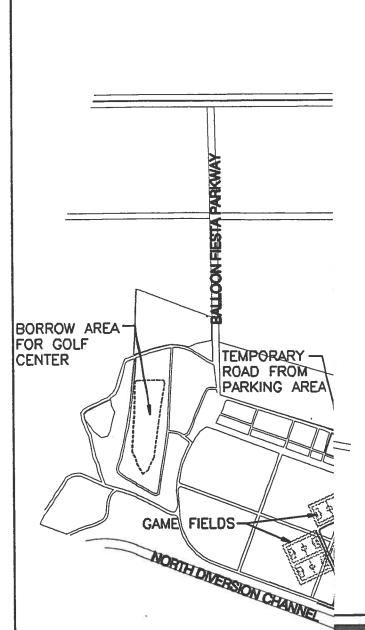
# B. Site Description

The Golf Center comprises approximately 40 acres in the southern end of the Launch Field Area (see the Vicinity Map). It lies directly north of the North La Cueva Channel and east of the North Diversion Channel (NDC). The existing escarpment is 500 feet to the east. The

proposed site is part of a former sand and gravel pit that was roughly graded from east to west to drain to three surface inlets to the NDC. Slopes are generally less than one percent, and local depressions impede the flow of onsite runoff. The only offsite runon impacting the Golf Center is sheet flow from the area east of the escarpment known as the Old Nazareth Landfill.

# C. Floodplains

The new Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the area, issued September 11, 1998, does not show any floodplain on the site. The North La Cueva Channel floodplain, which previously encroached the area, is confined to the constructed channel. The floodplain removal was the result of a Letter of Map Revision (LOMR) submitted January 31, 1997 to FEMA. The LOMR was approved, and revised floodplain maps have been issued.



GOLF CENTER AREA

# **B**ohannan ≜ **H**uston

yard One 7500 JEFFERSON NE Albuquerque NEW MEXICO 87109

PLANNERS PHOTOGRAMMETRISTS SURVEYORS SOFTWARE DEVELOPERS



SCALE: 1" =1000'

BALLOON FIESTA PARK GOLF CENTER

GRADING AND DRAINAGE PLAN

VICINITY MAP

JOB NO.	99385C02	SHEET	OF
	99363002		
DRAWN BY:	S.F.G.	DATE:	01/22/99
O-ECKED BY:	L.M.M.	SCALE:	1" = 1000'

#### II. METHODOLOGY



# A. Hydrology

Three conditions were analyzed for the grading and drainage report. The first is existing conditions; the second is interim conditions with the Golf Center developed; and the third is fully developed conditions as addressed in the BFP DMP. The analysis will be discussed in the following section.

The methodology selected for hydrologic analysis of the proposed development is the City of Albuquerque's Development Process Manual (DPM), Chapter 22, as revised July, 1997. This chapter of the DPM details use of both the hydrologic computer program, AHYMO, and a simplified non-computer procedure for the determination of storm runoff rates and volumes.

For the existing and interim conditions, AHYMO was used to calculate the 100-year storm runoff. For future conditions, peak flows from the approved BFP DPM were used. They were determined with the City DPM's simplified non-computer procedure. This method does not account for the effects of routing and differences in the time of peak runoff from areas located throughout a particular watershed resulting in a more conservative flow rate than AHYMO. It is appropriate for the master planning level. AHYMO summary tables and calculations of the future conditions flows are included in Appendix A.

# B. Sediment Bulking

Sediment bulking accounts for the increased flow due to the sediment in the runoff. A sediment bulking factor has been applied to every drainage basin. The sediment bulking factors used in this report are equivalent to the ones used in the BFP DPM. They are based on land use and are as follows:

Undeveloped areas:

7%

Semi-developed areas:

5%

Developed areas:

2.5%

These factors have been used in similar geographic and topographic regions and have been used in approved drainage reports.

Bulking factors for the future condition are included in Appendix A in the calculations for peak runoff. For existing and interim conditions, the sediment bulking factors can be found in the Drainage Basins Parameters table in Appendix A.

