



CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

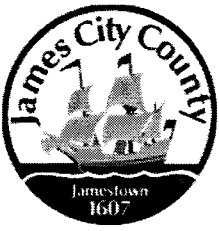
BMP NUMBER: 99119

DATE VERIFIED: March 22, 2012

QUALITY ASSURANCE TECHNICIAN: Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

DATE: March 10, 2010
TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
FROM: Jo Anna Ripley, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: 99119

PIN: 4820100003

Subdivision, Tract, Business or Owner

Name (if known): Williamsburg Landing

Property Description: General Files

Site Address:

(For internal use only)

Box 10

Drawer: 6

Agreements: (in file as of scan date) N

Book or Doc#:

Page:

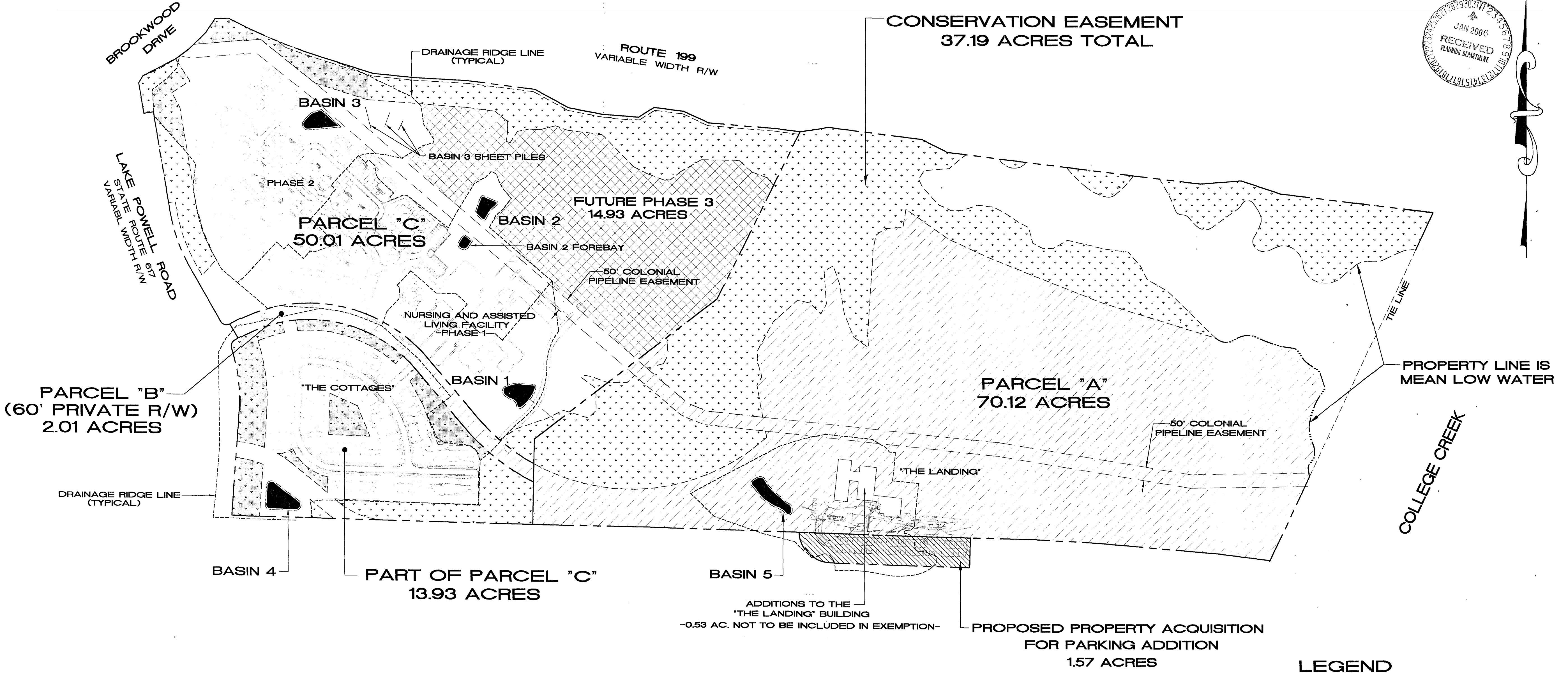
Comments

Contents for Stormwater Management Facilities As-built Files

Each File is to contain:

- 1. Maintenance Agreement
- 2. Construction certification
- 3. As-Built plan
- 4. Design Calculations
- 6. Correspondence
- 7. Inspection records
- 8. Miscellaneous

C-008-06



LANDMARK DESIGN GROUP
 Engineers • Planners • Surveyors
 Landscape Architects • Environmental Scientists

REVISIONS:

No.	Date	Comment

DRAWING STATUS:

CHESAPEAKE BAY PRESERVATION ORDINANCE COMPLIANCE MAP
 WILLIAMSBURG LANDING
 JAMES CITY COUNTY, VIRGINIA

Designed:	Date:	11/24/04
Checked:	Scale:	1"=200'
File Mgr./Drawn:	CADD File name:	BMP.dwg
Project Number:	Dwg. File No.:	2000312-000.08 15480 EW
Drawing Number:		E-1

STRUCTURAL WEIGHTED BMP POINTS

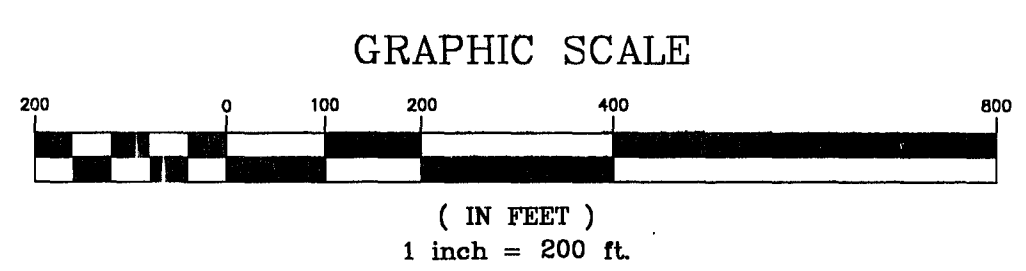
BMP	POINTS	DRAINAGE AREA	TOTAL AREA	FRACTION SERVED	WEIGHTED BMP POINTS
1	4	5.19	69.78	0.07	0.30
2	10	7.90	69.78	0.11	1.13
3	10	14.58	69.78	0.21	2.09
4	4	13.34	69.78	0.19	0.77
5	4	6.65	69.78	0.10	0.38
TOTAL WEIGHTED STRUCTURAL POINTS =					4.67
CONSERVATION EASEMENT CREDIT					
$\frac{37.19}{69.78 (100)} \times 0.10 = 5.33$					
TOTAL WEIGHTED POINTS (4.67 + 5.33) =					10.00

N/F
 MARY S. WALTRIP

AREA TOTALS

PARCEL "A"	= 70.12 AC.
PARCEL "B"	= 2.01 AC.
PARCEL "C"	= 50.01 AC.
PART OF PARCEL "C" (THE COTTAGES)	= 13.93 AC.
NEW PROPERTY ACQUISITION	= 1.57 AC.
TOTAL ACREAGE	= 137.64 AC.
EXEMPT ACREAGE: (PROPERTY DEVELOPED PRE-CHES BAY AND CONSERVATION EASEMENT AREA THAT FLOWS THROUGH DRAINAGE BASINS)	
-PART OF PARCEL "A"	= 46.46 AC.
-PARCEL "B"	= 2.01 AC.
-CONSERVATION EASEMENT	= 4.46 AC.
TOTAL EXEMPT ACREAGE	= 52.93 AC.
ADJUSTED ACREAGE:	
TOTAL ACREAGE	= 137.64 AC.
MINUS	
TOTAL EXEMPT ACREAGE	= 52.93 AC.
FUTURE PHASE 3 ACREAGE	= 14.93 AC.
TOTAL ADJUSTED ACREAGE	= 69.78 AC.

