

*THIS IS AMENDMENT TO APRIL DRAINAGE PLAN*

STORM DRAINAGE MASTER PLAN  
COST ESTIMATE APPENDIX  
HEWLETT-PACKARD AT BRIARGATE  
COLORADO SPRINGS, COLORADO

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

*PRINT SET*

STORM DRAINAGE MASTER PLAN  
COST ESTIMATE APPENDIX  
HEWLETT-PACKARD AT BRIARGATE  
COLORADO SPRINGS, COLORADO

June 1983

Prepared For:

Hewlett-Packard Corporation  
1501 Page Mill Road, 29u  
Palo Alto, California 94304  
thru:

Fisher, Reece & Johnson, Architects, P.C.  
1500 South Pearl Street  
Denver, Colorado 80210

Prepared By:

Gingery Associates, Inc.  
2840 South Vallejo Street  
Englewood, Colorado 80110  
(303) 761-4860

G.A.I. Job No. 3164.003

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 1 OF 3

PROJECT NAME  
HEWLETT-PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARSGATE

DATE  
6-13-83

PROJECT DESCRIPTION  
REIMBURSABLE  
STORM DRAINAGE

PREPARED BY BDP  
CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
2	4' DIOR 0'-10'	1	EA	1,000	1,000
3	5' φ MH 0'-10'	1	EA	1,200	1,200
	18" φ RCP 0'-10'	250	LF	20	5,000
4	4' φ MH 0'-10'	1	EA	1,000	1,000
	18" φ RCP 0'-10'	210	LF	20	4,200
5	4' φ MH 0'-10'	1	EA	1,000	1,000
	21" φ RCP 0'-10'	280	LF	24	6,720
6	4' DIOR 0'-10'	1	EA	1,000	1,000
	5' φ MH 0'-10'	1	EA	1,200	1,200
	21" φ RCP 0'-10'	180	LF	24	4,320
	18" φ RCP 0'-10'	55	LF	20	1,100
7	5' φ MH 0'-10'	1	EA	1,200	1,200
	24" φ RCP 0'-10'	160	LF	29	4,640
11	4' DIOR 0'-10'	1	EA	1,000	1,000
12	21" φ RCP 0'-10'	50	LF	24	1,200
	27" φ RCP 0'-10'	880	LF	35	30,800
	5' φ MH 0'-10'	2	EA	1,200	2,400
	SUBTOTAL				68,980

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 2 OF 3

PROJECT NAME  
HEWLETT-PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARCRETE

DATE  
6-13-83


PROJECT DESCRIPTION

REIMBURSABLE  
STORM DRAINAGE

PREPARED BY BDP

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<del>23</del>	SPECIAL MH 10'-15'	1	EA	2,500	2,500
	72" Ø RCP 10'-15'	90	LF	175	15,750
<del>24</del>	SPECIAL MH 10'-15'	2	EA	2,500	5,000
	72" Ø RCP 10'-15'	400	LF	175	70,000
	72" Ø RCP 10'-15'	365	LF	175	63,875
<del>25</del>	78" Ø RCP 10'-15'	70	LF	202	14,140
	CONC. CHNL.	200	LF	155	31,000
<del>26</del>	CONC. CHNL.	320	LF	155	49,600
<del>27</del>	CONC. CHNL.	125	LF	155	19,375
<del>28</del>	CONC. CHNL.	30	LF	155	4,650
<del>29</del>	CONC. CHNL.	495	LF	155	76,725
<del>30</del>	CONC. CHNL.	950	LF	155	147,250
<del>31</del>	CONC. CHNL.	700	LF	155	108,500
<del>32</del>	8'x6' RCBC 15'-20'	230	LF	260	59,800
	RCBC MH RISER	11	LF	80	880
<del>33</del>	8'x6' RCBC 15'-20'	435	LF	260	113,100
	8'x6' RCBC 20'-25'	120	LF	284	34,080
	RCBC MH RISER	16	LF	80	1,280
<del>34</del>	8'x6' RCBC 20'-25'	335	LF	284	95,140
	RCBC MH RISER	20	LF	80	1,600
	8'x6' RCBC 20'-25'	400	LF	284	113,600
	RCBC MH RISER	16	LF	80	1,280
<del>35</del>	8'x6' RCBC 20'-25'	130	LF	284	36,920
	RCBC MH RISER	14	LF	80	1,120
	8'x6' RCBC 15'-20'	400	LF	260	104,000
	TRANSITION STRUCTURE	1	EA	15,000	15,000
	ENERGY DISSIPATION STRUCTURE	1	EA	15,000	15,000
<del>36</del>	18" Ø RCP 0'-10'	80	LF	20	1,600
	<b>SUBTOTAL</b>				<b>1,202,765</b>

