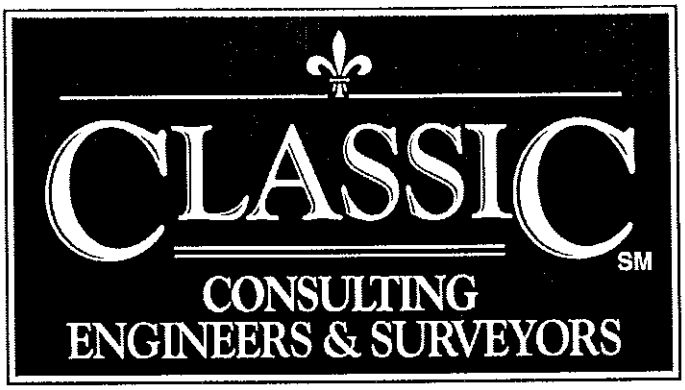


PRELIMINARY DRAINAGE REPORT
FOR
PAINT BRUSH HILLS – PHASE 2

MARCH 2004
REVISED AUGUST 2004
REVISED OCTOBER 2004

PREPARED FOR:

SIX NINETY-NINE PROPERTIES, LLC.
545 E. PIKES PEAK AVENUE
SUITE 207
COLORADO SPRINGS, CO 80903
(719) 328-1672

PREPARED BY:
CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC
6385 CORPORATE DRIVE, SUITE 101
COLORADO SPRINGS, CO 80919
(719) 785-0790

2053.20

CLASSIC CONSULTING ENGINEERS & SURVEYORS

PRELIMINARY DRAINAGE REPORT FOR PAINT BRUSH HILLS – PHASE 2

DRAINAGE REPORT STATEMENT

ENGINEER'S STATEMENT:
The attached drainage plan and report were prepared under my direction and supervision and are correct to the best of my knowledge and belief. Said drainage report has been prepared according to the criteria established by the Drainage Criteria Manual for the City of Colorado Springs and El Paso County. I accept responsibility for any liability caused by any negligent acts, errors, or omissions on my part in preparing this report.

COLORADO REGISTERED MARC ALAN WHORTON 37155 PROFESSIONAL ENGINEER

Marc A. Whorton, Colorado P.E. #37155 — Date 12/6/04

DEVELOPER'S STATEMENT:
I, the developer, have read and will comply with all of the requirements specified in this drainage report and plan.

Business Name: SIX NINETY-NINE PROPERTIES, LLC.

Title: MANAGER

Address: 545 E. PIKES PEAK AVE., SUITE 207

COLORADO SPRINGS, CO 80903

EL PASO COUNTY:

Filed in accordance with Section 51.1 of the El Paso Land Development Code, as amended.

John A. McCarty — El Paso County Engineer/Director — Date 1-27-05

Conditions:

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

PRELIMINARY DRAINAGE REPORT FOR PAINT BRUSH HILLS – PHASE 2

TABLE OF CONTENTS:

APPENDICES

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

PRELIMINARY DRAINAGE REPORT FOR PAINT BRUSH HILLS – PHASE 2

PURPOSE

This document is the Preliminary Drainage Report for Paint Brush Hills – Phase 2. The purpose of this report is to address on-site and off-site drainage patterns, conceptually estimate storm sewer locations, culvert locations, verify the capacities of the existing detention facilities and to recommend options and methods of handling the proposed developed flows. As specific on-site development and drainage characteristics are established, future final drainage reports will detail those patterns and further refine both hydrologic and hydraulic calculations. This report is intended to define overall drainage concepts which future final reports will adhere to.

GENERAL DESCRIPTION

The Paint Brush Hills – Phase 2 site is a 300-acre site located in the county of El Paso within Section 25 and 26, Township 12 South, Range 65 West of the Sixth Principal Meridian, El Paso County, Colorado. The site is bounded on the north by existing platted (RR2 Zone) residential lots, to the east by existing platted (R Zone) residential lots, to the south by existing planned (R Zone) residential lots and on the west by existing (RR3 Zone) residential lots and unplatted parcels. The site is proposed for 554 single family units, a 10-acre elementary school site, a 6-acre community commercial site along with 44-acres of trails and open space. The residential lots will range in size from a 6000 S.F. minimum to 1.0+ acre.

The average soil condition reflects Hydrologic Group "B" (Pring course, sandy loam and Stapleton sandy loam), as determined by the "Soil Survey of El Paso County Area," prepared by the Soil Conservation Service.

EXISTING DRAINAGE CONDITIONS

Existing drainage of the Paint Brush Hills – Phase 2 site is generally from north to south by way of existing natural drainage swales. The majority of the site is covered with native grasses and no trees. There are two major drainageways traversing the site: The first of which is in the northwest portion of the property and drains in a southwesterly direction towards the existing detention facility being constructed as a part of Paint Brush Hills Filing No. 12. This drainageway slopes at grades of 2% to 4% with depths ranging from 2' to 5'. Within the "Master Development Drainage Plan for Falcon Hills Development," prepared by Kiowa Engineering Corporation, approved May 2002, there was a 100-year floodplain established for this drainageway. However, this floodplain is not recognized by FEMA. (See Appendix for FEMA Map) The proposed preliminary grading plan shown on the drainage map within this report shows this drainageway being filled in and an underground storm sewer system provided to handle the existing and proposed developed flows generated by this development. The historic flow release from basins OS-5 and H-1 at this location equals Q_5 = 68 cfs and Q_{100} = 169 cfs. (See Historic Drainage Map) Based on the approved Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 & 12, the designed developed release from this Detention Facility "C" equals Q_5 = 6 cfs and Q_{100} = 99 cfs. This proposed development does not significantly change the developed flows designed to enter this facility. (See Drainage Map)

The second major drainageway runs in a north-south direction through the middle of the site and for the most part follows the alignment of the existing overhead power lines within an existing 275' easement corridor. These along with several existing well sites (permitted to the Paint Brush Hills Metropolitan District) will remain on-site as development occurs. This drainageway slopes at grades of 2% to 4% with depths ranging from 2' to 12'. There are two existing detention facilities that were approved as a part of the Paint Brush Hills Filing No. 10

subdivision that collect flows from this drainageway. The existing stock pond and embankment between these two facilities will be removed with the future grading operations. This drainageway also was shown with a 100-year floodplain per the MDDP. With the proposed open space area as shown on the Preliminary Plan meandering throughout this drainage/utility corridor, it is the intent to leave this drainageway in its natural state and continue to use it as a means to convey drainage flows to the existing detention facilities. The areas within the natural channel that may be improved will be around where the existing stock pond will be removed within Basin U and just south of this location where the channel may be graded and improved to better convey the developed flows between the proposed subdivisions. The channel north of Londonderry Drive will only be disturbed as necessary to grade the future lots adjacent to it and install rip-rap facilities at the proposed pipe outlets. Upon final design of the adjacent subdivisions and their related grading plans, further analysis of the natural channel will occur in order to determine required improvements if/any to handle developed flows.

The detention facilities within this natural channel were designed to account for this future development and are either constructed or under construction as a part of Paint Brush Hills Filing Nos. 10, 11 and 12. The historic flows from basins H-4 and H-5 shown reaching the existing Detention Facility "B1" at Design Point 34 equals Q_5 = 93 cfs and Q_{100} = 227 cfs. (See Historic Drainage Map) Based on the approved Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 & 12, the designed developed inflow and release from this Detention Facility "B1" are as follows, respectively: Q_5 = 149 cfs and Q_{100} = 326 cfs and Q_5 = 149 cfs and Q_{100} = 221 cfs. This proposed development has an inflow of Q_5 = 141 cfs and Q_{100} = 304 cfs at this location. Thus, this proposed development does not significantly change the developed flows entering this facility. (See Drainage Map)

A minor tributary to this major drainageway also exists between the existing water tanks off Londonderry Drive and the existing detention pond to the south. The proposed preliminary grading plan shown on the drainage map within this report also shows this drainageway being filled in and an underground storm sewer system provided to handle the existing and proposed developed flows generated by this development.

The historic drainage patterns for this site are generally in a southwesterly direction towards Reach 18 of the westerly tributary of Black Squirrel Creek, as shown in the "Falcon Area Drainage Basin Planning Study", prepared by URS, December 2000. Along the northern boundary of the site, off-site developed sheet flows enter from existing platted subdivisions (Paint Brush Hills Filings 2 and 3 – Historic Basin OS-5) containing 2-3 acre lots. These flows will continue to enter as sheet flow and will be accounted for in the proposed public storm systems provided on-site. Along the easterly boundary of the site exists a natural ridge, which prohibits any significant developed flows from either entering or exiting the project. Just north of the existing Falcon High School, along the east boundary of this project exists a natural drainage channel, which will remain and continue to accept and convey sheets flows from proposed on-site backyards. (Basin BB) The historic flows reaching this channel (Basin H-7) equal Q_5 = 9 cfs and Q_{100} = 23 cfs. (See Historic Drainage Map) Design Point 14A (Q_5 = 9 cfs and Q_{100} = 20 cfs) depicts the total developed flow reaching this channel upon development. These flows remain consistent with the historic flows. This channel was designed and approved as a part of Paint Brush Hills Filing No. 9.

The southern boundary of the site is for the most part bounded by existing Londonderry Drive. This stretch of road was approved and constructed as a part of Paint Brush Hills Filing No. 10. The storm facilities were sized anticipating such future flows directly entering the road. Further discussions in this report will

specifically itemize these contributing basins and verify the capacity of these facilities. At the southwesterly corner of the site exists another natural ridge, which continues to separate any significant flows form entering or exiting the site. Along the westerly edge of the property the existing ground nearly runs perpendicular to the boundary. However, there still will be a basin allowed to continue to sheet flow off-site towards the main channel. (westerly tributary of Black Squirrel Creek)

As mentioned earlier, this site was previously studied as part of the MDDP, prepared by Kiowa Engineering Corporation, approved May 2002. This report generally described the drainage characteristics for this entire area, as well as offsite areas tributary to the site. The MDDP defined the two major drainage ways for the this site, and provided for two detention facility locations, one at the southwesterly corner of the site, and the other at the southeasterly corner. Both of these facilities were then finalized within the "Preliminary Drainage Report for Falcon hills" and the "Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 And 12", both prepared by Classic Consulting Engineers and Surveyors, July 2003. To date, both facilities have also been constructed as a part of the Filing Nos. 10 and 11 approved construction plans.

A third storm water detention facility was also planned as a part of the MDDP and the other two approved drainage reports. This facility has been designed with the Paint Brush Hills Filing No. 12 construction plans. The only reason the County has not approved these documents is due to off-site easements related to the channel construction along the west boundary within Filing No. 12. Upon receipt of these documents, these construction plans may then be approved and constructed. Based on the previously mentioned approved reports, these three storm water detention facilities are designed to handle all on and off-site developed flows related to this proposal. Therefore, only local storm facilities

designed to convey the developed flows to these existing detention facilities are required as a part of this development. This report along with the future Final Drainage Reports for the individual filings will verify the capacities of each of these facilities in order for this proposed development to take place.

DEVELOPED DRAINAGE CONDITIONS

The attached developed conditions drainage map contains many design points related to proposed at-grade and sump conditions. All public Type R inlets have been designed at these various locations to accept both the 5-yr. and 100-yr. developed flows. All proposed storm systems, within the public Right-of-way, will be public with ownership and maintenance by El Paso County. The calculations contained within this report are based on the preliminary grading scheme for the entire site, which may be adjusted upon final design for dirt-work balancing purposes.

Existing storm facilities within Londonderry Drive and Towner Boulevard have already have been designed and constructed as a part of Paint Brush Hills Filing No. 10. These facilities were designed to handle any future development such as the development proposed as a part of this Preliminary Plan. Specific design points within this report refer to these existing facilities. The following descriptions compare the developed flows as specified in the "Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 & 12" verses the proposed developed flows for this development at these existing facilities:

Design Point 3 (Q_5 = 19 cfs and Q_{100} = 38 cfs) consists of developed flows from Basins E, F and G. An existing 14' at-grade inlet exists at this location. Based on the previous study, this location was notated as design point 16A with a developed flow of (Q_5 = 20 cfs and Q_{100} = 40 cfs). Thus, the existing facility at

this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 5 (Q_5 = 15 cfs and Q_{100} = 37 cfs) consists of developed flows from Basins H, I, K and DP3 Flowby. An existing 18' sump inlet exists at this location. Based on the previous study, this location was notated as design point 16B with a developed flow of (Q_5 = 19 cfs and Q_{100} = 43 cfs). Thus, the existing facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 12 (Q_5 = 9 cfs and Q_{100} = 18 cfs) consists of developed flows from Basins M and V2. An existing 8' sump inlet exists at this location. Based on the previous study, this location was notated as design point 17A with a developed flow of (Q_5 = 9 cfs and Q_{100} = 17 cfs). Thus, the existing facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 13 (Q_5 = 21 cfs and Q_{100} = 40 cfs) consists of developed flows from Basins W and a portion of X. An existing 14' at-grade inlet exists at this location. Based on the previous study, this location was notated as design point 20A with a developed flow of (Q_5 = 21 cfs and Q_{100} = 40 cfs). Upon the construction of the elementary school a site specific Final Drainage Report will need to be approved consistent with the following: Allowable release directly into Towner Blvd. equals Q_5 = 14 cfs and Q_{100} = 27 cfs and the allowable release into the existing 24" RCP storm culvert (Design Point 15) equals Q_5 = 11 cfs and Q_{100} = 21 cfs. The allowable direct release into Towner Blvd. combined with the flow within the street (Basin W) total the Q_5 = 21 cfs and Q_{100} = 40 cfs. Thus, allowing the existing 14' at-grade inlet at Design Point 13 to continue to accept these developed flows as previously approved.

Design Point 22B (Q_5 = 11 cfs and Q_{100} = 25cfs) consists of developed flows from Basins LL, MM2 and Design Point 22A flowby. An existing 12' sump inlet exists at this location. Based on the previous study, this location was notated as design point 18B with a developed flow of (Q_5 = 13 cfs and Q_{100} = 26 cfs). Thus, the existing facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 23 (Q_5 = 4 cfs and Q_{100} = 7 cfs) consists of developed flows from Basin NN. An existing 6' sump inlet exists at this location. Based on the previous study, this location was notated as design point 18A with a developed flow of (Q_5 = 8 cfs and Q_{100} = 15 cfs). Thus, the existing facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 32 (Q_5 = 51 cfs and Q_{100} = 113 cfs) consists of developed flows from Basins DD1, DD2, EE, OO, RR, SS and a portion of Basin MM1. Existing dual 36" RCP storm sewers exist at this location. Based on the previous study, this location was notated as Basin OS-9 with a developed flow of (Q_5 = 50 cfs and Q_{100} = 113 cfs). Thus, the existing facilities at this location continue to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 33 (Q_5 = 116 cfs and Q_{100} = 255 cfs) consists of developed flows from much of the inner development. At this location, dual 42" RCP culverts are designed to handle both the 5-yr. and 100-yr. developed flows and route them safely under the proposed roadway and into the existing Detention Pond B1 based on the preliminary grading. Upon final design in this area and within the Final Drainage Report, these facilities will be detailed further.

Design Point 34 (Q_5 = 151 cfs and Q_{100} = 329 cfs) consists of developed flows from the main natural channel. The existing Detention Pond B1 exists at this

location. Based on the previous study, the total developed inflow to this facility was (Q_5 = 149 cfs and Q_{100} = 326 cfs). This increase equates to less than 1% of what was previously accounted for at this design point. Upon final design of the areas tributary to these facilities, further analysis will be included in the final drainage report to confirm that no significant increase in flows will burden these existing facilities. Thus, the existing detention facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

Design Point 35 (Q_5 = 90 cfs and Q_{100} = 207 cfs) consists of developed flows from the off-site basins to the north and the north west corner of the development. The existing Detention Pond A exists at this location. Based on the previous study, the total developed inflow to this facility was (Q_5 = 90 cfs and Q_{100} = 206 cfs). Thus, the existing detention facility at this location continues to adequately handle both the 5-yr. and 100-yr. developed flows.

HYDROLOGIC CALCULATIONS

Hydrologic calculations were performed using the City of Colorado Springs/El Paso County Drainage Criteria Manual, as revised in November 1991 and 1994. The Rational Method was used to estimate storm water runoff anticipated from design storms with 5-year and 100-year recurrence intervals.

FLOODPLAIN STATEMENT

No portion of this site is located within a FEMA floodplain as determined by the Flood Insurance Rate Maps (F.I.R.M.) Map Numbers 08041C 0535F and 08041C 0575, with effective dates of March 17, 1997 (See Appendix).

EROSION CONTROL PLAN

The Drainage Criteria Manual specifies an Erosion Control Plan and associated cost estimate be submitted with the Final Drainage Report. We respectfully request that the Erosion Control Plan and cost estimate be submitted in conjunction with the Overlot Grading Plan and construction assurances posted prior to obtaining a grading permit.

SUMMARY

This proposed development remains consistent with the previously approved MDDP and Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 & 12. The existing storm facilities continue to adequately handle both the 5-yr. and 100-yr. developed flows. Prior to construction of this development, individual final drainage reports will detail the associated storm systems to safely route the developed flows to the specified outfall locations. The proposed development will not adversely impact surrounding developments.

PREPARED BY:

Classic Consulting Engineers & Surveyors, LLC

Marc A. Whorton, P.E.
Project Manager

205320/Drainage/PDR.doc

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

REFERENCES

1. City of Colorado Springs/County of El Paso Drainage Criteria Manual, dated October 1991.

2. Soil Survey of El Paso County Area, Colorado Soil Conservation Service, June 1981.

3. "Master Development Drainage Plan, Falcon Hills Development," by Kiowa Engineering Corporation, May 2002.

4. "Preliminary Drainage Report for Falcon Hills," by Classic Consulting Engineers and Surveyors, approved November 2002.

5. "Final Drainage Report for Paint Brush Hills Filing Nos. 10, 11 &12," by Classic Consulting Engineers and Surveyors, approved July 2003.

6. "Drainage Report for Paint Brush Hills Filing No. 3," by Berge-Brewer & Assoc., Inc., April 1983.

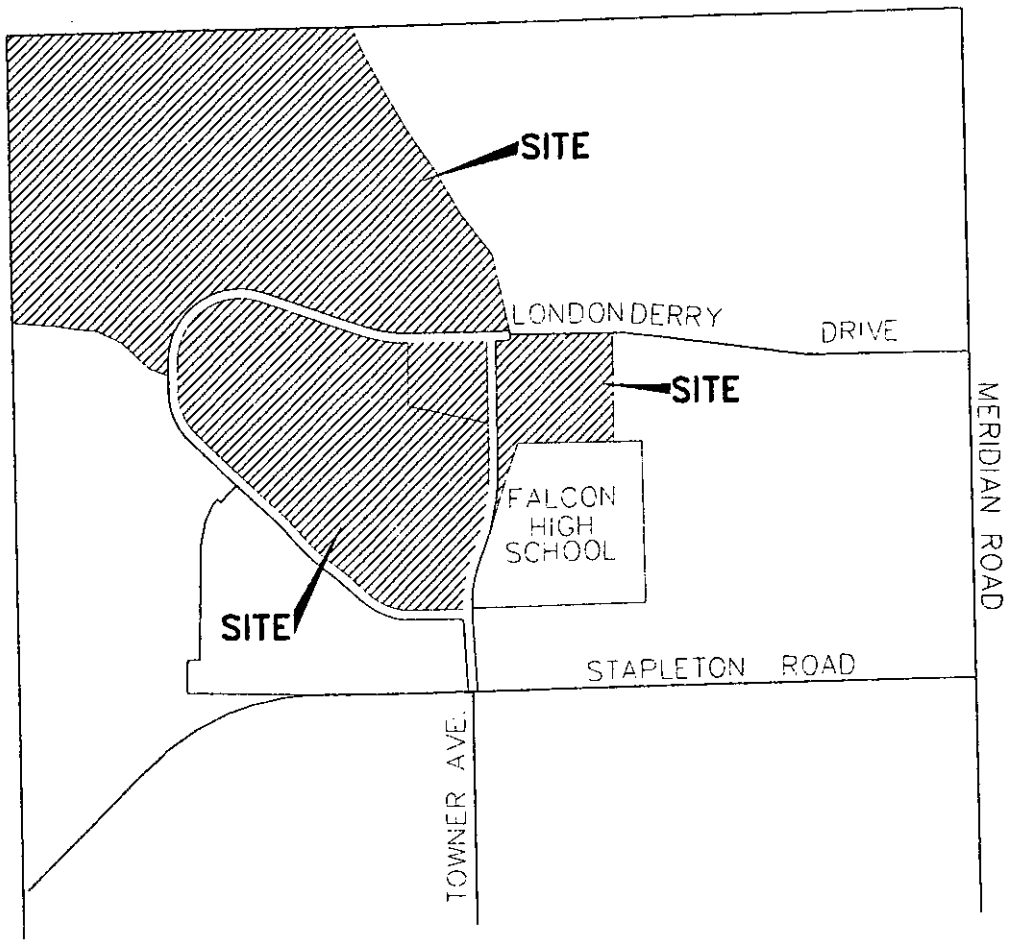
7. "Falcon Area Drainage Basin Planning Study – Preliminary Design Report", by URS, October 2001.

