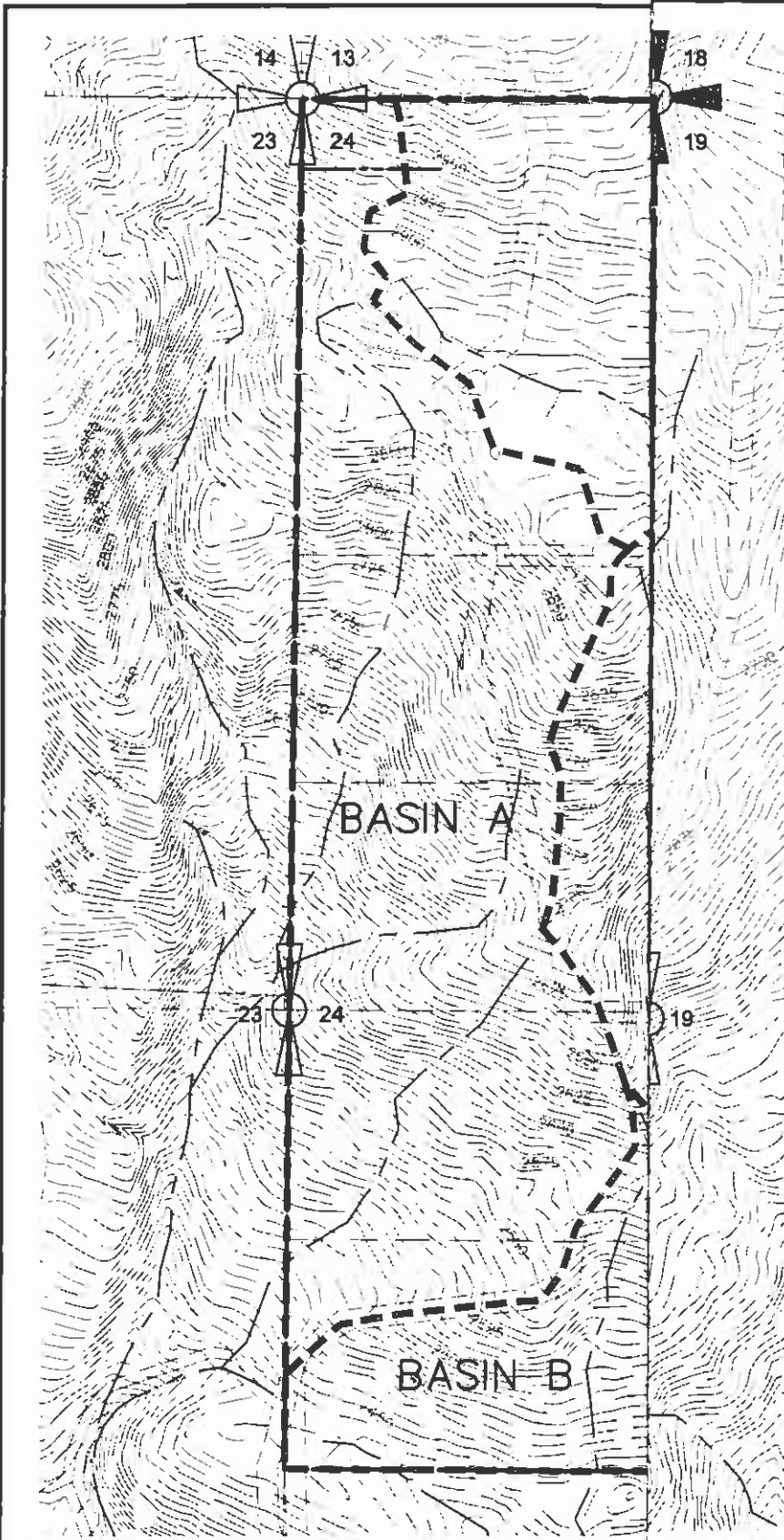


**APPENDIX 'D'**



**Figure D.1**  
**Pre-Development Condition**  
**Basin Map**

December 14, 2009

Scale: 1" = 2000'