<p><b>GINGERY ASSOCIATES, INC.</b> CONSULTING ENGINEERS</p>  <p>2840 SO. VALLEJO ST. ENGLEWOOD, COLO. 80110 (303) 761-4860</p>	<b>QUANTITY TAKE-OFF SHEET</b>		SHEET <u>3</u> OF <u>3</u>
	PROJECT NAME <u>HEWLETT - PACKARD</u>		JOB NO. <u>3164.003</u>
	LOCATION <u>BRIDGE</u>		DATE <u>6-13-83</u>

PROJECT DESCRIPTION <u>REIMBURSABLE</u> <u>STORM DRAINAGE</u>	PREPARED BY <u>BDP</u>
	CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	<u>TOTALS</u>				
	4' DIOR 0'-10'	3	EA	1,000	3,000
	4' Ø MH 0'-10'	2	EA	1,000	2,000
	5' Ø MH 0'-10'	5	EA	1,200	6,000
	SPECIAL MH 10'-15'	3	EA	2,500	7,500
	TRANSITION STRUCTURE	1	EA	15,000	15,000
	ENERGY DISSIPATION STRUCTURE	1	EA	15,000	15,000
	18" Ø RCP 0'-10'	595	LF	20	11,900
	21" Ø RCP 0'-10'	510	LF	24	12,240
	24" Ø RCP 0'-10'	160	LF	29	4,640
	27" Ø RCP 0'-10'	880	LF	35	30,800
	72" Ø RCP 10'-15'	855	LF	175	149,625
	78" Ø RCP 10'-15'	70	LF	202	14,140
	8'x6' RCB 15'-20'	1,065	LF	260	276,900
	8'x6' RCB 20'-25'	985	LF	284	279,740
	RCB MH RISER	77	LF	80	6,160
	CONC. CHNL.	2,820	LF	155	437,100
	SUBTOTAL				1,271,745
	CONTINGENCY 10%				127,175
	<b>TOTAL REIMBURSABLE</b>				<b>1,398,920</b>

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 1 OF 15

PROJECT NAME  
**HEWLETT PACKARD**

JOB NO.  
**3164.003**

LOCATION  
**BRIARGATE**

DATE  
**4-27-83**

PROJECT DESCRIPTION

PREPARED BY **BDP**

**STORM DRAINAGE**

~~CHECKED BY~~ • REVISIONS  
\* REIMBURSABLE (6-8-83 RCP)

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
1					
2	4' DIOR * 0'-10'	1	EA		
3	4' DIOR	1	EA		
	5' $\phi$ MH *	1	EA		
	18" $\phi$ RCP *	250	LF		
	18" $\phi$ RCP	260	LF		
4	4' DIOR	2	EA		
	4' $\phi$ MH *	1	EA		
	18" $\phi$ RCP *	210	LF		
	18" $\phi$ RCP	170	LF		
	18" $\phi$ RCP	50	LF		
5	4' DIOR	1	EA		
	4' $\phi$ MH *	1	EA		
	21" $\phi$ RCP *	280	LF		
	18" $\phi$ RCP	55	LF		
6	4' DIOR *	1	EA		
	5' $\phi$ MH *	1	EA		
	21" $\phi$ RCP *	180	LF		
	18" $\phi$ RCP *	55	LF		
7	4' DIOR	1	EA		
	5' $\phi$ MH *	1	EA		
	24" $\phi$ RCP *	160	LF		
	18" $\phi$ RCP	70	LF		
8	4' DIOR	1	EA		
	5' $\phi$ MH	1	EA		
	18" $\phi$ RCP	70	LF		
9	4' DIOR	1	EA		
	5' $\phi$ MH	1	EA		
	18" $\phi$ RCP	240	LF		
	18" $\phi$ RCP	70	LF		

