
WELLINGTON PARK

Detention Basin Report: Southwest Basin

Prepared by Mark Kilgore, P.E.
Project Engineer



Developer:

The Jones Company

16640 Chesterfield Grove Boulevard

Chesterfield, Missouri 63305

(636) 537-7000

April 15, 2003

RECEIVED

JUL 07 2003

ENGINEERING DEPARTMENT

DETENTION BASIN REPORT

project: **Wellington Park**
 jurisdiction: **City of O'Fallon, MO**
 det'n basin: **Southwest**
 designer: **Mark Kilgore, P.E.**

DRAINAGE AREA

area: **5.67** ac

OUTLET STRUCTURE

Top of dam: **596.00**
 Stand pipe: **594.50**
 Slot width: **0.9** ft
 Slot height: **1.8** ft
 Slot FL: **589.50**

BASIN GEOMETRY

elevation	area (SF)
589.5	0
590	499
592	2761
594	3070
596	3340

ROUTED FLOW DATA

15-yr Q: **10.62** cfs @ **593.44**

25-yr Q: **12.19** cfs @ **594.28**

SEDIMENT (2-yr)

contour 1: **594** area: **3070** SF
 contour 2: **596** area: **3340** SF
 25-yr wsel: **594.28** area: **3108** SF
 fig. 6 read: **180** cfs/ac/yr * 2yrs * 5.67 ac = 2041 CF
 Ht of sed: 2041 CF / 3108 SF = 0.66 ft
 Elev of sed: 594.28 + 0.66 = **594.94**
 top dam: 596.00
 freeboard: **1.06 ft**
 over 25-yr + 2-yr sediment

100-yr Q: **21.96** cfs @ **594.94** = 594.94
 top dam: 596.00
 freeboard: **1.06 ft**
 over 100-yr

TIME OF CONCENTRATION

by Mark Kilgore, P.E.

Pickett, Ray & Silver, Inc.

Project: Wellington Park
Jurisdict'n: City of O'fallon
Basin: Southwest
Condition: Proposed

TIME OF CONC.

SHEET FLOW: 33 ft
START EL 620 el
END EL= 619.3 el
SLOPE= 0.0212 ft/ft

SHAL CONC FLOW: 31 ft
START EL 619.3 el
END EL= 618.9 el
SLOPE= 0.0129 ft/ft

GRASS CH. FLOW: 419 ft
CONC. CH. FLOW: 291 ft

SHEET TIME: 0.0915 hr

SHAL CONC:
SH CONC V: 1.833 ft/sec
SH CONC TIME: 0.0047 hr

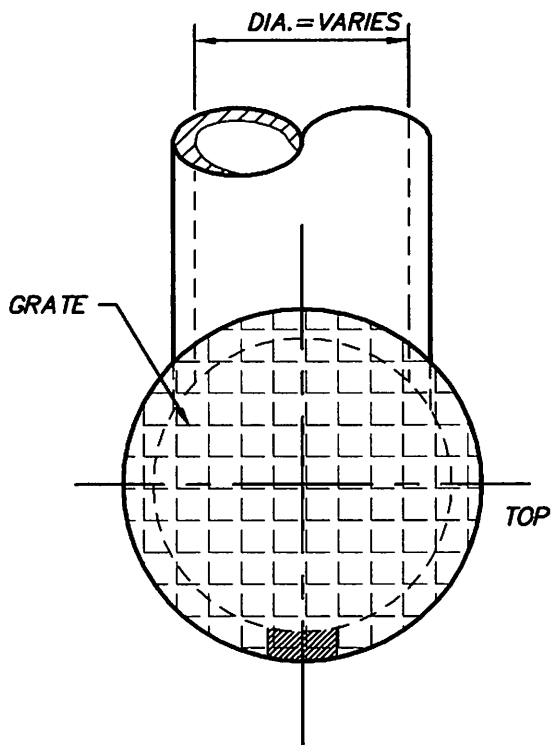
GRASS CHAN. V.: 5 ft/sec (assume 5 for grass)
CONC. CHAN. V.: 12 ft/sec (assume 12 for concrete)

GRASS CH. TIME: 0.0233 hr
CONC. CH. TIME: 0.0067 hr

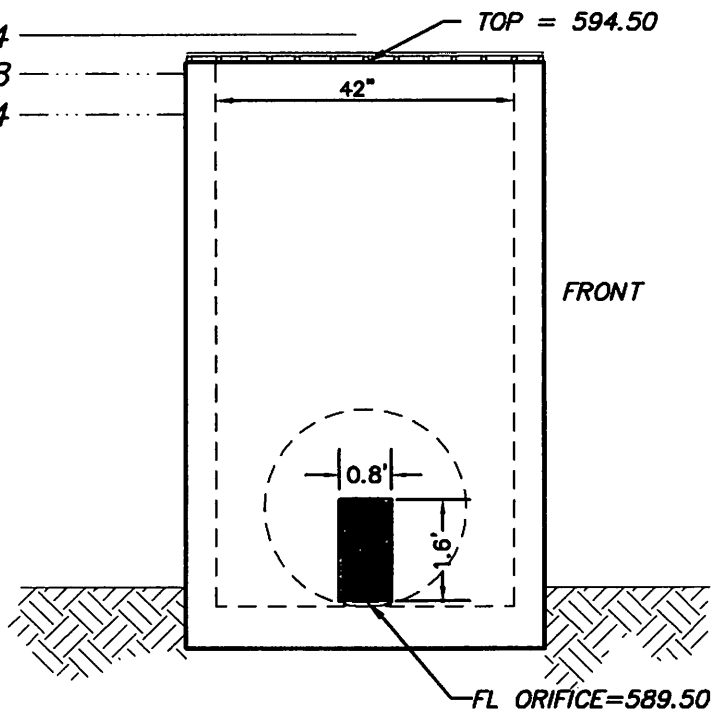
TOTAL TIME OF C: 0.1262 hr
7.57 min

use 7 min to be conservative

\\server-prs\Projects\02077\dwg\02077DETAILS.dwg, 5/19/2003 6:48:51 AM, HP842C.pc3, R.D. Wages