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

APPENDIX

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

VICINITY MAP

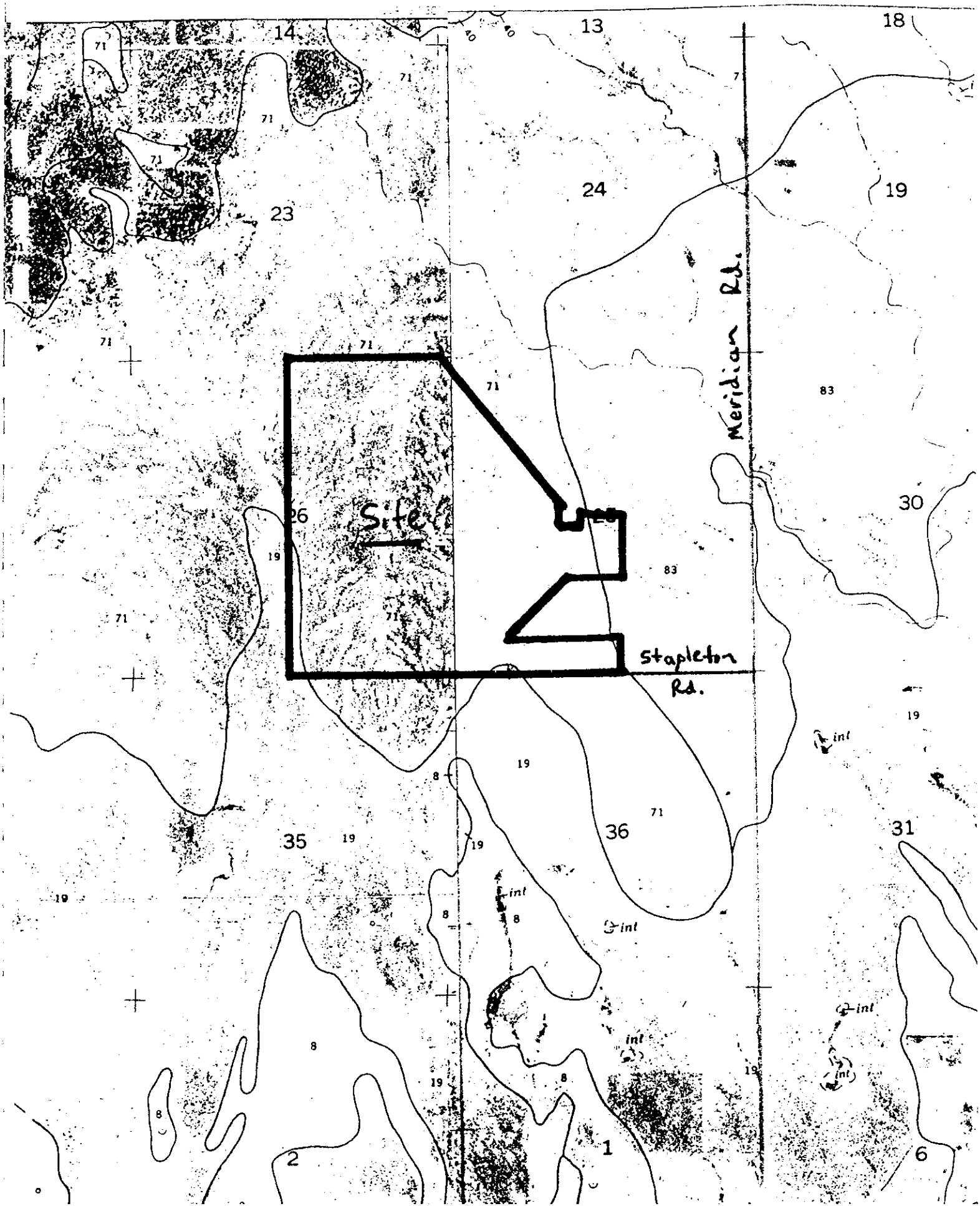


VICINITY MAP

N.T.S.

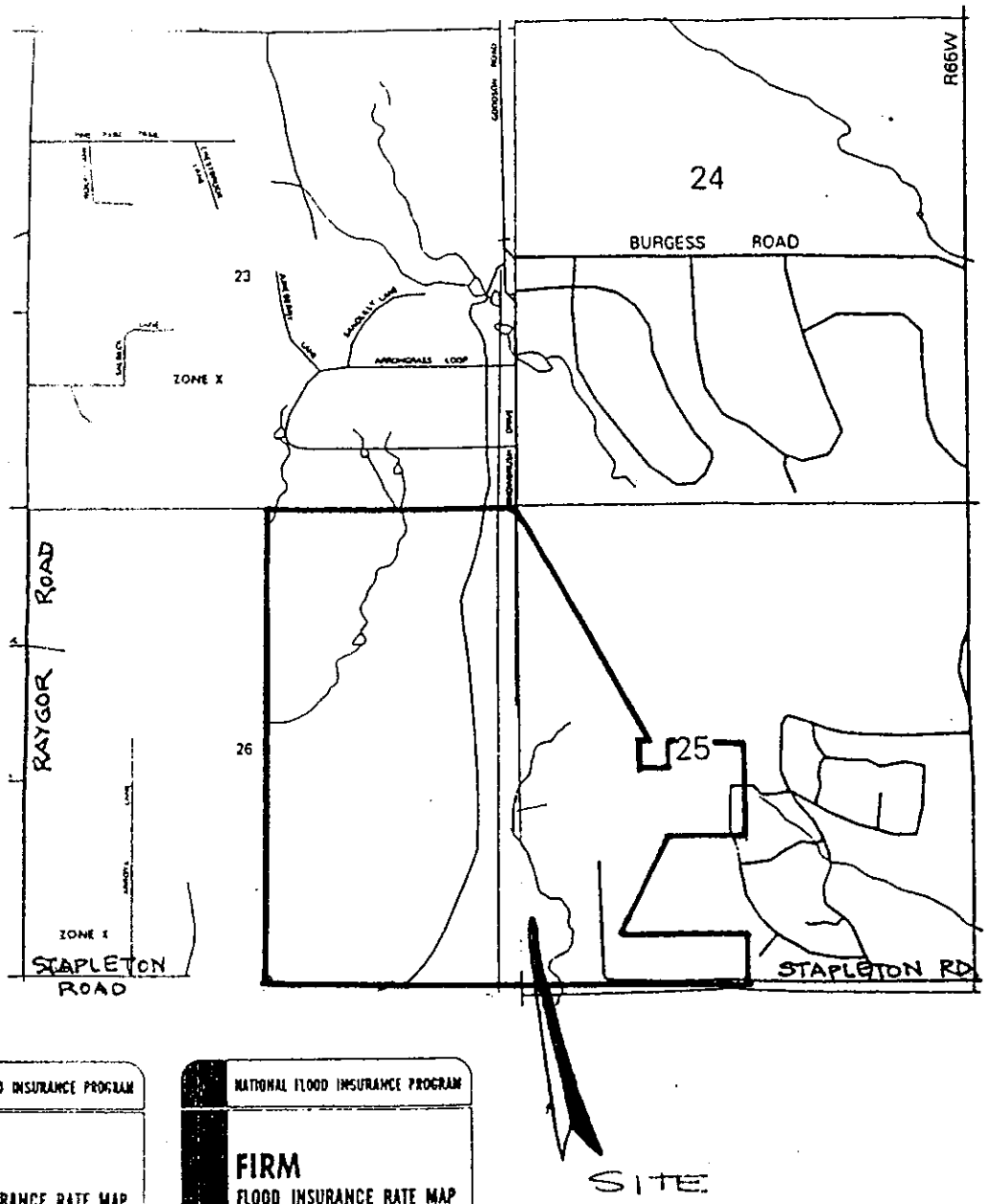
CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

S.C.S. SOIL MAP


Site
Meridian Rd.
Stapleton Rd.
13
14
18
19
23
24
26
30
31
35
36
1
2
6
71
83
19
8
int

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

F.E.M.A. MAP



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 535 OF 1300

SEE MAP INDEX FOR PANELS NOT PRINTED

COMMUNITY	NUMBER	PANEL	SUFFIX
EL PASO COUNTY UNINCORPORATED AREAS	080059	0535	F

MAP NUMBER
08041C0535 F

EFFECTIVE DATE:
MARCH 17, 1997

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

EL PASO COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 575 OF 1300

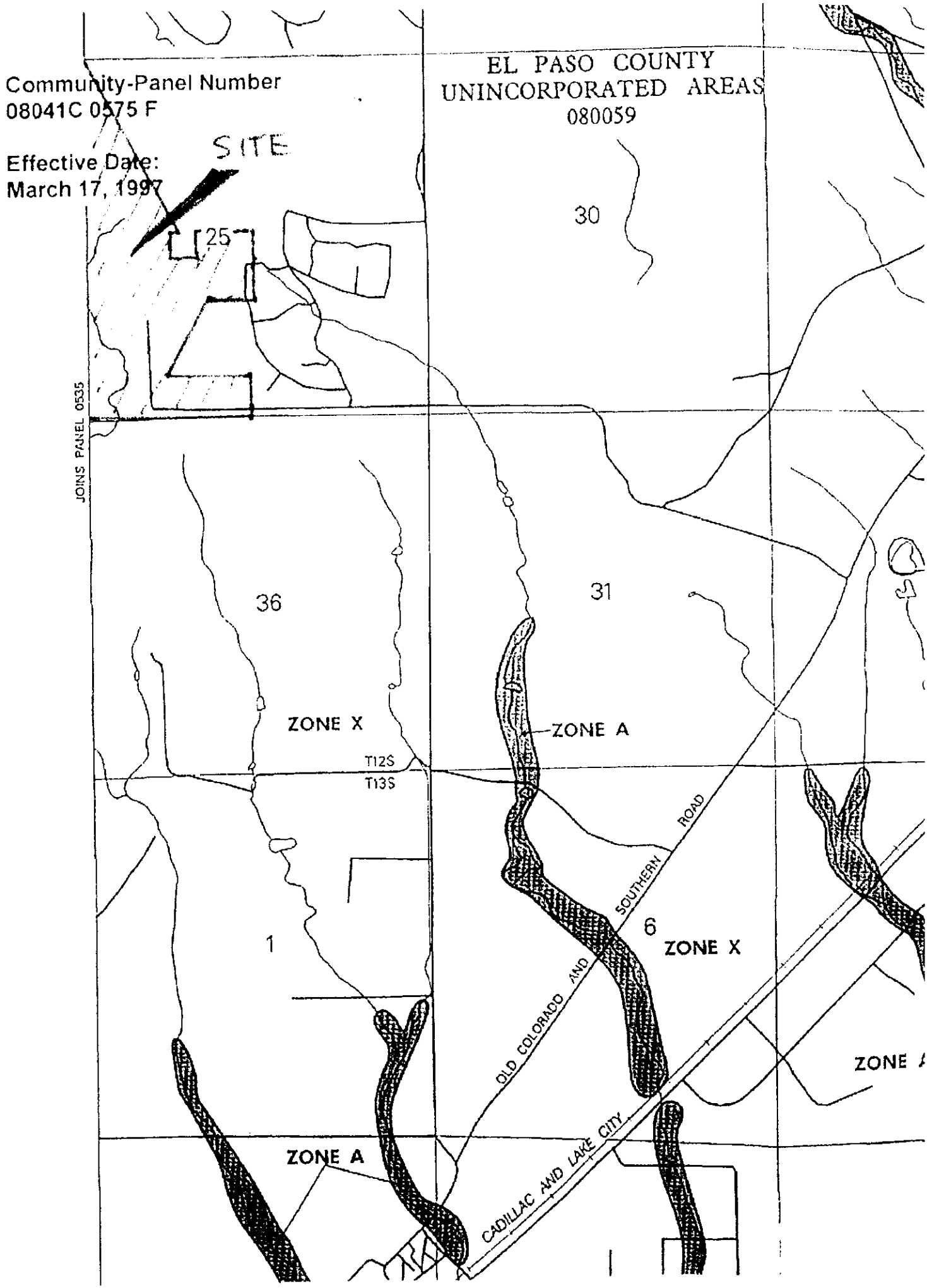
SEE MAP INDEX FOR PANELS NOT PRINTED

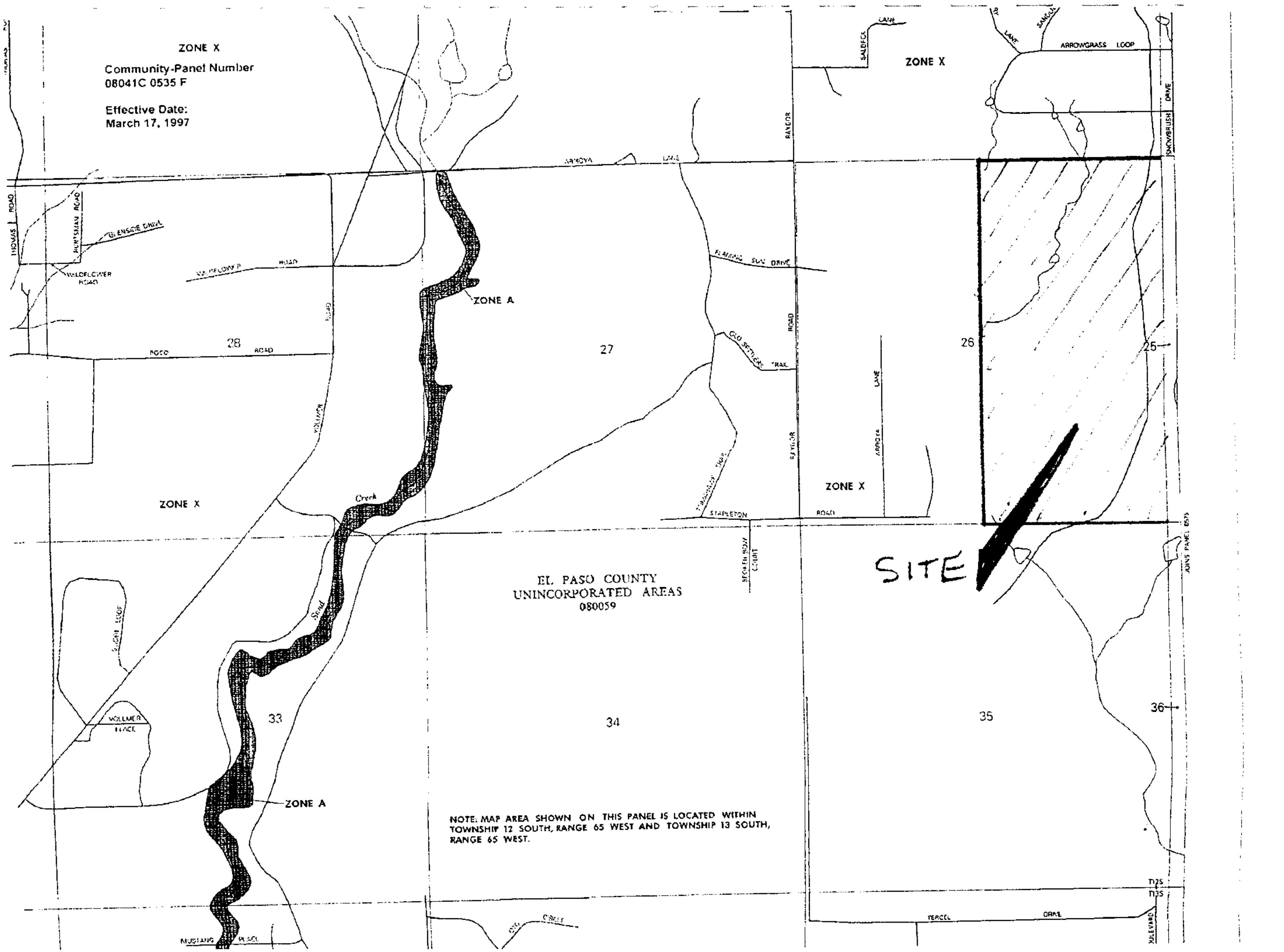
COMMUNITY	NUMBER	PANEL	SUFFIX
COLORADO SPRINGS, CITY OF	080060	0575	F
EL PASO COUNTY UNINCORPORATED AREAS	080059	0575	F

MAP NUMBER
08041C0575 F

EFFECTIVE DATE:
MARCH 17, 1997

Federal Emergency Management Agency


Community-Panel Number
08041C 0575 F
Effective Date:
March 17, 1997
EL PASO COUNTY
UNINCORPORATED AREAS
080059
SITE
25
30
JOINS PANEL 0535
36
31
ZONE X
ZONE A
T12S
T13S
SOUTHERN ROAD
1
6
ZONE X
OLD COLORADO AND
ZONE A
CADILLAC AND LAKE CITY


ZONE X
Community-Panel Number
08041C 0535 F
Effective Date:
March 17, 1997
ZONE A
ZONE X
ZONE X
ZONE X
ZONE A
28
27
26
25
33
34
35
36
SITE
EL PASO COUNTY
UNINCORPORATED AREAS
080059
NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 12 SOUTH, RANGE 65 WEST AND TOWNSHIP 13 SOUTH, RANGE 65 WEST.
ARROWGRASS LOOP
SNOWBRUSH DRIVE
ARROYA LANE
RAYGOR ROAD
STAPLETON ROAD
GLENSIDE DRIVE
POCO ROAD
Creek
Sand
VOLLMER PLACE
MUSTANG PLACE
TERCEL DRIVE
JOINS PANEL 0575
T12S
T13S

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

HYDROLOGIC/HYDRAULIC CALCULATIONS

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
A	0.52	0.42	0.90	0.95	0.10	0.35	0.45	0.79	0.85	**0.41**	**0.44**
B	5.19	0.00	0.90	0.95	5.19	0.50	0.60	0.50	0.60	**2.60**	**3.11**
C	5.92	0.00	0.90	0.95	5.92	0.50	0.60	0.50	0.60	**2.96**	**3.55**
D1	5.23	0.00	0.90	0.95	5.23	0.50	0.60	0.50	0.60	**2.62**	**3.14**
D2	5.00	0.00	0.90	0.95	5.00	0.50	0.60	0.50	0.60	**2.50**	**3.00**
E	4.48	0.00	0.90	0.95	4.48	0.50	0.60	0.50	0.60	**2.24**	**2.69**
F	4.34	0.00	0.90	0.95	4.34	0.50	0.60	0.50	0.60	**2.17**	**2.60**
G	2.61	2.10	0.90	0.95	0.51	0.35	0.45	0.79	0.85	**2.07**	**2.22**
H	1.32	0.00	0.90	0.95	1.32	0.48	0.58	0.48	0.58	**0.63**	**0.77**
I	3.53	0.00	0.90	0.95	3.53	0.35	0.45	0.35	0.45	**1.24**	**1.59**
J	3.87	0.00	0.90	0.95	3.87	0.50	0.60	0.50	0.60	**1.94**	**2.32**
K	0.96	0.65	0.90	0.95	0.31	0.55	0.65	0.79	0.85	**0.76**	**0.82**
L	3.40	0.00	0.90	0.95	3.40	0.55	0.65	0.55	0.65	**1.87**	**2.21**
M	0.23	0.00	0.90	0.95	0.23	0.55	0.65	0.55	0.65	**0.13**	**0.15**
N	3.51	0.00	0.90	0.95	3.51	0.55	0.65	0.55	0.65	**1.93**	**2.28**
O1	5.81	0.00	0.90	0.95	5.81	0.55	0.65	0.55	0.65	**3.20**	**3.78**
O2	5.02	0.00	0.90	0.95	5.02	0.55	0.65	0.55	0.65	**2.76**	**3.26**
P1	5.19	0.00	0.90	0.95	5.19	0.55	0.65	0.55	0.65	**2.85**	**3.37**
P2	5.10	0.00	0.90	0.95	5.10	0.55	0.65	0.55	0.65	**2.81**	**3.32**
Q	1.48	0.00	0.90	0.95	1.48	0.55	0.65	0.55	0.65	**0.81**	**0.96**
R1	2.77	0.00	0.90	0.95	2.77	0.55	0.65	0.55	0.65	**1.52**	**1.80**
R2	4.06	0.00	0.90	0.95	4.06	0.55	0.65	0.55	0.65	**2.23**	**2.64**
S	5.95	5.95	0.80	0.90	0.00	0.35	0.45	0.80	0.90	**4.76**	**5.36**
T	0.71	0.58	0.90	0.95	0.13	0.35	0.45	0.80	0.86	**0.57**	**0.61**
U	20.39	0.00	0.90	0.95	20.39	0.30	0.40	0.30	0.40	**6.12**	**8.16**
V1	4.80	0.00	0.90	0.95	4.80	0.25	0.35	0.25	0.35	**1.20**	**1.68**
V2	2.52	2.10	0.90	0.95	0.42	0.35	0.45	0.81	0.87	**2.04**	**2.18**

