

**BRIDLE PASS SUBDIVISION
MASTER DEVELOPMENT DRAINAGE REPORT
&
FINAL DRAINAGE REPORT
For
BRIDLE PASS SUBDIVISION FILINGS 1 through 8
March, 2003**

Prepared for:

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Prepared by:

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Project# 01-075

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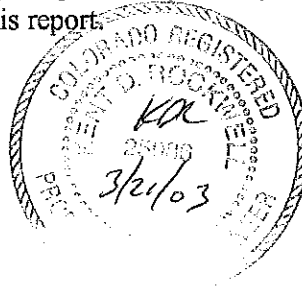
DRAINAGE PLAN STATEMENTS

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 City of Colorado Springs for drainage reports, and said drainage report is in conformity with the Master Plan of the drainage basin. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparing this report.

Kent D. Rockwell, P.E.

Kent D. Rockwell, P.E.



DEVELOPER'S STATEMENT

I, the developer, have read and will comply with all the requirements specified in this drainage report and plan.

Development Management, Inc.

BY: *[Signature]*

3/21/03

DATE

TITLE: *Vice President*

ADDRESS: 4065 Sinton Road, Suite 200
Colorado Springs, CO 80907

CITY OF COLORADO SPRINGS

Filed in accordance with Section 15-3-906 of the code of the City of Colorado Springs, 1980, as amended.

[Signature]
CITY ENGINEER

March 21, 2003
DATE

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&
FINAL DRAINAGE REPORT
For
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March, 2003

PURPOSE

The purpose of this report is to identify the existing and proposed runoff patterns and drainage facilities required for the proposed Bridle Pass Subdivision which is located northeast of the Dublin Boulevard and Bridle Pass Drive intersection (See Figure 1).

SUMMARY OF DATA

The sources of information used in the development of this study are listed below:

1. City of Colorado Springs and El Paso County "Drainage Criteria Manual", October 1987, revised November 1991.
2. Soil Survey for El Paso County, Colorado, U.S. Department of Agriculture, Soil Conservation Service, June 1980.
3. "Flood Insurance Studies for Colorado Springs and El Paso County, Colorado", prepared by the Federal Emergency Management Agency (FEMA), 1985.
4. "Cottonwood Creek Drainage Basin Planning Study" by URS Consultants, Inc., August 1995.
5. "Cottonwood Creek Prudent Line Study" by Ayres & Associates, 1996.
6. "Master Development Drainage Report for Wagon Trails Subdivision, prepared by Rockwell Minchow Consultants, August, 1999.

GENERAL LOCATION AND DESCRIPTION

The Bridle Pass Subdivision Project is located within the northeastern portion of the City of Colorado Springs, El Paso County, Colorado. (see Vicinity Map - Figure 1). The site is within the southeast quarter of Section 12, Township 13 South, Range 66 West of the 6th P.M. and is bound on the west by Bridle Pass Drive and existing single family residential developments (Wagon Trails Development), on the north by future commercial development, on the east by Powers Boulevard and on the south by Dublin Boulevard. The overall Bridle Pass Development consists of a total of 51 acres. Of the total 51 acres, 42 acres have been previously platted in El Paso County. Approximately 6 acres is outside the City of Colorado Springs city limits, but is currently in for annexation (See Exhibit 3)

Well-established native grasses exist throughout the proposed development. The topography generally slopes from north to south toward Dublin Boulevard. Bridle Pass Drive along the Bridle Pass Development westerly property line has recently been constructed as part of the Wagon Trails Development.

SOILS

According to the Soil Survey of El Paso County Area, Colorado, prepared by the U.S. Department of Agriculture Soil Conservation Service, the soils underlying the Bridle Pass Development fall under the Blakeland Series (Soil 8). The Blakeland series is classified under Hydrologic Group "A" soils.

CLIMATE

This area of El Paso County can be described as the foothills, with total precipitation amounts typical of a semi-arid region. Winters are generally cold and dry, and summers relatively warm and dry. Precipitation ranges from 12 to 14 inches per year, with the majority of this moisture occurring in the spring and summer in the form of rainfall. Thunderstorms are common during the summer months.

FLOODPLAIN STATEMENT

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #08041C0536 F, dated March 17, 1997, no portion of the Bridle Pass Development lies within a designated 100 year floodplain.

DRAINAGE CRITERIA

The current City of Colorado Springs/El Paso County Drainage Criteria was utilized in this report. Peak runoff quantities were determined using the Rational Method for both the 5 year and 100 year storms, as required for drainage basins less than 100 acres.

HISTORIC DRAINAGE BASIN DESCRIPTIONS

A brief description of each historic drainage basin for the site is provided in this section of the report. A summary of peak historic runoff for the basins is depicted on the Historic Drainage Plan (Exhibit 1) provided in the appendix. The site has been divided into 4 historical drainage basins.

Basin A consist of 16.39 acres along the southeast side of existing Bridle Pass Drive. Runoff rates of 9.8 cubic feet per second (cfs) generated during the 5 year storm and 25.2 cfs during the 100 year storm sheet flow toward Bridle Pass Drive. Approximately 7.87 acres located just northeast of the Dublin Boulevard and Bridle Pass Drive intersection comprises Basin B. This basin generates runoff rates of $Q_5 = 5.3$ cfs and $Q_{100} = 13.5$ cfs which flow toward the northeast corner of the Dublin Boulevard and Bridle Pass Drive intersection.

Basin C consists of the majority of the eastern portion of the proposed Bridle Pass Subdivision. This 24.94 acre basin generates runoff rates of 12.5 and 33.2 cfs during the 5 year and 100 year storms, respectively. These runoff rates are directed to the existing greenbelt along the southern boundary line of the proposed Bridle Pass Subdivision.

Basin D is located along the north side of Dublin Boulevard and generates runoff rates of $Q_5 = 10.1$ cfs and $Q_{100} = 25.7$ cfs. These flows are also directed toward the same greenbelt along the southern boundary line of the proposed Bridle Pass Subdivision.

The routed flows generated from Basins C & D reaching the green belt at Historic Design Point #1 are 17.2 cfs during the 5 year storm and 45.9 cfs during the 100 year storm. The release rates from the proposed detention pond and release rates reaching the greenbelt directly will be limited to these release rates.

DEVELOPED DRAINAGE BASIN DESCRIPTIONS

A brief description of each developed drainage basin for the site is provided in this section of the report. A summary of peak developed runoff for the basins is depicted on the Developed Drainage Plan provided in the appendix. All proposed drainage facilities are approximate in size and may vary with actual layout and design.

Within the single-family residential development, side lot line swales will be created on the downstream lots to convey flows from the upstream lots and into the street. Swales will be constructed by the homebuilders and maintained by the homeowner to limit concentrated flows and to disperse the flows as much as possible. Lot Drainage Plans will be prepared for the residential lots as they are developed and platted.

Individual lot drainage is the responsibility of the lot owner/builder.

Basins I and I-A consist of future commercial development north of the proposed Bridle Pass Development and east of Bridle Pass Drive. Runoff rates of 10.6 cfs during the 5 year storm and 18.6 cfs during the 100 year storm are generated from Basin I-A. Additional runoff rates of $Q_5 = 32.9$ cfs and $Q_{100} = 59.1$ cfs are generated from Basin I. Basin I will be re-graded in the future to direct flows easterly to the Prairie Schooner Drive and Sungold Drive intersection. The combined flows from Basins I and I-A will be collected in future inlets and piped southerly within a 36" RCP extending southerly within Sungold Drive, then southerly within Wood Lilly Drive, to Mountain Garland Drive and then to Little Field Drive.