**Encompass**   
ENGINEERING & SURVEYING

108 EAST 2ND STREET  
CLE ELUM, WA 98922  
PHONE: (509) 674-7433  
FAX: (509) 674-7419

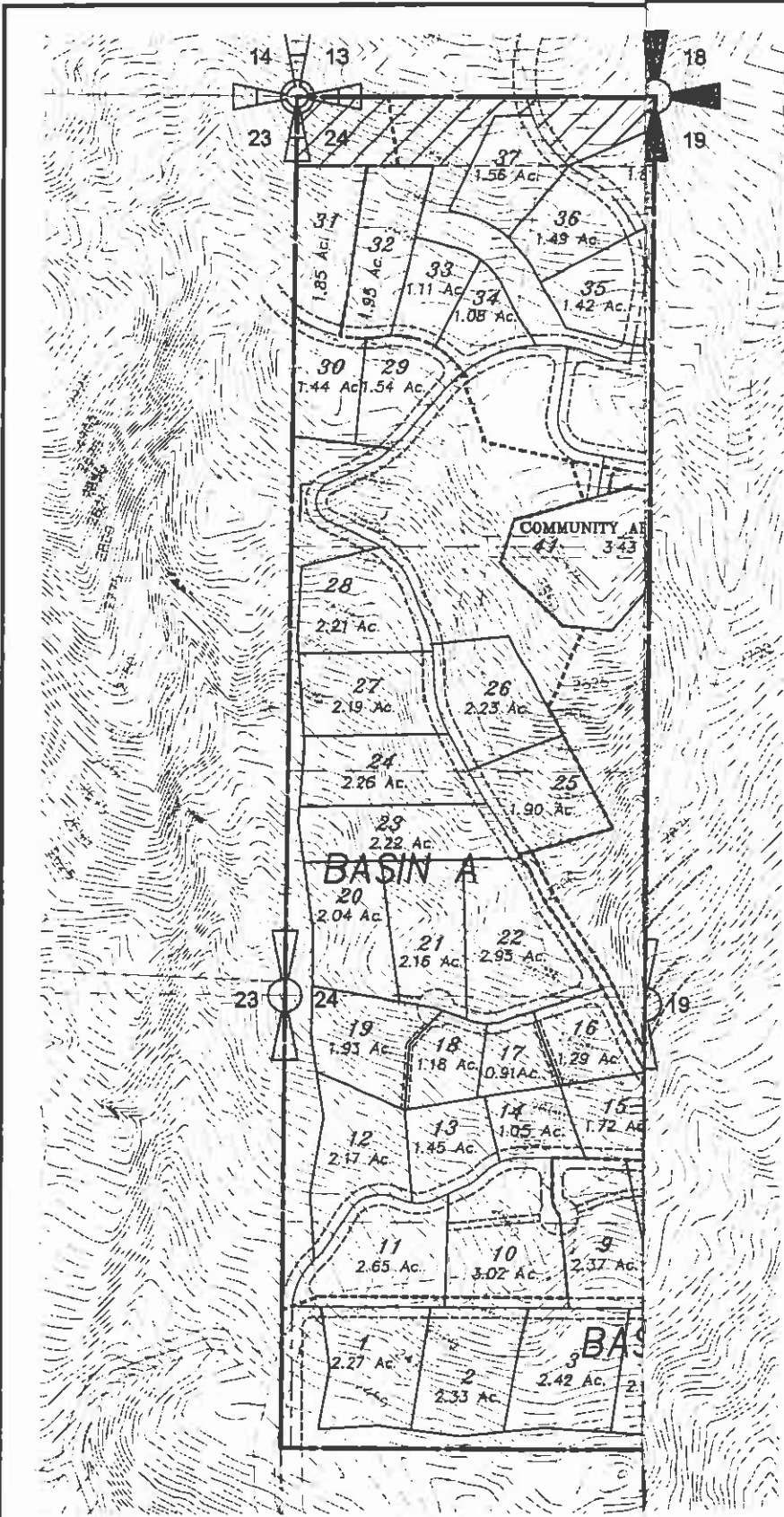


Figure D.2  
Post-Development Condition  
Basin Map

December 14, 2009

Scale: 1" = 2000'



108 EAST 2ND STREET  
CLE ELUM, WA 98922  
PHONE: (509) 674-7433  
FAX: (509) 674-7419

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN A**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE	55.18	C	Mix of Fair Pasture & Fair Herbaceous Cond.	80

**TOTAL AREA CHECK**      **55.18 ac.**      **CN<sub>WEIGHTED</sub>**      **80**

**BASIN B**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE (NORTH)	11.84	C	Woods-Grass Combination (Poor Condition)	82
OPEN SPACE (SOUTH)	11.83	C	Brush (Poor Condition)	77