- LEGEND**
- AREAS DEVELOPED PRE-CHESAPEAKE BAY ORDINANCE
 - CONSERVATION EASEMENT
 - CONSERVATION EASEMENT THAT FLOWS THROUGH DRAINAGE BASINS (BMP)
 - PROPERTY TO BE ACQUIRED BY WILLIAMSBURG LANDING, INC. FOR PARKING ADDITION
 - FUTURE PHASE 3
 - EXISTING DRAINAGE BASIN (BMP)



WILLIAMSBURG LANDING - LANDING BUILDING
ADDITIONS AND EXPANSION

EXTENDED DETENTION DRY POND SIZING CALCULATION

SIZING CALCULATION
WILLIAMSBURG LANDING - ADDITION
DESIGN 2 - RISER STRUCTURE
AES PROJ # 8162-2

Revised: 7/25/97
10:46 AM

Proposed: Design 2 Detention Pond

Volume Requirements: 0.5" runoff volume, detained 6-12 hours.

Total drainage area to riser: 248,727 S.F. 5.71 AC.
Total site drainage area: 145,666 S.F. 3.34 AC.
Total impervious area: 81,892 S.F. 1.88 AC.
BMP Volume required: (0.5") (1/12") (81,892) = 3,412 C.F.
Volume provided at EI = 28.9 : 3,450 c.f.

Proposed dry pond to be used as a temporary sediment containment during construction

Total disturbed area: 54,540 s.f. 1.25 AC.
Sediment Volume Required:
Total disturbed area to pond (DA): 54,540 s.f. 1.25 AC.
Total Storage Volume Required (CY) = (134 CY / AC) * DA = 168 C.Y.
= 4,530 C.F.

Elevation of riser crest at 29.33 is approximately 4,530 C.F. of storage

Min wet storage volume = 2,265 C.F.
Min dry storage volume = 2,265 C.F.

Wet storage volume of 2,265 C.F. is achieved at Elev. = 28.25

Sediment cleanout required when wet storage is reduced to 1,132 C.F. at Elev. = 27.38.

Proposed estimated pond volume by elevation

Elevation	Depth	Area (sq. ft.)	Volume (cu. ft.)	Volume (cu. yd.)	Cum Volume (cu. ft.)	Cum Volume (cu. yd.)
25.0	0.0	67				
26.0	1.0	307	187	7	187	7
27.0	1.0	751	529	20	716	27
28.0	1.0	1420	1086	40	1,802	67
29.0	1.0	2245	1833	68	3,634	135
30.0	1.0	3180	2713	100	6,347	235
31.0	1.0	4201	3691	137	10,037	372
32.0	1.0	5305	4753	176	14,790	548
33.0	0.0	0	0	0	14,790	548
34.0	0.0	0	0	0	14,790	548
35.0	0.0	0	0	0	14,790	548

**WILLIAMSBURG LANDING
ADDITIONS AND RENOVATIONS**

AREA CALCULATIONS

	S.F.	ACRES
TOTAL DRAINAGE TO RISER	248,727	5.71
TOTAL SITE DRAINAGE AREA	145,666	3.34
TOTAL DISTURBED AREA	54,591	1.25

	<u>EXISTING</u>			<u>PROPOSED</u>			
	S.F.	ACRES	PERCENT TOTAL	S.F.	ACRES	% OF TOTAL	% CHANGE
BUILDINGS	27,999	0.64	19.22%	37,911	0.87	26.03%	6.80%
PAVEMENT/PARKING	42,271	0.97	29.02%	40,177	0.92	27.58%	-1.44%
SIDEWALKS	5,385	0.12	3.70%	3,985	0.09	2.74%	-0.96%
OPEN/GRASSED	70,011	1.61	48.06%	63,593	1.46	43.66%	-4.41%
TOTAL AREA IDENTIFIED	145,666	3.34	100.00%	145,666	3.34	100.00%	0.00%
TOTAL IMPERVIOUS	75,655	1.74	51.94%	82,073	1.88	56.34%	4.41%
TOTAL DISTURBED AREA				54,591	1.25	37.48%	