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 2 OF 15

PROJECT NAME  
**HEWLETT PACKARD**

JOB NO.  
**3164.003**

LOCATION  
**BRIARGATE**

DATE  
**4-27-83**

PROJECT DESCRIPTION

**STORM DRAINAGE**

PREPARED BY  
**BDP**

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
△10	4' DIOR 0'-10'	1	EA		
	5' φ MH	1	EA		
	18" φ RCP	280	LF		
	18" φ RCP	55	LF		
△11	4' DIOR *	1	EA		
	21" φ RCP	70	LF		
△12	21" φ RCP *	50	LF		
	27" φ RCP *	880	LF		
	5' φ MH * ↓	2	EA		
SUBTOTAL ①					
	4' DIOR 0'-10'	11	EA		
	4' φ MH	2	EA		
	5' φ MH	8	EA		
	18" φ RCP	1,835	LF		
	21" φ RCP	580	LF		
	24" φ RCP	160	LF		
	27" φ RCP ↓	880	LF		
		1,555			

## GINGERY ASSOCIATES, INC.

CONSULTING ENGINEERS


 2840 SO. VALLEJO ST.  
 ENGLEWOOD, COLO.  
 80110 (303) 761-4860

## QUANTITY TAKE-OFF SHEET

SHEET 3 OF 15

 PROJECT NAME  
 HEWLETT PACKARD

 JOB NO.  
 3164.003

 LOCATION  
 BRIARGATE

 DATE  
 4-27-83

PROJECT DESCRIPTION

PREPARED BY BDP

STORM DRAINAGE

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
13	4' DIOR 10'-15'	1	EA		
14	4' DIOR 10'-15'	1	EA		
	8' DIOR 10'-15'	2	EA		
	18" $\phi$ RCP 10'-15'	400	LF		
	18" $\phi$ RCP 10'-15'	45	LF		
	24" $\phi$ RCP 10'-15'	160	LF		
15	5' $\phi$ MH 15'-20'	2	EA		
	24" $\phi$ RCP 15'-20'	380	LF		
	24" $\phi$ RCP 15'-20'	270	LF		
	24" $\phi$ RCP 0'-10'	170	LF		
	18" $\phi$ RCP 0'-10'	70	LF		
	18" $\phi$ RCP 0'-10'	10	LF		
	6' DIOR 0'-10'	3	EA		
16	5' $\phi$ MH 30'-35'	1	EA		
	27" $\phi$ RCP 15'-20'	95	LF		
	6' DIOR 15'-20'	2	EA		
	18" $\phi$ RCP 15'-20'	50	LF		
	18" $\phi$ RCP 15'-20'	210	LF		
17	6' $\phi$ MH 15'-20'	1	EA		
	TYPE B 10'-15'	6	EA		
	6' DIOR 10'-15'	1	EA		
	18" $\phi$ RCP 10'-15'	270	LF		
	21" $\phi$ RCP 10'-15'	100	LF		
	33" $\phi$ RCP 30'-35'	30	LF		
	33" $\phi$ RCP 15'-20'	190	LF		
	33" $\phi$ RCP 10'-15'	40	LF		
18	6' $\phi$ MH 20'-25'	1	EA		
	36" $\phi$ RCP 20'-25'	250	LF		
	5' $\phi$ MH 15'-20'	2	EA		
	5' $\phi$ MH 10'-15'	2	EA		
	8' DIOR 0'-10'	2	EA		
	16' DIOR 0'-10'	1	EA		
	27" $\phi$ 20'-25'	145	LF		