The proposed Bridle Pass residential lots located directly east of Bridle Pass Drive between Little Field Drive and Prairie Schooner Drive comprise Basin II. This 6.86 acre basin generates runoff rates of 13.3 cfs during the 5 year storm and 25.6 cfs during the 100 year storm. These flows will reach the east side of Bridle Pass Drive and continue southerly as street flow. An existing 15' sump inlet located just north of Little Field Drive along the east side of Bridle Pass Drive will collect these flows along with the flows generated from Basin III.

Basin III is located along the west side of Lilly Wood and Mountain Garland Drives. This 2.79 acre basin generates runoff rates of 6.7 cfs and 14.5 cfs during the 5 and 100 year storms, respectively. These flows will be carried within Wood Lilly Drive and Mountain Garland Drive to Little Field Drive. The minimum slope along these streets is 1.6% which equates to a 5 year street capacity of 14.2 cfs per side and a 100 year street capacity of 86 cfs. This is adequate to convey the flows to the Little Field Drive and Bridle Pass Drive intersection. The aforementioned 15' sump inlet along the east side of Bridle Pass Drive will collect these flows.

Flow rates of $Q_5 = 51.3$ cfs and $Q_{100} = 93.8$ cfs generated from Basins I, I-A, II and III reach Design Point #1 as pipe flow. These flows will be conveyed westerly through the Wagon Trails Subdivision within an existing 36" RCP. The Wagon Trails Master Development Drainage Plan anticipated pipe flows of $Q_5 = 58.6$ cfs and $Q_{100} = 102.9$ cfs at this point. These flows are piped westerly through the Wagon Trails development and enter the Tributary of Cottonwood Creek just southwest of the Dublin Boulevard and Austin Bluffs Parkway intersection.

Basin IV is located toward the northeasterly portion of the proposed Bridle Pass Development. Runoff rates of 14.8 cfs and 31.5 cfs are generated from this 6.34 acre residential development. These flows will continue southerly within Sungold Drive to the northeast corner of the Sungold Drive and Arrowleaf Drive intersection. Sungold Drive at a slope of 3.0% at this intersection has a 5 year street capacity of 19.5 cfs per side. Therefore, Sungold Drive has adequate street capacity to convey the flows generated from Basin IV. Two-15' on-grade inlets will be constructed toward the south end of this basin. A total of 12.4 cfs during the 5 year storm and 20.9 cfs during the 100 year storm will be collected by these two inlets. Runoff rates of $Q_5 = 2.4$ cfs and $Q_{100} = 10.6$ cfs will bypass these inlets and reach the sump inlet in Basin V. A 24" RCP will convey these flows southerly to another 24" RCP connecting the inlet in Basin VII to the inlet in Basin V.

Basin V, located just southeast of Basin IV, generates runoff rates of $Q_5 = 6.6$ cfs and $Q_{100} = 14.9$ cfs. A 15' sump inlet will be constructed just east of Sungold Drive along the north side of Arrowleaf Drive to collect flows from Basins V and bypass flows from Basin IV and Design Point #2.

The proposed lots along the west side of Sungold Drive comprise Basin VI. Runoff rates of 7.9 cfs during the 5 year storm and 16.8 cfs during the 100 year storm are generated from this 3.07 acre basin. As stated above, Sungold Drive has adequate street capacity to convey these flows to the northwest corner of the Sungold Drive and Arrowleaf Drive intersection. A 10' on-grade inlet will be installed toward the south end of Basin VI to collect a portion of these flows. The 10' inlet will collect runoff rates of $Q_5 = 3.7$ cfs and $Q_{100} = 5.6$ cfs with flows of $Q_5 = 4.2$ cfs and $Q_{100} = 11.2$ cfs bypassing this inlet and continuing to Basin V. An 18" RCP will convey the collected flows southerly to the aforementioned 24" RCP.

Additional flows will reach this same northwest corner of the Sungold Drive and Arrowleaf Drive intersection from Basins VII and VIII. Basin VII is a 3.49 acre basin located along the east side of Wood Lilly Drive. Runoff rates of 8.4 cfs during the 5 year storm and 18.1 cfs during the 100 year storm generated from this basin flow southerly in Wood Lilly Drive and then turn easterly within the north half of Arrowleaf Drive.

Basin VIII consists of an additional 1.39 acres of residential lots just west of Basin VII. This basin generates runoff rates of $Q_5 = 3.4$ cfs and $Q_{100} = 8.1$ cfs. Runoff from this basin will combine with the runoff generated from Basin VII and reach Design Point #2 as street flow. The combined flow of 11.7 cfs during the 5 year storm and 25.3 cfs during the 100 year storm reach the proposed 10' inlet at Design Point #2 from the west. This inlet will collect 5.5 cfs during the 5 year storm and 8.5 cfs during the 100 year storm. Flow rates of $Q_5 = 6.2$ cfs and $Q_{100} = 16.8$ cfs will bypass this inlet and continue to the sump inlet within Basin V.

The total flows reaching the 20' sump inlet in Basin V from the west are $Q_5 = 12.8$ cfs and $Q_{100} = 38.6$ cfs. As stated above, additional flow rates of $Q_5 = 6.6$ cfs and $Q_{100} = 14.9$ cfs reaches this inlet from the east.

A 24" RCP will convey all the flow from Basin VI, VII and VIII to the proposed inlet at the northeast corner of the Arrowleaf and Sungold intersection. From this inlet, a 36" RCP will convey all the collected flows from Basins IV, V, VI, VII and VIII to the south side of Arrowleaf Drive.

Basins IX-A and IX-B are located along the south side of Arrowleaf Drive. Runoff rates of $Q_5 = 2.0$ cfs and $Q_{100} = 4.4$ cfs generated from Basin IX-A and $Q_5 = 2.8$ cfs and $Q_{100} = 6.0$ cfs generated from Basin IX-B reach a proposed 6' inlet to be installed along the south side of Arrowleaf Drive just east of Sungold Drive. The combined flows of $Q_5 = 44.2$ cfs and $Q_{100} = 94.3$ cfs reaching Design Point #3 from Basins IV, V, VI, VII, VIII, IX-A and IX-B will be conveyed southerly and then southwesterly within a 36" RCP. The 36" RCP will be extended southwesterly just north of the adjacent greenbelt and discharge into the proposed detention pond to be located just north of Dublin Boulevard.

Basin X is situated between Wild Indigo Drive and Mountain Garland Drive just east of Little Field Drive. This 2.70 acre basin generates runoff rates of 7.0 cfs during the 5 year storm and 14.7 cfs during the 100 year storm. These flows will reach the cul-de-sac at the east end of Wild Indigo Drive. Wild Indigo Drive at a slope of 2.4 % and a 5 year street capacity of 17.4 cfs per side has adequate capacity to convey these flows to the end of the cul-de-sac.

The lots just south of the Wild Indigo Drive cul-de-sac east of Little Field Drive comprise Basin XI. Like the flows from Basin X, runoff rates of $Q_5 = 1.8$ cfs and $Q_{100} = 3.6$ cfs generated from Basin XI will reach the cul-de-sac at the east end of Wild Indigo Drive. An 8' sump inlet will be installed at the end of this cul-de-sac to collect flows from Basin X and XI. A 24" RCP will convey these flows to the proposed 36" RCP running along the north side of the existing greenway along the southeast side of the Bridle Pass Development.

The proposed 36" RCP will convey the flow rates of $Q_5 = 52.1$ cfs and $Q_{100} = 109.4$ cfs reaching Design Point #3A to the proposed detention pond.

Basin XII consists of approximately 0.88 acres surrounding the Bundleflower Drive cul-de-sac. Runoff rates of 2.6 cfs and 5.5 cfs during the 5 year and 100 year storms, respectively, reach the southeast end of the Bundleflower cul-de-sac. A 4' sump inlet will collect these flows and an 18" RCP will convey the collected flows to the proposed detention pond.