TOP OF DAM.=596.00
100YR. H.W..=594.94
25YR. H.W..=594.28
15YR. H.W..=593.44



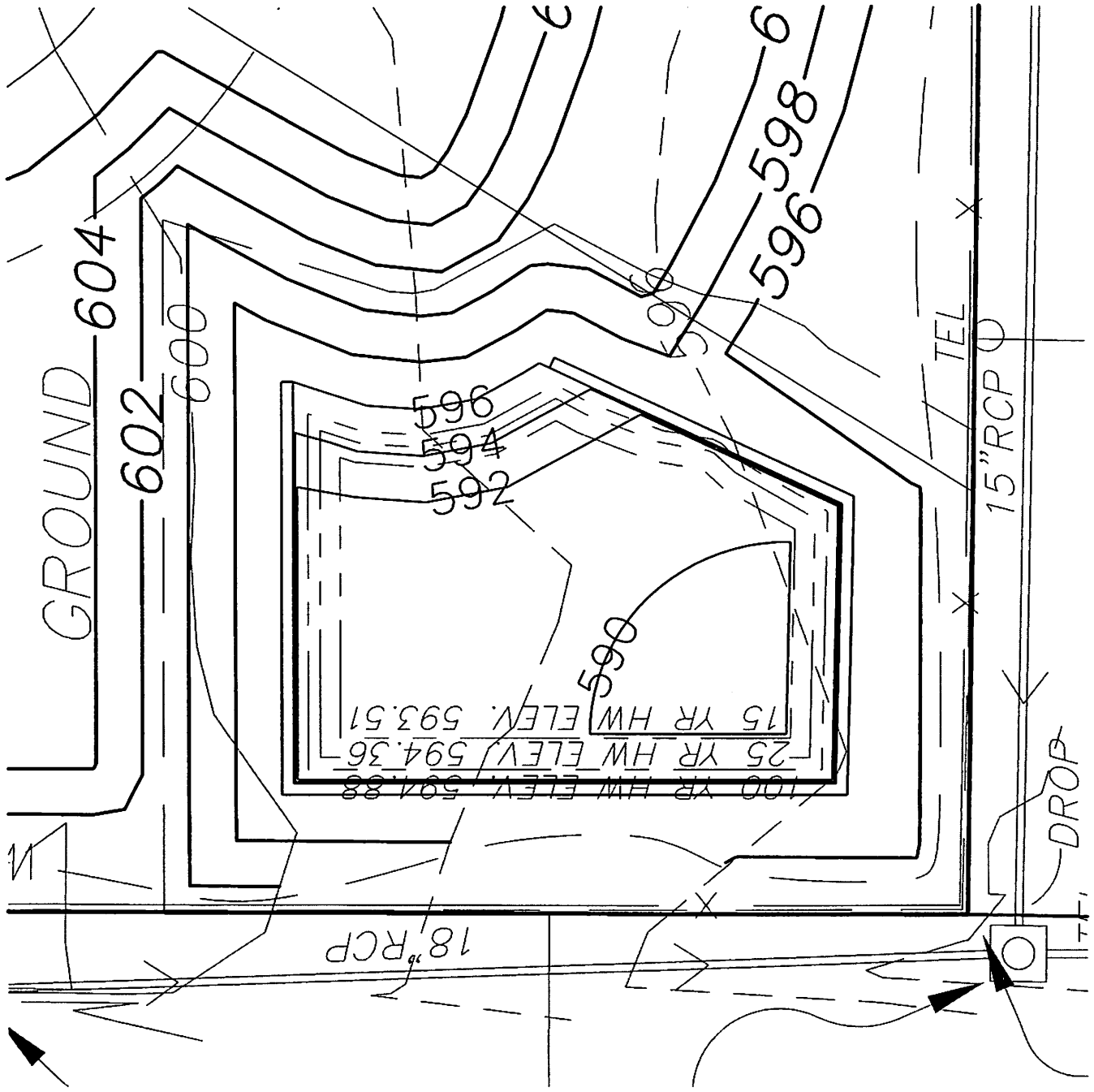
**SOUTHWEST
DETENTION BASIN
OUTFALL STRUCTURE
OS-1**

42" DIA. CONCRETE STANDPIPE
STRUCTURE W/GRATE ON SILL

NOT TO SCALE

SW Basin

N 1"=20'



DIFFERENTIAL RUNOFF REPORT: 15-YEAR

project: **Wellington Park**
 jurisdiction: **City of O'fallon, MO**
 det'n basin: **Southwest**
 designer: **Mark Kilgore, P.E.**
Pickett, Ray & Silver, Inc.

	<u>area (ac)</u>		<u>15-yr PI</u>	=	<u>15-yr flow</u>
Q15 existing:					
site:	6.70	*	1.87	=	12.53 cfs
off-site:	0.17	*	2.64	=	0.45 cfs
	(will drain through SW basin)				
	<hr/>				
	6.87 ac total				
			pre-developed runoff =		12.98 cfs

	<u>area (ac)</u>		<u>15-yr PI</u>	=	<u>15-yr flow</u>
Q15 developed (no detention):					
off-site:	5.50	*	2.64	=	14.52 cfs
off-site:	0.17	*	2.64	=	<u>0.45 cfs</u>
	(will drain through SW basin)				
	<hr/>				
	5.67 ac total				
			developed runoff =		14.97 cfs
			additional runoff created =		1.99 cfs
			if no detention		

Q15 developed (including detention):					
<u>basin name</u>	<u>area (ac)</u>			=	<u>15-yr flow</u>
SW	5.67	through	detention	=	10.62 cfs
site not detained:					
			<u>15-yr PI</u>	=	
	0.66	*	2.64	=	1.74 cfs
	<hr/>				
	6.33 ac total				
Q15 dev:			total Q15 outflow =		12.36 cfs
Q15 diff:					-0.62 cfs

DIFFERENTIAL RUNOFF REPORT: 25-YEAR

project: **Wellington Park**
 jurisdiction: **City of O'fallon, MO**
 det'n basin: **Southwest**
 designer: **Mark Kilgore, P.E.**
Pickett, Ray & Silver, Inc.

	<u>area (ac)</u>		<u>25-yr PI</u>		<u>25-yr flow</u>
Q25 existing:					
site:	6.70	*	2.31	=	15.48 cfs
off-site:	0.17	*	3.26	=	0.55 cfs
	(will drain through SW basin)				
	<hr/>				
	6.87 ac total				
			pre-developed runoff =		16.03 cfs

	<u>area (ac)</u>		<u>25-yr PI</u>		<u>25-yr flow</u>
Q25 developed (no detention):					
site:	5.50	*	3.26	=	17.93 cfs
off-site:	0.17	*	3.26	=	<u>0.55</u> cfs
	(will drain through SW basin)				
	<hr/>				
	5.67 ac total				
			developed runoff =		18.48 cfs
			additional runoff created =		2.45 cfs
			if no detention		

Q25 developed (including detention):					
<u>basin name</u>	<u>area (ac)</u>				<u>25-yr flow</u>
SW	5.67	through	detention	=	12.19 cfs
site not detained:					
			<u>25-yr PI</u>		
	0.66	*	3.26	=	2.15 cfs
	<hr/>				
	6.33 ac total				
Q25 dev:			total Q25 outflow =		14.34 cfs
Q25 diff:					-1.69 cfs

DIFFERENTIAL RUNOFF REPORT: 100-YEAR

project: **Wellington Park**
 jurisdiction: **City of O'fallon, MO**
 det'n basin: **Southwest**
 designer: **Mark Kilgore, P.E.**
 Pickett, Ray & Silver, Inc.