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
W	2.00	1.68	0.90	0.95	0.32	0.35	0.45	0.81	0.87	**1.62**	**1.74**
X	11.50	7.00	0.90	0.95	4.50	0.35	0.45	0.68	0.75	**7.88**	**8.68**
Y	1.76	1.10	0.90	0.95	0.66	0.35	0.45	0.69	0.76	**1.22**	**1.34**
Z	2.87	0.00	0.90	0.95	2.87	0.55	0.65	0.55	0.65	**1.58**	**1.87**
AA	3.20	0.00	0.90	0.95	3.20	0.55	0.65	0.55	0.65	**1.76**	**2.08**
BB	2.26	0.00	0.90	0.95	2.26	0.55	0.65	0.55	0.65	**1.24**	**1.47**
CC	2.08	0.00	0.90	0.95	2.08	0.55	0.65	0.55	0.65	**1.14**	**1.35**
DD1	9.50	0.00	0.90	0.95	9.50	0.35	0.45	0.35	0.45	**3.33**	**4.28**
DD2	3.75	0.00	0.90	0.95	3.75	0.35	0.45	0.35	0.45	**1.31**	**1.69**
EE	3.51	0.00	0.90	0.95	3.51	0.50	0.60	0.50	0.60	**1.76**	**2.11**
FF	0.39	0.31	0.90	0.95	0.08	0.35	0.45	0.79	0.85	**0.31**	**0.33**
GG	7.73	0.00	0.90	0.95	7.73	0.35	0.45	0.35	0.45	**2.71**	**3.48**
HH	6.43	0.00	0.90	0.95	6.43	0.50	0.60	0.50	0.60	**3.22**	**3.86**
II	3.65	0.00	0.90	0.95	3.65	0.50	0.60	0.50	0.60	**1.83**	**2.19**
JJ	0.83	0.00	0.90	0.95	0.83	0.50	0.60	0.50	0.60	**0.42**	**0.50**
KK	0.46	0.36	0.90	0.95	0.10	0.50	0.60	0.81	0.87	**0.37**	**0.40**
LL	1.54	1.65	0.90	0.95	-0.11	0.35	0.45	0.94	0.99	**1.45**	**1.52**
MM1	3.88	0.00	0.90	0.95	3.88	0.50	0.60	0.50	0.60	**1.94**	**2.33**
MM2	3.40	0.00	0.90	0.95	3.40	0.50	0.60	0.50	0.60	**1.70**	**2.04**
NN	1.00	0.79	0.90	0.95	0.21	0.35	0.45	0.78	0.85	**0.78**	**0.85**
OO	29.11	0.00	0.90	0.95	29.11	0.30	0.40	0.30	0.40	**8.73**	**11.64**
PP	1.98	0.00	0.90	0.95	1.98	0.30	0.40	0.30	0.40	**0.59**	**0.79**
QQ1	6.36	0.00	0.90	0.95	6.36	0.32	0.42	0.32	0.42	**2.04**	**2.67**
QQ2	5.40	0.00	0.90	0.95	5.40	0.32	0.42	0.32	0.42	**1.73**	**2.27**
RR	4.20	0.00	0.90	0.95	4.20	0.50	0.60	0.50	0.60	**2.10**	**2.52**
SS	4.94	0.00	0.90	0.95	4.94	0.45	0.55	0.45	0.55	**2.22**	**2.72**
TT	4.01	0.00	0.90	0.95	4.01	0.35	0.45	0.35	0.45	**1.40**	**1.80**
UU	10.93	0.00	0.90	0.95	10.93	0.35	0.45	0.35	0.45	**3.83**	**4.92**
VV1	3.07	0.00	0.90	0.95	3.07	0.35	0.45	0.35	0.45	**1.07**	**1.38**
VV2	2.47	0.00	0.90	0.95	2.47	0.35	0.45	0.35	0.45	**0.86**	**1.11**

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF COEFFICIENT SUMMARY

BASIN	TOTAL AREA (AC)	IMPERVIOUS AREA / STREETS			LANDSCAPE/UNDEVELOPED AREAS			WEIGHTED		WEIGHTED CA	
		AREA (AC)	C(5)	C(100)	AREA (AC)	C(5)	C(100)	C(5)	C(100)	CA(5)	CA(100)
WW1	4.34	0.00	0.90	0.95	4.34	0.35	0.45	0.35	0.45	**1.52**	**1.95**
WW2	12.21	0.00	0.90	0.95	12.21	0.35	0.45	0.35	0.45	**4.27**	**5.49**
WW3	5.47	0.00	0.90	0.95	5.47	0.35	0.45	0.35	0.45	**1.91**	**2.46**
WW4	16.58	0.00	0.90	0.95	16.58	0.35	0.45	0.35	0.45	**5.80**	**7.46**
XX	5.45	0.00	0.90	0.95	5.45	0.35	0.45	0.35	0.45	**1.91**	**2.45**
YY	1.85	0.00	0.90	0.95	1.85	0.35	0.45	0.35	0.45	**0.65**	**0.83**
ZZ	7.34	0.00	0.90	0.95	7.34	0.30	0.40	0.30	0.40	**2.20**	**2.94**
AAA	8.95	0.00	0.90	0.95	8.95	0.30	0.40	0.30	0.40	**2.69**	**3.58**
BBB	0.30	0.18	0.90	0.95	0.12	0.35	0.45	0.68	0.75	**0.20**	**0.23**
OS-1	9.90	0.00	0.90	0.95	9.90	0.30	0.40	0.30	0.40	**2.97**	**3.96**
OS-2	7.20	0.00	0.90	0.95	7.20	0.30	0.40	0.30	0.40	**2.16**	**2.88**
OS-3	19.80	0.00	0.90	0.95	19.80	0.30	0.40	0.30	0.40	**5.94**	**7.92**
OS-4	9.20	0.00	0.90	0.95	9.20	0.30	0.40	0.30	0.40	**2.76**	**3.68**
OS-5	46.10	0.00	0.90	0.95	46.10	0.30	0.40	0.30	0.40	**13.83**	**18.44**
H-1	92.30	0.00	0.90	0.95	92.30	0.25	0.35	0.25	0.35	**23.08**	**32.31**
H-2	1.50	0.00	0.90	0.95	1.50	0.25	0.35	0.25	0.35	**0.38**	**0.53**
H-3	18.80	0.00	0.90	0.95	18.80	0.25	0.35	0.25	0.35	**4.70**	**6.58**
H-4	121.30	3.00	0.90	0.95	118.30	0.25	0.35	0.27	0.36	**32.28**	**44.26**
H-5	55.60	0.00	0.90	0.95	55.60	0.25	0.35	0.25	0.35	**13.90**	**19.46**
H-6	4.40	0.00	0.90	0.95	4.40	0.25	0.35	0.25	0.35	**1.10**	**1.54**
H-7	14.70	0.00	0.90	0.95	14.70	0.25	0.35	0.25	0.35	**3.68**	**5.15**

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALC'D BY:	*MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc			TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
A	0.41	0.44	0.25	20	1	4.2	550	4.0%	7.0	1.3	5.5	4.98	8.86	2	4
B	2.60	3.11	0.25	150	3	15.5	1500	2.7%	5.8	4.3	19.8	3.03	5.38	8	17
C	2.96	3.55	0.25	150	3	15.5	520	1.7%	4.6	1.9	17.4	3.23	5.74	10	20
D1	2.62	3.14	0.25	130	3	13.8	400	1.5%	4.3	1.6	15.3	3.43	6.10	9	19
D2	2.50	3.00	0.25	130	3	13.8	450	1.5%	4.3	1.7	15.5	3.41	6.06	9	18
E	2.24	2.69	0.25	150	3	15.5	380	3.4%	6.5	1.0	16.5	3.32	5.89	7	16
F	2.17	2.60	0.25	200	11	12.8					12.8	3.71	6.60	8	17
G	2.07	2.22	0.25	20	1	4.2	2650	5.0%	7.8	5.6	9.8	4.13	7.34	9	16
H	0.63	0.77	0.25	100	3	11.1	100	3.0%	6.1	0.3	11.3	3.91	6.94	2	5
I	1.24	1.59	0.25	500	18	23.3					23.3	2.79	4.95	3	8
J	1.94	2.32	0.25	300	8	19.9	750	2.2%	5.2	2.4	22.3	2.85	5.06	6	12
K	0.76	0.82	0.25	20	1	4.2	700	3.0%	6.1	1.9	6.1	4.84	8.60	4	7
L	1.87	2.21	0.25	50	1	8.9	800	2.1%	5.1	2.6	11.6	3.87	6.89	7	15
M	0.13	0.15	0.25								5.0	5.10	9.07	0.65	1.36
N	1.93	2.28	0.25	150	3	15.5	1100	2.0%	4.9	3.7	19.2	3.08	5.47	6	12
O1	3.20	3.78	0.25	150	3	15.5	1050	2.8%	5.9	3.0	18.5	3.14	5.58	10	21
O2	2.76	3.26	0.25	150	3	15.5	700	1.5%	4.3	2.7	18.2	3.16	5.62	9	18
P1	2.85	3.37	0.25	150	3	15.5	400	2.0%	4.9	1.3	16.8	3.28	5.83	9	20
P2	2.81	3.32	0.25	150	3	15.5	600	1.5%	4.3	2.3	17.8	3.19	5.67	9	19
Q	0.81	0.96	0.25	50	1	8.9	600	1.3%	4.0	2.5	11.4	3.89	6.92	3	7

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALC'D BY:	*MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc			TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
R1	1.52	1.80	0.25	130	2.6	14.4	600	4.0%	7.0	1.4	15.8	3.38	6.00	5	11
R2	2.23	2.64	0.25	130	2.6	14.4	500	4.0%	7.0	1.2	15.6	3.40	6.04	8	16
S	4.76	5.36	0.25	20	0.4	5.7	600	2.0%	4.9	2.0	7.7	4.51	8.01	21	43
T	0.57	0.61	0.25	20	1	4.2	750	1.5%	4.3	2.9	7.1	4.62	8.22	3	5
U	6.12	8.16	0.25	300	10	18.5	2000	1.5%	3.0	11.1	29.6	2.44	4.34	15	35
V1	1.20	1.68	0.25	300	13	17.0					17.0	3.27	5.81	4	10
V2	2.04	2.18	0.25	20	1	4.2	2400	6.0%	8.6	4.7	8.8	4.29	7.63	9	17
W	1.62	1.74	0.25	20	1	4.2	2150	3.0%	6.1	5.9	10.1	4.09	7.27	7	13
X	7.88	8.68	0.25	300	6	21.9	600	2.0%	4.9	2.0	23.9	2.75	4.88	22	42
Y	1.22	1.34	0.25	100	3	11.1					11.1	3.94	7.01	5	9
Z	1.58	1.87	0.25	200	5	16.6	330	1.5%	4.3	1.3	17.9	3.19	5.66	5	11
AA	1.76	2.08	0.25	200	5	16.6	370	2.5%	5.5	1.1	17.7	3.20	5.69	6	12
BB	1.24	1.47	0.25	100	4	10.1					10.1	4.09	7.28	5	11
CC	1.14	1.35	0.25	300	12	17.4					17.4	3.23	5.74	4	8
DD1	3.33	4.28	0.25	180	4	16.4	500	2.5%	5.5	1.5	17.9	3.19	5.66	11	24
DD2	1.31	1.69	0.25	180	4	16.4	360	3.0%	6.1	1.0	17.4	3.23	5.74	4	10
EE	1.76	2.11	0.25	50	1	8.9	1350	2.5%	5.5	4.1	13.0	3.69	6.56	6	14
FF	0.31	0.33	0.25								5.0	5.10	9.07	2	3
GG	2.71	3.48	0.25	180	4	16.4	900	3.2%	6.3	2.4	18.8	3.11	5.53	8	19
HH	3.22	3.86	0.25	130	2.6	14.4	850	1.8%	4.7	3.0	17.4	3.23	5.74	10	22
II	1.83	2.19	0.25	150	3	15.5	250	2.6%	5.6	0.7	16.2	3.34	5.94	6	13

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALC'D BY:	*MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED CA(5)	WEIGHTED CA(100)	OVERLAND C(5)	OVERLAND Length (ft)	OVERLAND Height (ft)	OVERLAND Tc (min)	STREET / CHANNEL FLOW Length (ft)	STREET / CHANNEL FLOW Slope (%)	STREET / CHANNEL FLOW Velocity (fps)	STREET / CHANNEL FLOW Tc (min)	Tc TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	TOTAL FLOWS Q(5) (cfs)	TOTAL FLOWS Q(100) (cfs)
JJ	0.42	0.50	0.25	50	1	8.9	300	2.6%	5.6	0.9	9.8	4.13	7.34	2	4
KK	0.37	0.40	0.25	20	1	4.2	400	1.5%	4.3	1.6	5.7	4.92	8.75	2	4
LL	1.45	1.52	0.25	20	1	4.2	1100	1.5%	4.3	4.3	8.5	4.36	7.75	6	12
MM1	1.94	2.33	0.25	140	2.8	15.0	460	4.0%	7.0	1.1	16.1	3.35	5.96	7	14
MM2	1.70	2.04	0.25	100	4	10.1					10.1	4.09	7.28	7	15
NN	0.78	0.85	0.25	20	1	4.2	650	1.5%	4.3	2.5	6.7	4.70	8.36	4	7
OO	8.73	11.64	0.25	300	10	18.5	2200	2.0%	3.5	10.5	29.0	2.47	4.39	22	51
PP	0.59	0.79	0.25	250	15	13.9					13.9	3.58	6.37	2	5
QQ1	2.04	2.67	0.25	220	4.4	18.8	400	3.0%	6.1	1.1	19.9	3.03	5.38	6	14
QQ2	1.73	2.27	0.25	220	4.4	18.8	300	1.5%	4.3	1.2	19.9	3.02	5.37	5	12
RR	2.10	2.52	0.25	150	6	12.3	200	3.0%	6.1	0.5	12.9	3.70	6.59	8	17
SS	2.22	2.72	0.25	170	3.4	16.5	800	3.9%	6.9	1.9	18.4	3.14	5.58	7	15
TT	1.40	1.80	0.25	80	1.6	11.3	1350	1.6%	4.4	5.1	16.4	3.32	5.91	5	11
UU	3.83	4.92	0.25	200	4	17.9	1100	1.6%	4.4	4.1	22.0	2.87	5.10	11	25
VV1	1.07	1.38	0.25	180	3.6	17.0	150	1.5%	4.3	0.6	17.5	3.22	5.72	3	8
VV2	0.86	1.11	0.25	180	3.6	17.0	475	2.5%	5.5	1.4	18.4	3.14	5.59	3	6
WW1	1.52	1.95	0.25	180	3.6	17.0	950	2.0%	4.9	3.2	20.2	3.00	5.34	5	10
WW2	4.27	5.49	0.25	180	3.6	17.0	1300	2.0%	4.9	4.4	21.3	2.92	5.18	12	28
WW3	1.91	2.46	0.25	180	3.6	17.0	750	1.5%	4.3	2.9	19.9	3.02	5.37	6	13
WW4	5.80	7.46	0.25	180	3.6	17.0	1500	2.0%	4.9	5.1	22.0	2.87	5.10	17	38

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALC'D BY:	*MAW*

PRELIMINARY DRAINAGE REPORT ~ BASIN RUNOFF SUMMARY

BASIN	WEIGHTED		OVERLAND				STREET / CHANNEL FLOW				Tc			TOTAL FLOWS	
	CA(5)	CA(100)	C(5)	Length (ft)	Height (ft)	Tc (min)	Length (ft)	Slope (%)	Velocity (fps)	Tc (min)	TOTAL (min)	I(5) (in/hr)	I(100) (in/hr)	Q(5) (cfs)	Q(100) (cfs)
XX	1.91	2.45	0.25	100	2	12.6	1150	2.4%	5.4	3.5	16.2	3.34	5.94	6	15
YY	0.65	0.83	0.25	300	15	16.2					16.2	3.34	5.94	2	5
ZZ	2.20	2.94	0.25	300	4	25.0					25.0	2.68	4.76	6	14
AAA	2.69	3.58	0.25	1000	32	34.2					34.2	2.24	3.99	6	14
BBB	0.20	0.23	0.25	30	1.5	5.1	200	2.0%	4.9	0.7	5.8	4.91	8.73	1	2
OS-1	2.97	3.96	0.25	300	6	21.9	200	1.5%	3.0	1.1	23.0	2.80	4.98	8	20
OS-2	2.16	2.88	0.25	300	6	21.9	250	1.5%	3.0	1.4	23.3	2.78	4.95	6	14
OS-3	5.94	7.92	0.25	300	6	21.9	600	1.5%	3.0	3.3	25.2	2.67	4.74	16	38
OS-4	2.76	3.68	0.25	300	6	21.9	250	1.5%	3.0	1.4	23.3	2.78	4.95	8	18
OS-5	13.83	18.44	0.25	300	5	23.3	1000	1.5%	3.0	5.6	28.8	2.50	4.30	35	79
H-1	23.08	32.31	0.25	1000	34	33.6	2000	2.5%	4.0	8.3	41.9	1.84	3.34	42	108
H-2	0.38	0.53	0.25	300	15	16.2					16.2	3.34	5.94	1	3
H-3	4.70	6.58	0.25	940	31	32.9					32.9	2.30	4.09	11	27
H-4	32.28	44.26	0.25	1000	34	33.6	1600	2.0%	3.5	7.6	41.2	2.01	3.57	65	158
H-5	13.90	19.46	0.25	1000	51	29.4	700	2.0%	3.5	3.3	32.7	2.31	4.10	32	80
H-6	1.10	1.54	0.25	370	13	20.2					20.2	3.00	5.33	3	8
H-7	3.68	5.15	0.25	750	28	28.2					28.2	2.51	4.46	9	23

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/26/04*
CALCULATED BY:	*MAW*

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Inlet Size
1	A, B	3.01	3.56	19.8	3.0	5.4	9	19	8' TYPE R
2A	D1	2.62	3.14	15.3	3.4	6.1	9	19	14' TYPE R
2B	C, D2, DP2A Flowby	6.03	7.68	18.9	3.1	5.5	19	42	20' TYPE R
3	E, F, G	6.48	7.52	22.1	2.9	5.1	19	38	Exist. 14' TYPE R
4	H	0.63	0.77	11.3	3.9	6.9	2	5	18" CHASE
4A	L	1.87	2.21	11.6	3.9	6.9	7	15	6' TYPE R
4B	J	1.94	2.32	22.3	2.8	5.1	6	12	4' TYPE R
5	H, I, K, DP3 Flowby	5.41	7.69	24.8	2.7	4.8	15	37	Exist. 18' TYPE R
6A	O1, T	3.76	4.39	18.5	3.1	5.6	12	24	14' TYPE R
6B	O2, DP6A Flowby	4.03	5.23	18.2	3.2	5.6	13	29	12' TYPE R
7	N	1.93	2.28	19.2	3.1	5.5	6	12	4' TYPE R
8A	P1	2.85	3.37	16.8	3.3	5.8	9	20	14' TYPE R
8B	P2, DP8A Flowby	3.72	4.69	17.8	3.2	5.7	12	27	12' TYPE R
9	Q	0.81	0.96	11.4	3.9	6.9	3	7	4' TYPE R