## GINGERY ASSOCIATES, INC.

CONSULTING ENGINEERS


 2840 SO. VALLEJO ST.  
 ENGLEWOOD, COLO.  
 80110 (303) 761-4860

## QUANTITY TAKE-OFF SHEET

SHEET 4 OF 15

PROJECT NAME

HEWLETT PACKARD

JOB NO.

3164.003

LOCATION

BRIARGATE

DATE

4-27-83

PROJECT DESCRIPTION

STORM DRAINAGE

PREPARED BY

BCP

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
18	(CONT)				
	27" $\phi$ RCP 15'-20'	225	LF		
	27" $\phi$ RCP 10'-15'	50	LF		
	27" $\phi$ RCP 10'-15'	150	LF		
	27" $\phi$ RCP 0'-10'	220	LF		
	18" $\phi$ RCP 0'-10'	25	LF		
19	6' $\phi$ MH 30'-35'	1	EA		
	42" $\phi$ RCP 30'-35'	190	LF		
	42" $\phi$ RCP 25'-30'	200	LF		
	30" $\phi$ RCP 10'-15'	270	LF		
	6' DIOR 10'-15'	3	EA		
	18" $\phi$ RCP 10'-15'	20	LF		
	30" $\phi$ RCP 10'-15'	55	LF		
	27" $\phi$ RCP 10'-15'	120	LF		
	5' $\phi$ MH 0'-10'	3	EA		
	27" $\phi$ RCP 0'-10'	245	LF		
	TYPE 13 0'-10'	5	EA		
	6' DIOR 0'-10'	1	EA		
	18" $\phi$ RCP 0'-10'	180	LF		
20	6' $\phi$ MH 30'-35'	1	EA		
	48" $\phi$ RCP 30'-35'	100	LF		
	4' $\phi$ MH 10'-15'	1	EA		
	8' DIOR 0'-10'	1	EA		
	18" $\phi$ RCP 0'-10'	250	LF		
	18" $\phi$ RCP 10'-15'	260	LF		
21	SPECIAL MH 15'-20'	1	EA		
	TYPE 13 0'-10'	2	EA		
	12' DIOR 0'-10'	1	EA		
	12' DIOR 10'-15'	1	EA		
	18" $\phi$ RCP 0'-10'	75	LF		
	24" $\phi$ RCP 10'-15'	100	LF		
	54" $\phi$ RCP 30'-35'	60	LF		
	54" $\phi$ RCP 15'-20'	240	LF		



**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 6 OF 15

PROJECT NAME  
HEWLETT - PACKARD

JOB NO.  
3169.003

LOCATION  
BLIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

PREPARED BY  
BDP

STORM DRAINAGE

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	SUBTOTAL (2)				
	4' DIOR 0'-10'	1	EA		
	10'-15'	2			
	6' DIOR 0'-10'	3			
	10'-15'	4			
	15'-20'	2			
	8' DIOR 0'-10'	4			
	10'-15'	1			
	12' DIOR 0'-10'	1			
	10'-15'	1			
	16' DIOR 0'-10'	1			
	TYPE 13 0'-10'	7			
	10'-15'	6			
	4' Ø MH 10'-15'	1			
	5' Ø MH 0'-15'	3			
	10'-15'	2			
	15'-20'	4			
	30'-35'	1			
	6' Ø MH 15'-20'	1			
	20'-25'	1			
	30'-35'	2			
	SPECIAL MH 10'-15'	2			
	15'-20'	1	↓		