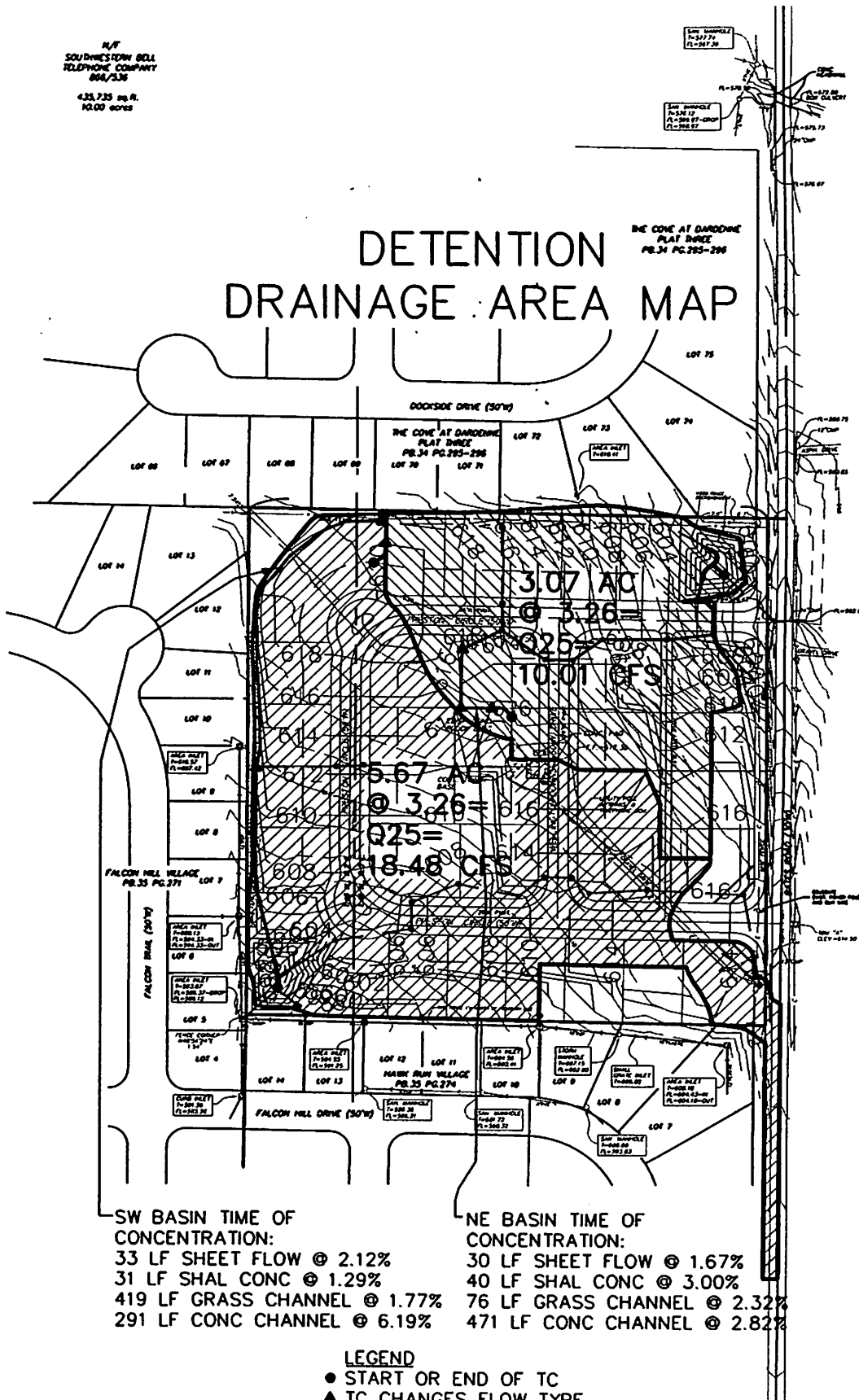
	<u>area (ac)</u>		<u>100-yr PI</u>		<u>100-yr flow</u>
Q100 existing:					
site:	6.70	*	2.31	=	15.48 cfs
off-site:	0.17	*	3.26	=	0.55 cfs
	(will drain through SW basin)				
	<hr/>				
	6.87 ac total				
			pre-developed runoff =		16.03 cfs

Q100 developed (no detention):			<u>100-yr PI</u>		<u>100-yr flow</u>
site:	5.50	*	3.26	=	17.93 cfs
off-site:	0.17	*	3.26	=	<u>0.55 cfs</u>
	(will drain through SW basin)				
	<hr/>				
	5.67 ac total				
			developed runoff =		18.48 cfs
			additional runoff created =		2.45 cfs
			if no detention		

Q100 developed (including detention):					
<u>basin name</u>	<u>area (ac)</u>				<u>100-yr flow</u>
SW	5.67 through	detention	=		21.96 cfs
site not detained:					
			<u>100-yr PI</u>		
	0.66	*	3.26	=	2.15 cfs
	<hr/>				
	6.33 ac total				
Q100 dev:			total Q100 outflow =		24.11 cfs
Q100 diff:					8.08 cfs

N/F
SOUTHWESTERN BELL
TELEPHONE COMPANY
864/336
435,725 sq. ft.
10.00 acres

DETENTION DRAINAGE AREA MAP



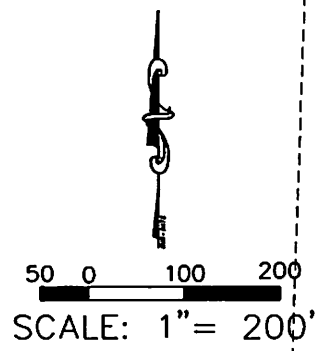
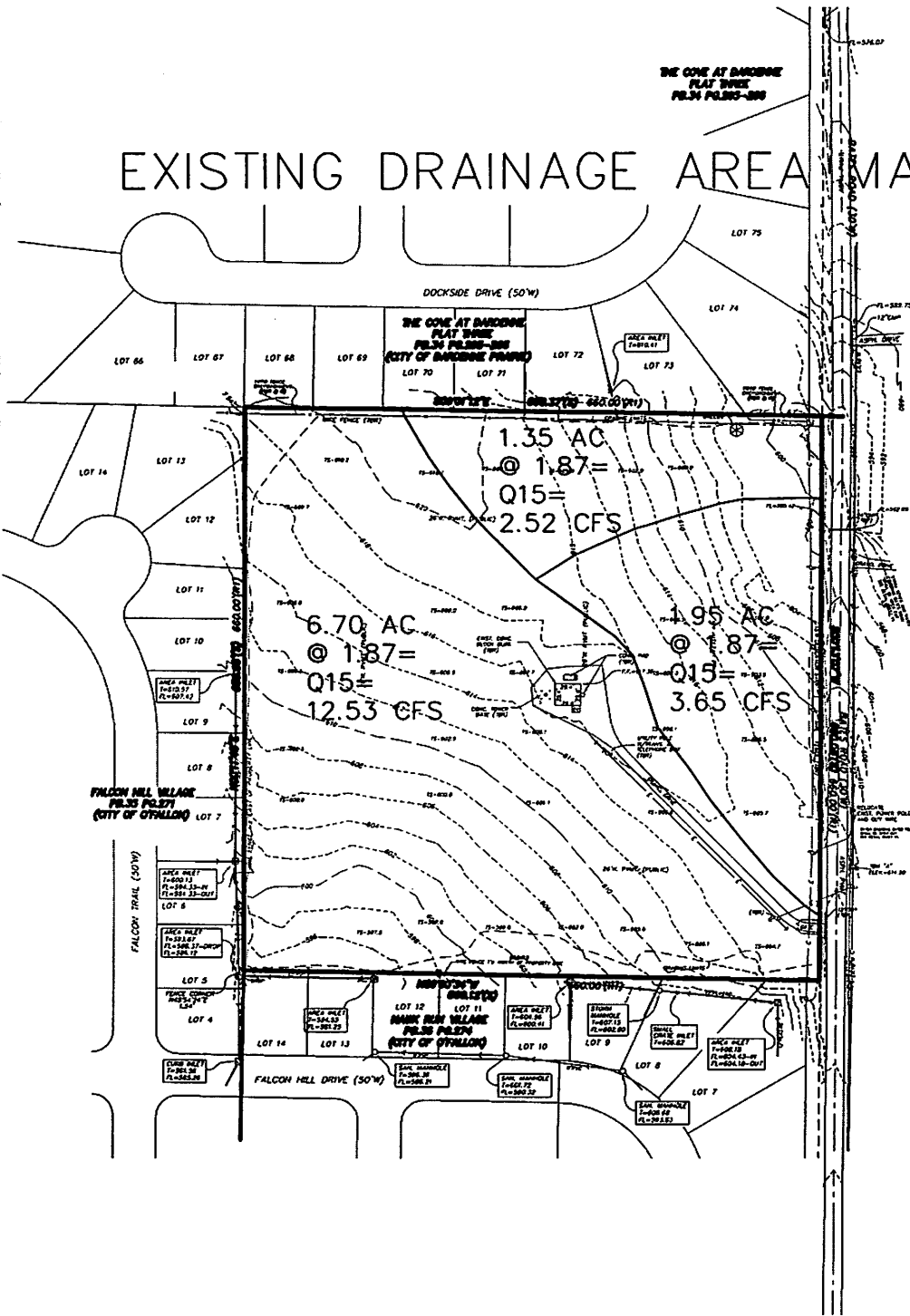
50 0 100 200
SCALE: 1" = 200'

SW BASIN TIME OF
CONCENTRATION:
33 LF SHEET FLOW @ 2.12%
31 LF SHAL CONC @ 1.29%
419 LF GRASS CHANNEL @ 1.77%
291 LF CONC CHANNEL @ 6.19%

NE BASIN TIME OF
CONCENTRATION:
30 LF SHEET FLOW @ 1.67%
40 LF SHAL CONC @ 3.00%
76 LF GRASS CHANNEL @ 2.32%
471 LF CONC CHANNEL @ 2.82%

LEGEND
● START OR END OF TC
▲ TC CHANGES FLOW TYPE

EXISTING DRAINAGE AREA MAP



INFLOW SUMMARY

project: Wellington Park
 jurisdict'n: City of O'fallon
 det. Basin: Southwest
 by Mark Kilgore, P.E.
 Pickett, Ray & Silver, Inc.