The lots along the northwest side of Wild Indigo Drive southwest of Little Field Drive comprise Basin XIII. The runoff rates of $Q_5 = 6.8$ cfs and $Q_{100} = 14.8$ cfs generated from this basin reach the low point in Wild Indigo Drive.

Runoff rates of 1.0 cfs during the 5 year storm and 2.1 cfs during the 100 year storm will reach this same low point from Basin XIV. An 8' sump inlet at this low point will collect the combined flows generated from Basin XIII and XIV. An 18" RCP will convey the flows from Basins XIII and XIV to the inlet along the south side of Wild Indigo Drive.

Basin XV consists of the lots along the southeast side of Wild Indigo Drive Bundleflower Court and the proposed low point of Wild Indigo. Runoff rates of $Q_5 = 1.4$ cfs and $Q_{100} = 3.1$ cfs flow southwesterly within Wild Indigo Drive to the proposed low point.

Likewise, runoff rates of 0.8 cfs and 1.6 cfs generated from Basin XVI during the 5 year and 100 year storms, respectively, reach the low point of Wild Indigo. A 4' sump inlet will be constructed at this low point along the south side of Wild Indigo to collect these flows. The combined flows from Basins XIII, XIV, XV and XVI will be piped within a 24" RCP to the proposed detention pond (Design Point #4).

Basin XVII consists of the lots along the southeasterly side of Mountain Garland Drive between Little Field Drive and the end of the Mountain Garland Drive cul-de-sac. Runoff rates of 6.7 cfs during the 5 year storm and 14.2 cfs during the 100 year storm flow southwesterly within Mountain Garland Drive to the end of the cul-de-sac.

The lots along the west side of Mountain Garland Drive between Little Field Drive and the end of the Mountain Garland Drive cul-de-sac comprise Basin XVIII. Additional flow rates of $Q_5 = 4.6$ cfs and $Q_{100} = 9.8$ cfs flow southwesterly within the west side of Mountain Garland Drive to the proposed cul-de-sac. An 8' sump inlet will be constructed with the Mountain Garland Drive cul-de-sac to collect the combined flows from Basins XVII and XVIII. A 24" RCP will convey these collected flows to the existing 30" RCP stubbed from the existing inlet at the northeast corner of Dublin Boulevard and Bridle Pass Drive.

Additional flows will reach the northeast corner of Dublin Boulevard and Bridle Pass Drive as street flow from Dublin and Bridle Pass. Basin XIX is located along the east side of Bridle Pass Drive between Dublin and a point just south of Littlefield Drive. The runoff rates of $Q_5 = 10.7$ cfs and $Q_{100} = 21.1$ cfs generated from Basin XIX reach the existing 20' sump inlet along the east side of Bridle Pass Drive just north of Dublin Boulevard.

Basin XX located along the north side of Dublin just east of Bridle Pass Drive generates additional flows of 8.1 cfs during the 5 year storm and 14.7 cfs during the 100 year storm. These flows reach the same 20' sump inlet located along the east side of Bridle Pass Drive.

The combined flows of $Q_5 = 26.9$ cfs and $Q_{100} = 54.7$ cfs from Basin XVII, XVIII, XIX and XX will be conveyed westerly within an existing 30" RCP extending along the north side of Dublin Boulevard (Design Point # 5). These flows are consistent with the flow rates of $Q_5 = 35.9$ cfs and $Q_{100} = 69.7$ cfs anticipated in the Wagon Trails Master Development Drainage Plan. An existing storm sewer system along the north side of Dublin Boulevard conveys these flows westerly approximately 2000 feet and then southerly through the Antelope Creek Subdivision located south of Dublin Boulevard. These system eventually discharges into Tributary 1 of Cottonwood Creek just upstream of Austin Bluffs Parkway.

Basin XXI consists of the rear yards of several lots just north of Dublin Boulevard and the proposed detention pond. Flow rates of $Q_5 = 7.6$ cfs and $Q_{100} = 17.7$ cfs generated from this basin will discharge directly into the pond.

Runoff rates of $Q_5 = 6.4$ cfs and $Q_{100} = 14.5$ cfs are generated from Basin XXII which is located toward the southeast portion of the Bridle Pass Development and consists of the rear yard of residential lots. These flows will discharge directly into the greenbelt as sheet flow.

Basin XXIII consists of approximately 350 feet of the north half of Dublin Boulevard. Runoff rates of 2.7 cfs and 4.7 cfs will discharge directly into the greenbelt from inlets to be constructed at the low point of Dublin Boulevard.

The combined flows from Basins XXII and XXIII ($Q_5 = 9.1$ cfs and $Q_{100} = 19.2$ cfs) will be subtracted from the historic rates generated from Basin C & D (Historic Design Point #1) to determine the allowable release rates from the proposed detention pond. (See Pond Design in the Appendix of this report.

The Cottonwood Creek Drainage Basin Planning Study allows for the release of developed flows from the Bridle Pass Subdivision. However, several downstream landowners are not willing to accept developed flows. Therefore, a public detention pond will be installed at the southern end of the Bridle Pass Development to limit the discharge rates to historic flow rates. This detention pond is proposed to be a permanent public reimbursable structure pending the City/County Drainage Board approval.

Nor'wood Development also owns land downstream of several parcels within the county. Due to the fact that owners of downstream parcels are not willing to accept developed flows from the Bridle Pass Development, Nor'wood will not accept any developed flows from upstream parcels when the County parcels are developed. Therefore, Nor'Wood is proposing that peak flows from this tributary of Cottonwood Creek be limited to historical "undeveloped" flows. Nor'wood is currently preparing an amendment to the Cottonwood Creek DBPS to accomplish this.

EROSION CONTROL

Erosion control measures will be installed per the approved grading/erosion control plans

DRAINAGE, BRIDGE AND POND FEES

The Bridle Pass Development is within the Cottonwood Creek Drainage Basin. The majority of the area to be developed as the Bridle Pass Development has previously been platted as Templeton Gap Heights. Exhibit 4 shows the proposed Bridle Pass filings, the area previously platted and the unplatted areas tributary to the Bridle Pass detention pond. Proposed Bridle Pass Filings 1, 2, 4, 5, 6 and 8 consists of areas which were previously platted, therefore, no drainage fees are due for these filings.

Filings 3 and 7 contain areas that have not been previously platted. Portions of Filings 3 and 7 are tributary to the detention pond and the developer is requesting the drainage fees be waived for the unplatted areas tributary to the pond. This is require the developer to amend the Drainage Basin Planning Study to adjust the fees. In addition, the developer is requesting the pond become a permanent reimbursable pond, due to the fact that developed flows can not be released from the Bridle Pass Subdivision. Both of these requests will be submitted to the City/County Drainage Board for their approval.

Although the Cottonwood Creek Drainage Basin plan allows for the release of developed flows, several adjacent landowners along the "historic drainageway" will not accept developed flows as shown in the Cottonwood Creek study. The landowners which will not accept developed flows include the owner of the greenbelt south of the Bridle Pass Subdivision and several downstream landowners from Dublin Boulevard to Oakwood and then downstream approximately 2,000 feet. The inability to release developed flows also affects the area east of Powers Boulevard which also contributes flows to the greenbelt and onto additional downstream property owners.

In addition, the Greenbelt, which is the natural drainageway, has been filled in by the owner, Richard Dalby. Both the City of Colorado Springs and El Paso County have notified Mr. Dalby that the Greenbelt must be restored to its previous condition. Until the Greenbelt is restored, flows will be trespassing onto Nor'Wood's property in the proposed Open Space.

The historic flow rate from the east side of Powers Boulevard tributary to the greenbelt is approximately 200 cfs during the 100 year storm. Additional historic flow rates of approximately 60 cfs reach the greenbelt from the Bridle Pass Subdivision. Therefore, the total historic flow rates within the greenbelt just upstream of Dublin is approximately 260 cfs. Two 54" reinforced concrete pipes are proposed to be constructed under Dublin Boulevard by the Bridle Pass developer to convey these historic flows.