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/26/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Inlet Size
					I(5)	I(100)	Q(5)	Q(100)	
10A	R1	1.52	1.80	15.8	3.4	6.0	5	11	14' TYPE R
10B	R2, DP10A Flowby	2.53	3.31	15.6	3.4	6.0	9	20	10' TYPE R
11	S	4.76	5.36	7.7	4.5	8.0	21	43	N/A
12	M, V2	2.16	2.33	8.8	4.3	7.6	9	18	Exist. 8' TYPE R
13	W, 3/4 X	7.53	8.25	23.9	2.7	4.9	21	40	Exist. 14' TYPE R
14	AA	1.76	2.08	17.7	3.2	5.7	6	12	4' TYPE R
14A	AA, BB	3.00	3.55	18.2	3.2	5.6	9	20	Exist. channel
15	Y, 1/4 X	3.19	3.51	16.0	3.4	6.0	11	21	Exist. 24" RCP
16A	DD1	3.33	4.28	17.9	3.2	5.7	11	24	14' TYPE R
16B	DD2, DP16A Flowby	2.25	3.63	17.4	3.2	5.7	7	21	6' TYPE R
17	EE	1.76	2.11	13.0	3.7	6.6	6	14	4' TYPE R
18	FF, GG	3.01	3.81	18.8	3.1	5.5	9	21	8' TYPE R
19	HH	3.22	3.86	17.4	3.2	5.7	10	22	10' TYPE R
20	II, KK	2.20	2.59	16.2	3.3	5.9	7	15	6' TYPE R

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/26/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Inlet Size
21	JJ	0.42	0.50	9.8	4.1	7.3	2	4	4' TYPE R
22A	MM1	1.94	2.33	16.1	3.4	6.0	7	14	14' TYPE R
22B	MM2, LL, DP22A Flowby	3.45	4.40	18.1	3.2	5.6	11	25	Exist. 12' TYPE R
23	NN	0.78	0.85	6.7	4.7	8.4	4	7	Exist. 6' TYPE R
24	RR	2.10	2.52	12.9	3.7	6.6	8	17	6' TYPE R
25	SS	2.22	2.72	18.4	3.1	5.6	7	15	6' TYPE R
26A	QQ1, 0S-4	4.80	6.35	28.3	2.5	4.5	12	28	14' TYPE R
26B	QQ2, 0S-2, DP22A Flowby	5.49	7.85	28.3	2.5	4.5	14	35	14' TYPE R
27	TT	1.40	1.80	16.4	3.3	5.9	5	11	4' TYPE R
28	UU	3.83	4.92	22.0	2.9	5.1	11	25	10' TYPE R
29A	WW1	1.52	1.95	20.2	3.0	5.3	5	10	14' TYPE R
29B	WW2	4.27	5.49	21.3	2.9	5.2	12	28	14' TYPE R

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/26/04*
CALCULATED BY: *MAW*

PRELIMINARY DRAINAGE REPORT ~ SURFACE ROUTING SUMMARY

Design Point(s)	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Inlet Size
29C	WW3, OS-1	4.88	6.42	28.0	2.5	4.5	12	29	14' TYPE R
29D	WW4, DP29A-C Flowby	9.09	14.05	31.0	2.4	4.2	22	59	26' TYPE R
30	XX	1.91	2.45	16.2	3.3	5.9	6	15	4' TYPE R
31A	VV1	1.07	1.38	17.5	3.2	5.7	3	8	14' TYPE R
31B	VV2, BBB, DP31A Flowby	1.07	1.69	18.4	3.1	5.6	3	9	N/A
32	PIPE RUNS 25, 31, 33 & BASIN OO	21.09	26.44	30.5	2.4	4.3	51	113	Exist. Dual 36" RCP
33	Release from DP22B, DP23, DP32, Pipe Runs 4, 12, 30 & Basin U	59.74	73.78	41.1	2.0	3.5	116	255	Prop. Dual 42" RCP
34	Release from DP33, PIPE RUNS 6, 21 & Basin V1	77.48	95.45	41.1	2.0	3.5	151	329	Exist. Dual 42" RCP
35	PIPE RUN 48, Basins YY & ZZ	42.16	54.71	37.3	2.1	3.8	90	207	N/A
H1	OS-5, H-1	36.91	50.75	41.9	1.8	3.3	68	169	N/A
H2	H-4, H-5	46.18	63.72	41.2	2.0	3.6	93	227	N/A

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE.
REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
1	DP2A Pickup	2.05	2.01	15.3	3.43	6.10	7	12	24"
2	DP2B	6.03	7.68	18.9	3.10	5.52	19	42	30"
3	DP1, DP2B	9.04	11.24	19.8	3.03	5.38	27	60	36"
4	PIPE RUNS 1 & 3	11.09	13.25	20.0	3.01	5.35	33	71	42"
5	DP4B	1.94	2.32	22.3	2.85	5.06	6	12	24"
6	DP4A, DP4B	3.81	4.53	22.3	2.85	5.06	11	23	24"
7	DP6A Pickup	2.49	2.42	18.5	3.14	5.58	8	13	24"
8	DP8A Pickup	1.94	2.00	16.8	3.28	5.83	6	12	24"
9	PIPE RUNS 7 & 8	4.43	4.42	18.7	3.12	5.55	14	25	30"
10	DP6B	4.03	5.23	18.2	3.16	5.62	13	29	30"
11	DP6B, DP7	5.96	7.51	19.2	3.08	5.47	18	41	30"
12	PIPE RUNS 9 & 11	10.39	11.93	19.2	3.08	5.47	32	65	36"
13	DP11	4.76	5.36	7.7	4.51	8.01	21	43	36"

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE. REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
14	DP15	3.19	3.51	16.0	3.36	5.97	11	21	24"
15	DP11, DP15	7.95	8.87	16.2	3.34	5.94	27	53	36"
16	DP10A Pickup	1.22	1.13	15.8	3.38	6.00	4	7	18"
17	DP8B	3.72	4.69	17.8	3.19	5.67	12	27	30"
18	DP8B, DP9	4.53	5.65	18.0	3.17	5.64	14	32	30"
19	PIPE RUNS 15, 16, 18	13.70	15.64	18.0	3.17	5.64	43	88	42"
20	DP10B	2.53	3.31	15.6	3.40	6.04	9	20	24"
21	PIPE RUNS 19 & 20	16.23	18.95	19.0	3.09	5.50	50	104	48"
22	DP14	1.76	2.08	17.7	3.20	5.69	6	12	24"
23	DP16A Pickup	2.39	2.34	17.9	3.19	5.66	8	13	24"
24	DP16A, DP16B	4.64	5.97	18.9	3.10	5.51	14	33	30"
25	DP17, PIPE RUN 24	6.40	8.07	19.1	3.09	5.49	20	44	36"
26	DP18	3.01	3.81	18.8	3.11	5.53	9	21	24"

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE. REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		Pipe Size*
					I(5)	I(100)	Q(5)	Q(100)	
27	DP18, DP19	6.23	7.67	19.0	3.09	5.50	19	42	30"
28	DP20	2.20	2.59	16.2	3.34	5.94	7	15	24"
29	DP20, DP21	2.61	3.09	16.4	3.32	5.90	9	18	24"
30	PIPE RUNS 27 & 29	8.84	10.76	16.4	3.32	5.90	29	63	36"
31	DP22A Pickup	1.64	1.49	16.1	3.35	5.96	6	9	18"
32	DP24	2.10	2.52	12.9	3.70	6.59	8	17	24"
33	DP24, DP25	4.32	5.24	18.4	3.14	5.58	14	29	30"
34	DP26A Pickup	3.20	3.65	28.3	2.50	4.45	8	16	24"
35	OS-3	5.94	7.92	21.9	2.88	5.11	17	41	30"
36	PIPE RUNS 34 & 35	9.14	11.57	28.7	2.48	4.42	23	51	36"
37	PIPE RUN 36, DP26B	14.63	19.42	29.2	2.46	4.37	36	85	42"
38	DP28	3.83	4.92	22.0	2.87	5.10	11	25	30"
39	DP27	1.40	1.80	16.4	3.32	5.91	5	11	18"

JOB NAME: *PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER: *2053.20*
DATE: *10/01/04*
CALCULATED BY: *MAW*

* PIPES ARE LISTED AT MAXIMUM SIZE REQUIRED TO ACCOMMODATE Q100 FLOWS AT MINIMUM GRADE. REFER TO INDIVIDUAL PIPE SHEETS FOR HYDRAULIC INFORMATION.

FINAL DRAINAGE REPORT ~ PIPE ROUTING SUMMARY

Pipe Run	Contributing Basins	Equivalent CA(5)	Equivalent CA(100)	Maximum Tc	Intensity		Flow		
					I(5)	I(100)	Q(5)	Q(100)	Pipe Size*
40	PIPE RUNS 37, 38, 39	19.86	26.14	31.2	2.37	4.21	47	110	48"
41	DP29A Pickup	1.19	1.39	20.2	3.00	5.34	4	7	18"
42	DP31A Pickup	1.07	1.03	17.5	3.22	5.72	3	6	18"
43	PIPE RUNS 40, 41, 42	22.12	28.56	31.6	2.35	4.18	52	119	48"
44	DP29B Pickup	2.90	2.59	21.3	2.92	5.18	8	13	24"
45	PIPE RUNS 43 & 44	25.02	31.15	32.6	2.31	4.11	58	128	48"
46	DP29C Pickup	3.29	3.29	28.0	2.52	4.48	8	15	24"
47	PIPE RUNS 45 & 46, DP29D	37.40	48.49	32.8	2.30	4.09	86	198	54"
48	PIPE RUN 47, DP30	39.31	50.94	32.8	2.30	4.09	90	208	54"

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **1**

Total Flow:

Q_5 = **9** cfs

Q_{100} = **19** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **8** foot inlet required

100-Year Event: **6** foot inlet required

(Install 8' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 2A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.015 ft/ft

z = 1/s

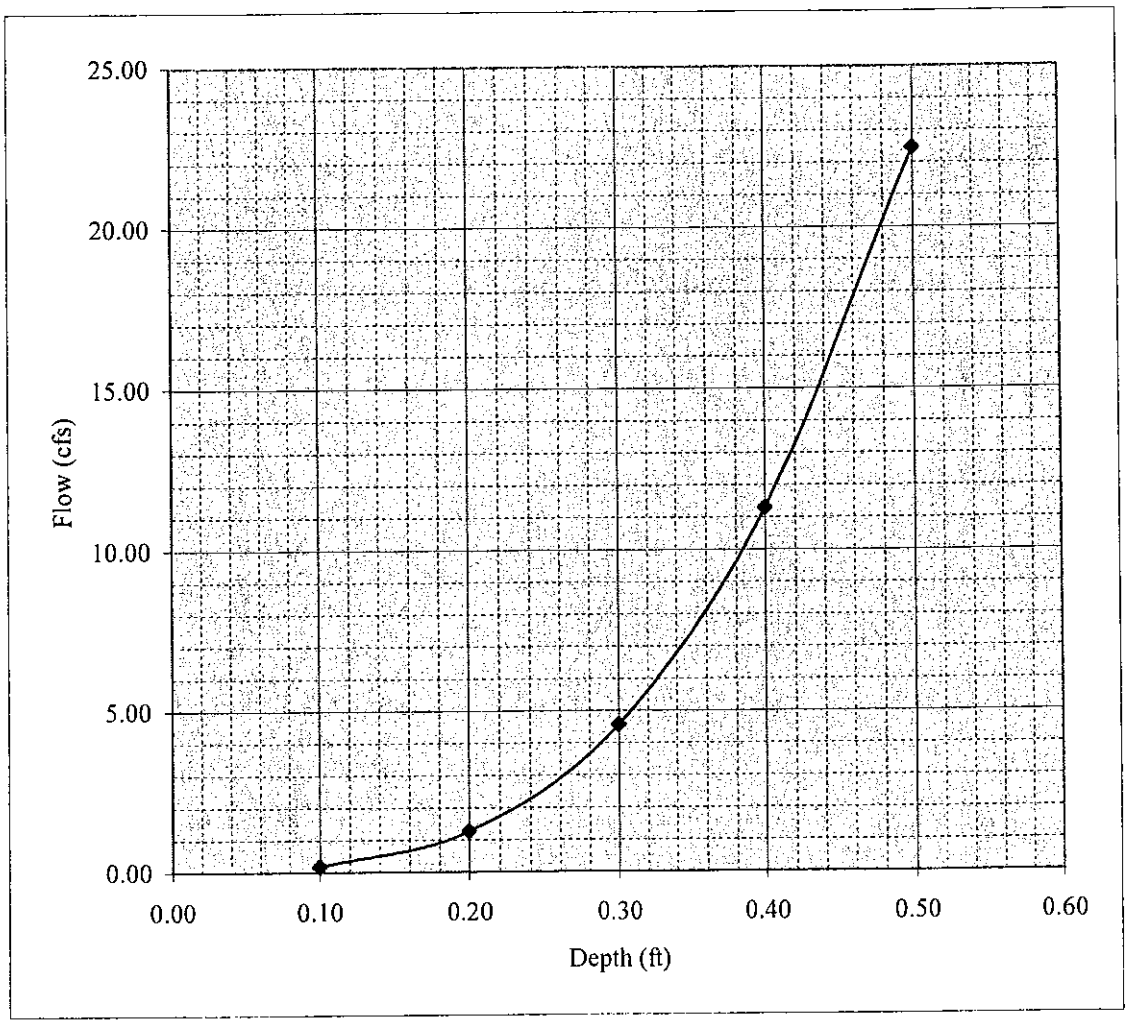
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 2A **100 YEAR FLOW**

Q(100)	19	I(100)	6.2		
DEPTH	0.47	Fr	1.64	Inlet size ? L(i) =	14
SPREAD	17.0	L(1)	21.5	If Li < L(2) then Qi =	12
CROSS SLOPE	2.0%	L(2)	12.9	If Li > L(2) then Qi =	12
STREET SLOPE	1.5%	L(3)	46.0	FB =	7
				CA(eqv.)=	1.13

5 YEAR FLOW

Q(5)	9	I(5)	3.5		
DEPTH	0.37	Fr	1.54	Inlet size ? L(i) =	14
SPREAD	12.3	L(1)	14.5	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	8.7	If Li > L(2) then Qi =	7
STREET SLOPE	1.5%	L(3)	31.1	FB =	2
				CA(eqv.)=	0.57

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 2B

Total Flow:

Q_5 = **19** cfs

Q_{100} = **42** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

Qi = 1.7(Li+1.8(W))(dmax + a)^1.85

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **20** foot inlet required

100-Year Event: **16** foot inlet required

(Install 20' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 3

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.02 ft/ft

z = 1/s

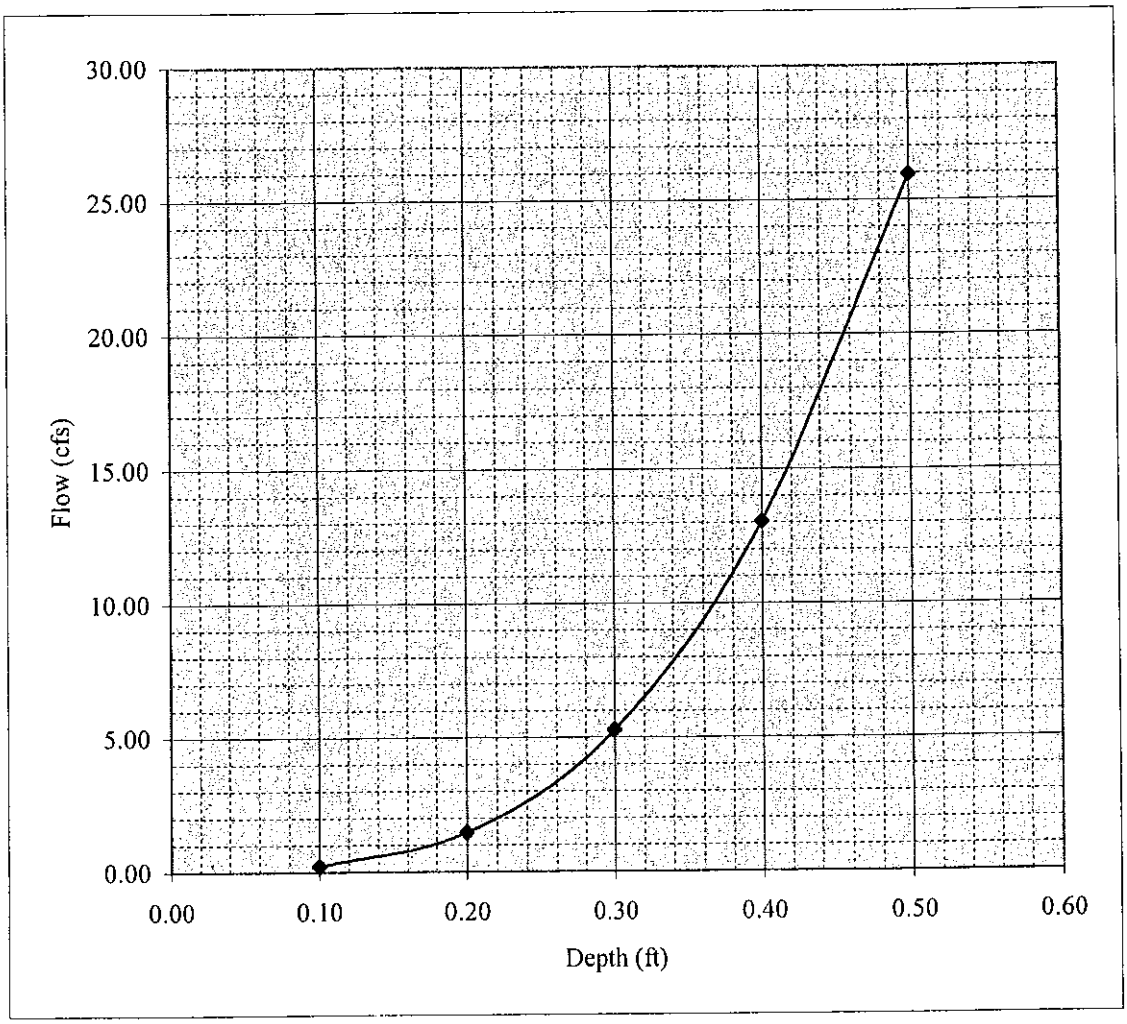
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.21
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.46
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		5.26
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		13.04
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		25.94



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 3 **100 YEAR FLOW**

Q(100)	38	I(100)	5.1		
DEPTH	0.58	Fr	2.00	Inlet size ? L(i) =	14
SPREAD	22.5	L(1)	34.6	If Li < L(2) then Qi =	15
CROSS SLOPE	2.0%	L(2)	20.8	If Li > L(2) then Qi =	20
STREET SLOPE	2.0%	L(3)	74.1	FB =	23
				CA(eqv.)=	4.52

5 YEAR FLOW

Q(5)	19	I(5)	2.9		
DEPTH	0.45	Fr	1.88	Inlet size ? L(i) =	14
SPREAD	16.3	L(1)	23.5	If Li < L(2) then Qi =	11
CROSS SLOPE	2.0%	L(2)	14.1	If Li > L(2) then Qi =	11
STREET SLOPE	2.0%	L(3)	50.4	FB =	8
				CA(eqv.)=	2.79

Worksheet
Worksheet for Rectangular Channel

Project Description	
Worksheet	DP4
Flow Element	Rectangular Cha
Method	Manning's Formu
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.013	
Slope	020000	ft/ft
Bottom Width	1.50	ft
Discharge	5.00	cfs