P15-5%	1.87	PI25-5%	2.31	PI100-5%	2.95
P15-50%	2.64	PI25-50%	3.26	PI100-50%	4.17
P15-75%	3.30	PI25-75%	4.07	PI100-75%	5.21
P15-100%	3.85	PI25-100%	4.75	PI100-100%	6.08

Proposed flow into detention basin

5.67 ac enters the d basin.
 0.00 ac developed is PI'd at 5% impervious, enters the d basin.
 5.67 ac developed is PI'd at 50% impervious, enters the d basin.
 0.00 ac developed is PI'd at 75% impervious, enters the d basin.

	AC		PI			
Q15pro=	0.00	*	1.87	=	0.00	cfs
	5.67	*	2.64	=	14.97	cfs
	0.00	*	3.30	=	0.00	cfs
					SUM =	14.97 cfs
Q25pro=	0.00	*	2.31	=	0.00	cfs
	5.67	*	3.26	=	18.48	cfs
	0.00	*	4.07	=	0.00	cfs
					SUM =	18.48 cfs
Q100pro=	0.00	*	2.95	=	0.00	cfs
	5.67	*	4.17	=	23.64	cfs
	0.00	*	5.21	=	0.00	cfs
					SUM =	23.64 cfs

INFLOW HYDROGRAPH
 MODIFIED RATIONAL METHOD
 by Mark Kilgore, P.E.
 Pickett, Ray & Silver, Inc.

Storm: 15-year
 Project: Wellington Park
 Basin: Southwest
 Jurisd'n: City of O'fallon

time of concentration: 7.57 min by 3-element SCS/NRCS method. Use: 7 min

duration: normally 20 min. Will use 20 minutes to be conservative and proper relative to Tc

peak flow: 14.97 cfs

time (min)	time (hr)	Q (cfs)	comment
0	0.000	0.0	increment:
1	0.017	2.1	2.14 cfs/min
2	0.033	4.3	2.14
3	0.050	6.4	2.14
4	0.067	8.6	2.14
5	0.083	10.7	2.14
6	0.100	12.8	2.14
7	0.117	15.0	1st peak
8	0.133	15.0	2.14
9	0.150	15.0	2.14
10	0.167	15.0	2.14
11	0.183	15.0	2.14
12	0.200	15.0	2.14
13	0.217	15.0	2.14
14	0.233	15.0	2.14
15	0.250	15.0	2.14
16	0.267	15.0	2.14
17	0.283	15.0	2.14
18	0.300	15.0	2.14
19	0.317	15.0	2.14
20	0.333	15.0	2.14
21	0.350	12.8	2.14
22	0.367	10.7	2.14
23	0.383	8.6	2.14
24	0.400	6.4	2.14
25	0.417	4.3	2.14
26	0.433	2.1	2.14
27	0.450	0.0	2.14

INFLOW HYDROGRAPH
 MODIFIED RATIONAL METHOD
 by Mark Kilgore, P.E.
 Pickett, Ray & Silver, Inc.

Storm: 25-year
 Project: Wellington Park
 Basin: Southwest
 Jurisd'n: City of O'fallon

time of concentration: 7.57 min by 3-element SCS/NRCS method. Use: 7 min

duration: normally 20 min. Will use 20 minutes to be conservative and proper relative to Tc

peak flow: 18.48 cfs

time (min)	time (hr)	Q (cfs)	comment
0	0.000	0.0	increment:
1	0.017	2.6	2.64 cfs/min
2	0.033	5.3	2.64
3	0.050	7.9	2.64
4	0.067	10.6	2.64
5	0.083	13.2	2.64
6	0.100	15.8	2.64
7	0.117	18.5	1st peak
8	0.133	18.5	2.64
9	0.150	18.5	2.64
10	0.167	18.5	2.64
11	0.183	18.5	2.64
12	0.200	18.5	2.64
13	0.217	18.5	2.64
14	0.233	18.5	2.64
15	0.250	18.5	2.64
16	0.267	18.5	2.64
17	0.283	18.5	2.64
18	0.300	18.5	2.64
19	0.317	18.5	2.64
20	0.333	18.5	2.64
21	0.350	15.8	2.64
22	0.367	13.2	2.64
23	0.383	10.6	2.64
24	0.400	7.9	2.64
25	0.417	5.3	2.64
26	0.433	2.6	2.64
27	0.450	0.0	2.64

INFLOW HYDROGRAPH
 MODIFIED RATIONAL METHOD
 by Mark Kilgore, P.E.
 Pickett, Ray & Silver, Inc.

Storm: 100-year
 Project: Wellington Park
 Basin: Southwest
 Jurisd'n: City of O'fallon

time of concentration: 7.57 min by 3-element SCS/NRCS method. Use: 7 min

duration: normally 20 min. Will use 20 minutes to be conservative and proper relative to Tc

peak flow: 23.64 cfs

time (min)	time (hr)	Q (cfs)	comment
0	0.000	0.0	increment:
1	0.017	3.4	3.38 cfs/min
2	0.033	6.8	3.38
3	0.050	10.1	3.38
4	0.067	13.5	3.38
5	0.083	16.9	3.38
6	0.100	20.3	3.38
7	0.117	23.6	1st peak
8	0.133	23.6	3.38
9	0.150	23.6	3.38
10	0.167	23.6	3.38
11	0.183	23.6	3.38
12	0.200	23.6	3.38
13	0.217	23.6	3.38
14	0.233	23.6	3.38
15	0.250	23.6	3.38
16	0.267	23.6	3.38
17	0.283	23.6	3.38
18	0.300	23.6	3.38
19	0.317	23.6	3.38
20	0.333	23.6	3.38
21	0.350	20.3	3.38
22	0.367	16.9	3.38
23	0.383	13.5	3.38
24	0.400	10.1	3.38
25	0.417	6.8	3.38
26	0.433	3.4	3.38
27	0.450	0.0	3.38

SW Basin

CR 6/11

2 YEAR SEDIMENT STORAGE REQUIRED

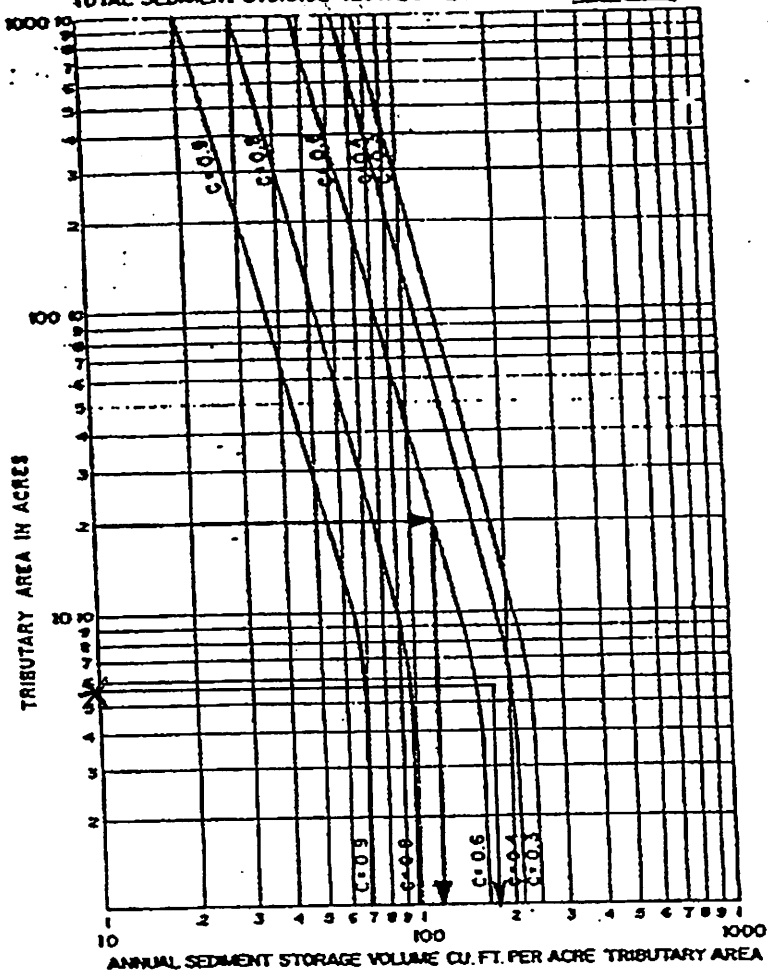
EXAMPLE:

TRIBUTARY AREA = 20 ACRES

RATIONAL METHOD RUNOFF COEFFICIENT "C" = 0.6

SEDIMENT STORAGE = 120 CU. FT. PER ACRE PER YEAR

TOTAL SEDIMENT STORAGE = 120 X 20 = 2400 CU. FT. PER YEAR.



ANNUAL SEDIMENT STORAGE

FIG. 6

Result = 180 CF/Ac

NATURE SAVER™ FAX MEMO 01616		Date	5/23/02	fol pages	1
To	MARK KILGORE	From	FRANK GOLDSMID		
Co./Dept.		Co.	CITY OF O'FALLON		
Phone #		Phone #			
Fax #		Fax #			

Job File: C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Rain Dir: C:\HAESTAD\PPKW\RAINFALL\

=====
JOB TITLE
=====

Wellington Park- Southwest basin

Table of Contents

***** MASTER SUMMARY *****

Watershed..... Master Network Summary 1.01

***** NETWORK SUMMARIES (DETAILED) *****

Watershed..... 15-yr
Executive Summary (Nodes) 2.01
Executive Summary (Links) 2.02

Watershed..... 25-yr
Executive Summary (Nodes) 2.03
Executive Summary (Links) 2.04

Watershed..... 100-yr
Executive Summary (Nodes) 2.05
Executive Summary (Links) 2.06
Network Calcs Sequence 2.07

***** RUNOFF HYDROGRAPHS *****

RATIONAL INFLOW 15-yr
Read HYG 3.01

RATIONAL INFLOW 25-yr
Read HYG 3.02

RATIONAL INFLOW 100-yr
Read HYG 3.03

***** POND VOLUMES *****

WELPK-SW..... Vol: Elev-Area 4.01

Table of Contents (continued)

***** OUTLET STRUCTURES *****

POND ROUTE.....	Outlet Input Data	5.01
	Composite Rating Curve	5.05

***** POND ROUTING *****

DETENTION.....	Pond E-V-Q Table	6.01
DETENTION	IN 15-yr Node: Pond Inflow Summary	6.04
DETENTION	IN 25-yr Node: Pond Inflow Summary	6.06
DETENTION	IN 100-yr Node: Pond Inflow Summary	6.08
DETENTION	OUT 15-yr Pond Routing Summary	6.10
DETENTION	OUT 25-yr Pond Routing Summary	6.11
DETENTION	OUT 100-yr Pond Routing Summary	6.12

MASTER NETWORK SUMMARY
 (*Node=Outfall; +Node=Diversion;)
 (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Storage Node ID	Return Type	Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond ac-ft
DETENTION	IN	POND	15-yr	.413	.1169	15.00		
DETENTION	IN	POND	25-yr	.509	.1169	18.50		
DETENTION	IN	POND	100-yr	.651	.1169	23.60		
DETENTION .164	OUT	POND	15-yr	.413	.3674	10.62	593.44	
DETENTION .223	OUT	POND	25-yr	.509	.3674	12.19	594.28	
DETENTION .271	OUT	POND	100-yr	.651	.3340	21.96	594.94	
*OUTFALL	JCT		15-yr	.413	.3674	10.62		
*OUTFALL	JCT		25-yr	.509	.3674	12.19		
*OUTFALL	JCT		100-yr	.651	.3340	21.96		
RATIONAL INFLOW	HYG		15-yr	.413	.1167	15.00		
RATIONAL INFLOW	HYG		25-yr	.509	.1167	18.50		
RATIONAL INFLOW	HYG		100-yr	.651	.1167	23.60		

NETWORK SUMMARY -- NODES

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
DETENTION IN	POND	.413		.1169	15.00	
DETENTION OUT	POND	.413		.3674	10.62	593.44
Outfall OUTFALL	JCT	.413		.3674	10.62	
RATIONAL INFLOW	HYG	.413		.1167	15.00	

NETWORK SUMMARY -- LINKS

(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADD1	ADD	UN	.413		.1167	15.00	RATIONAL INFLOW
		DL	.413		.1167	15.00	
		DN	.413		.1169	15.00	DETENTION IN
POND ROUTE	PONDrt	UN	.413		.1169	15.00	DETENTION IN
POND ROUTE		DL	.413		.3674	10.62	DETENTION OUT
		DL	.413		.3674	10.62	
		DN	.413		.3674	10.62	OUTFALL

Type.... Executive Summary (Nodes)
 Name.... Watershed
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 25-yr Tag: 25-yr

Page 2.03
 Event: 25-yr

NETWORK SUMMARY -- NODES
 (Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
DETENTION	IN POND	.509		.1169	18.50	
DETENTION	OUT POND	.509		.3674	12.19	594.28
Outfall	OUTFALL JCT	.509		.3674	12.19	
	RATIONAL INFLOW HYG	.509		.1167	18.50	

Type.... Executive Summary (Links)
 Name.... Watershed
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 25-yr Tag: 25-yr

Page 2.04
 Event: 25-yr

NETWORK SUMMARY -- LINKS
 (UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)
 (Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADD1	ADD	UN	.509		.1167	18.50	RATIONAL INFLOW
		DL	.509		.1167	18.50	
		DN	.509		.1169	18.50	DETENTION IN
POND ROUTE POND ROUTE	PONDrt	UN	.509		.1169	18.50	DETENTION IN
			.509		.3674	12.19	DETENTION OUT
		DL	.509		.3674	12.19	
		DN	.509		.3674	12.19	OUTFALL

Type.... Executive Summary (Nodes)
 Name.... Watershed
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 100-yr Tag: 100-yr

Page 2.05
 Event: 100-yr

NETWORK SUMMARY -- NODES
 (Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID		Type	HYG Vol ac-ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
	DETENTION	IN POND	.651		.1169	23.60	
	DETENTION	OUT POND	.651		.3340	21.96	594.94
Outfall	OUTFALL	JCT	.651		.3340	21.96	
	RATIONAL INFLOW	HYG	.651		.1167	23.60	

NETWORK SUMMARY -- LINKS

(UN=Upstream Node; DL=DNstream End of Link; DN=DNstream Node)

(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Link ID	Type		HYG Vol ac-ft	Trun.	Peak Time hrs	Peak Q cfs	End Points
ADD1	ADD	UN	.651		.1167	23.60	RATIONAL INFLOW
		DL	.651		.1167	23.60	
		DN	.651		.1169	23.60	DETENTION IN
POND ROUTE POND ROUTE	PONDrt	UN	.651		.1169	23.60	DETENTION IN
			.651		.3340	21.96	DETENTION OUT
		DL	.651		.3340	21.96	
		DN	.651		.3340	21.96	OUTFALL