The current Cottonwood Creek Study prepared by Ayres and Associates anticipates flow rates of 516 cfs at this Dublin crossing. To convey these flows, Ayres and Associates proposed 2- 6' by 10' box culvert. However, due to the fact that several landowners are not willing to accept developed flows along this drainage corridor, there is no need to construct facilities to convey developed flows.

This compares to the anticipated developed flow rates of 450 cfs now anticipated at Dublin Boulevard. It would take 4-54" RCP's to convey these flows. Nevertheless, the facilities under Dublin Boulevard will only be sized and constructed to convey the historic 100 year storm flow rates of 260 cfs.

As stated above, the developer will present the following proposals to the City/County Drainage Board:

- 1) accept the detention pond as a public reimbursable facility,
- 2) exempt the unplatted areas tributary to the pond from paying drainage fees
- 3) amend the Cottonwood Creek Drainage fee.

These items will be presented to drainage board with the understanding that this drainage report can be approved and plats can be recorded, pending the Drainage Board's approval.

Filing No. 3 – Bridle Pass Subdivision Filing No. 3 consists of 7,978 acres, of which 2,404 were previously platted as part of Templeton Gap Heights plats. Of the remaining 5,574 unplatted acres, 2,064 acres are tributary to the public detention pond. 3,510 acres drain to an existing pipe which conveys developed flows. Fees are due for the 3,510 acres as shown below. Fees for the 2,064 acres will be reimbursed should the City/County Drainage Board accept the above proposal.

DRAINAGE FEE (\$8,002/Acre Total) Fees Definitely Due			
	Acres	\$/Acre	Total Fee
Capital Improvements	3.510	\$5,882.00	\$20,645.82
Portion			
Land Portion	3.510	\$ 1,705.00	\$5,984.55
Cash Portion	3.510	\$ 415.00	\$1,456.65
BRIDGE FEES	3.510	\$ 676.00	\$2,372.76
			\$30,459.78

DRAINAGE FEE (\$8,002/Acre Total) Fees In Question Pending City/County Drainage Board Decision.
If the above proposal is accepted, the following fees will be reimbursed to the developer

	Acres	\$/Acre	Total Fee
Capital Improvements	2.064	\$5,882.00	\$12,140.45
Portion			
Land Portion	2.064	\$ 1,705.00	\$3,519.12
Cash Portion	2.064	\$ 415.00	\$ 856.56
BRIDGE FEES	2.064	\$ 676.00	\$1,395.26
			\$17,911.39

Filing No. 7 - Bridle Pass Subdivision Filing No. 7 consists of 9.762 acres, of which 6.271 were previously platted as part of Templeton Gap Heights plats. All of the unplatted area is tributary to the detention pond. Fees for the remaining 3.491 will be reimbursed should the City/County Drainage Board accept the above proposal. If the proposal is accepted, no fees will be required for Filing No. 7.

DRAINAGE FEE (\$8,002/Acre Total)			
	Acres	\$/Acre	Total Fee
Capital Improvements	3.491	\$5,882.00	\$20,534.06
Portion			
Land Portion	3.491	\$ 1,705.00	\$5,952.16
Cash Portion	3.491	\$ 415.00	\$1,448.77
BRIDGE FEES	3.491	\$ 676.00	<u>\$2,359.92</u>
			\$30,294.91

These fees are being paid under protest and the reimbursement of these fees will be pursued through the Drainage Board or other appeals processes as required.

DRAINAGE FACILITIES (Public Non Reimbursable)

The following drainage facilities will be required for the various Bridle Pass Filings. All these facilities are public non-reimbursable drainage facilities except for the 2-54" RCP's under Dublin Boulevard. These 2-54" RCP's will be public reimbursable and will replace the 2-6' x 10' concrete box culverts proposed in the Drainage Basin Planning Study. Off-site construction will include 2-54" reinforced concrete pipes under future Dublin Boulevard at the greenbelt. These pipes will convey the 100 year storm historic flow rate of 250 cfs. No other off-site facilities will be constructed due to the fact that only historic flows are being released from this development. The pond and the pipe will be installed with the first filing platted.

OFF-SITE FACILITIES (Public Reimbursable)

ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
54" RCP	180 L.F.	\$90.00	\$ <u>16,200.00</u>
		Sub-Total	\$16,200.00
		15% Eng. & Contingency	\$ <u>2,430.00</u>
		Grand Total	\$ 18,630.00

Detention Pond

ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
Grading	1 L.S.	\$45,000.00	\$ 45,000.00
Outfall Structure	1 L.S.	12,000.00	12,000.00
Trickle Flow Channel	1 L.S.	8000.00	<u>8,000.00</u>
		Sub-Total	\$65,000.00
		15% Eng. & Contingency	<u>\$ 9,750.00</u>
		Grand Total	\$ 74,750.00

All facilities within the individual filings are public non-reimbursable systems.

FILING 1

ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
8' D-10-R Inlets	1 Ea.	\$2,500.00	\$ 2,500.00
24" RCP	220 L.F.	\$36.00	\$ 7,920.00
Type 2 Manhole	1 Ea.	\$3,000.00	<u>\$ 3,000.00</u>
		Sub-Total	\$ 13,420.00
		15% Eng. & Contingency	<u>\$ 2,013.00</u>
		Grand Total	\$ 15,433.00

FILING 2

ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
36" RCP	617 L.F.	\$52.00	\$ 32,084.00
Type I Manhole	2 Ea.	\$4,000.00	<u>\$ 6,000.00</u>
		Sub-Total	\$ 38,084.00
		15% Eng. & Contingency	<u>\$ 5,712.60</u>
		Grand Total	\$ 43,796.60

FILING 3

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
36" RCP	1162	L.F.	\$52.00	\$ 60,424.00
Type I Manhole	3	Ea.	\$4,000.00	\$ 12,000.00
15' D-10-R Inlets	1	Ea.	\$4,500.00	\$ 4,500.00
			Sub-Total	\$ 76,924.00
			15% Eng. & Contingency	\$ 11,538.60
			Grand Total	\$ 88,462.60

FILING 4

No drainage facilities are required within Filing No. 4.

FILING 5

ITEM	QUANTITY		UNIT PRICE	EXTENDED COST
4' D-10-R Inlets	2	Ea.	\$1,800.00	\$ 3,600.00
8' D-10-R Inlets	2	Ea.	\$2,500.00	\$ 5,000.00
18" RCP	37	L.F.	\$28.00	\$ 1,036.00
24" RCP	351	L.F.	\$36.00	\$ 12,636.00
36" RCP	304	L.F.	\$52.00	\$ 5,808.00
Detention Pond Including Structures	1	L.S.	\$60,000.00	\$ 60,000.00
Rip-Rap	120	CY	\$75.00	\$ 9,000.00
			Sub-Total	\$ 98,080.00
			15% Eng. & Contingency	\$ 14,712.00
			Grand Total	\$ 112,792.00