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 7 OF 15

PROJECT NAME  
HEWLETT-PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

STORM DRAINAGE

PREPARED BY  
BDP

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	SUBTOTAL (2) (CONT)				
	18" Ø RCP 0'-10'	610	LF		
	10'-15'	995			
	15'-20'	260			
	21" Ø RCP 10'-15'	100			
	• 24" Ø RCP 0'-10'	265			
	10'-15'	260			
	15'-20'	650			
	27" Ø RCP 0'-10'	465			
	10'-15'	320			
	15'-20'	320			
	20'-25'	145			
	30" Ø RCP 10'-15'	325			
	33" Ø RCP 10'-15'	40			
	15'-20'	190			
	30'-35'	30			
	36" Ø RCP 20'-25'	250			
	42" Ø RCP 25'-30'	200			
	30'-35'	190			
	48" Ø RCP 30'-35'	100			
	54" Ø RCP 15'-20'	240			
	30'-35'	60			
	60" Ø RCP 10'-15'	275			
	15'-20'	340			
	(• REVISED 6-13-83 BDP)				



**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 9 OF 15

PROJECT NAME  
HEWLETT - PACKARD

JOB NO.  
3164.003

LOCATION  
BRIDGEGATE

DATE  
4-27-83

PROJECT DESCRIPTION

PREPARED BY  
BMP

STREAM DRAINAGE

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
25	78" Ø RCP 10'-15' *	70	LF		
	CONC. CHNL. *	200	LF		
	TYPE 13 0'-10'	6	EA		
	24" Ø RCP 0'-10'	220	LF		
	12' DIOR 0'-10'	1	EA		
	18" Ø RCP 0'-10'	70	LF		
	12' DIOR 0'-10'	1	EA		
	36" Ø RCP 0'-10'	320	LF		
26	4' DIOR 0'-10'	2	EA		
	18" Ø RCP 0'-10'	70	LF		
	CONC. CHNL. *	320	LF		
27	CONC. CHNL. *	125	LF		
28	CONC. CHNL. *	30	LF		
	4' DIOR 0'-10'	1	EA		
	18" Ø RCP 0'-10'	70	LF		
29	18" Ø RCP 0'-10'	70	LF		
	4' DIOR 0'-10'	1	EA		
	CONC. CHNL. *	495	LF		
30	6' DIOR 0'-10'	2	EA		
	4' DIOR 0'-10'	1	EA		
	18" Ø RCP 0'-10'	100	LF		
	CONC. CHNL. *	950	LF		
31	CONC. CHNL. *	700	LF		
32	60" Ø 10'-15'	110	LF		
	8' X 6' RCBC 15'-20' *	230	LF		
	RCBC MH RISER *	11	LF		
33	8' X 6' RCBC 15'-20' *	435	LF		
	8' X 6' RCBC 20'-25' *	120	LF		
	RCBC MH RISER *	16	LF		
	33" Ø RCP 0'-10'	85	LF		
	12' DIOR 0'-10'	1	EA		
	30" Ø RCP 10'-15'	200	LF		
	5' Ø MH 10'-15'	1	EA		

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 10 OF 15

PROJECT NAME  
HEWLETT-PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

PREPARED BY  
BNP

STORM DRAINAGE

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	30" $\phi$ RCP 10'-15'	235	LF		
	5' $\phi$ MH 10'-15'	1	EA		
	30" $\phi$ RCP 10'-15'	275	LF		
	TYPE B 0'-10'	7	EA		
	18" $\phi$ RCP 0'-10'	180	LF		
	10' DIOR 0'-10'	1	EA		
$\Delta$	8'x6' RCBC 20'-25' *	335	LF		
	RCBC MH RISER *	20	LF		
	8'x6' RCBC 20'-25' *	400	LF		
	RCBC MH RISER *	16	LF		
	24" $\phi$ RCP 0'-10'	200	LF		
	5' $\phi$ MH 10'-15'	2	EA		
	4' DIOR 0'-10'	1	EA		
	6' DIOR 0'-10'	1	EA		
	8' DIOR 0'-10'	1	EA		
	24" $\phi$ RCP 0'-10'	25	LF		
	18" $\phi$ RCP 0'-10'	30	LF		
$\Delta$	8'x6' RCBC 20'-25' *	130	LF		
	RCBC MH RISER *	14	LF		
	8'x6' RCBC 15'-20' *	400	LF		
	TRANSITION STRUCTURE *	1	EA		
	ENERGY DISSIPATION STRUCTURE *	1	EA		
$\Delta$	18" $\phi$ RCP 0'-10' *	80	LF		
(REVISED 6-15-83)					

