City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 24, 2004

David Soule, PE
Rio Grande Engineering
3500 Comanche NE, Bldg E, Ste 5
Albuquerque, NM 87107

Re: Villa de La Chamisa Subdivision Phase 1 Drainage Report
Engineer's Stamp dated 5-7-04 (B10/D9)

Dear Mr. Soule,

Based upon the information provided in your submittal dated 5-7-04, the above referenced report is approved for Preliminary Plat action by the DRB. This approval is for Phase 1 only. Once that board has approved the plan, please provide a mylar copy for my signature in order to obtain a Rough Grading permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Municipal Development Department, Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Bryan Wolfe).

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept.
Development and Building Services

C: Chuck Caruso, DMD
file

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Appendix

PURPOSE

The purpose of this report is to provide the Drainage Management Plan for the development of the Villa de la Chamisa Subdivision. This plan will be utilized for the development of the subject property as a 55-lot single family residential subdivision. This plan was prepared in accordance with the City of Albuquerque's Development Process Manual. This report will demonstrate that the proposed improvements do not adversely affect the surrounding properties, nor the upstream or downstream facilities.

INTRODUCTION

The subject of this report, as shown on the Exhibit A, is an 8.7-acre parcel of land located on the south side of Paradise Boulevard between Vivaldi Trail and Big Sage Drive. The site is located in the Paradise Hills area of Northwest Albuquerque. The legal description of this site is Lot 1, Marin Subdivision. As shown on FIRM map 35001C0103, the site lies within flood zone X. The site is currently undeveloped.

The site is at the top of the current Piedras Marcadas Drainage Basin. The upstream flows have been diverted to the Callabacillas Arroyo via the Ventana Detention facility. The site currently drains to two distinct drainage sub-basins of the Piedras Marcadas watershed. The north half drains to the northeast to Paradise Boulevard and the south half drains to the southeast across Chamisa Ridge Subdivision. The developed flow of the northern basin will utilize the existing storm drain structure west of this site on Paradise Boulevard. The development of the south portion of this site will be coordinated with the downstream Lyons diversion and the Chamisa Storm. The project shall be developed in two phases. Phase one will occur first and phase two will begin once the Chamisa Storm Drainage Agreement is executed and Financially guaranteed.

May 19, 2004

Mr. Brad Bingham
Chief- Hydrology Section
City of Albuquerque
600 Second Street NW
Albuquerque, NM 87102

File B10/D009

RE: Drainage Agreement
Villa de la Chamisa Subdivision
Project # 1003236

Dear Mr. Bingham:

The purpose of this letter is to satisfy the Environmental Planning Commission's condition #11 for construction to take place on the referenced subdivision. This will serve as an interim agreement between the developer and land owners to the east for the construction of drainage facilities. The 19 lots comprising Phase 1 will not drain to the Chamisa Storm drain. They are to drain to the west to an existing storm drain and conveyed to the Ventana Regional Detention Facility. The development of phase 2 is dependent on a joint storm drain development of the adjacent landowners. David and Jennifer Soule are actively participating in the solution and agree to fully participate in the solution. By signing on the concurrence line Builders Investment Company, the major land owner in the Chamisa basin to the east, agree that the Soule's are to participate in the construction of this drainage facility

David Soule

Builders Investment Company

Jennifer Soule

RECEIVED
JUN 15 2004
HYDROLOGY SECTION

Albuquerque
Metropolitan
Arroyo
Flood
Control
Authority

2600 PROSPECT N.E. - ALBUQUERQUE, NM 87107
TELEPHONE (505) 884-2215 FAX (505) 884-0214

Post-it® Fax Note 7671	Date 6-22	# of pages ▶ 1
To BRAD BINGHAM	From LYNN MAZUR	
Co./Dept. HYDROLOGY	Co. AMAFCA	
Phone #	Phone #	
Fax #	Fax #	

June 22, 2004

Mr. David Soule, P.E.
Rio Grande Engineering
3500 Comanche NE, Suite E-5
Albuquerque, NM 87107

File

Re: Drainage Report for Villa de la Chamisa Subdivision, ZAP B-10
Engineer's Stamp Dated May 7, 2004

Dear Mr. Soule:

AMAFCA has reviewed the referenced report and approves Preliminary Plat for Phase 1 only. Phase 1 will drain to the existing inlet in Paradise Boulevard just west of the property. Your hydraulic analysis indicates that the storm drain constructed with Vitoria Subdivision has capacity to convey 9.67 cfs from Phase 1 of the subdivision. AMAFCA agrees that this discharge will have negligible impact on the Las Ventanas Dam.