### III. EXISTING CONDITIONS

Since different portions of the Golf Center will drain to each of the three existing inlets to the NDC, the entire area that currently drains to the inlets (of which the Golf Center is a small part) was analyzed for the existing conditions hydrologic analysis. This area north of the North La Cueva Channel is known as the Launch Field-Area.

#### A. Launch Field Area

The Launch Field Area between the Camino berm (south of the North El Camino Channel) and the North La Cueva Channel was divided into three basins that drain to the existing North Diversion Channel inlets. These inlets are identified on Plates 1, 2, and 3 as NDC Inlet # 1, # 2 and # 3. This area comprises approximately 175 acres.

The majority of the Launch Field Area lies in a bowl formed by the escarpment along the east park boundary, the North El Camino Arroyo and the North La Cueva Channel on the north and south respectively, and the NDC on the west. This former sand and gravel pit was graded with a 1 percent or less slope from east to west to drain to the three NDC inlets. While the site generally slopes to the NDC, there are a number of local depressions which presently do not drain. There are no existing drainage facilities in the area besides the channels.

# B. Hydrologic Analysis

# 1. Drainage Basins

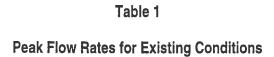
The three drainage basins were delineated by existing contours and proposed grading for the Golf Center. They are identified as Basins 1,2 and 3. The first extends from the Camino berm south to the northern edge of the old Nazareth Landfill. The second basin extends south to Corporate Village East Road and east to the

escarpment. The third is a narrow basin between the road and the North La Cueva Channel. A fourth basin that will impact the Golf Center is the landfill. It is an offsite basin that was identified in the BFP DMP as Basin 4. It is also Basin 4 in this report. The drainage basins are shown on Plate 1.

#### 2. Peak Flow Rates

Once the basins were delineated, the times to peak and land use factors were determined for existing conditions. They are listed in Tables A-1 and A-2 in Appendix A. The land use factors were based on existing development conditions. Percentages of land in each of the four land use categories ranging from undisturbed land to impervious surfaces such as parking lots, were estimated based on the 1998 mapping and site visits. The land use factors for Basin 4 were obtained directly from the BFP DMP since the basin configuration was not changed for this report. A sediment bulking factor of 7% was used for all basins. The basin parameters were input into AHYMO, and the 100-year peak flow rate was calculated for each basin.

The NDC inlets are the analysis points. Basin 1 contributes the total flow to Inlet 1. Basin 4 was routed through Basin 2, and the routed hydrograph was added to the Basin 2 hydrograph to obtain the total flow to Inlet 2. Flow from the landfill runs down the escarpment and sheet flows across Basin 2. Since the flow must be channelized in AHYMO, an earthen swale for the Golf Center was used to simulate the routing course. Basin 3 drains to Inlet 3. Table 1 lists the peak flow rates for existing conditions.



Analysis Point /	100-Year
Contributing Basins	Peak Flow (cfs)
NDC Inlet # 1/ Basin 1	223
NDC Inlet # 2/ Basins 2 & 4	142
NDC Inlet # 3/ Basin 3	22

#### IV. INTERIM CONDITIONS

The analysis for interim conditions is similar to that for existing conditions with the exception that it incorporates the development of the Golf Center. The Golf Center plan includes:

- Entrance road
- Permanent and temporary parking lots
- Section of the supertrail
- Miscellaneous maintenance roads
- Clubhouse
- Potentially three game fields
- Roads along the game fields
- Driving range
- Chipping green
- Putting course.

# A. Golf Center Grading Plan

The Golf Center area will drain to the three existing NDC inlets, with the majority of the runoff being directed to the middle inlet (NDC Inlet #2). Based on the conceptual grading plan in the BFP DMP, the proposed grading will serve a multi use purpose. To allow balloon launches, soccer games, and other special events, the grading will be uniform. Field slopes

range from 1.8 to 1 percent draining from east to west towards the NDC. The slope is limited to less than 2 percent because of earthwork constraints. For the Golf Center development, the grading plan for the Conceptual Drainage Master Plan was revisited to ensure that the entire BFP north of Alameda Boulevard will balance.