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 11 OF 15

PROJECT NAME  
HEWLETT - PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

STORM DRAINAGE

PREPARED BY  
BDP

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	SUBTOTAL (3)				
	4' DIOR 0'-10'	7	EA		
	6' DIOR 0'-10'	7			
	8' DIOR 0'-10'	1			
	12' DIOR 0'-10'	3			
	14' DIOR 0'-10'	1			
	TYRE 13 0'-10'	13			
	5' x MH 0'-10'	5			
	10'-15'	5			
	SPECIAL MH 10'-15'	3	↓		
	• 18" x RCP 0'-10'	750	LF		
	21" x RCP 0'-10'	180			
	24" x RCP 0'-10'	485			
	27" x RCP 0'-10'	180			
	30" x RCP 0'-10'	185			
	10'-15'	710			
	33" x RCP 0'-10'	85			
	36" x RCP 0'-10'	420			
	42" x RCP 0'-10'	200			
	10'-15'	420			
	60" x RCP 10'-15'	110			
	72" x RCP 10'-15'	855			
	78" x RCP 10'-15'	70			
	8' x 6' RCB 15'-20'	1,065			
	20'-25'	985			
	RCBC MH RISER	77			
	CONCRETE CHANNEL	2,820	↓		
	TRANSITION STRUCTURE	1	EA		
	ENERGY DISSIPATION STRUCTURE	1	EA		
(• REVISED 6-13-83 BDP)					



GINGERY ASSOCIATES, INC. CONSULTING ENGINEERS 2840 SO. VALLEJO ST. ENGLEWOOD, COLO. 80110 (303) 761-4860		QUANTITY TAKE-OFF SHEET			SHEET 12 OF 15	
PROJECT NAME HEWLETT-PACKARD		JOB NO. 3164.c03			DATE 4-27-83	
LOCATION BRIARCRETE		PROJECT DESCRIPTION STORM DRAINAGE			PREPARED BY BTP	
ITEM NO.		DESCRIPTION		ESTIMATED QUANTITY	UNIT	TOTAL COST
TOTALS						
	4' DIOR	0'-10'	19	EA	1,000	19,000
		10'-15'	2		1,250	2,500
	6' DIOR	0'-10'	10		1,200	12,000
		10'-15'	4		1,450	5,800
		15'-20'	2		1,950	3,900
	8' DIOR	0'-10'	5		1,400	7,000
		10'-15'	1		1,650	1,650
	12' DIOR	0'-10'	4		1,600	6,400
		10'-15'	1		1,850	1,850
	14' DIOR	0'-10'	1	↓	1,800	1,800
	16' DIOR	0'-10'	1		2,000	2,000
	TYPE B	0'-10'	20	EA	1,000	20,000
		10'-15'	6	↓	1,250	7,500
	4' Ø MH	0'-10'	2	EA	1,000	2,000
		10'-15'	1		1,250	1,250
	5' Ø MH	0'-10'	16		1,200	19,200
		10'-15'	7		1,450	10,150
		15'-20'	4		1,950	7,800
		30'-35'	1		4,000	4,000
	6' Ø MH	15'-20'	1		2,250	2,250
		20'-25'	1		2,750	2,750
		30'-35'	2		4,500	9,000
	SPECIAL MH	10'-15'	5		2,500	12,500
		15'-20'	1	↓	3,500	3,500
	TRANSITION STRUCTURE		1	EA	15,000	15,000
	ENERGY DISSIPATION STRUCTURE		1	EA	15,000	15,000