**TOTAL AREA CHECK**      **23.67 ac.**      **CN<sub>WEIGHTED</sub>**      **80**

**BASIN C**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE (NORTH)	46.22	C	Mix of Fair Pasture & Fair Herbaceous Cond.	80
OPEN SPACE (SOUTH)	30.82	C	Mix of Fair Brush and Poor Woods Cond.	74

**TOTAL AREA CHECK**      **77.04 ac.**      **CN<sub>WEIGHTED</sub>**      **78**

**BASIN D**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE (CENTRAL)	127.15	C	Herbaceous (Fair Conditions)	81
OPEN SPACE (PERIMETER)	42.39	C	Mix of Fair Brush and Fair Woods Cond.	72

**TOTAL AREA CHECK**      **169.54 ac.**      **CN<sub>WEIGHTED</sub>**      **79**

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN E**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE (NORTH)	46.22	C	Herbaceous (Fair Conditions)	81
OPEN SPACE (SOUTH)	92.44	C	Mix of Fair Brush and Fair Woods Cond.	72

**TOTAL AREA CHECK      138.66 ac.**

**CN<sub>WEIGHTED</sub>      75**

**BASIN F**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE (CENTRAL)	4.79	C	Herbaceous (Fair Conditions)	81
OPEN SPACE (EAST)	9.57	C	Mix of Fair Brush and Fair Woods Cond.	72

**TOTAL AREA CHECK      14.36 ac.**

**CN<sub>WEIGHTED</sub>      75**

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

<b>BASIN</b>	<b># OF LOTS</b>	<b>BASIN AREA (acres)</b>	<b>DENSITY (DU/acre)</b>	<b>ASSUMED % IMPERVIOUS</b>
BASIN A	22	54.81	0.40	10%
BASIN B	9	24.45	0.37	10%
BASIN C	9	83.75	0.11	10%
BASIN D	71	162.13	0.44	10%
BASIN E	53	140.60	0.38	10%
BASIN F	6	12.71	0.47	10%
<b>DEVELOPMENT TOTAL</b>	<b>170</b>	<b>478.45</b>	<b>0.36</b>	<b>10%</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

<b>DEVELOPMENT AREA</b>	<b>BASIN A</b>	<b>BASIN B</b>	<b>BASIN C</b>	<b>BASIN D</b>	<b>BASIN E</b>	<b>BASIN F</b>
<b>OPEN SPACE/BUFFER</b>						
TOTAL AREA = 421.96 Ac.	46.96	20.04	75.34	143.02	127.15	9.45
<b>LANDSCAPE</b>						
TOTAL AREA = 15.05 Ac.	2.12	0.95	2.21	5.07	4.18	0.52
<b>PONDS</b>						
TOTAL AREA = 6.00 Ac.	1.00	1.00	1.00	1.00	1.00	1.00
<b>ROADWAY</b>						
TOTAL AREA = 18.34 Ac.	2.61	1.51	0.94	7.97	4.09	1.22
<b>RESIDENTIAL DENSITY</b>						
TOTAL AREA = 14.36 Ac.	2.12	0.95	1.52	5.07	4.18	0.52
<b>COMMERCIAL</b>						
TOTAL AREA = 2.74 Ac.	0.00	0.00	2.74	0.00	0.00	0.00
<b>TOTAL AREA : 478.45 Ac.</b>	<b>54.81</b>	<b>24.45</b>	<b>83.75</b>	<b>162.13</b>	<b>140.60</b>	<b>12.71</b>
Total Area Check 478.45 Ac.						