Upon examination of the grading adjustments necessary for the Golf Center, it became clear that the entire BFP would require importation of fill material. Consequently, the proposed elevations in the Launch Field Area were lowered, particularly in the Golf Center area. By lowering the finish grades in the Golf Center area, two small ponding areas will be created at the mouth of NDC Inlets #1 and #2. These ponding areas, which will be less than 18 inches deep, are necessary to prevent direct discharge of the reuse irrigation water to the NDC. The reuse water has a fairly high fluoride level and a ponding area is necessary to prevent direct discharge in the event of a break in an irrigation line. While the ponds will also detain storm runoff, due to the negligible size of the ponds, no credit is being taken in hydrology models.

The proposed grading for the Golf Center (interim conditions – see Plate 2) requires borrow material. All of the borrow material will be placed along the southern edge of the Golf Center beneath the proposed parking and clubhouse areas. The required volume for borrow material is 12,000 cubic yards. The proposed site is located at the north end of the BFP (see Figure 2) and Plate 2). The borrow site drains to the west at a 1 percent slope and the tie slopes are 10 (H) to 1 (V).

To create an earthwork balance for the entire BFP, the typical cross slope (from east to west) in the Launch Field Area must be as flat as possible. Based on ball field requirements and drainage and earthwork considerations, a typical cross slope of 1% was agreed upon in discussions with City Parks and Recreation Department staff and the BFP Design Team. A

steeper slope would create the need to import large amounts of fill. Due to the large field area (approximately 100 acres), a minor increase in slope translates into the requirement for hundreds of thousands of cubic yards of borrow material. The proposed rough grading for the Golf Center is shown on Plate 2.

Two wide grass swales are proposed in the Golf Center area to serve as the major conveyances of runoff. The grading for the swales will be subtle so as not to interfere with the primary purposes of the fields. The roads will also be designed to convey runoff. Since stand up curbs cannot be used, as they would interfere with Balloon Fiesta Events, the streets will have an inverted crown with a valley gutter along the centerline and estate curbs at the outside edges. Appendix B shows a typical street section. The inverted crown and valley gutter will allow the streets to convey up to 30 cfs with the proposed grading.

At the north end of the Golf Center area, a wide, temporary swale is proposed to convey runoff from the field and the escarpment slope areas to the east. It will discharge to NDC Inlet #1. The central portion and majority of the Golf Center area will drain to NDC Inlet #2 via another grass swale. The Golf Center Clubhouse and parking lot areas will drain to the third existing inlet NDC Inlet #3. No culverts or storm drains are proposed for the Golf Center development.

# B. Hydrologic Analysis

The hydrologic analysis for the interim conditions utilized the same drainage basins and AHYMO model as the existing conditions analysis. The land use and sediment bulking factors for Basins 1, 2 and 3 were adjusted to reflect the Golf Center development. Basin 4, the old Nazareth Landfill, will remain undeveloped in the interim condition. The peak flow rates are listed in Table 2.

Table 2

Peak Flow Rates for Interim Conditions

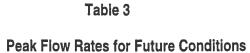
Analysis Point / Contributing Basins	100-Year Peak Flow (cfs)
NDC Inlet # 1/ Basin 1	209
NDC Inlet # 2/ Basins 2 & 4	133
NDC Inlet # 3/ Basin 3	26

The flow rates to NDC Inlets 1 and 2 are lower for interim conditions than existing conditions because much of the area that is presently bare "disturbed by man" soil will become irrigated grass fields. The area will thus provide a more pervious surface than the current compacted soil. The capacity of the NDC inlets, at greater than 200 cfs, are greater than the interim condition flow rates; therefore, no storm drain penetrations into the NDC are proposed. Additionally, AMAFCA has indicated that pipe penetrations into the NDC will not be allowed with the exception of the potential future reconfiguration of the existing North Camino Arroyo Inlet. Consequently, the grading and drainage plan proposes surface drainage to the existing NDC inlets.

#### V. FUTURE CONDITIONS

Future conditions apply to the proposed fully developed onsite conditions as addressed in the BFP DMP. As noted in Amendment #1 to the BFP DMP, the grading was revised, however, the drainage basin boundaries were maintained. Consequently, the hydrologic analysis for future conditions was not re-evaluated for this report. In the DMP, drainage basins for the Launch Field Area were established based on preliminary grading, which was adjusted as necessary to distribute runoff and reduce drainage infrastructure costs. Once the basins were finalized, land use factors were estimated considering the proposed use for each basin. The 100-year developed flow rates were calculated using the simplified procedure from the City DPM. They are included in Appendix A. Sediment bulking factors ranging from 2.5% to 7% were included in the peak flow calculations. The drainage basins are shown on Plate 3.