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 13 OF 15

PROJECT NAME  
HEWLETT-PACKARD

JOB NO.  
31601.003

LOCATION  
PERIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

PREPARED BY  
RHP

STORM DRAINAGE

CHECKED BY

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	<u>TOTALS (CONT)</u>				
	<u>18" Ø RCP 0'-10'</u>	<u>3,195</u>	<u>LF</u>	<u>20</u>	<u>63,900</u>
	<u>10'-15'</u>	<u>995</u>		<u>28</u>	<u>27,860</u>
	<u>15'-20'</u>	<u>260</u>		<u>40</u>	<u>10,400</u>
	<u>21" Ø RCP 0'-10'</u>	<u>760</u>		<u>24</u>	<u>18,240</u>
	<u>10'-15'</u>	<u>100</u>		<u>32</u>	<u>3,200</u>
	<u>24" Ø RCP 0'-10'</u>	<u>1,040</u>		<u>29</u>	<u>30,160</u>
	<u>10'-15'</u>	<u>260</u>		<u>37</u>	<u>9,620</u>
	<u>15'-20'</u>	<u>650</u>		<u>49</u>	<u>31,850</u>
	<u>27" Ø RCP 0'-10'</u>	<u>1,525</u>		<u>35</u>	<u>53,375</u>
	<u>10'-15'</u>	<u>320</u>		<u>43</u>	<u>13,760</u>
	<u>15'-20'</u>	<u>320</u>		<u>56</u>	<u>17,920</u>
	<u>20'-25'</u>	<u>145</u>		<u>73</u>	<u>10,585</u>
	<u>30" Ø RCP 0'-10'</u>	<u>185</u>		<u>43</u>	<u>7,955</u>
	<u>10'-15'</u>	<u>1,035</u>		<u>53</u>	<u>54,855</u>
	<u>33" Ø RCP 0'-10'</u>	<u>85</u>		<u>49</u>	<u>4,165</u>
	<u>10'-15'</u>	<u>40</u>		<u>58</u>	<u>2,320</u>
	<u>15'-20'</u>	<u>190</u>		<u>71</u>	<u>13,490</u>
	<u>30'-35'</u>	<u>30</u>		<u>136</u>	<u>4,080</u>
	<u>36" Ø RCP 0'-10'</u>	<u>420</u>		<u>56</u>	<u>23,520</u>
	<u>20'-25'</u>	<u>250</u>		<u>97</u>	<u>24,250</u>
	<u>42" Ø RCP 0'-10'</u>	<u>200</u>		<u>67</u>	<u>13,400</u>
	<u>10'-15'</u>	<u>420</u>		<u>77</u>	<u>32,340</u>
	<u>25'-30'</u>	<u>200</u>		<u>132</u>	<u>26,400</u>
	<u>30'-35'</u>	<u>190</u>		<u>160</u>	<u>30,400</u>
	<u>48" Ø RCP 30'-35'</u>	<u>100</u>		<u>176</u>	<u>17,600</u>
	<u>54" Ø RCP 15'-20'</u>	<u>240</u>		<u>121</u>	<u>29,040</u>
	<u>30'-35'</u>	<u>60</u>		<u>196</u>	<u>11,760</u>
	<u>60" Ø RCP 10'-15'</u>	<u>385</u>		<u>126</u>	<u>48,510</u>
	<u>15'-20'</u>	<u>340</u>		<u>141</u>	<u>47,940</u>
	<u>72" Ø RCP 10'-15'</u>	<u>855</u>		<u>175</u>	<u>149,625</u>
	<u>78" Ø RCP 10'-15'</u>	<u>70</u>	<u>↓</u>	<u>202</u>	<u>14,140</u>