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN A**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
10	3.02	10%	0.30	50%	0.15	0.15
11	2.65	10%	0.27	50%	0.13	0.13
12	2.17	10%	0.22	50%	0.11	0.11
13	1.45	10%	0.15	50%	0.07	0.07
14	1.05	10%	0.11	50%	0.05	0.05
15	1.72	10%	0.17	50%	0.09	0.09
16	1.29	10%	0.13	50%	0.06	0.06
17	0.91	10%	0.09	50%	0.05	0.05
18	1.18	10%	0.12	50%	0.06	0.06
19	1.93	10%	0.19	50%	0.10	0.10
20	2.04	10%	0.20	50%	0.10	0.10
21	2.16	10%	0.22	50%	0.11	0.11
22	2.95	10%	0.30	50%	0.15	0.15
23	2.22	10%	0.22	50%	0.11	0.11
24	2.26	10%	0.23	50%	0.11	0.11
25	1.90	10%	0.19	50%	0.10	0.10
26	2.23	10%	0.22	50%	0.11	0.11
27	2.19	10%	0.22	50%	0.11	0.11
28	2.21	10%	0.22	50%	0.11	0.11
29	1.54	10%	0.15	50%	0.08	0.08
30	1.44	10%	0.14	50%	0.07	0.07
31	1.85	10%	0.19	50%	0.09	0.09
<b>TOTAL</b>	<b>42.36</b>	<b>10%</b>	<b>4.24</b>	<b>50%</b>	<b>2.12</b>	<b>2.12</b>



**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN A**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	54.81	10%	2.12	2.12
COMMERCIAL	0.00	80%	0	0
<b>TOTAL</b>	<b>54.81</b>	<b>N/A</b>	<b>N/A</b>	<b>2.12</b>

From previous table.

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	2.61	C	Paved roads and shoulders	98
RESIDENTIAL	2.12	C	Rooftops, driveways, paths	98
COMMERCIAL	0.00	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>5.73</b>	<b>N/A</b>	<b>N/A</b>	<b>98</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	46.96	C	See Pre-Development Cond.	80
LANDSCAPE	2.12	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>49.08</b>	<b>N/A</b>	<b>N/A</b>	<b>80</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN B**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
1	2.27	10%	0.23	50%	0.11	0.11
2	2.33	10%	0.23	50%	0.12	0.12
3	2.42	10%	0.24	50%	0.12	0.12
4	2.09	10%	0.21	50%	0.10	0.10
5	2.10	10%	0.21	50%	0.11	0.11
6	1.58	10%	0.16	50%	0.08	0.08
7	1.68	10%	0.17	50%	0.08	0.08
8	2.25	10%	0.23	50%	0.11	0.11
9	2.37	10%	0.24	50%	0.12	0.12
<b>TOTAL</b>	<b>19.09</b>	<b>10%</b>	<b>1.91</b>	<b>50%</b>	<b>0.95</b>	<b>0.95</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN B**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	24.45	10%	0.95	0.95
COMMERCIAL	0.00	80%	0	0
<b>TOTAL</b>	<b>24.45</b>	<b>N/A</b>	<b>N/A</b>	<b>0.95</b>

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	1.51	C	Paved roads and shoulders	98
RESIDENTIAL	0.95	C	Rooftops, driveways, paths	98
COMMERCIAL	0.00	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>3.46</b>	<b>N/A</b>	<b>N/A</b>	<b>99</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	20.04	C	See Pre-Development Cond.	80
LANDSCAPE	0.95	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>20.99</b>	<b>N/A</b>	<b>N/A</b>	<b>80</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN C**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
42	3.55	10%	0.36	50%	0.18	0.18
43	3.50	10%	0.35	50%	0.18	0.18
44	3.93	10%	0.39	50%	0.20	0.20
45	3.29	10%	0.33	50%	0.16	0.16
46	3.00	10%	0.30	50%	0.15	0.15
47	2.99	10%	0.30	50%	0.15	0.15
48	3.10	10%	0.31	50%	0.16	0.16
49	3.74	10%	0.37	50%	0.19	0.19
50	3.26	10%	0.33	50%	0.16	0.16
<b>TOTAL</b>	<b>30.36</b>	<b>10%</b>	<b>3.04</b>	<b>50%</b>	<b>1.52</b>	<b>1.52</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN C**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	80.32	10%	1.52	1.52
COMMERCIAL	3.43	80%	2.74	0.69
<b>TOTAL</b>	<b>83.75</b>	<b>N/A</b>	<b>N/A</b>	<b>2.21</b>