TOTAL DRAINAGE TO RISER	248,727	5.71
TOTAL SITE DRAINAGE AREA	145,666	3.34
TOTAL DISTURBED AREA	54,591	1.25

	<u>EXISTING</u>			<u>PROPOSED</u>			
BUILDINGS	27,999	0.64	19.22%	37,911	0.87	28.03%	6.80%
PAVEMENT/PARKING	42,271	0.97	29.02%	40,177	0.92	27.58%	-1.44%
SIDEWALKS	5,385	0.12	3.70%	3,985	0.09	2.74%	-0.96%
OPEN/GRASSED	70,011	1.61	48.06%	63,593	1.46	43.66%	-4.41%
TOTAL AREA IDENTIFIED	145,666	3.34	100.00%	145,666	3.34	100.00%	0.00
TOTAL IMPERVIOUS	75,655	1.74	51.94%	82,073	1.88	56.34%	4.41%
TOTAL DISTURBED AREA				54,591	1.25	37.48%	

**SIZING CALCULATION
WILLIAMSBURG LANDING - ADDITION
DESIGN 2 - RISER STRUCTURE
AES PROJ # 8162-2**

Revised: 7/25/97
10:46 AM

Proposed estimated pond volume by elevation

Elevation	Depth	Area (sq. ft.)	Volume (cu. ft.)	Volume (cu. yd.)	Cum Volume (cu. ft.)	Cum Volume (cu. yd.)
25.0	0.0	67				
26.0	1.0	307	187	7	187	7
27.0	1.0	751	529	20	716	27
28.0	1.0	1420	1086	40	1,802	67
29.0	1.0	2245	1833	68	3,634	135
30.0	1.0	3180	2713	100	6,347	235
31.0	1.0	4201	3691	137	10,037	372
32.0	1.0	5305	4753	176	14,790	548
33.0	0.0	0	0	0	14,790	548
34.0	0.0	0	0	0	14,790	548
35.0	0.0	0	0	0	14,790	548

HYDROLOGIC REPORT FOR

WILLIAMSBURG LANDING

ADDITIONS AND RENOVATIONS

RISER STRUCTURE DESIGN

AES PROJECT 8162-2

prepared by:

**AES Consulting Engineers
5148 Olde Towne Rd., Ste 1
Williamsburg, VA 23188**

July 11, 1997

HYDROLOGIC REPORT

2-YR POST DEVELOPMENT.
 ROUTED THROUGH RISER..
 STRUCTURE.....

Hyd. No. 16

Hydrograph type = RESERVOIR ROUTE	Peak discharge = 13.84 cfs
Storm frequency = 2 yr	Time interval = 2 min
Inflow hyd. no. = 15	Reservoir no. = 2

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
11.47	1.00	1.04	0.41	2.38	0.98
11.50	1.04	1.21	0.40	2.46	1.03
11.53	1.21	1.61	0.38	2.66	1.14
11.57	1.61	2.17	0.26	3.20	1.47
11.60	2.17	2.91	0.16	4.03	1.94
11.63	2.91	3.76	-0.21	5.25	2.73
11.67	3.76	4.71	-0.64	6.47	3.56
11.70	4.71	5.74	-0.80	7.83	4.32
11.73	5.74	6.88	-0.03	9.65	4.84
11.77	6.88	8.45	0.47	12.59	6.06
11.80	8.45	10.79	1.94	15.80	6.93
11.83	10.79	13.79	4.39	21.18	8.39
11.87	13.79	17.27	10.14	28.96	9.41
11.90	17.27	19.98	18.86	41.20	11.17
11.93	19.98	19.62	31.74	56.11	12.19
11.97	19.62	15.57	44.64	71.34	13.35
12.00	15.57	9.88	52.15	79.82	13.84
12.03	9.88	5.47	50.15	77.60	13.73
12.07	5.47	3.41	39.67	65.50	12.91
12.10	3.41	2.81	25.10	48.56	11.73
12.13	2.81	2.69	11.78	31.32	9.77
12.17	2.69	2.58	2.49	17.28	7.40
12.20	2.58	2.47	-0.81	7.77	4.29
12.23	2.47	2.36	0.15	4.25	2.05
12.27	2.36	2.25	-0.12	4.98	2.55