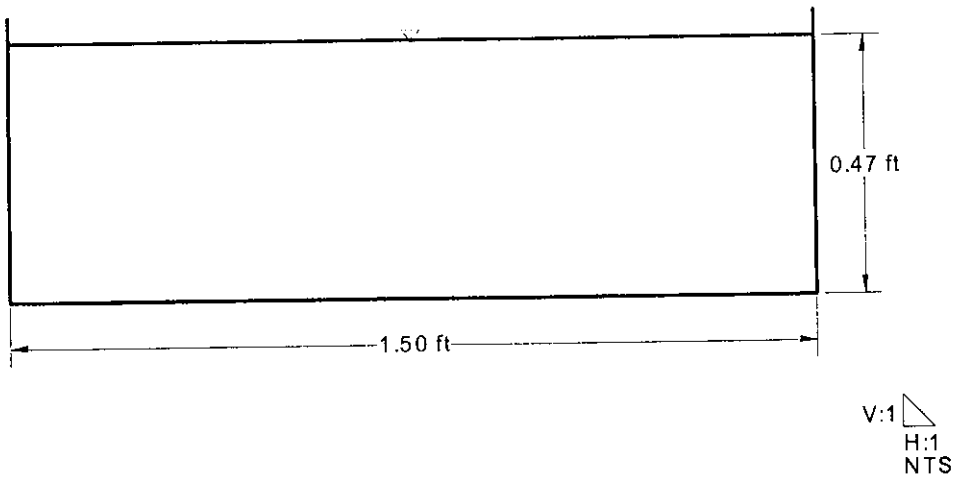
Results		
Depth	0.47	ft
Flow Area	0.7	ft²
Wetted Perimu	2.44	ft
Top Width	1.50	ft
Critical Depth	0.70	ft
Critical Slope	0.006685	ft/ft
Velocity	7.07	ft/s
Velocity Head	0.78	ft
Specific Energ	1.25	ft
Froude Numb	1.82	
Flow Type	Supercritical	

Classic Consulting, Engineering, and Surveying
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Cross Section
Cross Section for Rectangular Channel

Project Description	
Worksheet	DP4
Flow Element	Rectangular Cha
Method	Manning's Formu
Solve For	Channel Depth

Section Data		
Mannings Coeffic	0.013	
Slope	020000	ft/ft
Depth	0.47	ft
Bottom Width	1.50	ft
Discharge	5.00	cfs



Classic Consulting, Engineering, and Surveying
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **4A**

Total Flow: Q_5 = 7 cfs

Q_{100} = 15 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **6** foot inlet required

100-Year Event: **4** foot inlet required

(Install 6' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **4B**

Total Flow:

Q_5 = **6** cfs

Q_{100} = **12** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: [4] foot inlet required

100-Year Event: [4] foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **5**

Total Flow: Q_5 = **15** cfs

Q_{100} = **37** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **16** foot inlet required

100-Year Event: **14** foot inlet required

(Exist. 18' Type R sump inlet installed to accept both the 5yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 6A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.02 ft/ft

z = 1/s

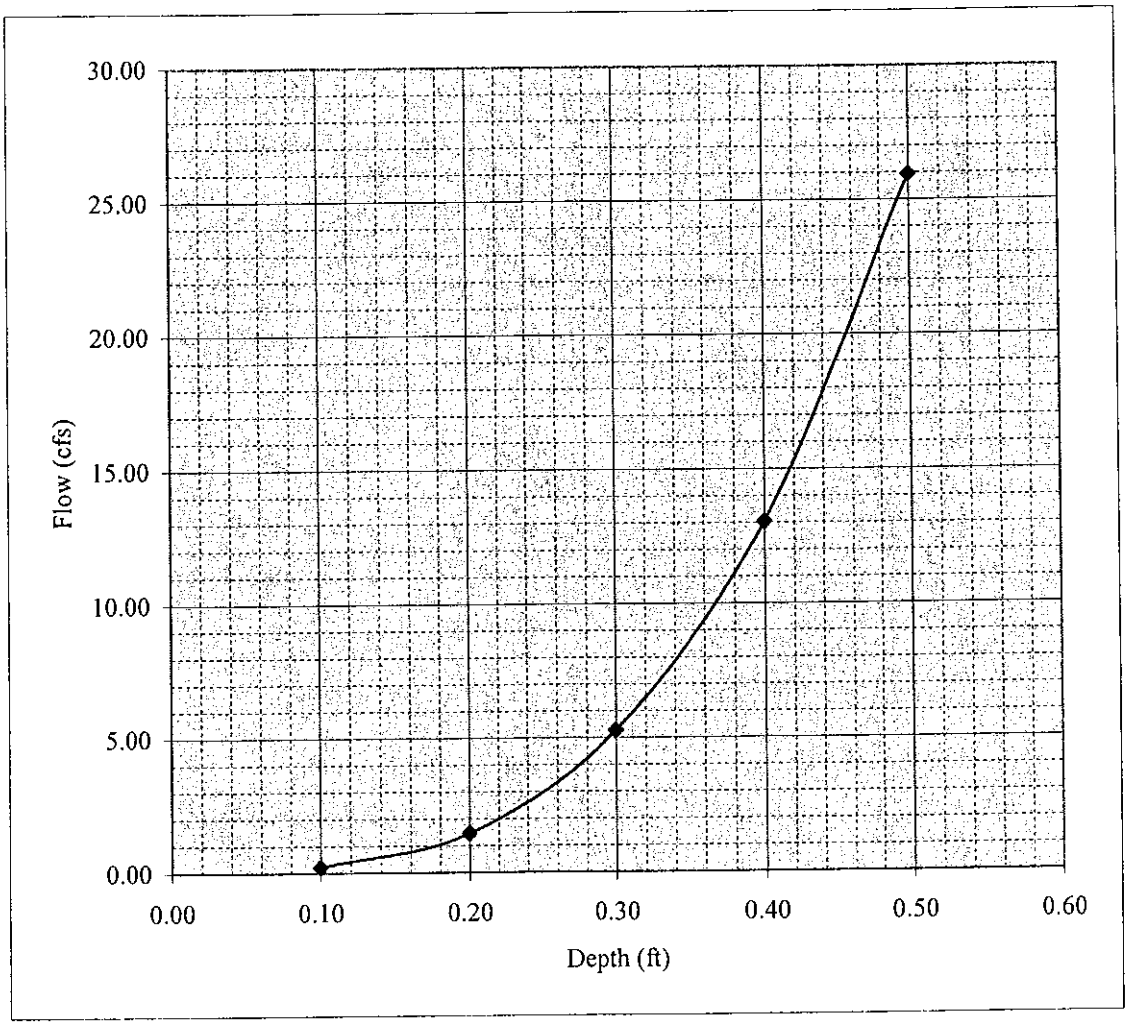
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.21
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.46
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		5.26
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		13.04
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		25.94



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 6A **100 YEAR FLOW**

Q(100)	24	I(100)	5.6		
DEPTH	0.48	Fr	1.91	Inlet size ? L(i) =	14
SPREAD	17.5	L(1)	25.7	If Li < L(2) then Qi =	13
CROSS SLOPE	2.0%	L(2)	15.4	If Li > L(2) then Qi =	14
STREET SLOPE	2.0%	L(3)	55.0	FB =	11
				CA(eqv.)=	1.97

5 YEAR FLOW

Q(5)	12	I(5)	3.1		
DEPTH	0.39	Fr	1.81	Inlet size ? L(i) =	14
SPREAD	13.3	L(1)	18.4	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	11.1	If Li > L(2) then Qi =	8
STREET SLOPE	2.0%	L(3)	39.5	FB =	4
				CA(eqv.)=	1.27

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 6B

Total Flow:

Q_5 = **13** cfs

Q_{100} = **29** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **12** foot inlet required

100-Year Event: **10** foot inlet required

(Install 12' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 7

Total Flow:

Q_5 = **6** cfs

Q_{100} = **12** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 4 foot inlet required

100-Year Event: 4 foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 8A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.02 ft/ft

z = 1/s

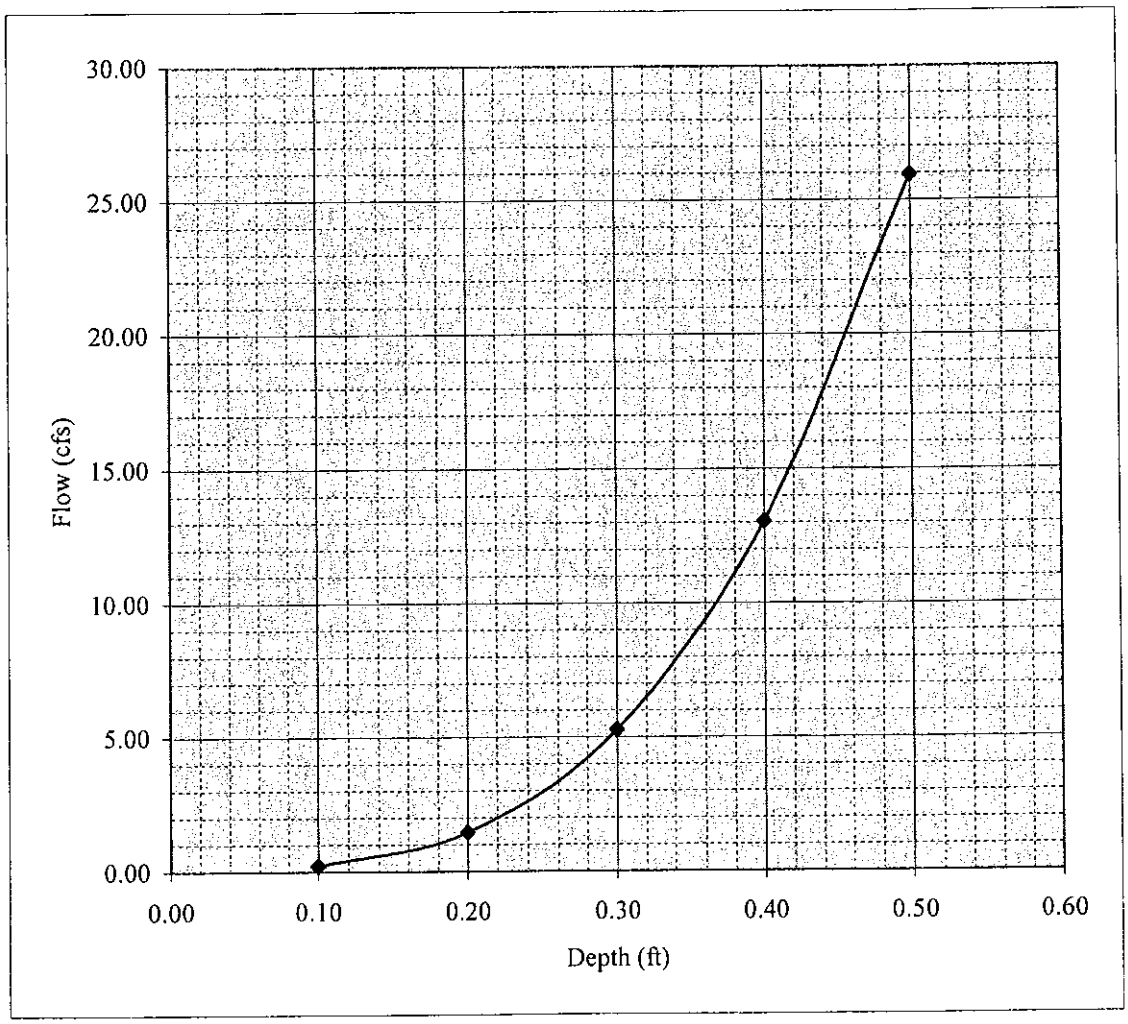
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.21
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.46
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		5.26
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		13.04
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		25.94



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 8A **100 YEAR FLOW**

Q(100)	20	I(100)	5.8		
DEPTH	0.46	Fr	1.88	Inlet size ? L(i) =	14
SPREAD	16.5	L(1)	23.9	If Li < L(2) then Qi =	12
CROSS SLOPE	2.0%	L(2)	14.4	If Li > L(2) then Qi =	12
STREET SLOPE	2.0%	L(3)	51.3	FB =	8
				CA(eqv.)=	1.37

5 YEAR FLOW

Q(5)	9	I(5)	3.3		
DEPTH	0.35	Fr	1.75	Inlet size ? L(i) =	14
SPREAD	11.3	L(1)	15.1	If Li < L(2) then Qi =	8
CROSS SLOPE	2.0%	L(2)	9.1	If Li > L(2) then Qi =	6
STREET SLOPE	2.0%	L(3)	32.4	FB =	3
				CA(eqv.)=	0.91

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 8B

Total Flow:

Q_5 = **12** cfs

Q_{100} = **27** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **12** foot inlet required

100-Year Event: **10** foot inlet required

(Install 12' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **9**

Total Flow:

Q_5 = 3 cfs

Q_{100} = 7 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 4 foot inlet required

100-Year Event: 4 foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 10A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.033 ft/ft

z = 1/s

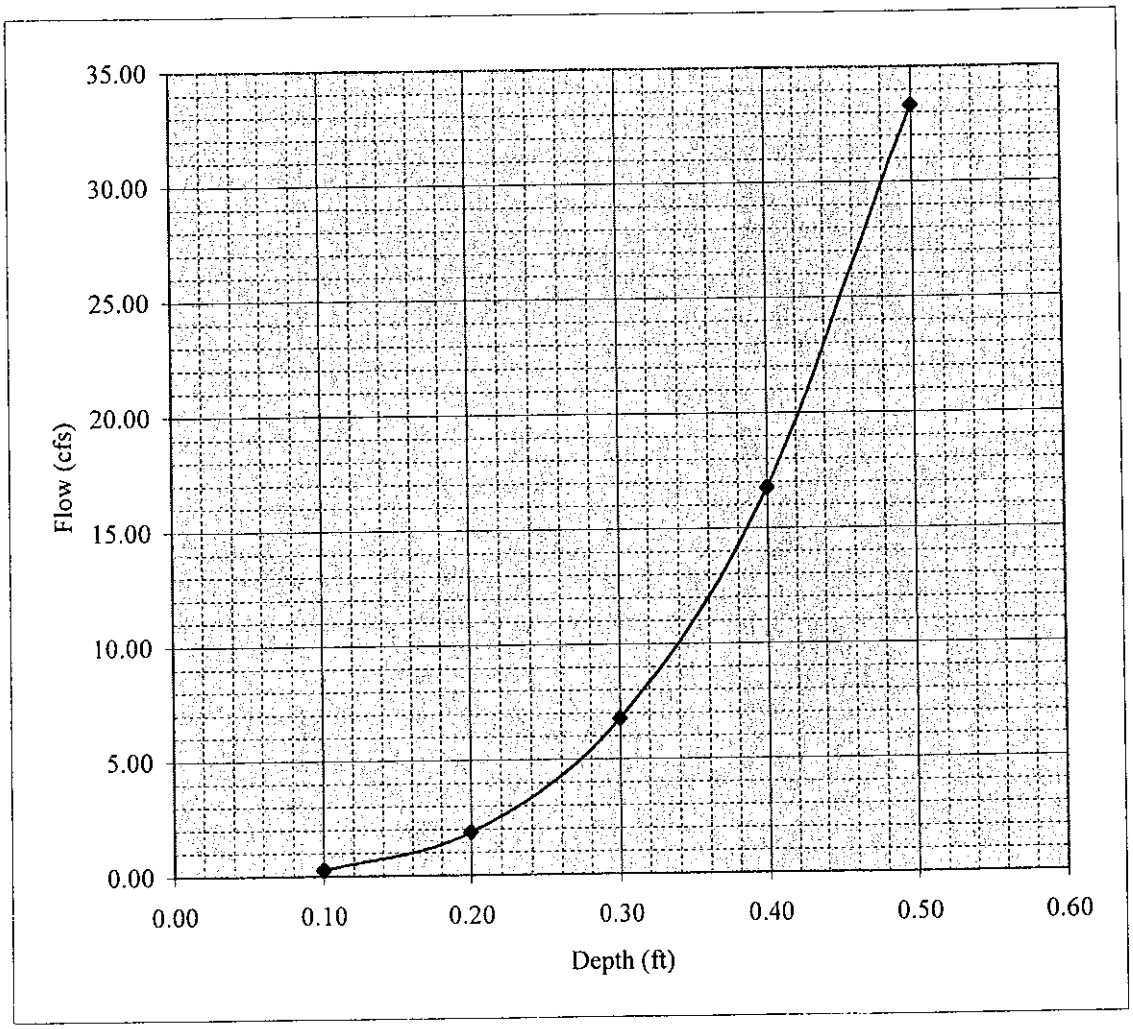
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.27
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.87
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		6.76
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		16.74
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		33.31



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 10A **100 YEAR FLOW**

Q(100)	11	I(100)	6.0		
DEPTH	0.35	Fr	2.24	Inlet size ? L(i) =	14
SPREAD	11.0	L(1)	18.9	If Li < L(2) then Qi =	8
CROSS SLOPE	2.0%	L(2)	11.4	If Li > L(2) then Qi =	7
STREET SLOPE	3.3%	L(3)	40.6	FB =	4
				CA(eqv.)=	0.67

5 YEAR FLOW

Q(5)	5	I(5)	3.4		
DEPTH	0.28	Fr	2.07	Inlet size ? L(i) =	14
SPREAD	7.8	L(1)	12.4	If Li < L(2) then Qi =	6
CROSS SLOPE	2.0%	L(2)	7.4	If Li > L(2) then Qi =	4
STREET SLOPE	3.3%	L(3)	26.5	FB =	1
				CA(eqv.)=	0.30

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 10B

Total Flow:

Q_5 = **9** cfs

Q_{100} = **20** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 0.83 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **8** foot inlet required

100-Year Event: **10** foot inlet required

(Install 10' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **12**

Total Flow:

Q_5 = **9** cfs

Q_{100} = **18** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **8** foot inlet required

100-Year Event: **6** foot inlet required

(Exist. 8' Type R sump inlet installed to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 13

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.02 ft/ft

z = 1/s

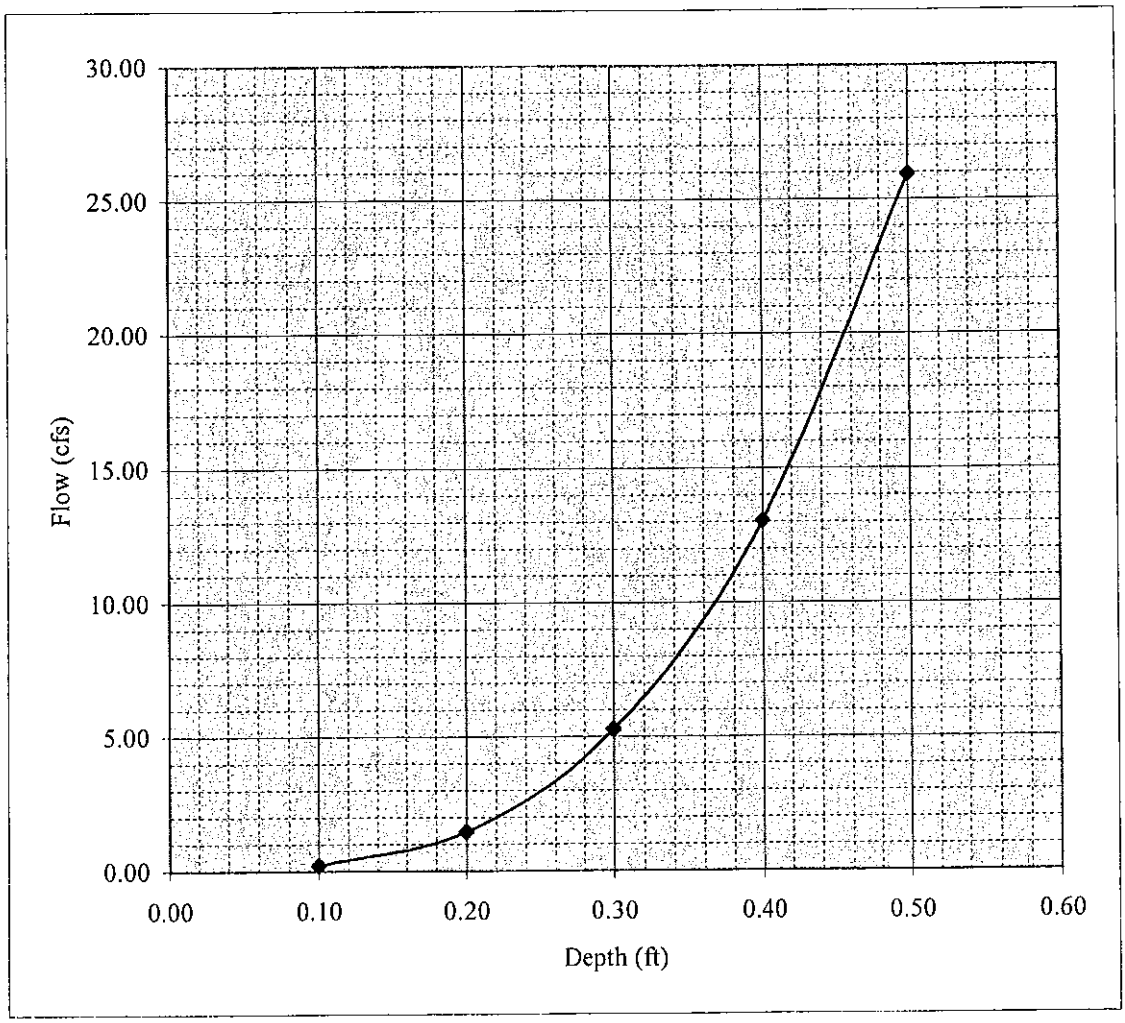
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.21
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.46
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		5.26
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		13.04
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		25.94