**GINGERY ASSOCIATES, INC.**

CONSULTING ENGINEERS



2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860

**QUANTITY TAKE-OFF SHEET**

SHEET 14 OF 15

PROJECT NAME  
HEWLETT - PACKARD

JOB NO.  
3164.003

LOCATION  
BRIARGATE

DATE  
4-27-83

PROJECT DESCRIPTION

PREPARED BY  
BDP

CHECKED BY

STORM DRAINAGE

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
	TOTALS (CONT)				
	8' x 6' R.C.B.C. 15'-20'	1,065	LF	260	276,900
	20'-25'	985	↓	281	279,740
	R.C.B.C. MH RISER	77	LF	80	6,160
	CONCRETE CHANNEL	2,820	LF	155	437,100
	SHEET 12				195,800
	• SHEET 13				846,060
	SHEET 14				999,900
	• SUBTOTAL				2,042,360
	• CONTINGENCY 10%				204,240
	• TOTAL				2,246,600
	(REVISED 6-13-83 BDP)				

# GINGERY ASSOCIATES, INC.

CONSULTING ENGINEERS

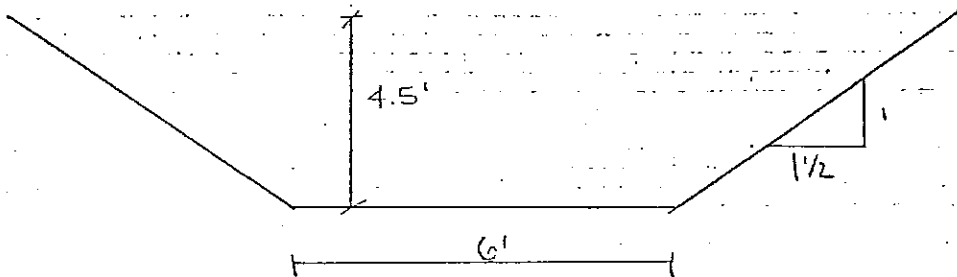
2840 SO. VALLEJO ST.  
ENGLEWOOD, COLO.  
80110 (303) 761-4860



# DESIGN CALCULATIONS

Project HEWLETT PACKARD  
Feature COST ESTIMATE  
Designed BY Date 4-27-83 Sht. 15 of 15  
Checked \_\_\_\_\_ Date \_\_\_\_\_ Job No. 3164.03

## CHANNEL QUANTITIES



6" OK ON SLOPE PAVING @ \$160/cy  
 TO ALLOW FOR SPECIAL DESIGN @ SUPERCRITICAL,  
 USE 9" @ \$200/cy.

$$P = 6 + 2 \sqrt{4.5^2 + [1.5(4.5)]^2} = 22.22 \text{ SF/LF}$$

$$\text{@ 9" } V = 22.22 \frac{\text{SF}}{\text{LF}} \times \frac{9 \text{ IN}}{12 \text{ IN/FT}} = 16.67 \frac{\text{CF}}{\text{LF}}$$

$$\text{CONCRETE COST} = \frac{16.67 \text{ CF/LF} \times \$200}{27 \text{ CF/CY}} \approx \underline{\underline{\$125/\text{LF}}}$$

USE 6" PVC UNDER DRAIN @ \$6/LF

$$\text{FILTER MATERIAL} = \frac{1' \times 6' \times 1'}{27} \times \frac{\$18}{\text{CY}} \approx \underline{\underline{\$4/\text{LF}}}$$

$$\text{ACCESS ROAD} = \frac{12' \times 0.5' \times 1'}{27} \times \frac{\$10}{\text{T}} \times \frac{1.8 \text{ T}}{\text{CY}} \approx \underline{\underline{\$4/\text{LF}}}$$

$$\text{SUBTOTAL} = 125 + 6 + 4 + 4 \approx \underline{\underline{\$140/\text{LF}}}$$

$$+ \text{CONTINGENCY @ 10\%} \rightarrow \underline{\underline{\$155/\text{LF}}}$$

[ COST OF EXCAVATION TO BE INCLUDED IN GRADING ]