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	0.94	C	Paved roads and shoulders	98
RESIDENTIAL	1.52	C	Rooftops, driveways, paths	98
COMMERCIAL	2.74	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>6.20</b>	<b>N/A</b>	<b>N/A</b>	<b>98</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	75.34	C	See Pre-Development Cond.	78
LANDSCAPE	2.21	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>77.55</b>	<b>N/A</b>	<b>N/A</b>	<b>78</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN D**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERTION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
32	1.95	10%	0.20	50%	0.10	0.10
33	1.11	10%	0.11	50%	0.06	0.06
34	1.08	10%	0.11	50%	0.05	0.05
35	1.42	10%	0.14	50%	0.07	0.07
36	1.49	10%	0.15	50%	0.07	0.07
37	1.56	10%	0.16	50%	0.08	0.08
38	1.88	10%	0.19	50%	0.09	0.09
39	1.47	10%	0.15	50%	0.07	0.07
40	1.42	10%	0.14	50%	0.07	0.07
51	4.93	10%	0.49	50%	0.25	0.25
52	1.27	10%	0.13	50%	0.06	0.06
53	1.13	10%	0.11	50%	0.06	0.06
54	1.36	10%	0.14	50%	0.07	0.07
55	1.30	10%	0.13	50%	0.07	0.07
56	1.23	10%	0.12	50%	0.06	0.06
57	1.22	10%	0.12	50%	0.06	0.06
58	0.98	10%	0.10	50%	0.05	0.05
59	0.95	10%	0.10	50%	0.05	0.05
60	0.71	10%	0.07	50%	0.04	0.04
61	0.83	10%	0.08	50%	0.04	0.04
62	0.93	10%	0.09	50%	0.05	0.05
63	0.91	10%	0.09	50%	0.05	0.05
64	0.98	10%	0.10	50%	0.05	0.05
65	0.99	10%	0.10	50%	0.05	0.05
66	0.99	10%	0.10	50%	0.05	0.05
67	1.37	10%	0.14	50%	0.07	0.07
68	1.80	10%	0.18	50%	0.09	0.09
73	1.67	10%	0.17	50%	0.08	0.08
74	1.53	10%	0.15	50%	0.08	0.08
75	1.51	10%	0.15	50%	0.08	0.08
76	1.61	10%	0.16	50%	0.08	0.08
77	1.60	10%	0.16	50%	0.08	0.08
78	1.16	10%	0.12	50%	0.06	0.06
79	1.24	10%	0.12	50%	0.06	0.06
80	1.29	10%	0.13	50%	0.06	0.06
81	1.50	10%	0.15	50%	0.08	0.08
82	1.42	10%	0.14	50%	0.07	0.07

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
83	1.42	10%	0.14	50%	0.07	0.07
84	1.55	10%	0.16	50%	0.08	0.08
85	1.32	10%	0.13	50%	0.07	0.07
86	1.39	10%	0.14	50%	0.07	0.07
87	1.42	10%	0.14	50%	0.07	0.07
88	1.80	10%	0.18	50%	0.09	0.09
89	1.60	10%	0.16	50%	0.08	0.08
90	1.46	10%	0.15	50%	0.07	0.07
91	1.55	10%	0.16	50%	0.08	0.08
92	1.57	10%	0.16	50%	0.08	0.08
93	1.36	10%	0.14	50%	0.07	0.07
94	1.29	10%	0.13	50%	0.06	0.06
95	1.25	10%	0.13	50%	0.06	0.06
96	1.34	10%	0.13	50%	0.07	0.07
97	1.41	10%	0.14	50%	0.07	0.07
98	1.48	10%	0.15	50%	0.07	0.07
99	1.47	10%	0.15	50%	0.07	0.07
100	1.48	10%	0.15	50%	0.07	0.07
101	1.40	10%	0.14	50%	0.07	0.07
104	1.59	10%	0.16	50%	0.08	0.08
105	1.81	10%	0.18	50%	0.09	0.09
150	1.53	10%	0.15	50%	0.08	0.08
151	1.45	10%	0.15	50%	0.07	0.07
157	1.37	10%	0.14	50%	0.07	0.07
158	1.52	10%	0.15	50%	0.08	0.08
159	1.24	10%	0.12	50%	0.06	0.06
160	1.42	10%	0.14	50%	0.07	0.07
161	1.28	10%	0.13	50%	0.06	0.06
162	1.22	10%	0.12	50%	0.06	0.06
163	1.35	10%	0.14	50%	0.07	0.07
164	1.39	10%	0.14	50%	0.07	0.07
165	1.60	10%	0.16	50%	0.08	0.08
170	1.68	10%	0.17	50%	0.08	0.08
171	1.69	10%	0.17	50%	0.08	0.08
<b>TOTAL</b>	<b>101.49</b>	<b>10%</b>	<b>10.15</b>	<b>50%</b>	<b>5.07</b>	<b>5.07</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN D**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	162.13	10%	5.07	5.07
COMMERCIAL	0.00	80%	0	0
<b>TOTAL</b>	<b>162.13</b>	<b>N/A</b>	<b>N/A</b>	<b>5.07</b>