HYDROGRAPH DISCHARGE TABLE Cont'd

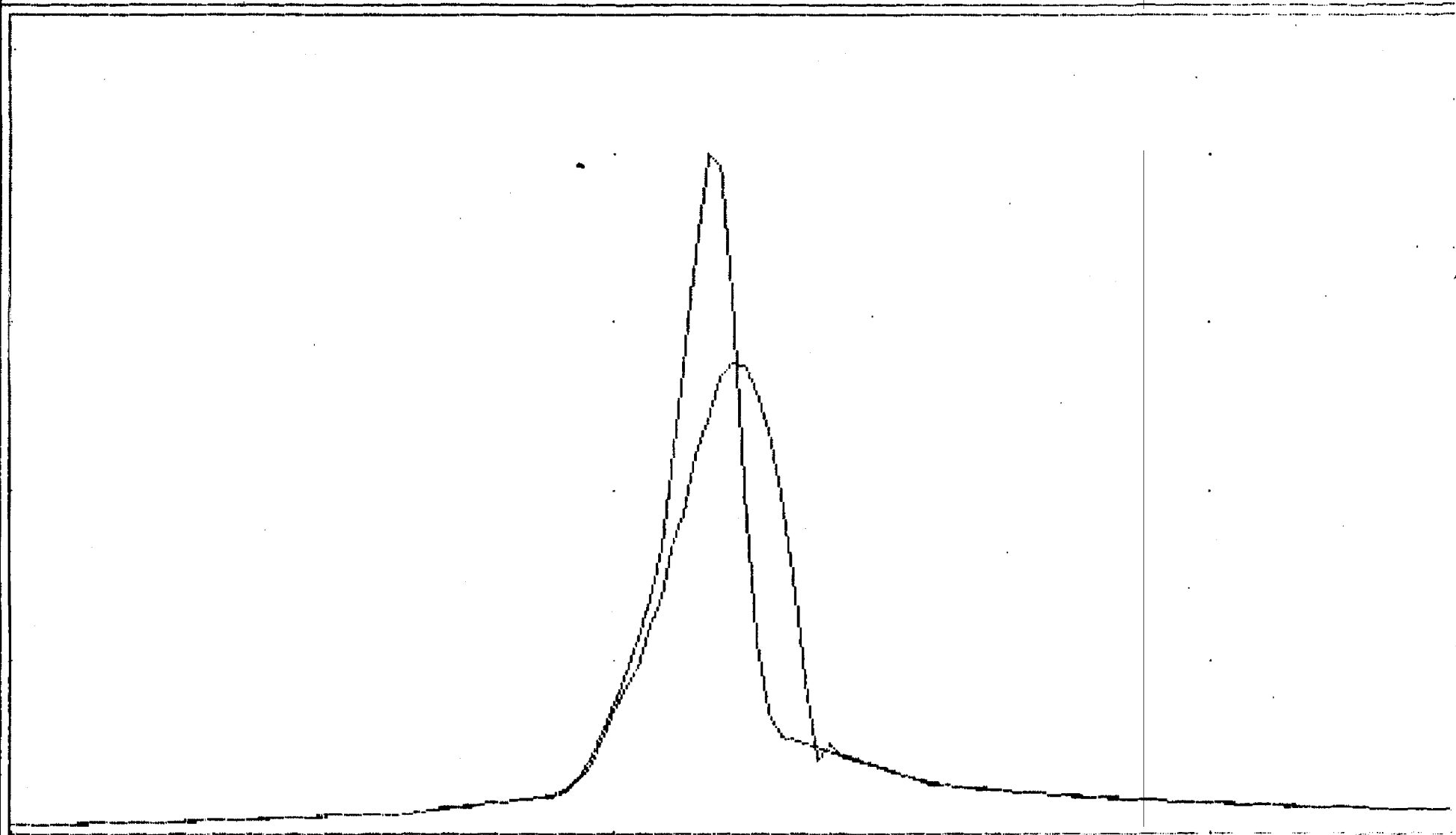
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
12.30	2.25	2.14	0.06	4.50	2.22
12.33	2.14	2.03	0.07	4.45	2.19
12.37	2.03	1.91	0.15	4.24	2.05
12.40	1.91	1.80	0.16	4.09	1.96
12.43	1.80	1.68	0.16	3.87	1.85
12.47	1.68	1.57	0.16	3.64	1.74
12.50	1.57	1.46	0.20	3.41	1.60
12.53	1.46	1.38	0.25	3.23	1.49
12.57	1.38	1.33	0.28	3.09	1.40
12.60	1.33	1.30	0.31	2.99	1.34
12.63	1.30	1.27	0.32	2.93	1.31
12.67	1.27	1.25	0.33	2.89	1.28
12.70	1.25	1.22	0.34	2.85	1.25
12.73	1.22	1.19	0.35	2.81	1.23
12.77	1.19	1.17	0.36	2.77	1.20
12.80	1.17	1.14	0.37	2.72	1.18
12.83	1.14	1.12	0.37	2.68	1.15
12.87	1.12	1.09	0.38	2.63	1.13
12.90	1.09	1.06	0.39	2.59	1.10
12.93	1.06	1.04	0.39	2.54	1.07
12.97	1.04	1.01	0.40	2.49	1.05
13.00	1.01	0.99	0.41	2.45	1.02