If you have any questions, please call me at 884-2215.

Sincerely,
AMAFCA

Lynn M. Mazur

Lynn M. Mazur, P.E., C.F.M.
Development Review Engineer

Cc: Brad Bingham, City Hydrology

EXISTING CONDITIONS

The site is currently undeveloped. The site consists of native shrubs and Juniper trees with several small basalt outcroppings. The site contains two distinct drainage sub-basins. The northern 4.23 acres drains 6.58 cfs to Paradise Boulevard directly as well as indirectly via the adjacent Chamisa Ridge Subdivision. The southern 4.47 acres drains to the southeast. This basin drains 6.95 cfs as sheet flow to Chamisa Ridge subdivision. The existing site hydraulic is located in Appendix A. Both basins ultimately drain to the Middle branch of the Piedras Marcadas arroyo. No offsite flows enter the site. The upstream basin was diverted north to the Ventana Ranch regional detention basin, which discharges to the Callabacillas Arroyo.

PROPOSED CONDITIONS

The development of this site shall be phased. The phase line is dictated by the proposed drainage basins, which are included in Appendix C. The first phase includes the northern most 2.7 acres as well as the required improvements within Paradise Boulevard adjacent to the site. This phase will contain 19 lots which will surface drain to the existing inlet located in Paradise Boulevard at Vivaldi Trail. This storm drain was constructed with the La Scala Subdivision (B10-D03D). This storm drain was designed for pressurized flow and assumed 23 cfs would enter the system from the south. The subsequent development of Vitoria Subdivision (B10-D3F) connected to this drain and extended the system into the subdivision. As described within the drainage report for the Vitoria Subdivision, the site will have a peak discharge of only 16.67 cfs to this storm drain. Based upon the two drainage reports and the as-builts for this storm drainage system a Hydraulic analysis was performed on the system as designed. This analysis was performed utilizing HYDROFLOW. A copy of the analysis is included in Appendix B. Based

upon the calculated HGL the system has additional capacity based upon having the HGL below the natural ground elevation. Therefore further analysis determined the system can accommodate an additional 3.5 cfs. A plan and profile sheet was constructed based upon the system as it was designed and built as well as with the additional 3.5 cfs. This sheet is located in Appendix B. As shown the system can accept 9.83 cfs in addition to the current flows entering the system. This is based upon the unused 6.33 cfs from Vitoria and the additional 3.5 cfs capacity available. The proposed phase line was designed such that the flow leaving the site in conjunction with the flow from Paradise Boulevard is 9.67 which is less than the available capacity of this line. As shown in the plan and profile sheet the existing inlet currently accepts 9.81 cfs from the southern half of Paradise. The combined flow leaving phase one and the surface flow from Paradise Boulevard total 19.64 cfs entering this inlet. This inlet is in a sump condition and as shown in Appendix B has adequate capacity. Based upon the size of the Ventana Detention basin the additional 3.5 cfs will have no measurable impact.

Phase 2 consists of the southern most 6.04 acres. The development of phase 2 relies on the ultimate construction of the Chamisa storm drain. This property is located in the uppermost reaches of the system. The impetus for the system was to allow the basin to develop independently. The natural outfall is the Piedras Marcadas arroyo through the Petroglyph National Monument. The National Park Service will not allow developed flow to enter the monument. Therefore the downstream conveyance has been compromised. The Albuquerque Metropolitan Area Flood Control Authority also has determined the ultimate downstream storage facility for this basin will not accommodate additional developed flow from its watershed. The adjacent land owners have been working with each other, AMAFCA and COA to construct a regional detention pond and conveyance system that will divert the remaining basin to the Callabacillas in conjunction with their Lyons boulevard Storm drain. The design is being performed by Tierra West, LLC. Each contributing property owner will pay their pro-rata portion

and provide the easements required to construct this storm drain.