FILING 6

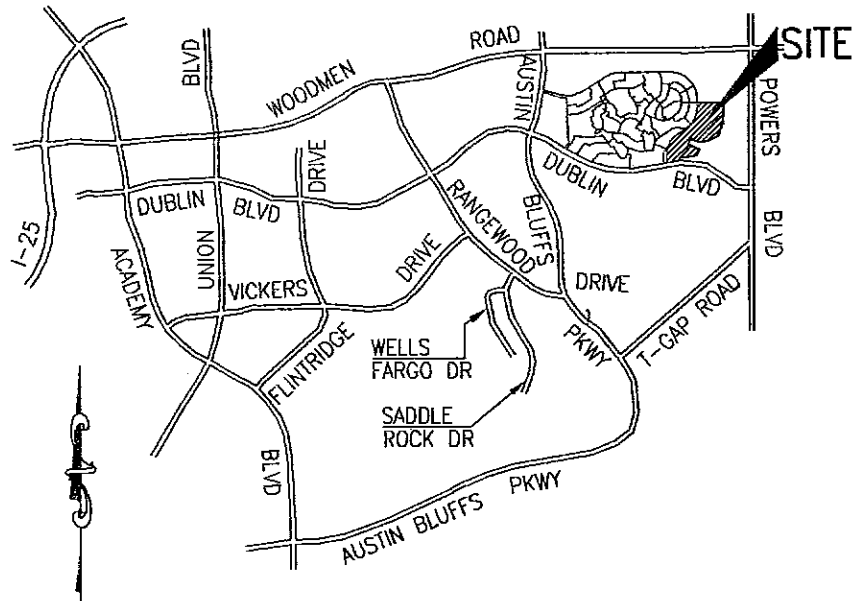
ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
6' D-10-R Inlets	1 Ea.	\$2,300.00	\$ 2,300.00
20' D-10-R Inlets	1 Ea.	\$5,500.00	\$ 5,500.00
24" RCP	15 L.F.	\$36.00	\$ 35,100.00
36" RCP	757 L.F.	\$52.00	\$ 91,000.00
Type II Manhole	2 Ea.	\$1,800	\$ <u>1,800.00</u>
Sub-Total			\$ 135,700.00
15% Eng. & Contingency			\$ <u>20,355.00</u>
Grand Total			\$ 156,05.00

FILING 7

ITEM	QUANTITY	UNIT PRICE	EXTENDED COST
4' D-10-R Inlets	2 Ea.	\$2,000.00	\$ 4,000.00
6' D-10-r Inlets	1 Ea.	\$2,300.00	\$ 2,300.00
8' D-10-R Inlets	2 Ea.	\$2,500.00	\$ 5,000.00
10' D-10-R Inlets	2 Ea.	\$3,000.00	\$ 6,000.00
15' D-10-R Inlets	3 Ea.	\$4,000.00	\$ 12,000.00
20' D-10-R Inlets	1 Ea.	\$5,500.00	\$ 5,500.00
18" RCP	95 L.F.	\$28.00	\$ 2,660.00
24" RCP	975 L.F.	\$36.00	\$ 35,100.00
36" RCP	175 L.F.	\$52.00	\$ 91,000.00
Type II Manhole	1 Ea.	\$1,800	\$ 1,800.00
18" x 45° Bend	3 Ea.	\$650.00	\$ 1,950.00
18"x24" Wyes	3 Ea.	\$600.00	\$ 1,800.00
Rip-Rap	160 CY	\$75.00	\$ <u>12,000.00</u>
Sub-Total			\$ 99,210.00
15% Eng. & Contingency			\$ <u>14,881.50</u>
Grand Total			\$ 114,091.50

APPENDIX

1



Vicinity Map

NOT TO SCALE

FIGURE 1

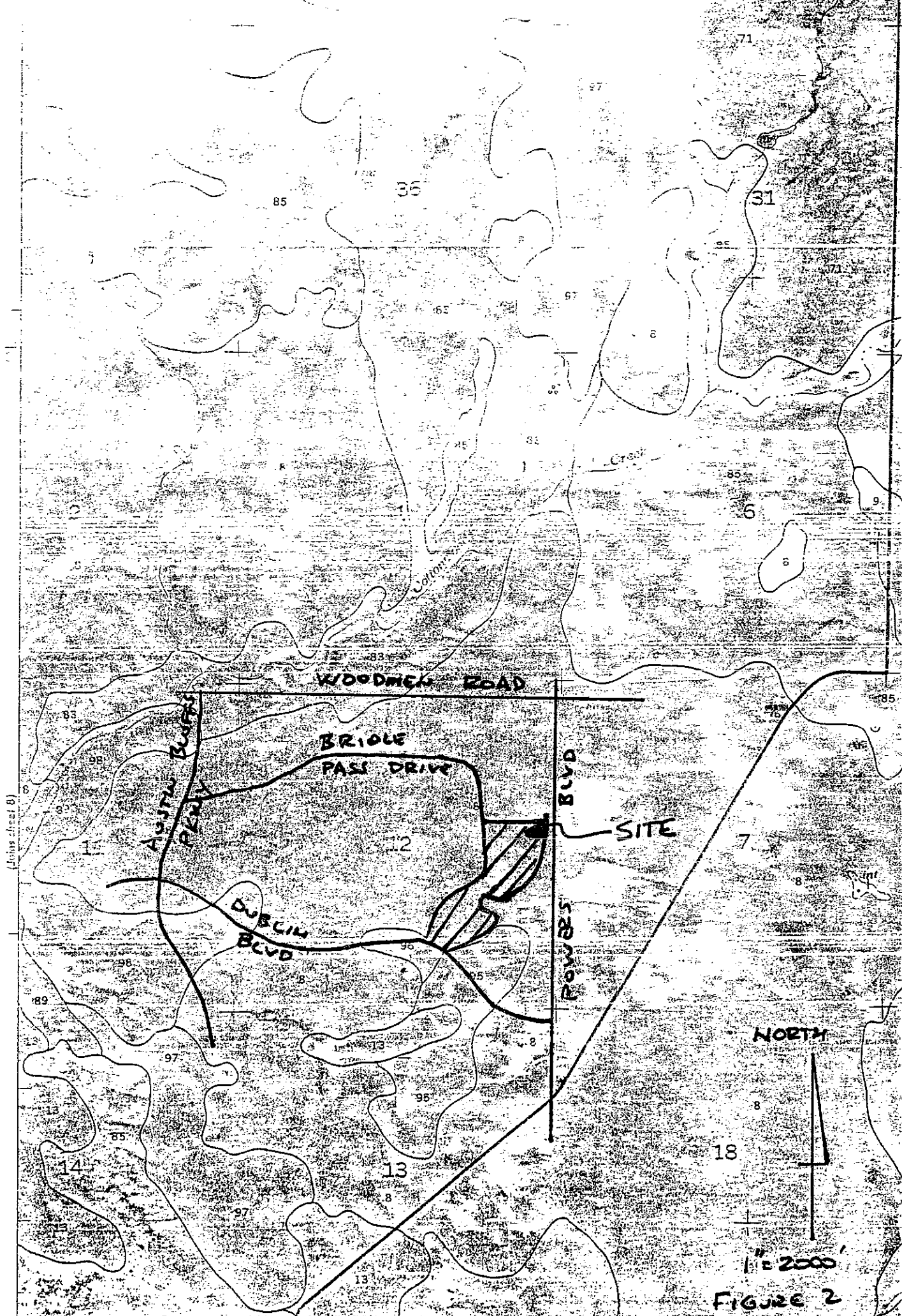
JOB NO. 01-075

FILE: 01075DP1.DWG
DATE: 8/6/02



**ROCKWELL
MINCHOW**
CONSULTANTS, INC.

ENGINEERING - SURVEYING
1873 AUSTIN BLUFFS PARKWAY
COLORADO SPRINGS, CO 80918
(719) 475-2575 • FAX (719) 475-9223



(Joins sheet B)

NORTH

1" = 2000'

FIGURE 2

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: A
AREA: 16.39
SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Open Space	16.39	0.25	0.35	100.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	16.39			100%

COMPOSITE: C5= 0.25 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	1000	4.8		29.95		26.43
				<u>29.95</u>		<u>26.43</u>
Tc Total:				29.95		26.43

Intensity, I (inches/hr) from Fig 5-1

I5 I100
2.4 in/hr 4.4 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 Q100
9.8 in/hr 25.2 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	<u>B</u>
AREA:	<u>7.87</u>
SOIL TYPE:	<u>A & B</u>

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Open Space	7.87	0.25	0.35	100.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	7.87			100%