Maximum outflow (cfs) = 13.84
 Maximum storage (cu ft) = 3959
 Maximum elevation (ft) = 29.12

Qp = 13.8

RESERVOIR ROUTE

2 1



HGU = 100 min

16

UGU = 5.0 cf

MAX STORAGE = 3959

MAX ELEVATION = 29.12

HYDROLOGIC REPORT

10-YR POST DEVELOPMENT
 ROUTED THROUGH RISER..
 STRUCTURE.....

Hyd. No. 18

Hydrograph type = RESERVOIR ROUTE	Peak discharge = 26.73 cfs
Storm frequency = 10 yr	Time interval = 2 min
Inflow hyd. no. = 17	Reservoir no. = 2

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
10.33	1.00	1.03	0.41	2.40	1.00
10.37	1.03	1.05	0.41	2.44	1.02
10.40	1.05	1.07	0.40	2.48	1.04
10.43	1.07	1.10	0.40	2.53	1.07
10.47	1.10	1.12	0.39	2.57	1.09
10.50	1.12	1.15	0.38	2.61	1.11
10.53	1.15	1.17	0.38	2.65	1.14
10.57	1.17	1.20	0.37	2.70	1.16
10.60	1.20	1.24	0.37	2.75	1.19
10.63	1.24	1.27	0.35	2.80	1.23
10.67	1.27	1.31	0.34	2.86	1.26
10.70	1.31	1.35	0.32	2.92	1.30
10.73	1.35	1.38	0.31	2.98	1.33
10.77	1.38	1.42	0.29	3.04	1.37
10.80	1.42	1.46	0.28	3.10	1.41
10.83	1.46	1.50	0.26	3.17	1.45
10.87	1.50	1.54	0.25	3.23	1.49
10.90	1.54	1.59	0.23	3.30	1.53
10.93	1.59	1.63	0.22	3.36	1.57
10.97	1.63	1.67	0.20	3.43	1.61
11.00	1.67	1.65	0.18	3.50	1.66
11.03	1.65	1.64	0.18	3.50	1.66
11.07	1.64	1.63	0.19	3.47	1.64
11.10	1.63	1.74	0.19	3.46	1.63
11.13	1.74	1.86	0.17	3.57	1.70