The proposed Chamisa Storm drain is being designed based upon the peak discharge rate leaving this site of 17.72 cfs. The agreement will be executed by the owners when completed. This development will grant the required easements and financially guarantee the prorate share of the Chamisa storm drain. In the interim a temporary retention pond will be constructed on lots 27-29. As shown in Appendix A, this pond was designed to contain more than the required 100-year, 10-day developed volume of 1.013. Ac - FT

SUMMARY AND RECOMMENDATIONS

This site is an undeveloped portion of land surrounded by developed land. The development of this project will be done in phases. The first phase will surface flow to an existing public storm drain located in Paradise Boulevard. This storm drain was shown to have an additional 9.84 cfs. The proposed discharge resulting from this development is 9.67 cfs. Phase one can be initiated immediately. Phase two relies on the approval of the Chamisa Storm drain. This storm drain is currently being designed by another firm. Prior to construction of Phase 2 an agreement amongst basins owners must be executed and the downstream easements must be granted. It is anticipated Phase 2 will be completed prior to the Chamisa storm drain, therefore the prorated portion of the overall improvements must be guaranteed and the developed flow will be temporarily ponded.

The proposed site development does not adversely affect the upstream or downstream facilities. The site was designed in conformance to City of Albuquerque Drainage Policy. Therefore, we recommend approval of the site-grading plan. Since public improvements will be constructed, a work order and Subdivision Improvement Agreement will be required. Since this site encompasses more than 1 acre, a NPDES permit will be required prior to any construction activity.

Weighted E Method

Existing Basins

											100-Year		
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
			%	(acres)	%	(acres)	%	(acres)	%	(acres)			
PARADISE	184240.00	4.230	80%	3.3836547	15%	0.634	0%	0	5%	0.211	0.551	0.194	6.58
PASEO	194732.00	4.470	80%	3.5763453	15%	0.671	0%	0	5%	0.224	0.551	0.205	6.95
Total	378972.00	8.700		6.96		1.305		0		0.435		0.399	13.53

Proposed Developed Basins

											100-Year, 6-hr.			10-day
Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Volume (ac-ft)
			%	(acres)	%	(acres)	%	(acres)	%	(acres)				
1	6050.00	0.139	0%	0	0%	0.000	15%	0.02083	85%	0.118	1.823	0.021	0.58	0.037
2	117738.00	2.703	5%	0.1351446	25%	0.676	12%	0.32435	56%	1.514	1.412	0.318	9.09	0.520
3	229475.00	5.268	5%	0.2634011	25%	1.317	12%	0.63216	56%	2.950	1.412	0.620	17.72	1.013
4	33607.00	0.772	5%	0.0385755	25%	0.193	12%	0.09258	56%	0.432	1.412	0.091	2.60	0.148
Total	386870.00	8.881		0.4371212		2.186		1.06992		5.014		1.049	29.98	1.72

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Where for 100-year, 6-hour storm

Ea= 0.44	Qa= 1.29
Eb= 0.67	Qb= 2.03
Ec= 0.99	Qc= 2.87
Ed= 1.97	Qd= 4.37

Street Capacity Calculations

PHASE 1 ROAD

28' F-F Street Section with 8" curb

Slope= 0.007

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.21	0.00	0.36	0.0021508
0.02	0.00	0.34	0.01	0.00	0.00	0.33	0.01	0.41	0.0052219
0.04	0.01	0.68	0.02	0.01	0.01	0.52	0.02	0.46	0.0126153
0.06	0.03	1.02	0.03	0.02	0.04	0.68	0.04	0.49	0.0210841
0.08	0.05	1.36	0.04	0.04	0.08	0.82	0.07	0.51	0.0303217
0.1	0.08	1.70	0.05	0.08	0.15	0.95	0.10	0.53	0.0401686
0.12	0.12	2.04	0.06	0.12	0.25	1.08	0.13	0.55	0.050525
0.125	0.13	2.13	0.06	0.14	0.28	1.10	0.14	0.55	0.0531851

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.15	0.29	1.08	0.14	0.53	0.0519383
0.16	0.23	3.91	0.06	0.25	0.49	1.09	0.17	0.48	0.0550385
0.2	0.42	5.95	0.07	0.52	1.03	1.24	0.25	0.49	0.0705703
0.24	0.69	8.00	0.09	0.98	1.95	1.42	0.34	0.51	0.0910725
0.2846	1.08	10.27	0.11	1.76	3.52	1.63	0.46	0.54	0.1170009
0.32	1.47	12.08	0.12	2.63	5.26	1.79	0.57	0.56	0.139133
0.3551	1.91	13.87	0.14	3.72	7.44	1.95	0.69	0.58	0.1621197
0.365	2.05	14.37	0.14	4.08	8.15	1.99	0.73	0.58	0.1687656