Developed conditions 100-year flow rates at the NDC inlets are shown in Table 3.



Analysis Point / Contributing Basins	100-Year Peak Flow (cfs)
NDC Inlet # 1/ Basin 1	193
NDC Inlet # 2/ Basins 2 & 4	81
NDC Inlet # 3/ Basin 3	19

Comparing peak flow rates between interim and future conditions, the flow to NDC Inlet # 1 is lower for developed conditions because a portion of the flow from interim Basin 1 will be diverted by a 36-inch storm drain the 90-inch Camino storm drain in future construction (see Plate 3). Peak runoff to NDC Inlet # 2 is lower for developed conditions because the offsite runon from the old Nazareth Landfill will be intercepted by a drainage swale and diverted to the North La Cueva Channel. Flow to NDC Inlet # 3 is roughly the same.

#### VI. SUMMARY

The proposed grading and drainage plan for the Golf Center follows the BFP DMP. The Golf Center will encompass the southwest corner of the Launch Field Area. The grading was slightly modified to balance earthwork. This was accomplished by lowering proposed elevations in the Golf Center area and keeping the slope as flat as possible. Amendment #1 to the BFP DMP addresses the regrading in more detail and is being submitted concurrently under separate cover.

This report recommends the construction of grass swales to convey developed runoff through and from the site. Parking lots and streets will also convey runoff. The outfall points are the three existing NDC inlets west of the Launch Field Area.



Small ponding areas at the mouth of NDC Inlets #1 and #2 will be created with the proposed grading. These ponds are necessary to prevent direct discharge of reuse irrigation water to the NDC. The ponds are negligible with respect to storm water detention.

The impact of the development of the Golf Center on the downstream facilities will be negligible. The use of irrigated grass fields will actually lower the existing peak flow rate into the NDC by providing more pervious surface into which runoff can permeate. The proposed grading and drainage plan will provide surface drainage facilities that can be accommodated in the mulfi-use plan for the Golf Center and BFP.

**TABLE A-1**GOLF CENTER GRADING AND DRAINAGE PLAN
CALCULATION OF TIME TO PEAK

Description	Var.	Unit				
Basin			1	2	3	4
Basin Area		Acres	103.000	43.630	7.210	20.200
Total Reach	L	Feet	3650.000	2620.000	1735.000	1700.000
Overland Reach	L1	Feet	400.000	400.000	400.000	400.000
Overland K	K1		0.700	1.000	1.000	0.700
Overland Slope	S1	Percent	8.500	3.870	2.500	2.250
Adj. Overland Slope	S1'	Percent	5.697	3.870	2.500	2.250
Gully Reach	L2	Feet	1600.000	1600.000	1335.000	1300.000
Gully K	K2		2.000	2.000	2.000	2.000
Gully Slope	S2	Percent	1.740	1.900	1.080	2.540
Adj. Gully Slope	S2'	Percent	1.740	1.900	1.080	2.540
Arroyo Reach	L3	Feet	1650.000	620.000	0.000	0.000
Arroyo K	КЗ		3.000	3.000	3.000	3.000
Arroyo Slope	S3	Percent	0.636	0.450	2.200	1.000
Adj. Arroyo Slope	S3'	Percent	0.636	0.450	2.200	1.000
Lca (to centroid)	Lca	Feet	0.000	0.000	0.000	0.000
Base Discharge	Qb	cfs	0.000	0.000	0.000	0.000
Ground Slope S	S	Percent	1.982	1.858	1.407	2.472
Adjusted Slope S'	S'	Percent	1.982	1.858	1.407	2.472
K	K		1.738	1.761	1.634	1.371
K'	K'		1.689	1.761	1.634	1.371
K"	K''		0.000	0.000	0.000	0.000
K'''	K'''		0.000	0.000	0.000	0.000
Kn	Kn		0.033	0.033	0.033	0.033
Orig. TC	TC	Hrs.	0.414	0.303	0.249	0.219
Adjusted TC	TC'	Hrs.	0.414	0.303	0.249	0.219
Time Lag	Lg	Hrs.	-	-	-	•
Time to Peak	TP	Hrs.	0.276	0.202	0.166	0.146