Type.... Network Calcs Sequence

Page 2.07

Name.... Watershed

Event: 100-yr

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW

Storm... 100-yr Tag: 100-yr

NETWORK RUNOFF NODE SEQUENCE

```
=====
Runoff Data          Apply to Node          Receiving Link
=====
Read HYGRational Inflow  HYG Qin  RATIONAL INFLOW  Add Hyd  RATIONAL INFLOW
```

Type... Network Calcs Sequence
Name.... Watershed
File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Storm... 100-yr Tag: 100-yr

Page 2.08
Event: 100-yr

NETWORK ROUTING SEQUENCE

```
=====
Link Operation                UPstream Node                DNstream Node
=====
Add Hyd ADD1                 HYG Qin RATIONAL INFLOW     Pond   DETENTION   IN
POND ROUTE TOTAL OUTFLOW...
Total Pond Outflow          Pond   DETENTION   IN   Outflow DETENTION   OUT
SET POND ROUTING LINK TO TOTAL POND OUTFLOW...
Outlet POND ROUTE          Outflow DETENTION   OUT   Jct   OUTFALL
=====
```

Type.... Read HYG Page 3.01
 Name.... RATIONAL INFLOW Tag: 15-yr Event: 15-yr
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Title... Highgrove Place existing
 Storm... Tag: 15-yr

HYG file = C:\HAESTAD\PPKW\KIL-JOBS\WELPSW15.HYG
 HYG ID = WELPSW15
 HYG Tag = 15-yr

 Peak Discharge = 15.00 cfs
 Time to Peak = .1167 hrs
 HYG Volume = .413 ac-ft

HYDROGRAPH ORDINATES (cfs)
 Output Time increment = .0167 hrs
 Time on left represents time for first value in each row.

Time hrs					
.0000	.00	2.10	4.30	6.40	8.60
.0833	10.70	12.80	15.00	15.00	15.00
.1667	15.00	15.00	15.00	15.00	15.00
.2500	15.00	15.00	15.00	15.00	15.00
.3333	15.00	12.80	10.70	8.60	6.40
.4167	4.30	2.10	.00		

Type.... Read HYG
Name.... RATIONAL INFLOW
File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Storm... Tag: 25-yr

Page 3.02
Event: 25-yr

HYG file = C:\HAESTAD\PPKW\KIL-JOBS\WELPSW25.HYG
HYG ID = WELPSW25
HYG Tag = 25-yr

Peak Discharge = 18.50 cfs
Time to Peak = .1167 hrs
HYG Volume = .509 ac-ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .0167 hrs
Time on left represents time for first value in each row.

Time hrs					
.0000	.00	2.60	5.30	7.90	10.60
.0833	13.20	15.80	18.50	18.50	18.50
.1667	18.50	18.50	18.50	18.50	18.50
.2500	18.50	18.50	18.50	18.50	18.50
.3333	18.50	15.80	13.20	10.60	7.90
.4167	5.30	2.60	.00		

Type.... Read HYG Page 3.03
 Name.... RATIONAL INFLOW Event: 100-yr
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... Tag: 100-yr

HYG file = C:\HAESTAD\PPKW\KIL-JOBS\WELPSW99.HYG
 HYG ID = WELPSW99
 HYG Tag = 100-yr

 Peak Discharge = 23.60 cfs
 Time to Peak = .1167 hrs
 HYG Volume = .651 ac-ft

HYDROGRAPH ORDINATES (cfs)
 Output Time increment = .0167 hrs
 Time on left represents time for first value in each row.

Time hrs	Output Time increment = .0167 hrs				
.0000	.00	3.40	6.80	10.10	13.50
.0833	16.90	20.30	23.60	23.60	23.60
.1667	23.60	23.60	23.60	23.60	23.60
.2500	23.60	23.60	23.60	23.60	23.60
.3333	23.60	20.30	16.90	13.50	10.10
.4167	6.80	3.40	.00		

Type.... Vol: Elev-Area
Name.... WELPK-SW

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Southwest Basin

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sq(A1*A2) (sq.ft)	Volume (ac-ft)	Volume Sum (ac-ft)
589.50	-----	0	0	.000	.000
590.00	-----	499	499	.002	.002
592.00	-----	2761	4434	.068	.070
594.00	-----	3070	8742	.134	.204
596.00	-----	3340	9612	.147	.351

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

Type.... Outlet Input Data
Name.... POND ROUTE

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 589.50 ft
Increment = .10 ft
Max. Elev.= 596.00 ft

OUTLET CONNECTIVITY

----> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Stand Pipe	ES	---->	TW	594.500	596.000
Culvert-Box	LF	---->	TW	589.500	596.000
TW SETUP, DS Channel					

Type.... Outlet Input Data
Name.... POND ROUTE

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

OUTLET STRUCTURE INPUT DATA

Structure ID = ES
Structure Type = Stand Pipe

of Openings = 1
Invert Elev. = 594.50 ft
Diameter = 3.5000 ft
Orifice Area = 9.6211 sq.ft
Orifice Coeff. = .600
Weir Length = 11.00 ft
Weir Coeff. = 2.680
K, Submerged = .000
K, Reverse = 1.000
Kb, Barrel = .000000 (per ft of full flow)
Barrel Length = .00 ft
Mannings n = .0000

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

OUTLET STRUCTURE INPUT DATA

Structure ID = LF
Structure Type = Culvert-Box

No. Barrels = 1
Barrel Height = 1.60 ft
Barrel Width = .80 ft
Upstream Invert = 589.50 ft
Dnstream Invert = 589.49 ft
Horiz. Length = .67 ft
Barrel Length = .67 ft
Barrel Slope = .01494 ft/ft

OUTLET CONTROL DATA...

Mannings n = .0130
Ke = .5000 (forward entrance loss)
Kb = .028695 (per ft of full flow)
Kr = 1.0000 (reverse entrance loss)
HW Convergence = .001 +/- ft

INLET CONTROL DATA...

Equation form = 1
Inlet Control K = .0260
Inlet Control M = 1.0000
Inlet Control c = .03850
Inlet Control Y = .8100
T1 ratio (HW/D) = 1.171
T2 ratio (HW/D) = 1.419
Slope Factor = -.500
Calc inlet only = Yes

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

At T1 Elev = 591.37 ft ---> Flow = 5.67 cfs
At T2 Elev = 591.77 ft ---> Flow = 6.48 cfs

Type.... Outlet Input Data
Name.... POND ROUTE

Page 5.04

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

OUTLET STRUCTURE INPUT DATA

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

Type.... Composite Rating Curve
Name.... POND ROUTE

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
589.50	.00	Free Outfall		None contributing
589.60	.09	Free Outfall		LF
589.70	.23	Free Outfall		LF
589.80	.41	Free Outfall		LF
589.90	.61	Free Outfall		LF
590.00	.85	Free Outfall		LF
590.10	1.10	Free Outfall		LF
590.20	1.38	Free Outfall		LF
590.30	1.67	Free Outfall		LF
590.40	1.97	Free Outfall		LF
590.50	2.30	Free Outfall		LF
590.60	2.63	Free Outfall		LF
590.70	2.99	Free Outfall		LF
590.80	3.35	Free Outfall		LF
590.90	3.73	Free Outfall		LF
591.00	4.12	Free Outfall		LF
591.10	4.52	Free Outfall		LF
591.20	4.93	Free Outfall		LF
591.30	5.35	Free Outfall		LF
591.40	5.72	Free Outfall		LF
591.50	5.93	Free Outfall		LF
591.60	6.13	Free Outfall		LF
591.70	6.33	Free Outfall		LF
591.80	6.57	Free Outfall		LF
591.90	6.89	Free Outfall		LF
592.00	7.19	Free Outfall		LF
592.10	7.48	Free Outfall		LF
592.20	7.76	Free Outfall		LF
592.30	8.03	Free Outfall		LF
592.40	8.29	Free Outfall		LF
592.50	8.55	Free Outfall		LF
592.60	8.79	Free Outfall		LF
592.70	9.03	Free Outfall		LF
592.80	9.26	Free Outfall		LF
592.90	9.49	Free Outfall		LF
593.00	9.71	Free Outfall		LF
593.10	9.93	Free Outfall		LF