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	4.31	8.62	2.04	0.75	0.59	0.175121
0.4556	3.31	14.46	0.23	9.07	18.15	2.74	1.25	0.71	0.2860909
0.4848	3.72	14.49	0.26	11.00	22.00	2.96	1.43	0.75	0.3248102
0.5	3.94	14.51	0.27	12.06	24.12	3.06	1.53	0.76	0.3451261
0.54	4.50	14.55	0.31	15.03	30.05	3.34	1.81	0.80	0.3990881
0.5584	4.75	14.56	0.33	16.47	32.95	3.47	1.94	0.82	0.4241428
0.63	5.76	14.64	0.39	22.59	45.18	3.93	2.47	0.87	0.5229228
0.667	6.27	14.67	0.43	26.04	52.07	4.15	2.77	0.90	0.5747089

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	27.48	54.97	4.06	2.84	0.86	0.5668624
0.72	7.09	17.32	0.41	28.55	57.10	4.03	2.90	0.84	0.5650655
0.74	7.43	18.32	0.41	29.76	59.51	4.01	2.96	0.82	0.5651241
0.76	7.79	19.32	0.40	31.10	62.20	3.99	3.03	0.81	0.5667953
0.78	8.17	20.32	0.40	32.57	65.14	3.98	3.11	0.80	0.5698789
0.8	8.58	21.32	0.40	34.18	68.36	3.99	3.19	0.79	0.5742085
0.847	9.60	23.68	0.41	38.48	76.97	4.01	3.39	0.77	0.5885312

Street Capacity Calculations

PHASE 2 ROAD

28' F-F Street Section with 8" curb

Slope= 0.03

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

n= 0.017

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.00	0.17	0.00	0.00	0.00	0.42	0.00	0.75	0.0067048
0.02	0.00	0.34	0.01	0.00	0.00	0.67	0.01	0.84	0.0157771
0.04	0.01	0.68	0.02	0.01	0.03	1.07	0.04	0.94	0.0369621
0.06	0.03	1.02	0.03	0.04	0.08	1.40	0.08	1.01	0.0607017
0.08	0.05	1.36	0.04	0.09	0.17	1.70	0.14	1.06	0.0862391
0.1	0.08	1.70	0.05	0.16	0.32	1.97	0.20	1.10	0.1131876
0.12	0.12	2.04	0.06	0.26	0.51	2.23	0.27	1.13	0.1413075
0.125	0.13	2.13	0.06	0.29	0.57	2.29	0.29	1.14	0.1485001

For water depths greater than 0.125 ft but less than 0.365 ft

Y1= Y-0.125

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.13	0.14	2.38	0.06	0.30	0.61	2.24	0.29	1.09	0.1464784
0.16	0.23	3.91	0.06	0.51	1.02	2.26	0.36	1.00	0.1590045
0.2	0.42	5.95	0.07	1.07	2.13	2.57	0.51	1.01	0.2030387
0.24	0.69	8.00	0.09	2.02	4.04	2.94	0.71	1.06	0.2589738
0.2846	1.08	10.27	0.11	3.65	7.30	3.38	0.96	1.11	0.3284706
0.32	1.47	12.08	0.12	5.44	10.88	3.71	1.19	1.16	0.3871506
0.3551	1.91	13.87	0.14	7.71	15.41	4.04	1.43	1.19	0.44766
0.365	2.05	14.37	0.14	8.44	16.88	4.13	1.51	1.20	0.4650869

For water depths greater than 0.365 ft but less than 0.667 ft

Y2= Y - 0.365

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.37	2.12	14.38	0.15	8.92	17.85	4.22	1.56	1.22	0.4808442
0.4556	3.31	14.46	0.23	18.78	37.57	5.67	2.58	1.48	0.7526503
0.4848	3.72	14.49	0.26	22.77	45.54	6.12	2.97	1.55	0.8465309
0.5	3.94	14.51	0.27	24.97	49.93	6.34	3.17	1.58	0.8956596
0.54	4.50	14.55	0.31	31.11	62.21	6.92	3.74	1.66	1.0257991
0.5584	4.75	14.56	0.33	34.10	68.21	7.18	4.01	1.69	1.0860745
0.63	5.76	14.64	0.39	46.76	93.53	8.13	5.12	1.80	1.322998
0.667	6.27	14.67	0.43	53.90	107.80	8.59	5.73	1.85	1.4468366