TABLE A-2
GOLF CENTER GRADING AND DRAINAGE PLAN
DRAINAGE BASIN PARAMETERS
EXISTING AND INTERIM CONDITIONS

DRA	AINAGE		EXIS.	TING			INTE	RIM		EXISTING BULKING	INTERIM BULKING	Bulked (	Q100 CFS
BASIN	AREA (AC)	%A	%B	%C	%D	%A	%B	%C	%D	FACTOR	FACTOR	Exist	Interim
1	103.0	0.0%	5.0%	94.0%	1.0%	0.0%	22.0%	76.0%	2.0%	7.0	5.0%	223.0	209.0
2	43.6	0.0%	6.0%	86.0%	8.0%	0.0%	55.0%	30.0%	15.0%	7.0	5.0%	119.0	106.0
3	7.2	0.0%	5.0%	95.0%	0.0%	0.0%	15.0%	40.0%	45.0%	7.0	5.0%	142.0	26.0
4	20.2	0.0%	6.5%	88.5%	5.0%	0.0%	6.5%	88.5%	5.0%	7.0	7.0%	22.0	133.0

**TABLE A-3** 

GOLF CENTER GRADING AND DRAINAGE PLAN FUTURE CONDITIONS PEAK 100-YEAR FLOW RATES\* SIMPLIFIED PROCEDURE FROM ALB DPM

Bulked ng Q100 or CFS	_	2.5% 70.2																				
Bulking Factor																						
Unbulked Q100 CFS	104.3	- 68.5	8.09	63.6	87.8	15.8	5.2	34.4	37.2	6.9	13.7	3.4	19.2	13.5	8.8	11.7	16.4	8.8	17.2	56.2	77.4	18.9
ZONE 2 CFS/AC D	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70	4.70
ZONE 2 CFS/AC C	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14	3.14
ZONE 2 CFS/AC B	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28
ZONE 2 CFS/AC A	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56	1.56
Q%	55.20%	58.00%	20.60%	2.00%	81.00%	20.20%	74.80%	42.60%	14.80%	4.80%	0.00%	100.00%	69.40%	11.30%	5.80%	69.80%	6.70%	4.60%	14.10%	28.60%	12.00%	29.70%
2%C	13.00%	38.70%	36.60%	88.50%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.90%	0.00%
%B	31.80%	3.30%	12.80%	6.50%	6.50%	79.80%	25.20%	57.40%	86.70%	95.20%	100.00%	0.00%	30.60%	88.70%	94.20%	30.20%	93.30%	95.40%	78.70%	71.40%	78.80%	0.00%
%A	%00.0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	%00.0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.20%	0.00%	6.30%	40.30%
DRAINAGE AREA (AC)	LD AREA	17.1	15.9	20.2	20.2	5.7	1.27	10.4	13.9	2.89	9	0.72	4.84	5.3	3.64	2.95	6.71	3.67	6.71	18.9	30.4	5.5
DRAINAGE DRAINAGE BASIN AREA (AC)	LAUNCH FIELD AREA	. 2	က	4	4future	r G	9	7a	7b	80	6	10	11a	11b	110	12a	12b	12c	13	14	15	16

<sup>·</sup> From "Albuquerque International Balloon Fiesta Park Conceptual Drainage Master Plan," February 13, 1998, Bohannan Huston, Inc.