COMPOSITE: C5= 0.25 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	600	4.3		24.06		21.23
				<u>24.06</u>		<u>21.23</u>
Tc Total:				24.06		21.23

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>2.7</u> in/hr	<u>4.9</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>5.3</u> in/hr	<u>13.5</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: C
 AREA: 24.94
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Open Space	24.94	0.25	0.35	100.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	<u>24.94</u>			<u>100%</u>

COMPOSITE: C5= 0.25 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	1000	3.6		32.94		29.06
Swale	1250	3.2	3.5	5.95	3.7	5.63
				<u>38.89</u>		<u>34.69</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5		I100
<u>2.0</u>	in/hr	<u>3.8</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5		Q100
<u>12.5</u>	in/hr	<u>33.2</u> in/hr

HYDROLOGY
RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: D
 AREA: 10.65
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Open Space	10.65	0.25	0.35	100.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	<u>10.65</u>			<u>100%</u>

COMPOSITE: C5= 0.25 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland Swale	300	14		11.52		10.17
				<u>11.52</u>		<u>10.17</u>
				Tc Total:		11.52 10.17

Intensity, I (inches/hr) from Fig 5-1

I5
I100
3.8 in/hr
6.9 in/hr

PEAK FLOW: Q=CIA in cfs

Q5
Q100
10.1 in/hr
25.7 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: HIST DP#1
 AREA: 34.49
 SOIL TYPE:

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
C	24.94	0.25	0.35	72.31%
D	9.55	0.25	0.35	27.69%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	<u>34.49</u>			<u>100%</u>

COMPOSITE: C5= 0.25 C100= 0.35

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	1000	3.6		32.94		29.06
Swale	1250	3.2	3.5	5.95	3.7	5.63
				<u>38.89</u>		<u>34.69</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5		I100
<u>2.0</u>	in/hr	<u>3.8</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5		Q100
<u>17.2</u>	in/hr	<u>45.9</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: I-A
 AREA: 2.61
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Future Commercial	2.61	0.90	0.90	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>2.61</u>			<u>100%</u>

COMPOSITE: C5= 0.90 C100= 0.90

TIME OF CONCENTRATION: Tc in Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	25	3		5.53		4.88
Parking Lot	100	3	3.5	0.48	3.8	0.44
Street	500	4.5	4	<u>2.08</u>	4	<u>2.08</u>
Tc Total:				8.09		7.40

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.5</u> in/hr	<u>7.9</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>10.6</u> in/hr	<u>18.6</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: I
 AREA: 8.31
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Future Commercial	8.31	0.90	0.90	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	8.31			100%

COMPOSITE: C5= 0.90 C100= 0.90

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	25	2		6.32		5.58
Parking Lot	300	3	3.5	1.43	3.8	1.32
Swale/Pipe	400	3	16.5	<u>0.40</u>	18.5	<u>0.36</u>
Tc Total:				8.16		7.25

Intensity, I (inches/hr) from Fig 5-1

I5 **I100**
4.4 in/hr 7.9 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 **Q100**
32.9 in/hr 59.1 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: II
 AREA: 6.86
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	4.01	0.60	0.70	58.45%
Bridle Pass Drive (street)	1.79	0.90	0.90	26.09%
Landscape/Slope	1.06	0.00	0.00	15.45%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	6.86			100%

COMPOSITE: C5= 0.59 C100= 0.64

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	70	4		8.42		7.43
Street	1600	2.8	3.3	8.08	3.5	7.62
				<u>16.50</u>		<u>15.05</u>
Tc Total:				16.50		15.05

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.3</u> in/hr	<u>5.8</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>13.3</u> in/hr	<u>25.6</u> in/hr

HYDROLOGY
RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: III
 AREA: 2.79
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.79	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>2.79</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3		4.12		3.29
Street	1200	2.8	3.3	6.06	3.5	5.71
				<u>10.18</u>		<u>9.01</u>
Tc Total:				10.18		9.01

Intensity, I (inches/hr) from Fig 5-1

I5 **I100**
4.0 in/hr 7.4 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 **Q100**
6.7 in/hr 14.5 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	IV
AREA:	6.34
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	6.34	0.60	0.70	100.00%
Open Space	0	0.25	0.35	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	6.34			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3.00		6.51		5.21
Street	1000	3.50	3.7	4.50	3.9	4.27
				11.01		9.48
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
3.9 in/hr	7.1 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
14.8 in/hr	31.5 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: VI
 AREA: 3.07
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	3.07	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>3.07</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	4		4.18		3.35
Street	1000	3.5	3.7	4.50	3.9	4.27
				<u>8.69</u>		<u>7.62</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5 I100
4.3 in/hr 7.8 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 Q100
7.9 in/hr 16.8 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	VII
AREA:	3.49
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	3.49	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	3.49			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	4.00		4.18		3.35
Street	1200	3.00	3.3	6.06	3.5	5.71
				10.24		9.06
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

15	1100
4.0 in/hr	7.4 in/hr
Q5	Q100
8.4 in/hr	18.1 in/hr

PEAK FLOW: Q=CIA in cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	VIII
AREA:	1.39
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.39	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	1.39			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	200	3		9.20		7.36
Street	70	1.5	2.5	0.47	2.7	0.43
				9.67		7.79
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
4.1 in/hr	8.3 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
3.4 in/hr	8.1 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: IX-A
 AREA: 0.72
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.72	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.72			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	6.6		6.14		4.91
Street	165	1.5	2.5	1.10	2.7	1.02
				7.24		5.93
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.6</u> in/hr	<u>8.7</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>2.0</u> in/hr	<u>4.4</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: IX-B
 AREA: 1.16
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.16	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>1.16</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc in Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		6.51		5.21
Street	600	1.5	2.5	4.00	2.7	3.70
				<u>10.51</u>		<u>8.91</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5 **I100**
4.0 in/hr 7.4 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 **Q100**
2.8 in/hr 6.0 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: X
 AREA: 2.7
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.7	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>2.70</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3		4.12		3.29
Street	850	2.6	3.2	4.43	3.4	4.17
				<u>8.54</u>		<u>7.46</u>
Tc Total:				8.54		7.46

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.3</u> in/hr	<u>7.8</u> in/hr
Q5	Q100
<u>7.0</u> in/hr	<u>14.7</u> in/hr

PEAK FLOW: Q=CIA in cfs

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XI
AREA:	0.57
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.57	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.57			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3		4.12		3.29
Street	250	3.2	3.5	1.19	3.7	1.13
				5.31		4.42
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
1.8 in/hr	3.6 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XII
 AREA: 0.88
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.88	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.88			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	50	3		4.60		3.68
Street	300	3	3.3	1.52	3.5	1.43
				6.12		5.11
Tc Total:				6.12		5.11

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.9</u> in/hr	<u>8.9</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>2.6</u> in/hr	<u>5.5</u> in/hr

HYDROLOGY
RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XIII
AREA:	2.98
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.98	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.98			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	2.8		8.93		7.14
Street	500	2.8	3.3	2.53	3.5	2.38
				11.46		9.53
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
3.8 in/hr	7.1 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
6.8 in/hr	14.8 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XIV
AREA:	0.34
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.34	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0.34			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	130	4.00		6.75		5.40
				6.75		5.40
Tc Total:				6.75		5.40

Intensity, I (inches/hr) from Fig 5-1

I5	I100
4.8 in/hr	8.8 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
1.0 in/hr	2.1 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XV
 AREA: 0.49
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.49	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0.49</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3.00		4.12		3.29
Street	380	2.80	3.3	1.92	3.5	1.81
				<u>6.03</u>		<u>5.10</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.9</u> in/hr	<u>8.9</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>1.4</u> in/hr	<u>3.1</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XVI
 AREA: 0.26
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	0.26	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0.26</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3.00		4.12		3.29
Street	230	2.00	2.8	1.37	3	1.28
				<u>5.48</u>		<u>4.57</u>
Tc Total:				5.48		4.57