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	6.76	16.32	0.41	56.89	113.79	8.41	5.89	1.77	1.4389182
0.72	7.09	17.32	0.41	59.10	118.21	8.34	6.01	1.73	1.4404596
0.74	7.43	18.32	0.41	61.60	123.20	8.29	6.14	1.70	1.4460009
0.76	7.79	19.32	0.40	64.38	128.76	8.26	6.28	1.67	1.4550338
0.78	8.17	20.32	0.40	67.43	134.86	8.25	6.43	1.65	1.4671379
0.8	8.58	21.32	0.40	70.76	141.52	8.25	6.60	1.63	1.481962
0.847	9.60	23.68	0.41	79.67	159.33	8.30	7.03	1.59	1.5258996

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1	1	81.30	48 c	120.0	96.40	97.20	0.667	100.40	100.56	0.40	End
2	2	81.30	48 c	106.5	97.30	97.71	0.385	100.97	101.16	0.39	1
3	3	81.30	48 c	28.5	97.81	97.94	0.456	101.37	101.59	0.46	2
4	4	71.70	48 c	19.4	98.04	98.24	1.034	102.08	102.08	0.34	3
5	5	62.00	42 c	219.0	98.34	99.55	0.553	102.42	103.12*	0.32	4
6	6	62.00	42 c	42.0	99.65	99.80	0.357	[illegible]	[illegible]	0.42	5
7	7	43.00	42 c	84.5	99.90	101.55	1.953	104.00	105.65	0.32	6
8	8	43.00	30 c	32.8	101.65	102.16	1.554	104.17	104.27	0.68	7
9	9	32.81	30 c	37.0	102.26	102.50	0.649	105.05*	105.25*	0.35	8
10	10	32.81	30 c	25.0	102.60	102.72	0.480	105.60*	105.74*	0.35	9
11	11	32.81	30 c	32.0	102.72	102.88	0.500	106.08*	106.26*	0.42	10

Flows as designed

PROJECT FILE: CHAMISA.STM	I-D-F FILE: SAMPLE.IDF	TOTAL NO. LINES: 11	RUN DATE: 01-08-2004

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	Dns line No.
1	1	84.80	48 c	120.0	96.40	97.20	0.667	100.40	100.58	0.44	End
2	2	84.80	48 c	106.5	97.30	97.71	0.385	101.01	101.23	0.41	1
3	3	84.80	48 c	28.5	97.81	97.94	0.456	101.63	101.68	0.49	2
4	4	75.20	48 c	19.4	98.04	98.24	1.034	102.17	102.21	0.36	3
5	5	69.50	42 c	219.0	98.34	99.55	0.553	102.57*	103.36*	0.36	4
6	6	65.50	42 c	42.0	99.65	99.80	0.357	103.72*	103.87*	0.47	5
7	7	46.90	42 c	84.5	99.90	101.55	1.953	104.34	104.38	0.24	6
8	8	40.80	30 c	32.8	101.65	102.16	1.554	104.62*	104.98*	0.70	7
9	9	36.31	30 c	37.0	102.26	102.50	0.649	105.68*	105.92*	0.42	8
10	10	36.31	30 c	25.0	102.60	102.72	0.480	106.35*	106.52*	0.42	9
11	11	36.31	30 c	32.0	102.72	102.88	0.500	106.94*	107.16*	0.51	10

Includes Additional 3.5 CFS

PROJECT FILE: CHAMISA.STM	I-D-F FILE: SAMPLE.IDF	TOTAL NO. LINES: 11	RUN DATE: 01-08-2004

NOTES: c = circular; e = elliptical; b = box; Return period = 5 Yrs.; * Indicates surcharge condition.

DROP INLET
HEAD CAPACITY

$$Q = CA\sqrt{2gH}$$

Orifice Equation:
Q = Flow (cfs)=19.64
C = 0.60
A = Area of drop inlet (ft^2)= 6.4sf
g = 32.2
H = Height of water above drop inlet (ft)

$$H = \frac{\left(\frac{Q}{C * A}\right)^2}{2g}$$

$$H = \frac{\left(\frac{19.64}{0.6 * 6.4}\right)^2}{2 * 32.2}$$

H = 0.406 feet

Allowable depth = 0.67 feet
Required depth = 0.406 feet

0.47 feet < 0.67 feet