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		NOI	~		2.830		-	1.00		1.07	8.00			1.07	5.00								1.07	٠.
MON/DAY/YR) =12/07/1998 USER NO.= BOHN_HNM.STE	PAGE =	NOTATION	TIME=		RAIN24=		DK RF -	PER IM		PK BF =	PER IMP=			PK BF =	PER IMP=								PK BF =	3.007 PER IMP=
Y/YR) =1 J.= BOHN	CFS	ACRE						2.171			2.733				3.306		1.291			2.216				3.007
RUN DATE (MON/DAY/YR) =12/07/1998 USER NO.= BOHN_HNM.STE	TIME TO PEAK	(HOURS)						1.650			1.600				1.500		1.700			1.600				1.550
RUN DAT	RUNOFF	(INCHES)						1.29130			1.39036				1.34371		1.34372			1.37557				1.27651
1994	RUNOFF	(AC-FT)		::				11.074			5.057				2.265		2.265			7.322				.769
AMAFCA Hydrologic Model - January, 1994	PEAK DISCHARGE	(CFS)	ting					223.44			119.30				98.99		26.12			141.52				21.75
/drologic Mod	AREA	(SQ MI)	EXIST.HYM models existing	SRIOD		=	INLET #1	.16080			.06820		IN PARK DMP.		.03160		.03160			08660.				.01130
MAFCA Hy	TO TI	NO.	XIST.HYN	onditions. 100 YEAR RETURN PERIOD		1.	EL (NDC)	1	2		2	4	M BALLOC		4	BASIN 2	14			24	3.			3
1	FROM	NO.	ile E	ions. EAR R		BASIN	CHANN	ı	BASIN		ı	BASIN	E FRO		1	THRU	4	2		2614	BASIN			1
AHYMO SUMMARY TABLE (AHYMO194) NPUT FILE = EXIST.HYM	HYDROGRAPH	IDENTIFICATION	s: This file	conditions 100 YEAR		DATA FOR	DIVERSION	1.10 -	S*** COMPUTE NM HYD DATA FOR BASIN		2.10	DATA FOR	. LAND US		4.10	HYDROGRAPH	4.1RT	W TO BASIN	LET #2	2.1AP 2&1	DATA FOR	LET #3		3.10
1ARY TABLE = EXIST.H	ХH	IDENTI	comments:		TYPE= 2	TE NM HYE	TO NORTH	HYD	TTE NM HYL	JLK	HYD	ITE NM HYL	IDEVELOPEL	ILK	HYD	BASIN 4		NOUTED FLC	TO NDC IN		TE NM HYD	TO NDC IN	ILK	НХД
AHYMO SUMMARY TABLE (. INPUT FILE = EXIST.HYM		COMMAND	START *S*	:: * * * * *	RAINFALL TYPE= 2	*S*** COMPUTE NM HYD DATA FOR BASIN 1.	*S*** FLOW TO NORTH DIVERSION CHANNEL (NDC) INLET #1.	COMPUTE NM HYD	*S*** COMPU	SEDIMENT BULK	COMPUTE NM HYD	*S*** COMPU	*S*** UNDEVELOPED. LAND USE FROM BALLOON	SEDIMENT BULK	COMPUTE NM HYD	*S*** ROUTE BASIN 4 HYDROGRAPH THRU BASIN	ROUTE	*S*** ADD ROUTED FLOW TO BASIN 2	*S*** FLOW TO NDC INLET #2	ADD HYD	*S*** COMPUTE NM HYD DATA FOR BAS	*S*** FLOW TO NDC INLET #3	SEDIMENT BULK	COMPUTE NM HYD