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 13 **100 YEAR FLOW**

Q(100)	40	I(100)	4.5		
DEPTH	0.60	Fr	2.01	Inlet size ? L(i) =	14
SPREAD	23.5	L(1)	36.4	If Li < L(2) then Qi =	15
CROSS SLOPE	2.0%	L(2)	21.9	If Li > L(2) then Qi =	20
STREET SLOPE	2.0%	L(3)	78.0	FB =	25
				CA(eqv.)=	5.56

5 YEAR FLOW

Q(5)	21	I(5)	2.6		
DEPTH	0.50	Fr	1.93	Inlet size ? L(i) =	14
SPREAD	18.8	L(1)	27.9	If Li < L(2) then Qi =	11
CROSS SLOPE	2.0%	L(2)	16.7	If Li > L(2) then Qi =	12
STREET SLOPE	2.0%	L(3)	59.7	FB =	10
				CA(eqv.)=	3.85

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 14

Total Flow:

Q_5 = 6 cfs

Q_{100} = 12 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 4 foot inlet required

100-Year Event: 4 foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 16A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.015 ft/ft

z = 1/s

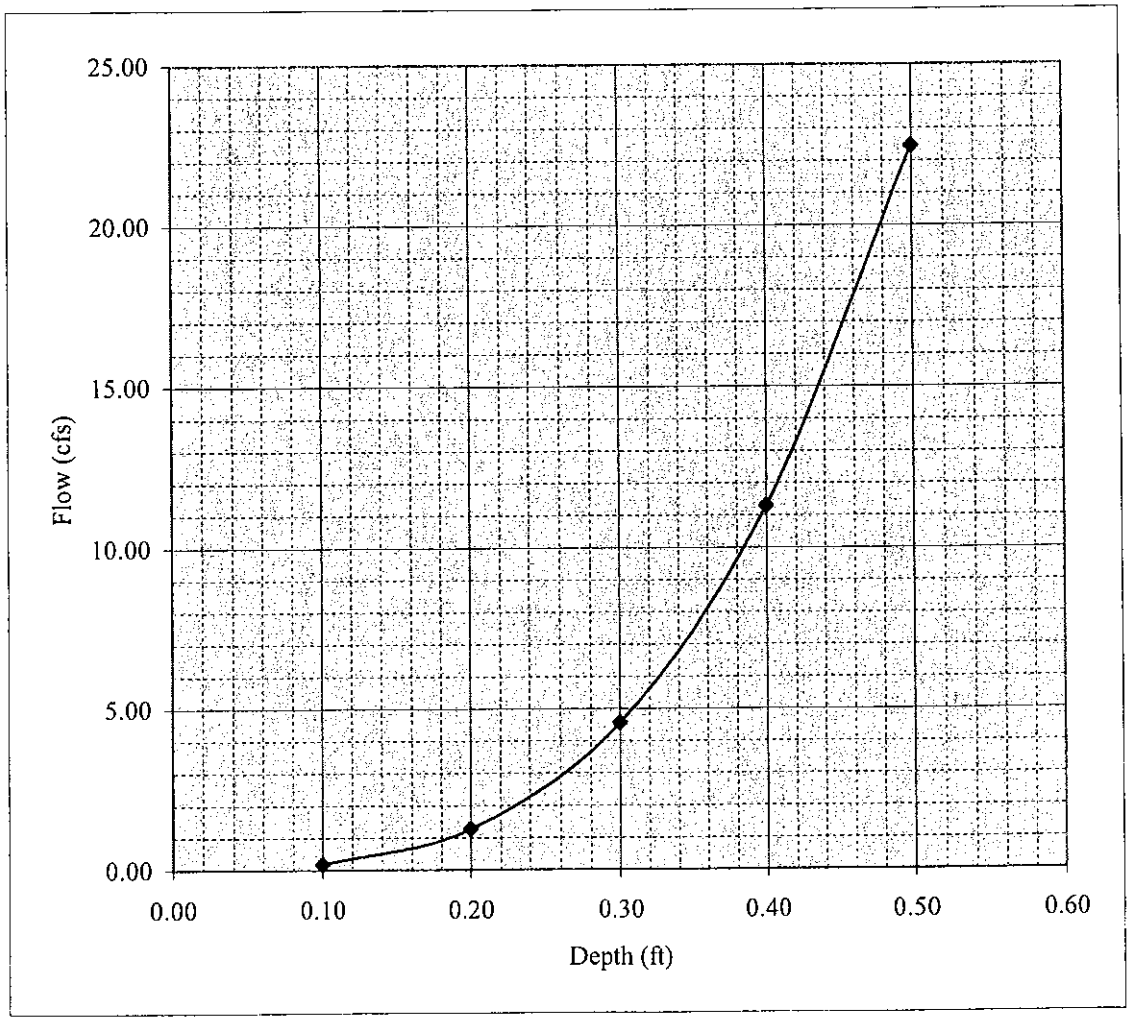
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 16A **100 YEAR FLOW**

Q(100)	24	I(100)	5.7		
DEPTH	0.52	Fr	1.68	Inlet size ? L(i) =	14
SPREAD	19.5	L(1)	25.3	If Li < L(2) then Qi =	13
CROSS SLOPE	2.0%	L(2)	15.2	If Li > L(2) then Qi =	14
STREET SLOPE	1.5%	L(3)	54.2	FB =	11
				CA(eqv.)=	1.94

5 YEAR FLOW

Q(5)	11	I(5)	3.2		
DEPTH	0.40	Fr	1.58	Inlet size ? L(i) =	14
SPREAD	13.8	L(1)	16.7	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	10.0	If Li > L(2) then Qi =	8
STREET SLOPE	1.5%	L(3)	35.7	FB =	3
				CA(eqv.)=	0.94

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 16B

Total Flow:

Q_5 = 7 cfs

Q_{100} = **21** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **6** foot inlet required

100-Year Event: **6** foot inlet required

(Install 6' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 17

Total Flow: Q_5 = 6 cfs

Q_{100} = 14 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 4 foot inlet required

100-Year Event: 4 foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 18

Total Flow:

Q_5 = 9 cfs

Q_{100} = 21 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 8 foot inlet required

100-Year Event: 6 foot inlet required

(Install 8' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **19**

Total Flow:

Q_5 = **10** cfs

Q_{100} = **22** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **10** foot inlet required

100-Year Event: **8** foot inlet required

(Install 10' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **20**

Total Flow:

Q_5 = 7 cfs

Q_{100} = 15 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 6 foot inlet required

100-Year Event: 4 foot inlet required

(Install 6' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 21

Total Flow:

Q_5 = 2 cfs

Q_{100} = 4 cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

Qi = 1.7(Li+1.8(W))(dmax + a)^1.85

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: 4 foot inlet required

100-Year Event: 4 foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT **22A**

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.04 ft/ft

z = 1/s

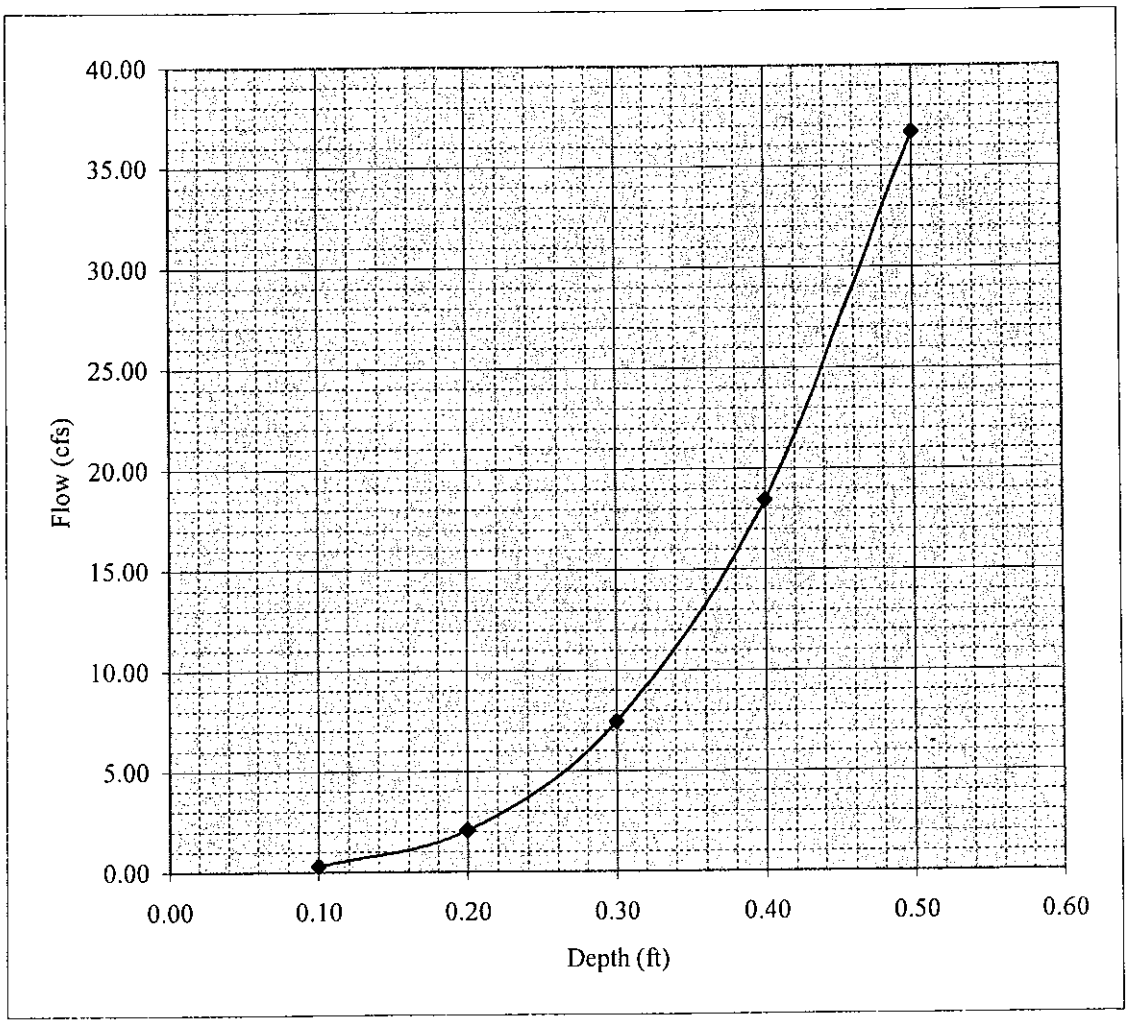
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.30
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		2.06
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		7.44
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		18.43
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		36.68



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 22A **100 YEAR FLOW**

Q(100)	14	I(100)	6.0		
DEPTH	0.36	Fr	2.48	Inlet size ? L(i) =	14
SPREAD	11.5	L(1)	22.0	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	13.2	If Li > L(2) then Qi =	9
STREET SLOPE	4.0%	L(3)	47.1	FB =	5
				CA(eqv.)=	0.84

5 YEAR FLOW

Q(5)	7	I(5)	3.4		
DEPTH	0.30	Fr	2.35	Inlet size ? L(i) =	14
SPREAD	8.8	L(1)	15.8	If Li < L(2) then Qi =	6
CROSS SLOPE	2.0%	L(2)	9.5	If Li > L(2) then Qi =	5
STREET SLOPE	4.0%	L(3)	33.9	FB =	1
				CA(eqv.)=	0.30

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **22B**

Total Flow: Q_5 = **11** cfs

Q_{100} = **25** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **10** foot inlet required

100-Year Event: **8** foot inlet required

(Exist. 12' Type R sump inlet installed to accept both the 5yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **23**

Total Flow: Q_5 = **4** cfs

Q_{100} = **7** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **4** foot inlet required

100-Year Event: **4** foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **24**

Total Flow:

Q_5 = **8** cfs

Q_{100} = **17** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **6** foot inlet required

100-Year Event: **4** foot inlet required

(Install 6' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 25

Total Flow: Q_5 = **7** cfs

Q_{100} = **15** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.
a = 3 in.

Clogging Factor = 1.25
Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **6** foot inlet required

100-Year Event: **4** foot inlet required

(Install 6' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT **26A**

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.015 ft/ft

z = 1/s

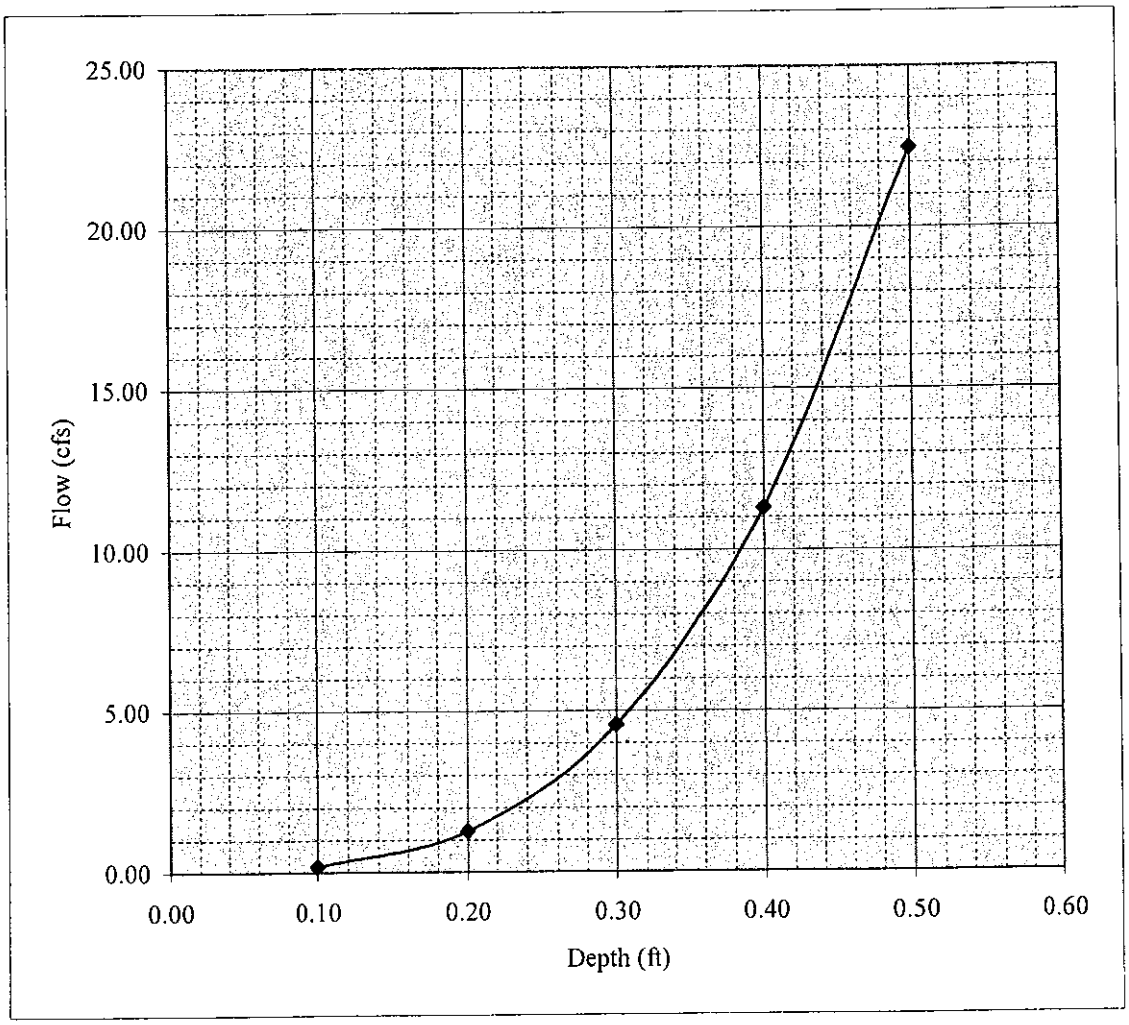
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 26A **100 YEAR FLOW**

Q(100)	28	I(100)	4.5		
DEPTH	0.52	Fr	1.68	Inlet size ? L(i) =	14
SPREAD	19.5	L(1)	25.3	If Li < L(2) then Qi =	16
CROSS SLOPE	2.0%	L(2)	15.2	If Li > L(2) then Qi =	16
STREET SLOPE	1.5%	L(3)	54.2	FB =	12
				CA(eqv.)=	2.70

5 YEAR FLOW

Q(5)	12	I(5)	2.5		
DEPTH	0.41	Fr	1.59	Inlet size ? L(i) =	14
SPREAD	14.3	L(1)	17.4	If Li < L(2) then Qi =	10
CROSS SLOPE	2.0%	L(2)	10.5	If Li > L(2) then Qi =	8
STREET SLOPE	1.5%	L(3)	37.3	FB =	4
				CA(eqv.)=	1.60

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **26B**

Total Flow:

Q_5 = **14** cfs

Q_{100} = **35** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **14** foot inlet required

100-Year Event: **14** foot inlet required

(Install 14' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **27**

Total Flow: Q_5 = **5** cfs

Q_{100} = **11** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.
a = 3 in.