HYDROGRAPH DISCHARGE TABLE Cont'd

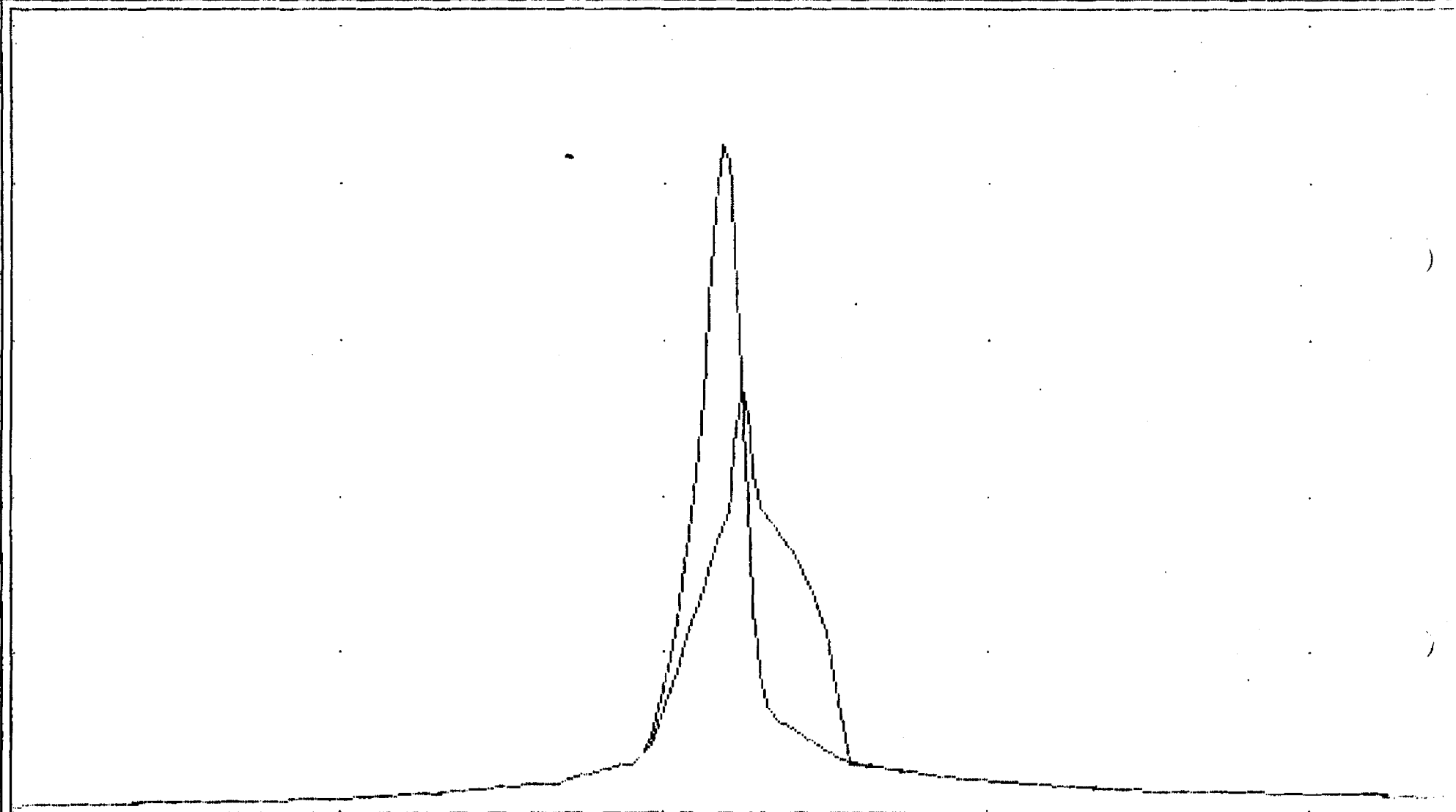
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
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Maximum outflow (cfs)	=	26.73			
Maximum storage (cu ft)	=	16828			
Maximum elevation (ft)	=	32.35			

Qp = 26.7

RESERVOIR ROUTE

10 Yr



HGU = 100 min

18

UGU = 10.0 cfs

MAX STORAGE = 16828

SP-83-96
WILLIAMSBURG LANDING
ADDITIONS + RENOVATIONS
TO LANDING.