Type.... Composite Rating Curve
Name.... POND ROUTE

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
Title... Basin

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
593.20	10.14	Free	Outfall	LF
593.30	10.35	Free	Outfall	LF
593.40	10.55	Free	Outfall	LF
593.50	10.75	Free	Outfall	LF
593.60	10.95	Free	Outfall	LF
593.70	11.14	Free	Outfall	LF
593.80	11.33	Free	Outfall	LF
593.90	11.52	Free	Outfall	LF
594.00	11.70	Free	Outfall	LF
594.10	11.88	Free	Outfall	LF
594.20	12.06	Free	Outfall	LF
594.30	12.23	Free	Outfall	LF
594.40	12.40	Free	Outfall	LF
594.50	12.58	Free	Outfall	ES +LF
594.60	13.68	Free	Outfall	ES +LF
594.70	15.55	Free	Outfall	ES +LF
594.80	17.92	Free	Outfall	ES +LF
594.90	20.69	Free	Outfall	ES +LF
595.00	23.81	Free	Outfall	ES +LF
595.10	27.25	Free	Outfall	ES +LF
595.20	30.97	Free	Outfall	ES +LF
595.30	34.95	Free	Outfall	ES +LF
595.40	39.18	Free	Outfall	ES +LF
595.50	43.64	Free	Outfall	ES +LF
595.60	48.31	Free	Outfall	ES +LF
595.70	53.20	Free	Outfall	ES +LF
595.80	58.29	Free	Outfall	ES +LF
595.90	63.57	Free	Outfall	ES +LF
596.00	69.03	Free	Outfall	ES +LF

Name.... DETENTION

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
 Inflow HYG file = NONE STORED - DETENTION IN 15-yr
 Outflow HYG file = NONE STORED - DETENTION OUT 15-yr

Pond Node Data = DETENTION
 Pond Volume Data = WELPK-SW
 Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 589.50 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = .0167 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area sq.ft	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
589.50	.00	.000	0	.00	.00	.00
589.60	.09	.000	20	.00	.09	.11
589.70	.23	.000	80	.00	.23	.41
589.80	.41	.000	180	.00	.41	1.01
589.90	.61	.001	319	.00	.61	2.03
590.00	.85	.002	499	.00	.85	3.61
590.10	1.10	.003	569	.00	1.10	5.64
590.20	1.38	.005	643	.00	1.38	7.93
590.30	1.67	.006	722	.00	1.67	10.49
590.40	1.97	.008	805	.00	1.97	13.34
590.50	2.30	.010	893	.00	2.30	16.49
590.60	2.63	.012	986	.00	2.63	19.95
590.70	2.99	.014	1083	.00	2.99	23.74
590.80	3.35	.017	1185	.00	3.35	27.87
590.90	3.73	.020	1291	.00	3.73	32.37
591.00	4.12	.023	1402	.00	4.12	37.24
591.10	4.52	.026	1517	.00	4.52	42.49
591.20	4.93	.030	1637	.00	4.93	48.15
591.30	5.35	.034	1762	.00	5.35	54.22
591.40	5.72	.038	1891	.00	5.72	60.67
591.50	5.93	.042	2024	.00	5.93	67.38
591.60	6.13	.047	2163	.00	6.13	74.55
591.70	6.33	.052	2305	.00	6.33	82.19

Name.... DETENTION

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
 Inflow HYG file = NONE STORED - DETENTION IN 15-yr
 Outflow HYG file = NONE STORED - DETENTION OUT 15-yr

Pond Node Data = DETENTION
 Pond Volume Data = WELPK-SW
 Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 589.50 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0167 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + 0 cfs
591.80	6.57	.058	2453	.00	6.57	90.34
591.90	6.89	.064	2605	.00	6.89	99.07
592.00	7.19	.070	2761	.00	7.19	108.29
592.10	7.48	.076	2776	.00	7.48	117.79
592.20	7.76	.083	2791	.00	7.76	127.33
592.30	8.03	.089	2806	.00	8.03	136.91
592.40	8.29	.095	2821	.00	8.29	146.53
592.50	8.55	.102	2837	.00	8.55	156.20
592.60	8.79	.108	2852	.00	8.79	165.90
592.70	9.03	.115	2867	.00	9.03	175.66
592.80	9.26	.122	2883	.00	9.26	185.45
592.90	9.49	.128	2898	.00	9.49	195.30
593.00	9.71	.135	2913	.00	9.71	205.18
593.10	9.93	.142	2929	.00	9.93	215.12
593.20	10.14	.148	2944	.00	10.14	225.10
593.30	10.35	.155	2960	.00	10.35	235.13
593.40	10.55	.162	2976	.00	10.55	245.21
593.50	10.75	.169	2991	.00	10.75	255.33
593.60	10.95	.176	3007	.00	10.95	265.50
593.70	11.14	.183	3023	.00	11.14	275.73
593.80	11.33	.190	3038	.00	11.33	286.00
593.90	11.52	.197	3054	.00	11.52	296.32
594.00	11.70	.204	3070	.00	11.70	306.69

Name.... DETENTION

File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
 Inflow HYG file = NONE STORED - DETENTION IN 15-yr
 Outflow HYG file = NONE STORED - DETENTION OUT 15-yr

Pond Node Data = DETENTION
 Pond Volume Data = WELPK-SW
 Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

 Starting WS Elev = 589.50 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = .0167 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area sq.ft	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
594.10	11.88	.211	3083	.00	11.88	317.10
594.20	12.06	.218	3096	.00	12.06	327.56
594.30	12.23	.225	3110	.00	12.23	338.05
594.40	12.40	.232	3123	.00	12.40	348.60
594.50	12.58	.239	3136	.00	12.58	359.18
594.60	13.68	.246	3150	.00	13.68	370.73
594.70	15.55	.254	3163	.00	15.55	383.11
594.80	17.92	.261	3177	.00	17.92	396.02
594.90	20.69	.268	3190	.00	20.69	409.39
595.00	23.81	.276	3204	.00	23.81	423.14
595.10	27.25	.283	3217	.00	27.25	437.25
595.20	30.97	.290	3231	.00	30.97	451.70
595.30	34.95	.298	3244	.00	34.95	466.45
595.40	39.18	.305	3258	.00	39.18	481.50
595.50	43.64	.313	3271	.00	43.64	496.82
595.60	48.31	.320	3285	.00	48.31	512.40
595.70	53.20	.328	3299	.00	53.20	528.24
595.80	58.29	.335	3312	.00	58.29	544.32
595.90	63.57	.343	3326	.00	63.57	560.65
596.00	69.03	.351	3340	.00	69.03	577.20

Type.... Node: Pond Inflow Summary
 Name.... DETENTION IN
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 15-yr Tag: 15-yr

Page 6.04
 Event: 15-yr

SUMMARY FOR HYDROGRAPH ADDITION
 at Node: DETENTION IN

HYG Directory: C:\HAESTAD\PPKW\KIL-JOBS\

```

=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID      HYG tag
-----
WARNING: Missed peak when adding hydrograph...
ADD1              RATIONAL INFLOW              WELPSW15    15-yr
=====
  
```

```

INFLOWS TO:  DETENTION  IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time    Peak Flow
              HYG ID      HYG tag      ac-ft       hrs          cfs
-----
              WELPSW15    15-yr        .413        .1167        15.00
  
```

```

TOTAL FLOW INTO:  DETENTION  IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time    Peak Flow
              HYG ID      HYG tag      ac-ft       hrs          cfs
-----
              DETENTION  IN  15-yr        .413        .1169        15.00
  
```

Type.... Node: Pond Inflow Summary
 Name.... DETENTION IN
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 15-yr Tag: 15-yr

Page 6.05
 Event: 15-yr

TOTAL NODE INFLOW...