Clogging Factor = 1.25
Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: [4] foot inlet required

100-Year Event: [4] foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **28**

Total Flow: Q_5 = **11** cfs

Q_{100} = **25** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **10** foot inlet required

100-Year Event: **8** foot inlet required

(Install 10' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 29A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.015 ft/ft

z = 1/s

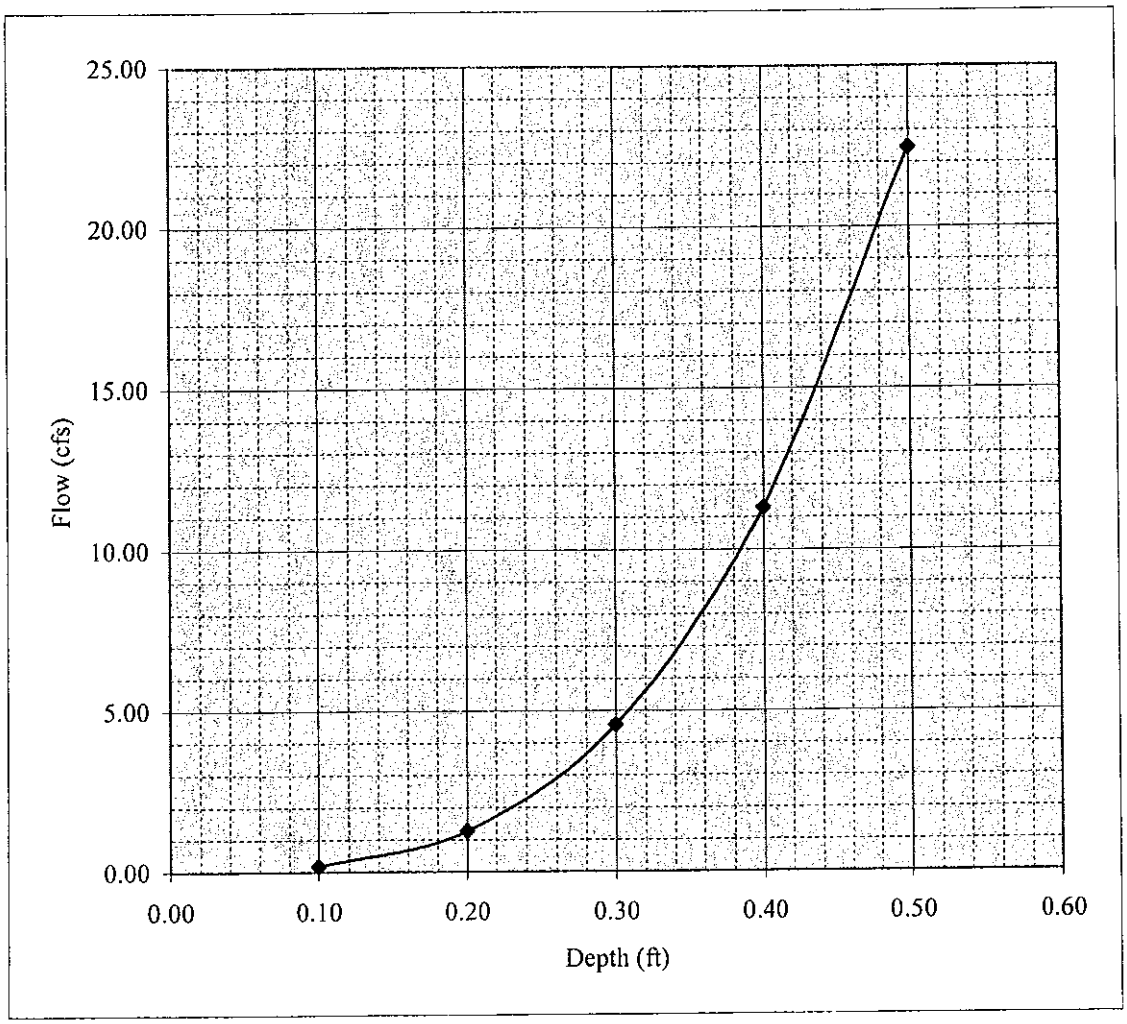
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 29A **100 YEAR FLOW**

Q(100)	10	I(100)	5.3		
DEPTH	0.38	Fr	1.55	Inlet size ? L(i) =	14
SPREAD	12.5	L(1)	14.9	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	8.9	If Li > L(2) then Qi =	7
STREET SLOPE	1.5%	L(3)	31.9	FB =	3
				CA(eqv.)=	0.56

5 YEAR FLOW

Q(5)	5	I(5)	3.0		
DEPTH	0.31	Fr	1.45	Inlet size ? L(i) =	14
SPREAD	9.3	L(1)	10.4	If Li < L(2) then Qi =	7
CROSS SLOPE	2.0%	L(2)	6.2	If Li > L(2) then Qi =	4
STREET SLOPE	1.5%	L(3)	22.2	FB =	1
				CA(eqv.)=	0.33

DESIGN POINT 29B

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.02 ft/ft

z = 1/s

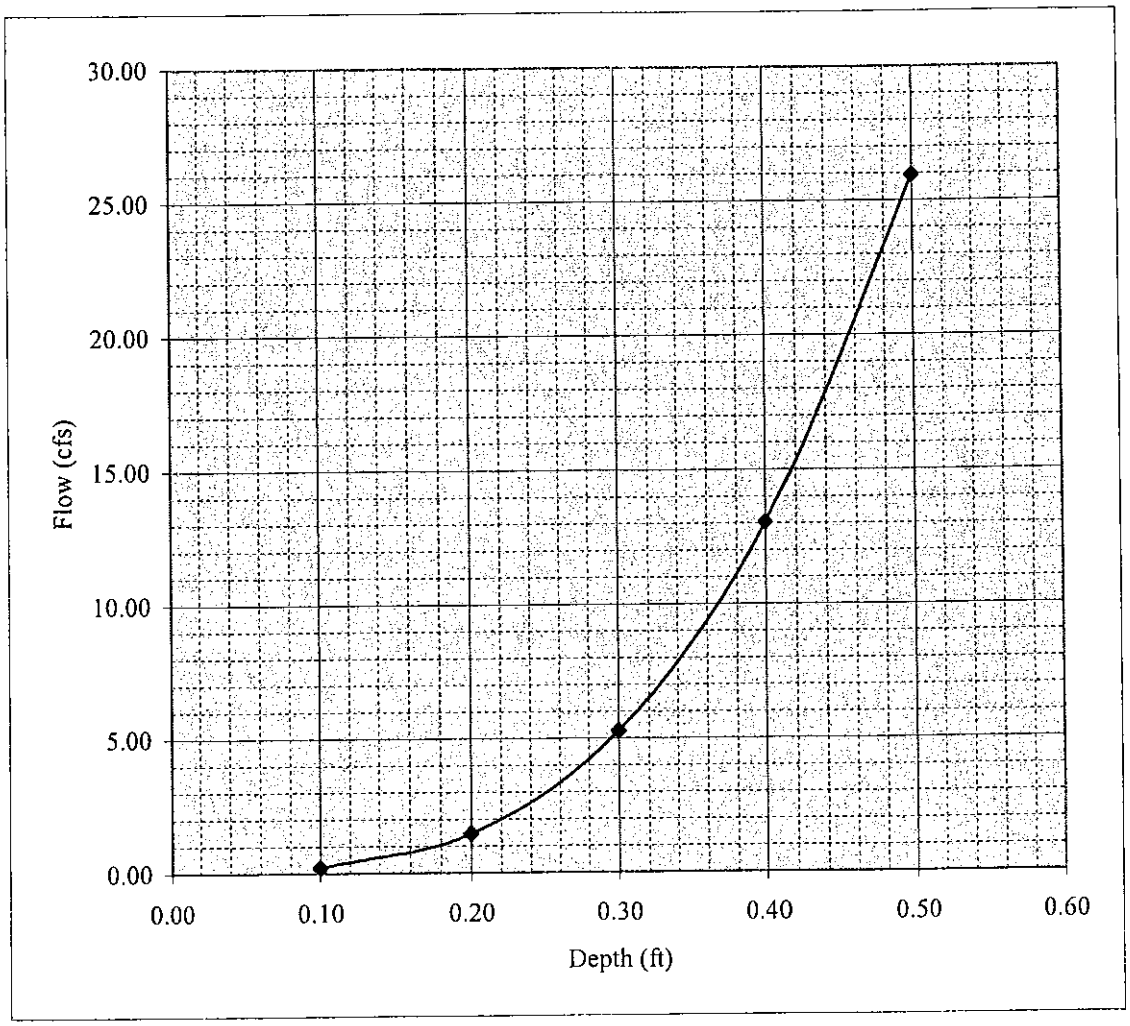
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.21
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.46
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		5.26
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		13.04
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		25.94



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 29B **100 YEAR FLOW**

Q(100)	28	I(100)	5.2		
DEPTH	0.52	Fr	1.94	Inlet size ? L(i) =	14
SPREAD	19.5	L(1)	29.2	If Li < L(2) then Qi =	13
CROSS SLOPE	2.0%	L(2)	17.5	If Li > L(2) then Qi =	15
STREET SLOPE	2.0%	L(3)	62.5	FB =	15
				CA(eqv.)=	2.90

5 YEAR FLOW

Q(5)	12	I(5)	2.9		
DEPTH	0.39	Fr	1.81	Inlet size ? L(i) =	14
SPREAD	13.3	L(1)	18.4	If Li < L(2) then Qi =	9
CROSS SLOPE	2.0%	L(2)	11.1	If Li > L(2) then Qi =	8
STREET SLOPE	2.0%	L(3)	39.5	FB =	4
				CA(eqv.)=	1.37

DESIGN POINT 29C

Q = 0.56 (z/n) d^(8/3) s^(1/2)

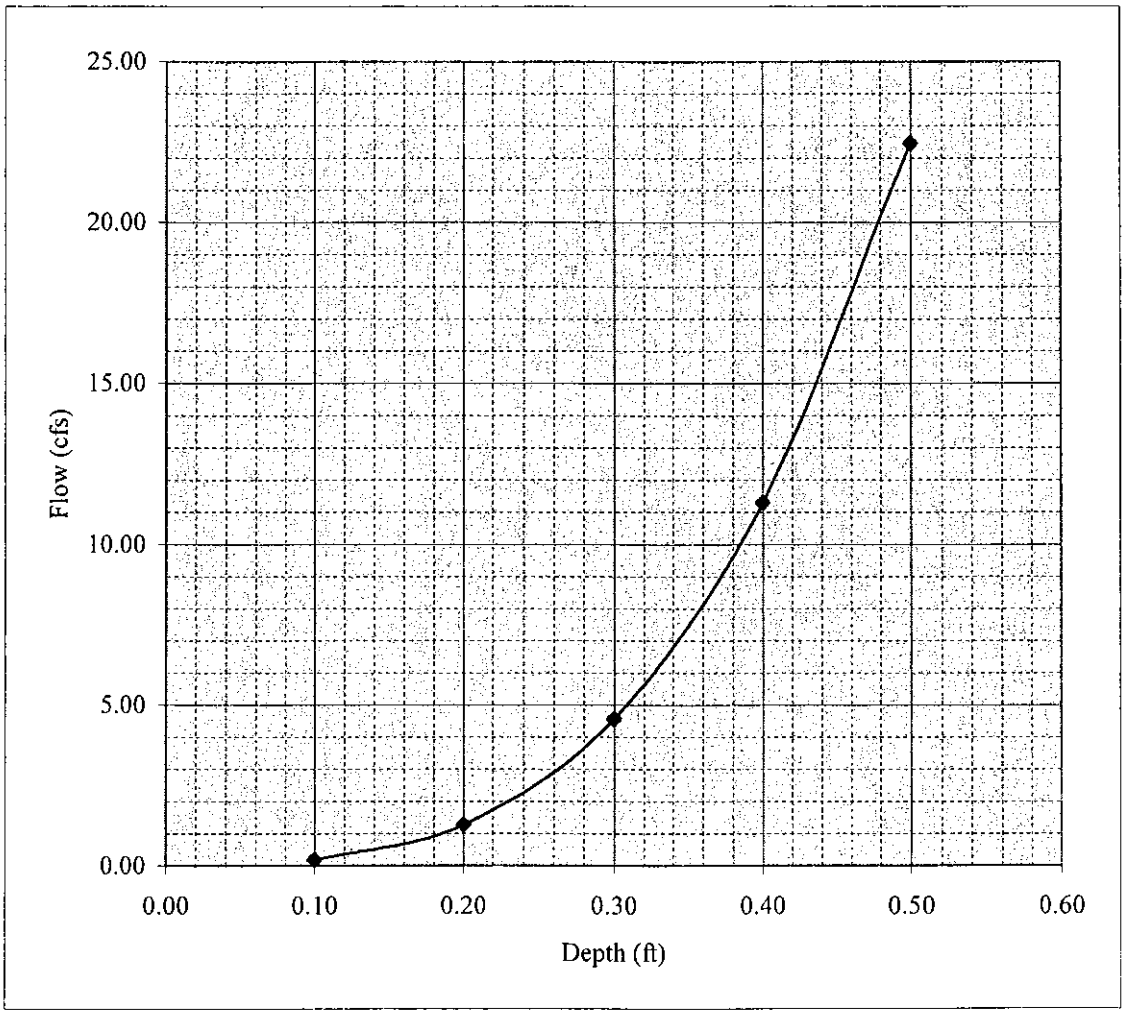
slope (s) = 0.015 ft/ft

z = 1/s zA = 50

nb = 0.013 zB = 16

na = 0.016

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 29C **100 YEAR FLOW**

Q(100)	29	I(100)	4.5		
DEPTH	0.55	Fr	1.71	Inlet size ? L(i) =	14
SPREAD	21.0	L(1)	27.6	If Li < L(2) then Qi =	15
CROSS SLOPE	2.0%	L(2)	16.6	If Li > L(2) then Qi =	16
STREET SLOPE	1.5%	L(3)	59.1	FB =	14
				CA(eqv.)=	3.13

5 YEAR FLOW

Q(5)	12	I(5)	2.5		
DEPTH	0.41	Fr	1.59	Inlet size ? L(i) =	14
SPREAD	14.3	L(1)	17.4	If Li < L(2) then Qi =	10
CROSS SLOPE	2.0%	L(2)	10.5	If Li > L(2) then Qi =	8
STREET SLOPE	1.5%	L(3)	37.3	FB =	4
				CA(eqv.)=	1.59

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **29D**

Total Flow:

Q_5 = **22** cfs

Q_{100} = **59** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.

a = 3 in.

Clogging Factor = 1.25

Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **24** foot inlet required

100-Year Event: **26** foot inlet required

(Install 26' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT **30**

Total Flow: Q_5 = **6** cfs

Q_{100} = **15** cfs

Max. allowable ponding depth:
(Residential street, ramp curb)

D_5 = 0.50 ft.

D_{100} = 1.00 ft.

Std. Type R curb inlet detail:

$Qi = 1.7(Li+1.8(W))(dmax + a)^{1.85}$

W = 2 ft.
a = 3 in.

Clogging Factor = 1.25
Li (1.25) = Length of inlet opening

Curb inlet sizing:

5-Year Event: **4** foot inlet required

100-Year Event: **4** foot inlet required

(Install 4' Type R sump inlet to accept both 5 yr. & 100 yr. developed flows at this design point.)

DESIGN POINT 31A

Q = 0.56 (z/n) d^(8/3) s^(1/2)

slope (s) = 0.015 ft/ft

z = 1/s

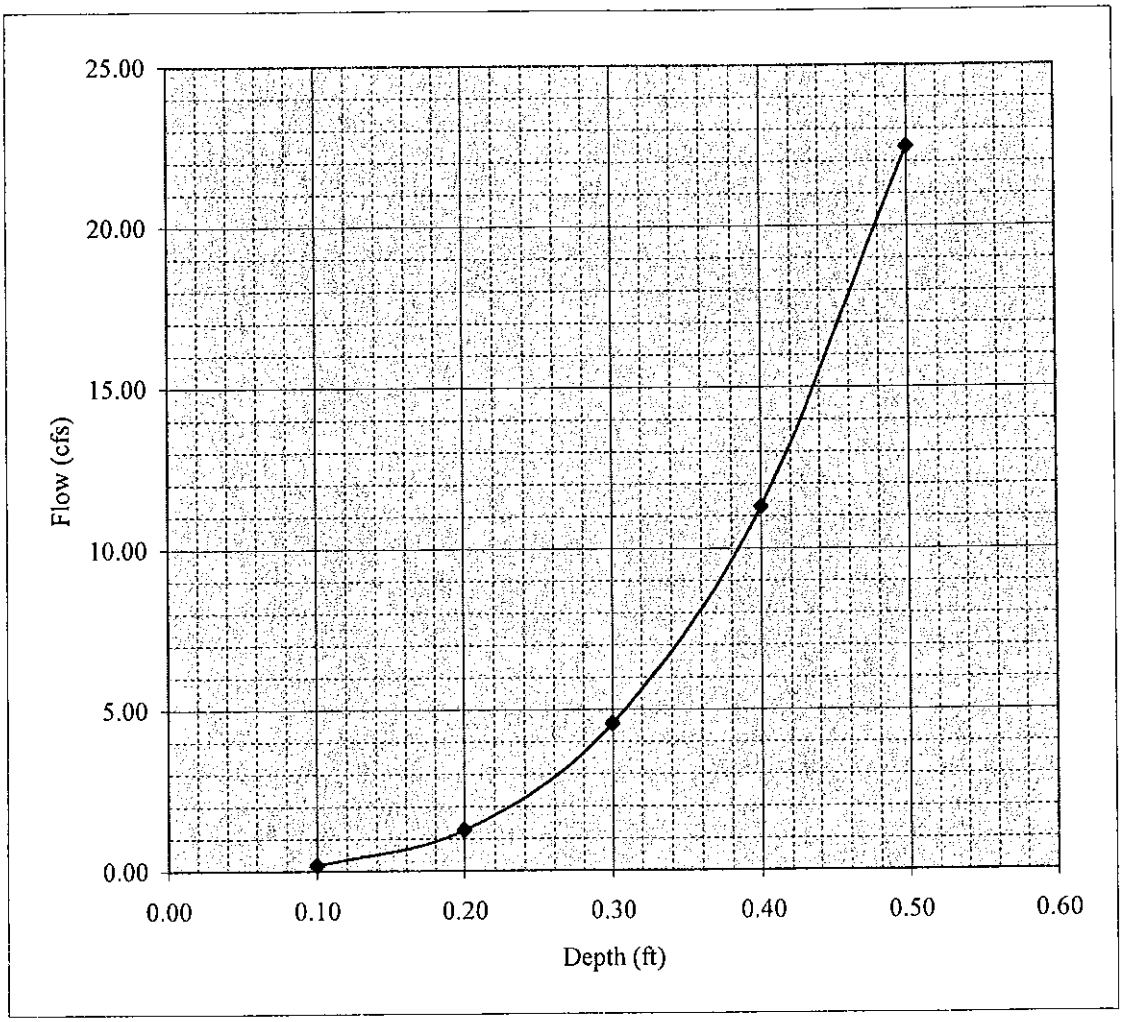
nb = 0.013

na = 0.016

zA = 50

zB = 16

Total Depth dT (ft)	Depth of A dA (ft)	Depth of B dB (ft)	Depth of C dC (ft)	Flow Q (cfs)
0.10	----	$0.10^{8/3}$		0.18
0.20	$0.07^{8/3}$	$0.20^{8/3} - 0.07^{8/3}$		1.26
0.30	$0.17^{8/3}$	$0.30^{8/3} - 0.17^{8/3}$		4.56
0.40	$0.27^{8/3}$	$0.40^{8/3} - 0.27^{8/3}$		11.29
0.50	$0.37^{8/3}$	$0.50^{8/3} - 0.37^{8/3}$		22.46



JOB NAME:	*PAINT BRUSH HILLS - PHASE 2*
JOB NUMBER:	*2053.20*
DATE:	*10/01/04*
CALCULATED BY:	*MAW*

DESIGN POINT 31A **100 YEAR FLOW**

Q(100)	8	I(100)	5.7		
DEPTH	0.36	Fr	1.52	Inlet size ? L(i) =	14
SPREAD	11.5	L(1)	13.5	If Li < L(2) then Qi =	8
CROSS SLOPE	2.0%	L(2)	8.1	If Li > L(2) then Qi =	6
STREET SLOPE	1.5%	L(3)	28.9	FB =	2
				CA(eqv.)=	0.35

5 YEAR FLOW

Q(5)	3	I(5)	3.2		
DEPTH	0.27	Fr	1.38	Inlet size ? L(i) =	14
SPREAD	7.3	L(1)	7.7	If Li < L(2) then Qi =	5
CROSS SLOPE	2.0%	L(2)	4.6	If Li > L(2) then Qi =	3
STREET SLOPE	1.5%	L(3)	16.5	FB =	0
				CA(eqv.)=	0.00

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	18	in

Results		
Depth	1.50	ft
Discharge	10.50	cfs
Flow Area	1.8	ft²
Wetted Perime	4.71	ft
Top Width	0.00	ft
Critical Depth	1.25	ft
Percent Full	100.0	%
Critical Slope	009774	ft/ft
Velocity	5.94	ft/s
Velocity Head	0.55	ft
Specific Energ	2.05	ft
Froude Numbe	0.00	
Maximum Disc	11.30	cfs
Discharge Full	10.50	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	24	in

Results		
Depth	2.00	ft
Discharge	22.62	cfs
Flow Area	3.1	ft²
Wetted Perime	6.28	ft
Top Width	0.00	ft
Critical Depth	1.69	ft
Percent Full	100.0	%
Critical Slope	009461	ft/ft
Velocity	7.20	ft/s
Velocity Head	0.81	ft
Specific Energ	2.81	ft
Froude Numbe	0.00	
Maximum Disc	24.33	cfs
Discharge Full	22.62	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Forn
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	30	in