Intensity, I (inches/hr) from Fig 5-1

I5 5.0 in/hr I100 9.0 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 0.8 in/hr Q100 1.6 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XVII
AREA:	2.48
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.48	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	2.48			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3		4.12		3.29
Street	900	3.9	4	3.75	4.2	3.57
				7.87		6.86
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
4.5 in/hr	8.2 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
6.7 in/hr	14.2 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XVIII
 AREA: 1.71
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.71	0.60	0.70	100.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>1.71</u>			<u>100%</u>

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc in Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	40	3		4.12		3.29
Street	900	3.9	4	3.75	4.2	3.57
				<u>7.87</u>		<u>6.86</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.5</u> in/hr	<u>8.2</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>4.6</u> in/hr	<u>9.8</u> in/hr

HYDROLOGY
RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XIX
 AREA: 3.81
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	2.49	0.60	0.70	65.35%
Bridle Pass Drive (street)	1.32	0.90	0.90	34.65%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	3.81			100%

COMPOSITE: C5= 0.70 C100= 0.77

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		5.15		4.30
Street	1200	3.5	3.7	5.41	3.9	5.13
				<u>10.56</u>		<u>9.43</u>
Tc Total:				10.56		9.43

Intensity, I (inches/hr) from Fig 5-1

I5 **I100**
4.0 in/hr 7.2 in/hr

PEAK FLOW: Q=CIA in cfs

Q5 **Q100**
10.7 in/hr 21.1 in/hr

HYDROLOGY
RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: XX
 AREA: 2.63
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.40	0.60	0.70	53.23%
Open Space	0.40	0.25	0.35	15.21%
Dublin Blvd (street)	0.83	0.90	0.90	31.56%
	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	2.63			100%

COMPOSITE: C5= 0.64 C100= 0.71

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	120	5		5.52		4.70
Street	500	1.5	2.5	3.33	2.7	3.09
				<u>8.86</u>		<u>7.78</u>
Tc Total:				8.86		7.78

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.8 in/hr</u>	<u>7.9 in/hr</u>

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>8.1 in/hr</u>	<u>14.7 in/hr</u>

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XXI
AREA:	4.9
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.93	0.60	0.70	39.39%
Open Space	2.97	0.25	0.35	60.61%
	0.00	0.90	0.90	0.00%
	0.00	0.00	0.00	0.00%
	4.90			100%

COMPOSITE: C5= 0.39 C100= 0.49

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	130	3.00		10.57		9.08
	0	1.00	2	0.00	2.2	0.00
				10.57		9.08
Tc Total:				10.57		9.08

Intensity, I (inches/hr) from Fig 5-1

I5	I100
4.0 in/hr	7.4 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
7.6 in/hr	17.7 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XXII
AREA:	3.16
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
1/8 Acre Residential	1.83	0.60	0.70	57.91%
Open Space	1.33	0.25	0.35	42.09%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	3.16			100%

COMPOSITE: C5= 0.45 C100= 0.55

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	6.7		7.91		6.69
				7.91		6.69
Tc Total:				7.91		6.69

Intensity, I (inches/hr) from Fig 5-1

I5	I100
4.5 in/hr	8.3 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
6.4 in/hr	14.5 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN:	XXIII
AREA:	0.62
SOIL TYPE:	A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
Street	0.56	0.90	0.90	90.32%
Landscaping	0.06	0.25	0.35	9.68%
	0.00	0.00	0.00	0.00%
	0.00	0.00	0.00	0.00%
	0.62			100%

COMPOSITE: C5= 0.84 C100= 0.85

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	150	6.7		3.21		3.10
				3.21		3.10
Tc Total:				3.21		3.10

Intensity, I (inches/hr) from Fig 5-1

I5	I100
5.2 in/hr	9.0 in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
2.7 in/hr	4.7 in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #1
 AREA: 20.57
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
I-A	2.61	0.90	0.90	12.69%
I	8.31	0.90	0.90	40.40%
II	6.86	0.59	0.64	33.35%
III	<u>2.79</u>	0.60	0.70	<u>13.56%</u>
	20.57			100%

COMPOSITE: C5= 0.76 C100= 0.79

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	70	4		8.42		7.43
Street	1600	2.8	3.3	8.08	3.5	7.62
				<u>16.50</u>		<u>15.05</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.3</u> in/hr	<u>5.8</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>51.3</u> in/hr	<u>93.8</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #3
 AREA: 19.33
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
IV	6.34	0.60	0.70	32.80%
V	3.16	0.52	0.62	16.35%
VI	3.07	0.60	0.70	15.88%
VII	3.49	0.60	0.70	18.05%
VIII	1.39	0.60	0.70	7.19%
IX-A	0.72	0.60	0.70	3.72%
IX-B	1.16	0.60	0.70	6.00%
	<u>19.33</u>			<u>100%</u>

COMPOSITE: C5= 0.59 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		6.51		5.21
Street	1000	3.5	3.7	4.50	3.9	4.27
				<u>11.01</u>		<u>9.48</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.9</u> in/hr	<u>7.1</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>44.2</u> in/hr	<u>94.3</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #3A
 AREA: 22.60
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP #3	19.33	0.59	0.69	85.53%
X	2.7	0.60	0.70	11.95%
XI	0.57	0.60	0.70	2.52%
	0	0.60	0.70	0.00%
	0	0.60	0.70	0.00%
	0	0.60	0.70	0.00%
	0	0.60	0.70	0.00%
	<u>22.60</u>			<u>100%</u>

COMPOSITE: C5= 0.59 C100= 0.69

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		6.51		5.21
Street	1000	3.5	3.7	4.50	3.9	4.27
Pipe	500	2	15	0.56	16	0.52
Tc Total:				11.57		10.00

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.9</u> in/hr	<u>7.0</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>52.1</u> in/hr	<u>109.4</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #4
 AREA: 4.07
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
XIII	2.98	0.60	0.70	73.22%
XIV	0.34	0.60	0.70	8.35%
XV	0.49	0.60	0.70	12.04%
XVI	0.26	0.60	0.70	6.39%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	4.07			100%

COMPOSITE: C5= 0.60 C100= 0.70

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	180	2.8		8.93		7.14
Street	500	2.8	3.3	2.53	3.5	2.38
				<u>11.46</u>		<u>9.53</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.8</u> in/hr	<u>7.1</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>9.3</u> in/hr	<u>20.2</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #5
 AREA: 10.63
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
XVII	2.48	0.60	0.70	23.33%
XVIII	1.71	0.52	0.62	16.09%
XIX	3.81	0.70	0.77	35.84%
XX	2.63	0.64	0.71	24.74%
	0	0.00	0.00	0.00%
	0	0.00	0.00	0.00%
	<u>0</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00%</u>
	10.63			100%

COMPOSITE: C5= 0.63 C100= 0.71

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
Overland	100	3		5.21		4.29
Street	1200	3.5	3.7	5.41	3.9	5.13
				<u>10.61</u>		<u>9.42</u>
Tc Total:						

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>4.0</u> in/hr	<u>7.2</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>26.9</u> in/hr	<u>54.7</u> in/hr

HYDROLOGY

RATIONAL METHODOLOGY

PROJECT: BRIDLE PASS SUBDIVISION

BASIN: Design Point #6 (Total Pond Inflow)
 AREA: 32.45
 SOIL TYPE: A & B

RUNOFF COEFFICIENT, C

ZONE/DEVELOPMENT TYPE	AREA	C5	C100	% AREA
DP #3A	22.6	0.59	0.69	69.65%
DP #4	4.07	0.60	0.70	12.54%
XII	0.88	0.60	0.70	2.71%
XXI	4.9	0.39	0.49	15.10%
	32.45			100%