AHTHO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  HYDROGRAPH TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994  HYDROGRAPH TO TO THE FROM TO NO. NO. NO. (SQ MI) (CFS) (AC-FT) (INCHES) (HOURS) ACRE NOTATION  START  TIME=  TIME  TIME=  T	1.05							2.00	1.07			1.05		)  -  -	1.05			7.830	0,00		00.	NC	1	
AMAFCA Hydrologic Model - January, 1994  M TO	PK BF = PER IMP=																	KALN24=	- A CTAT & C		TIME=	NOTATI(		2/09/1998 _HNM.STE
AMAFCA Hydrologic Model - January, 1994  M TO	3.567			2.078		1.51/	1 517	3.306				2.418			0							ACRE	CFS	7/YR) =1; ).= BOHN
AMAFCA Hydrologic Model - January, 1994  M TO	1.550			1.600		1./00	1 700	1.500				1.600										(HOURS)	TIME TO PEAK	E (MON/DA)
AMAFCA Hydrologic Model - January, 1  M TO AREA DISCHARGE  . NO. (SQ MI) (CFS)  INTERIM.HYM models the driving : RETURN PERIOD  IN 1. TION OF PRACTICE GREENS AND SOCCER FI NNEL (NDC) INLET #1  I .16080 208.60  IN 2  ICE GREENS, SOCCER FIELDS, CLUBHOUSE  2 .06820 105.56  IN 4  ROM BALLOON PARK DMP.  4 .03160 66.86  RU BASIN 2 .03160 66.86  IN 3.  4 24 .09980 132.75	1.86342			1.29401		1.343/2	7 1 34372	1.34371				1.27100			0							(INCHES)	RUNOFF	RUN DAT
AMAFCA Hydrologi  M TO ARE  INTERIM.HYM mode h surrounding are RETURN PERIOD IN 1. TION OF PRACTICE NNEL (NDC) INLET IN 2 ICE GREENS, SOCCE ICE GREENS, SOCCE ICE GREENS, COCS ICH 4 ROM BALLOON PARK 4 A .031 RU BASIN 2 .031 RU BASIN 2 .031 IN 3.	1 123			6.888		7.765	2 265	2.265				4.623	E & PARKING.		0,70		FIELDS.					(AC-FT)	RUNOFF	1994
AMAFCA Hydrologi  M TO ARE  INTERIM.HYM mode h surrounding are RETURN PERIOD IN 1. TION OF PRACTICE NNEL (NDC) INLET IN 2 ICE GREENS, SOCCE ICE GREENS, SOCCE ICE GREENS, COCS ICH 4 ROM BALLOON PARK 4 A .031 RU BASIN 2 .031 RU BASIN 2 .031 IN 3.	25.80			132.75		30.6/	79 05	98.99				105.56	ILDS, CLUBHOUS		000		IS AND SOCCER			ne driving Neveloped.		(CFS)	PEAK DISCHARGE	ł
E . T HEN HH HR R 4H	01130			08660.		03160				ON PARK DMP.		.06820			6				ERIOD	HYM models th ding area und		(SQ MI)	AREA	ydrologic Mod
E . T HEN HH HR R 4H	~		3.	24		14				M BALLO	4	7	E GREEN	2	٠	EL (NDC	ON OF P	1.	ETURN P	NTERIM. surroun		NO.	OT OI	мағса н
UMMARY TABLE (AHYMO19- LE = INTERIM.hym  IDENTIFICATION  COMMENTE TABS: 100  TYPE= 2  MPUTE NM HYD DATA FOR MOSTLY UNBEVELOPED. OW TO NORTH DIVERSION BULK  MM HYD MPUTE NM HYD DATA FOR MOSTLY UNBEVELOPED. OW TO NORTH DIVERSION BULK  NM HYD MPUTE NM HYD DATA FOR UNDEVELOPED. LAND US BULK  NM HYD WHYD WHYD WHYD WHYD WHYD WHYD WHYD W	ı		BASIN	2&14	2	7 .	THRO			SE FROM	BASIN	1	RACTIC	BASIN		CHANN	PORTI	BASIN	YEAR R			NO.	FROM	1
UMMARY TP LE = inte LDE = inte :	۲ کی در	INLET #3	HYD DATA FOR	AP	FLOW TO BASIN	4.1KT	4 HYDROGRAPI	4.10		PED. LAND UR	HYD DATA FOR	2.10	ALF WILL BE P	HYD DATA FOR	•	TH DIVERSION	INDEVELOPED.	HYD DATA FOR				INTIFICATION	HYDROGRAPH	NBLE (AHYMO19
AHYMO S INPUT FI COMMAND START *S* *S* *S* *S** *S***	SEDIMENT BULK	** FLOW TO NDC	** COMPUTE NM	HYD	** ADD ROUTED ** FLOW TO NDC	TE	** ROUTE BASIN	COMPUTE NM HYD	SEDIMENT BULK	** UNDEVELO	** COMPUTE NM	SEDIMENT BULK COMPUTE NM HYD		** COMPUTE NM	SEDIMENT BULK	** FLOW TO NOR	** MOSTLY U	** COMPUTE NM	C -days	** **	RT			IYMO SUMMARY TA UT FILE = inte