Results		
Depth	2.50	ft
Discharge	41.01	cfs
Flow Area	4.9	ft²
Wetted Perime	7.85	ft
Top Width	0.00	ft
Critical Depth	2.15	ft
Percent Full	100.0	%
Critical Slope	009257	ft/ft
Velocity	8.36	ft/s
Velocity Head	1.08	ft
Specific Energ	3.58	ft
Froude Numbe	0.00	
Maximum Disc	44.12	cfs
Discharge Full	41.01	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Form
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	36	in

Results		
Depth	3.00	ft
Discharge	66.69	cfs
Flow Area	7.1	ft²
Wetted Perime	9.42	ft
Top Width	0.00	ft
Critical Depth	2.61	ft
Percent Full	100.0	%
Critical Slope	009115	ft/ft
Velocity	9.44	ft/s
Velocity Head	1.38	ft
Specific Energ	4.38	ft
Froude Numbe	0.00	
Maximum Disc	71.74	cfs
Discharge Full	66.69	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Classic Consulting, Engineering, and Surveying
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Form
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	42	in

Results		
Depth	3.50	ft
Discharge	100.60	cfs
Flow Area	9.6	ft²
Wetted Perime	11.00	ft
Top Width	0.00	ft
Critical Depth	3.08	ft
Percent Full	100.0	%
Critical Slope	009012	ft/ft
Velocity	10.46	ft/s
Velocity Head	1.70	ft
Specific Energ	5.20	ft
Froude Numbe	0.00	
Maximum Disc	108.22	cfs
Discharge Full	100.60	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Classic Consulting, Engineering, and Surveying
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Form
Solve For	Full Flow Capac

Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	48	in

Results		
Depth	4.00	ft
Discharge	143.64	cfs
Flow Area	12.6	ft²
Wetted Perime	12.57	ft
Top Width	0.00	ft
Critical Depth	3.54	ft
Percent Full	100.0	%
Critical Slope	008934	ft/ft
Velocity	11.43	ft/s
Velocity Head	2.03	ft
Specific Energ	6.03	ft
Froude Numbe	0.00	
Maximum Disc	154.51	cfs
Discharge Full	143.64	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	PBH - PHASE2
Flow Element	Circular Channe
Method	Manning's Forr
Solve For	Full Flow Capac

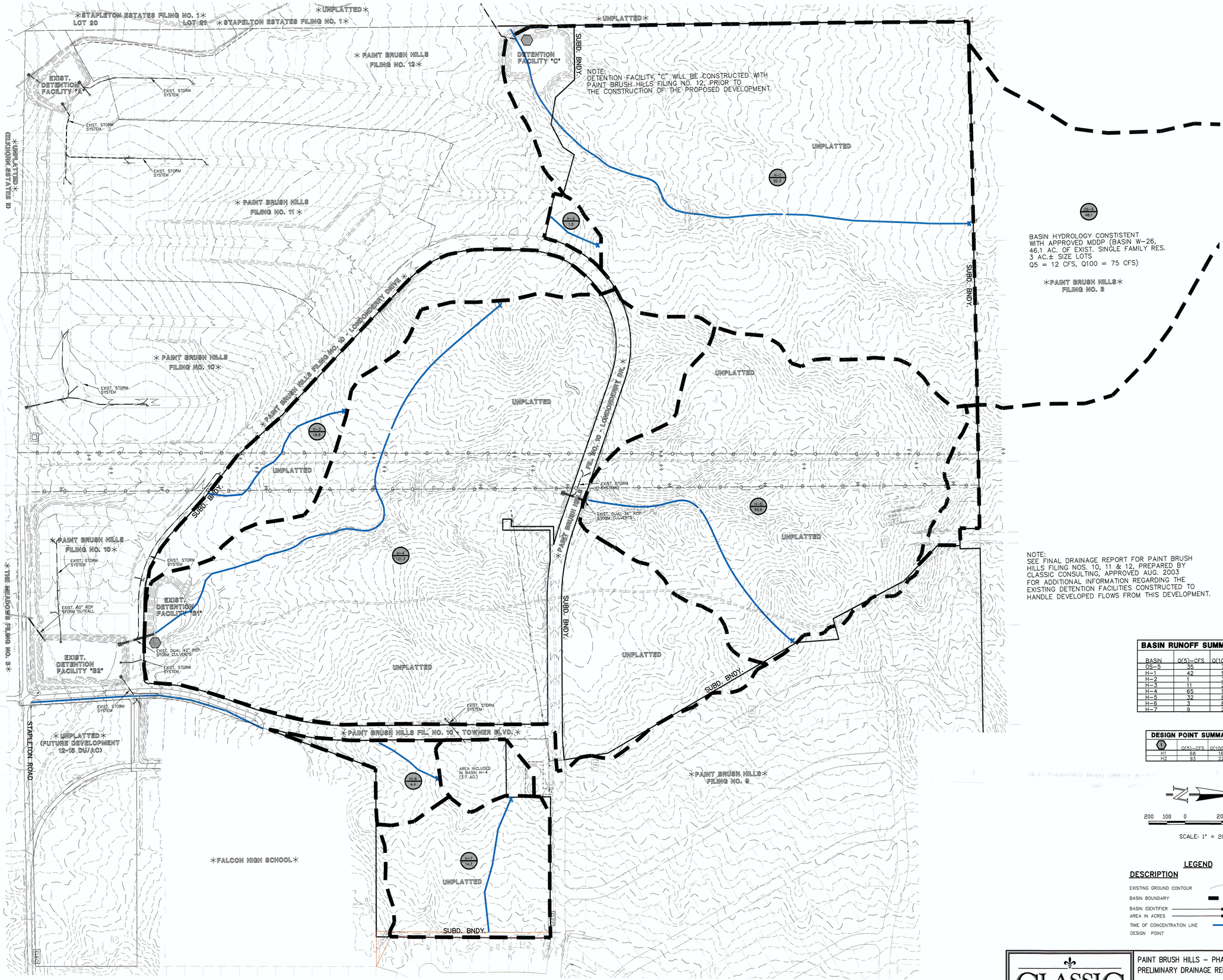
Input Data		
Mannings Coeffic	0.013	
Slope	010000	ft/ft
Diameter	54	in

Results		
Depth	4.50	ft
Discharge	196.64	cfs
Flow Area	15.9	ft²
Wetted Perime	14.14	ft
Top Width	0.00	ft
Critical Depth	4.01	ft
Percent Full	100.0	%
Critical Slope	008874	ft/ft
Velocity	12.36	ft/s
Velocity Head	2.38	ft
Specific Energ	6.88	ft
Froude Numbe	0.00	
Maximum Disc	211.53	cfs
Discharge Full	196.64	cfs
Slope Full	010000	ft/ft
Flow Type	N/A	

Classic Consulting, Engineering, and Surveying
37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

CLASSIC
CONSULTING
ENGINEERS & SURVEYORS

PRELIMINARY DRAINAGE MAP



BASIN RUNOFF SUMMARY

BASIN	Q(5)-CFS	Q(100)-CFS
OS-5	35	79
H-1	42	108
H-2	1	3
H-3	11	27
H-4	65	158
H-5	32	80
H-6	3	8
H-7	9	23

DESIGN POINT SUMMARY

⟨1⟩	Q(5)-CFS	Q(100)-CFS
H1	68	169
H2	93	227

200 100 0 200 400

SCALE: 1" = 200'

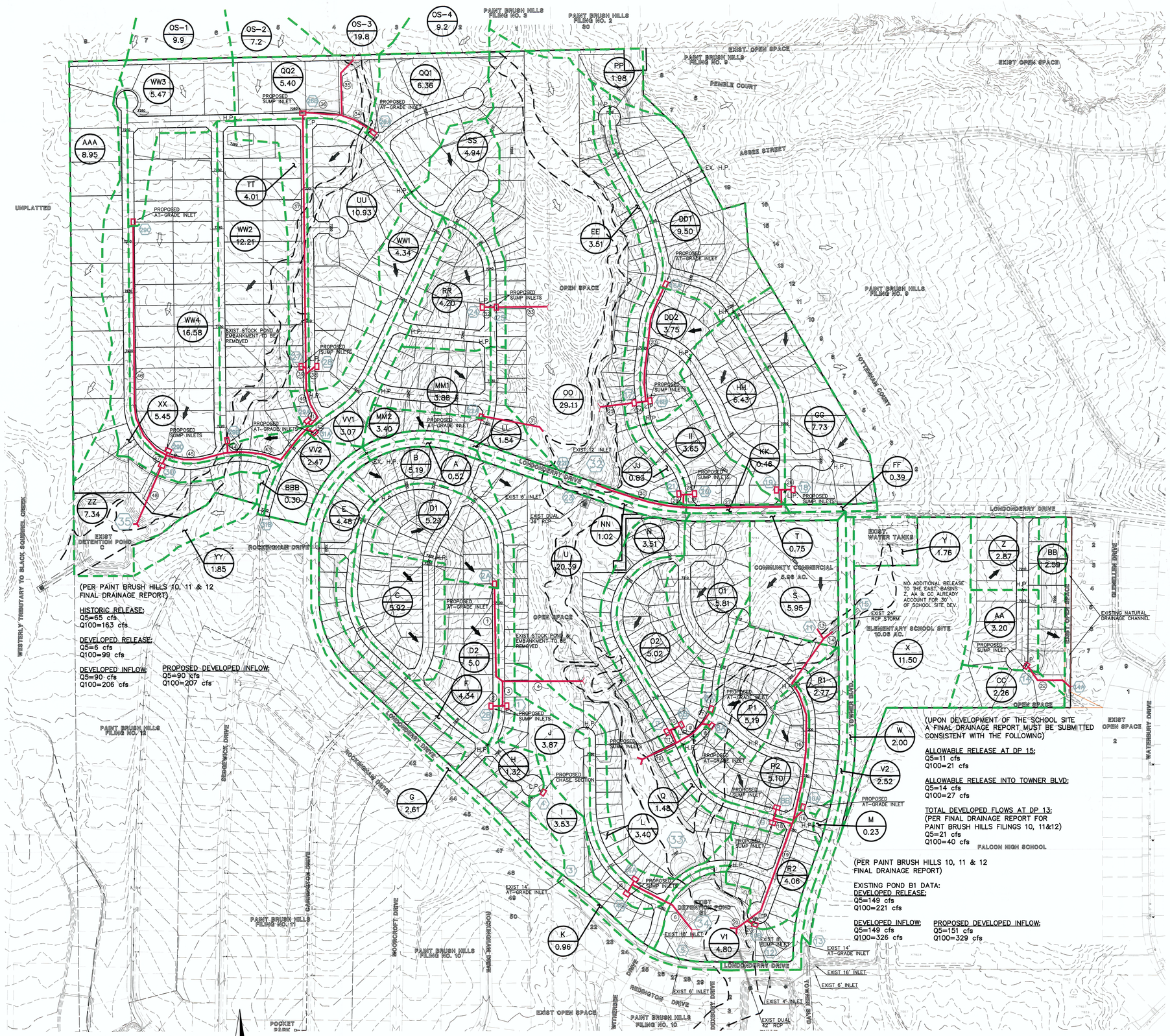
LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
BASIN BOUNDARY	
BASIN IDENTIFIER / AREA IN ACRES	BB 10.0
TIME OF CONCENTRATION LINE	
DESIGN POINT	⟨1⟩

CLASSIC SM CONSULTING ENGINEERS & SURVEYORS
6385 Corporate Drive, Suite 101
Colorado Springs, Colorado 80919
(719)785-0790
(719)785-0799 (Fax)

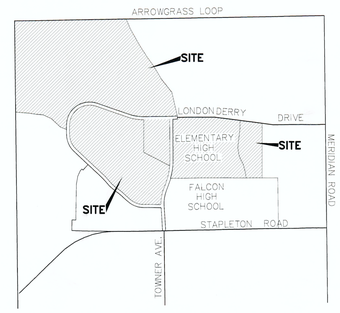
PAINT BRUSH HILLS – PHASE 2
PRELIMINARY DRAINAGE REPORT
HISTORIC DRAINAGE MAP

DESIGNED BY	MAW	SCALE		DATE	9/20/04
DRAWN BY	MAW	(H) 1"= 200'		SHEET 1	OF 2
CHECKED BY		(V) 1"= N/A		JOB NO.	2053.20



LEGEND

DESCRIPTION	SYMBOL
EXISTING GROUND CONTOUR	6910
PROPOSED FINISHED CONTOUR	6910
BASIN BOUNDARY	
DESIGN POINT	3
BASIN IDENTIFIER / AREA IN ACRES	BB 10.0
EXISTING DIRECTION OF FLOW	
PROPOSED DIRECTION OF FLOW	
PROPOSED STORM SEWER	
PROPOSED STORM SEWER INLETS	
STORM PIPE RUN SIZING	20



VICINITY MAP

N.T.S.

NOTE: ALL PIPES BASED ON 100 YR. FLOWS AT 1.0% MIN. GRADE)

PIPE RUN	SIZE	PIPE RUN	SIZE	PIPE RUN	SIZE	PIPE RUN	SIZE
1	24" RCP	16	18" RCP	31	18" RCP	46	24" RCP
2	30" RCP	17	30" RCP	32	24" RCP	47	54" RCP
3	36" RCP	18	30" RCP	33	30" RCP	48	54" RCP
4	42" RCP	19	42" RCP	34	24" RCP		
5	24" RCP	20	24" RCP	35	30" RCP		
6	24" RCP	21	48" RCP	36	36" RCP		
7	24" RCP	22	24" RCP	37	42" RCP		
8	24" RCP	23	24" RCP	38	30" RCP		
9	30" RCP	24	30" RCP	39	18" RCP		
10	30" RCP	25	36" RCP	40	48" RCP		
11	30" RCP	26	24" RCP	41	18" RCP		
12	36" RCP	27	30" RCP	42	18" RCP		
13	36" RCP	28	24" RCP	43	48" RCP		
14	24" RCP	29	24" RCP	44	24" RCP		
15	36" RCP	30	36" RCP	45	48" RCP		

DESIGN POINT	FLOW	INLET SIZE	DESIGN POINT	FLOW	INLET SIZE
1	Q5 = 9 CFS Q100 = 19 CFS	8' TYPE R SUMP INLET	18	Q5 = 9 CFS Q100 = 21 CFS	8' TYPE R SUMP INLET
2A	Q5 = 9 CFS Q100 = 19 CFS	14' TYPE R AT-GRADE INLET	19	Q5 = 10 CFS Q100 = 22 CFS	10' TYPE R SUMP INLET
2B	Q5 = 19 CFS Q100 = 42 CFS	20' TYPE R SUMP INLET	20	Q5 = 7 CFS Q100 = 15 CFS	6' TYPE R SUMP INLET
3	Q5 = 19 CFS Q100 = 38 CFS	EXIST. 14' TYPE R AT-GRADE INLET	21	Q5 = 2 CFS Q100 = 4 CFS	4' TYPE R SUMP INLET
4	Q5 = 2 CFS Q100 = 5 CFS	18" CONC. CHASE SECTION	22	Q5 = 7 CFS Q100 = 14 CFS	14' TYPE R AT-GRADE INLET
4A	Q5 = 7 CFS Q100 = 15 CFS	6' TYPR R SUMP INLET	22B	Q5 = 11 CFS Q100 = 25 CFS	EXIST. 12' TYPE R SUMP INLET
4B	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET	23	Q5 = 4 CFS Q100 = 7 CFS	EXIST. 6' TYPE R SUMP INLET
5	Q5 = 15 CFS Q100 = 37 CFS	EXIST. 18' TYPE R SUMP INLET	24	Q5 = 8 CFS Q100 = 17 CFS	6' TYPE R SUMP INLET
6A	Q5 = 12 CFS Q100 = 24 CFS	14' TYPE R AT-GRADE INLET	25	Q5 = 7 CFS Q100 = 15 CFS	6' TYPE R SUMP INLET
6B	Q5 = 13 CFS Q100 = 29 CFS	12' TYPE R SUMP INLET	26A	Q5 = 12 CFS Q100 = 28 CFS	14' TYPE R AT-GRADE INLET
7	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET	26B	Q5 = 14 CFS Q100 = 35 CFS	14' TYPE R SUMP INLET
8A	Q5 = 9 CFS Q100 = 20 CFS	14' TYPE R AT-GRADE INLET	27	Q5 = 5 CFS Q100 = 11 CFS	4' TYPE R SUMP INLET
8B	Q5 = 12 CFS Q100 = 27 CFS	12' TYPE R SUMP INLET	28	Q5 = 11 CFS Q100 = 25 CFS	10' TYPE R SUMP INLET
9	Q5 = 3 CFS Q100 = 7 CFS	4' TYPE R SUMP INLET	29A	Q5 = 5 CFS Q100 = 10 CFS	14' TYPE R AT-GRADE INLET
10A	Q5 = 5 CFS Q100 = 11 CFS	14' TYPE R AT-GRADE INLET	29B	Q5 = 12 CFS Q100 = 28 CFS	14' TYPE R AT-GRADE INLET
10B	Q5 = 9 CFS Q100 = 20 CFS	10' TYPE R SUMP INLET	29C	Q5 = 12 CFS Q100 = 29 CFS	14' TYPE R AT-GRADE INLET
11	Q5 = 21 CFS Q100 = 43 CFS	N/A	29D	Q5 = 22 CFS Q100 = 59 CFS	26' TYPE R SUMP INLET
12	Q5 = 9 CFS Q100 = 18 CFS	EXIST. 8' TYPE R SUMP INLET	30	Q5 = 6 CFS Q100 = 15 CFS	4' TYPE R SUMP INLET
13	Q5 = 21 CFS Q100 = 40 CFS	EXIST. 14' TYPE R AT-GRADE INLET	31A	Q5 = 3 CFS Q100 = 8 CFS	14' TYPE R AT-GRADE INLET
14	Q5 = 6 CFS Q100 = 12 CFS	4' TYPE R SUMP INLET	31B	Q5 = 3 CFS Q100 = 9 CFS	N/A
14A	Q5 = 9 CFS Q100 = 20 CFS	EXIST. NATURAL CHANNEL	32	Q5 = 51 CFS Q100 = 113 CFS	EXIST. DUAL 36" RCP STORM
15	Q5 = 11 CFS Q100 = 21 CFS	EXIST. 24" RCP STPRM	33	Q5 = 116 CFS Q100 = 255 CFS	PROP. DUAL 42" RCP STORM
16A	Q5 = 11 CFS Q100 = 24 CFS	14' TYPE R AT-GRADE INLET	34	Q5 = 151 CFS Q100 = 329 CFS	EXIST. DUAL 42" RCP STORM
16B	Q5 = 7 CFS Q100 = 21 CFS	6' TYPE R SUMP INLET	35	Q5 = 90 CFS Q100 = 207 CFS	N/A
17	Q5 = 6 CFS Q100 = 14 CFS	4' TYPE R SUMP INLET			

NOTES:

THIS MAP IS FOR DRAINAGE PURPOSES ONLY. SEE GRADING PLAN FOR APPROPRIATE GRADING INFORMATION.

FLOOD PLAIN STATEMENT:

NO PORTION OF THIS SITE IS LOCATED WITHIN A FEMA FLOODPLAIN AS DETERMINED BY THE FLOOD INSURANCE RATE MAPS (F.I.R.M.) MAP NUMBERS 08041C 0535F AND 08041C 0575, WITH EFFECTIVE DATES OF MARCH 17, 1997 (SEE APPENDIX).

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS
1-800-922-1987
CITY OF COLORADO SPRINGS DEPT. OF UTILITIES GAS, ELECTRIC, WATER AND WASTEWATER

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NO.	REVISION	DATE
1	REVISED PER DOT COMMENTS	8/31/04
2	REVISED PER DOT COMMENTS	10/1/04
3	REVISED PER DOT COMMENTS	10/26/04

REVIEW:

PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

MARC A. WHORTON, COLORADO P.E. #37155 DATE

CLASSIC SM CONSULTING ENGINEERS & SURVEYORS
6385 Corporate Drive, Suite 101 (719)785-0790
Colorado Springs, Colorado 80919 (719)785-0799 (Fax)

PAINT BRUSH HILLS – PHASE 2
PRELIMINARY DRAINAGE REPORT
PROPOSED CONDITIONS DRAINAGE MAP

DESIGNED BY	MAW	SCALE	3/10/04
DRAWN BY	MEM	(H) 1"= 200'	SHEET 2 OF 2
CHECKED BY		(V) 1"= N/A	JOB NO. 2053.20