HYG file =
 HYG ID = DETENTION IN
 HYG Tag = 15-yr

 Peak Discharge = 15.00 cfs
 Time to Peak = .1169 hrs
 HYG Volume = .413 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0167 hrs

Time hrs	Time on left represents time for first value in each row.				
.0000	.00	2.10	4.30	6.40	8.62
.0835	10.72	12.83	15.00	15.00	15.00
.1670	15.00	15.00	15.00	15.00	15.00
.2505	15.00	15.00	15.00	15.00	15.00
.3340	14.91	12.71	10.61	8.50	6.30
.4175	4.19	1.99	.00		

Type.... Node: Pond Inflow Summary
 Name.... DETENTION IN
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 25-yr Tag: 25-yr

SUMMARY FOR HYDROGRAPH ADDITION
 at Node: DETENTION IN

HYG Directory: C:\HAESTAD\PPKW\KIL-JOBS\

```

=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID      HYG tag
-----
WARNING: Missed peak when adding hydrograph...
ADD1              RATIONAL INFLOW              WELPSW25    25-yr
=====
  
```

```

INFLOWS TO:  DETENTION      IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
              ac-ft      hrs          cfs
-----
              WELPSW25    25-yr        .509        .1167         18.50
  
```

```

TOTAL FLOW INTO:  DETENTION      IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
              ac-ft      hrs          cfs
-----
              DETENTION    IN  25-yr        .509        .1169         18.50
  
```

TOTAL NODE INFLOW...

HYG file =
HYG ID = DETENTION IN
HYG Tag = 25-yr

Peak Discharge = 18.50 cfs
Time to Peak = .1169 hrs
HYG Volume = .509 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0167 hrs

Time hrs	Time on left represents time for first value in each row.				
.0000	.00	2.60	5.30	7.90	10.62
.0835	13.23	15.83	18.50	18.50	18.50
.1670	18.50	18.50	18.50	18.50	18.50
.2505	18.50	18.50	18.50	18.50	18.50
.3340	18.39	15.69	13.09	10.48	7.78
.4175	5.17	2.46	.00		

Type.... Node: Pond Inflow Summary
 Name.... DETENTION IN
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 100-yr Tag: 100-yr

Page 6.08
 Event: 100-yr

SUMMARY FOR HYDROGRAPH ADDITION
 at Node: DETENTION IN

HYG Directory: C:\HAESTAD\PPKW\KIL-JOBS\

```

=====
Upstream Link ID  Upstream Node ID  HYG file      HYG ID      HYG tag
-----
WARNING: Missed peak when adding hydrograph...
ADD1              RATIONAL INFLOW                WELPSW99    100-yr
=====
  
```

```

INFLOWS TO:  DETENTION      IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
              ac-ft      hrs      cfs
-----
              WELPSW99    100-yr      .651        .1167         23.60
  
```

```

TOTAL FLOW INTO:  DETENTION      IN
-----
HYG file      HYG ID      HYG tag      Volume      Peak Time      Peak Flow
              ac-ft      hrs      cfs
-----
              DETENTION  IN  100-yr      .651        .1169         23.60
  
```

Type.... Node: Pond Inflow Summary
 Name.... DETENTION IN
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 100-yr Tag: 100-yr

Page 6.09
 Event: 100-yr

TOTAL NODE INFLOW...

HYG file =
 HYG ID = DETENTION IN
 HYG Tag = 100-yr

 Peak Discharge = 23.60 cfs
 Time to Peak = .1169 hrs
 HYG Volume = .651 ac-ft

HYDROGRAPH ORDINATES (cfs)

Output Time increment = .0167 hrs

Time hrs	Time on left represents time for first value in each row.				
.0000	.00	3.40	6.80	10.10	13.53
.0835	16.93	20.34	23.60	23.60	23.60
.1670	23.60	23.60	23.60	23.60	23.60
.2505	23.60	23.60	23.60	23.60	23.60
.3340	23.47	20.16	16.75	13.34	9.94
.4175	6.63	3.22	.00		

LEVEL POOL ROUTING SUMMARY

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
Inflow HYG file = NONE STORED - DETENTION IN 15-yr
Outflow HYG file = NONE STORED - DETENTION OUT 15-yr

Pond Node Data = DETENTION
Pond Volume Data = WELPK-SW
Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 589.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout = .00 cfs
Time Increment = .0167 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

=====
Peak Inflow = 15.00 cfs at .1169 hrs
Peak Outflow = 10.62 cfs at .3674 hrs

Peak Elevation = 593.44 ft
Peak Storage = .164 ac-ft
=====

MASS BALANCE (ac-ft)

+ Initial Vol = .000
+ HYG Vol IN = .413
- Infiltration = .000
- HYG Vol OUT = .413
- Retained Vol = .000

Unrouted Vol = .000 ac-ft (.000% of Outflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
Inflow HYG file = NONE STORED - DETENTION IN 25-yr
Outflow HYG file = NONE STORED - DETENTION OUT 25-yr

Pond Node Data = DETENTION
Pond Volume Data = WELPK-SW
Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 589.50 ft
Starting Volume = .000 ac-ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout = .00 cfs
Time Increment = .0167 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

=====
Peak Inflow = 18.50 cfs at .1169 hrs
Peak Outflow = 12.19 cfs at .3674 hrs

Peak Elevation = 594.28 ft
Peak Storage = .223 ac-ft
=====

MASS BALANCE (ac-ft)

+ Initial Vol = .000
+ HYG Vol IN = .509
- Infiltration = .000
- HYG Vol OUT = .509
- Retained Vol = .000

Unrouted Vol = .000 ac-ft (.000% of Outflow Volume)

Type.... Pond Routing Summary Page 6.12
 Name.... DETENTION OUT Tag: 100-yr Event: 100-yr
 File.... C:\HAESTAD\PPKW\KIL-JOBS\WELLINGTONPARK-SW-15-25-100-RAT.PPW
 Storm... 100-yr Tag: 100-yr

LEVEL POOL ROUTING SUMMARY

HYG Dir = C:\HAESTAD\PPKW\KIL-JOBS\
 Inflow HYG file = NONE STORED - DETENTION IN 100-yr
 Outflow HYG file = NONE STORED - DETENTION OUT 100-yr

Pond Node Data = DETENTION
 Pond Volume Data = WELPK-SW
 Pond Outlet Data = POND ROUTE

No Infiltration

INITIAL CONDITIONS

```

-----
Starting WS Elev   =   589.50 ft
Starting Volume    =   .000 ac-ft
Starting Outflow   =   .00 cfs
Starting Infiltr.  =   .00 cfs
Starting Total Qout =   .00 cfs
Time Increment     =   .0167 hrs
  
```

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

```

=====
Peak Inflow       =   23.60 cfs   at   .1169 hrs
Peak Outflow      =   21.96 cfs   at   .3340 hrs
-----
Peak Elevation    =   594.94 ft
Peak Storage      =   .271 ac-ft
=====
  
```

MASS BALANCE (ac-ft)

```

-----
+ Initial Vol     =   .000
+ HYG Vol IN      =   .651
- Infiltration    =   .000
- HYG Vol OUT     =   .651
- Retained Vol    =   .000
-----
Unrouted Vol     =   .000 ac-ft (.000% of Outflow Volume)
  
```

Index of Starting Page Numbers for ID Names

----- D -----

DETENTION... 6.01
DETENTION IN 15-yr... 6.04, 6.06,
6.08, 6.10, 6.11, 6.12

----- P -----

POND ROUTE... 5.01, 5.05

----- R -----

RATIONAL INFLOW 15-yr... 3.01, 3.02,
3.03

----- W -----

Watershed... 1.01, 2.01, 2.02, 2.03,
2.04, 2.05, 2.06, 2.07
WELPK-SW... 4.01