COMPOSITE: C5= 0.56 C100= 0.66

TIME OF CONCENTRATION: Tc In Minutes:

Travel Type	L	s %	v5 (fps)	Tc (5 year)	v100 (fps)	Tc (100 year)
DP#4				11.57		10.00
				11.57		10.00
Tc Total:				11.57		10.00

Intensity, I (inches/hr) from Fig 5-1

I5	I100
<u>3.9</u> in/hr	<u>7.0</u> in/hr

PEAK FLOW: Q=CIA in cfs

Q5	Q100
<u>71.0</u> in/hr	<u>150.2</u> in/hr

Bridle Pass Subdivision

Sump Inlet

II and III

5 YEAR

100 YEAR

APPROACH FLOWS
(worse case)

13.3

25.6

$s(x)=$

0.02

$d =$

0.43

0.55

$s(l)=$

0.005

$n=$

0.016

TOTAL FLOWS

20.0

40.1

$L=$

15

$d(max)=$

0.48

0.85

Bridle Pass Subdivision

INLET

IV 1st Inlet

Q5 = 14.8
SL = 0.03

Q100 = 31.5
SO = 0.02

5 YEAR

100 YEAR

T 16.12
FW 2.30
L1 28.6
L2 17.1
L3 61.2

T 21.39
FW 2.43
L1 40.0
L2 24.0
L3 85.6

Li = 15.00

5 YR Q = 14.8

100 YR Q 31.5

5 YR Qi = 7.8

100 YR Qi 11.8

5 YR Qfb = 7.0

100 YR Qfb 19.7

Bridle Pass Subdivision

INLET

IV 2nd Inlet

Q5 = 7.0

Q100 = 19.7

SL = 0.03

SO = 0.02

5 YEAR

100 YEAR

T 12.17

T 17.94

FW 2.18

FW 2.35

L1 20.4

L1 32.4

L2 12.3

L2 19.5

L3 43.7

L3 69.5

Li = 15.00

5 YR Q = 7.0

100 YR Q 19.7

5 YR Qi = 4.6

100 YR Qi 9.1

5 YR Qfb = 2.4

100 YR Qfb 10.6

Bridle Pass Subdivision

Sump Inlet	V SUMP	5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		12.8	38.6	s(x)=	0.02
	d =	0.43	0.65	s(l)=	0.005
TOTAL FLOWS		19.4	53.5	n=	0.016
	d(max)=	0.38	0.90	L=	20

Bridle Pass Subdivision

INLET

VI

Q5 = 7.9

Q100 = 16.8

SL = 0.03

SO = 0.02

5 YEAR

100 YEAR

T 12.74

T 16.90

FW 2.20

FW 2.32

L1 21.6

L1 30.2

L2 12.9

L2 18.1

L3 46.2

L3 64.7

Li = 10.00

5 YR Q = 7.9

100 YR Q 16.8

5 YR Qi = 3.7

100 YR Qi 5.6

5 YR Qfb = 4.2

100 YR Qfb 11.2

Bridle Pass Subdivision

INLET

DP#2

Q5 = 11.7
SL = 0.015

Q100 = 25.3
SO = 0.02

5 YEAR

100 YEAR

T 16.80
FW 1.64
L1 21.2
L2 12.7
L3 45.5

T 22.44
FW 1.73
L1 29.9
L2 18.0
L3 64.1

Li = 10.00

5 YR Q = 11.7

100 YR Q 25.3

5 YR Qi = 5.5

100 YR Qi 8.5

5 YR Qfb = 6.2

100 YR Qfb 16.8

Bridle Pass Subdivision

Sump Inlet	IX-A & IX-B	5 YEAR		100 YEAR	
APPROACH FLOWS (worse case)		2.8	6.0	s(x)=	0.02
	d =	0.24	0.32	s(l)=	0.005
TOTAL FLOWS		4.8	10.4	n=	0.016
	d(max)=	0.17	0.43	L=	6

Bridle Pass Subdivision

Sump Inlet	X & XI	5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		7	14.7	s(x)=	0.02
	d =	0.34	0.45	s(l)=	0.005
TOTAL FLOWS		8.8	18.3	n=	0.016
	d(max)=	0.31	0.62	L=	8

Bridle Pass Subdivision

Sump Inlet	XII	5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		2.8	5.9	s(x)=	0.02
	d =	0.24	0.32	s(l)=	0.005
TOTAL FLOWS		2.8	5.9	n=	0.016
	d(max)=	0.08	0.28	L=	4

1

Bridle Pass Subdivision

Sump Inlet	XIII & XIV	5 YEAR		100 YEAR	
APPROACH FLOWS (worse case)		6.8	14.8	s(x)=	0.02
	d =	0.34	0.45	s(l)=	0.005
TOTAL FLOWS		7.8	16.9	n=	0.016
	d(max)=	0.27	0.58	L=	8

Bridle Pass Subdivision

Sump Inlet	XV & XVI	5 YEAR		100 YEAR	
APPROACH FLOWS (worse case)		2.0	4.3	s(x)=	0.02
	d =	0.21	0.28	s(l)=	0.005
TOTAL FLOWS		3.4	7.2	n=	0.016
	d(max)=	0.12	0.35	L=	4

Bridle Pass Subdivision

Sump Inlet	XVII & XVIII	5 YEAR		100 YEAR	
APPROACH FLOWS (worse case)		6.7	14.2	s(x)=	0.02
	d =	0.34	0.44	s(l)=	0.005
				n=	0.016
TOTAL FLOWS		11.3	24.0	L=	8
	d(max)=	0.40	0.77		

Bridle Pass Subdivision

Sump Inlet	XIX & XX	5 YEAR	100 YEAR		
APPROACH FLOWS (worse case)		10.7	21.1	s(x)=	0.02
	d =	0.40	0.52	s(l)=	0.005
TOTAL FLOWS		18.8	35.8	n=	0.016
	d(max)=	0.37	0.66	L=	20

RATIONAL METHOD DETENTION POND

Pond #1 One Pond

DRAINAGE AREA= 34.49 Acres
 5 YR RUNOFF COEFFICIENT 0.6
 100 YR RUNOFF COEFFICIENT 0.7

Minus Basin XXII & XIII release rates

5 YR HISTORIC RUNOFF 17.2 (-6.4-2.7)= 8.1
 100 YR HISTORIC RUNOFF 45.9 (-14.5-4.7)= 26.7

Allowable Release Rate 5 yr 8.1
 Allowable Release Rate 100 yr 26.7

DURATION (min)	5 YEAR INTENSITY (in/hr)	5 YEAR FLOOD PEAK RUNOFF	100 YEAR INTENSITY (in/hr)	100 YEAR FLOOD PEAK RUNOFF	5 YEAR REQ'D STORAGE VOLUME (C.F.)	100 YEAR REQ'D STORAGE VOLUME (C.F.)	
5	5.2	107.6	9.0	217.3	29853	57176	
8	4.4	91.1	7.6	183.5	39818	75258	
10	4.1	84.8	7.0	169.0	46047	85381	
15	3.4	70.4	5.9	142.4	56034	104169	
20	2.9	60.0	5.1	123.1	62295	115715	
25	2.6	53.8	4.6	111.1	68557	126537	
30	2.4	49.7	4.1	99.0	74818	130115	
35	2.1	43.5	3.8	91.7	74251	136591	
40	1.9	39.3	3.5	84.5	74925	138721	3.14 (100 YR)
45	1.8	37.2	3.2	77.3	78703	136506	
50	1.7	35.2	3.0	72.4	81239	137187	
55	1.6	33.1	2.8	67.6	82534	134971	
60	1.5	31.0	2.6	62.8	82588	129858	1.72 (5 YR)
65	1.4	29.0	2.4	57.9	81399	121848	