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	7.97	C	Paved roads and shoulders	98
RESIDENTIAL	5.07	C	Rooftops, driveways, paths	98
COMMERCIAL	0.00	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>14.04</b>	<b>N/A</b>	<b>N/A</b>	<b>98</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	143.02	C	See Pre-Development Cond.	79
LANDSCAPE	5.07	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>148.09</b>	<b>N/A</b>	<b>N/A</b>	<b>79</b>



**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN E**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
69	1.21	10%	0.12	50%	0.06	0.06
70	1.55	10%	0.16	50%	0.08	0.08
71	1.72	10%	0.17	50%	0.09	0.09
72	1.32	10%	0.13	50%	0.07	0.07
102	1.42	10%	0.14	50%	0.07	0.07
103	1.28	10%	0.13	50%	0.06	0.06
106	1.62	10%	0.16	50%	0.08	0.08
107	1.95	10%	0.20	50%	0.10	0.10
108	1.74	10%	0.17	50%	0.09	0.09
109	1.49	10%	0.15	50%	0.07	0.07
110	1.57	10%	0.16	50%	0.08	0.08
111	1.68	10%	0.17	50%	0.08	0.08
112	1.61	10%	0.16	50%	0.08	0.08
113	1.44	10%	0.14	50%	0.07	0.07
114	1.60	10%	0.16	50%	0.08	0.08
115	1.44	10%	0.14	50%	0.07	0.07
116	1.77	10%	0.18	50%	0.09	0.09
117	1.36	10%	0.14	50%	0.07	0.07
118	1.39	10%	0.14	50%	0.07	0.07
119	1.47	10%	0.15	50%	0.07	0.07
120	1.37	10%	0.14	50%	0.07	0.07
121	1.59	10%	0.16	50%	0.08	0.08
122	1.43	10%	0.14	50%	0.07	0.07
123	1.30	10%	0.13	50%	0.07	0.07
124	1.67	10%	0.17	50%	0.08	0.08
125	1.35	10%	0.14	50%	0.07	0.07
126	1.25	10%	0.13	50%	0.06	0.06
127	1.29	10%	0.13	50%	0.06	0.06
128	1.80	10%	0.18	50%	0.09	0.09
129	1.56	10%	0.16	50%	0.08	0.08
130	1.32	10%	0.13	50%	0.07	0.07
131	1.46	10%	0.15	50%	0.07	0.07
132	1.94	10%	0.19	50%	0.10	0.10
133	1.96	10%	0.20	50%	0.10	0.10
134	1.86	10%	0.19	50%	0.09	0.09
135	1.58	10%	0.16	50%	0.08	0.08
136	1.54	10%	0.15	50%	0.08	0.08

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERSION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
137	1.47	10%	0.15	50%	0.07	0.07
138	2.74	10%	0.27	50%	0.14	0.14
145	1.64	10%	0.16	50%	0.08	0.08
146	1.65	10%	0.17	50%	0.08	0.08
147	1.56	10%	0.16	50%	0.08	0.08
148	1.77	10%	0.18	50%	0.09	0.09
149	1.57	10%	0.16	50%	0.08	0.08
152	1.73	10%	0.17	50%	0.09	0.09
153	1.39	10%	0.14	50%	0.07	0.07
154	1.41	10%	0.14	50%	0.07	0.07
155	1.39	10%	0.14	50%	0.07	0.07
156	1.81	10%	0.18	50%	0.09	0.09
166	1.56	10%	0.16	50%	0.08	0.08
167	1.68	10%	0.17	50%	0.08	0.08
168	1.66	10%	0.17	50%	0.08	0.08
169	1.76	10%	0.18	50%	0.09	0.09
<b>TOTAL</b>	<b>83.69</b>	<b>10%</b>	<b>8.37</b>	<b>50%</b>	<b>4.18</b>	<b>4.18</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN E**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	140.60	10%	4.18	4.18
COMMERCIAL	0.00	80%	0	0
<b>TOTAL</b>	<b>140.60</b>	<b>N/A</b>	<b>N/A</b>	<b>4.18</b>

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	4.09	C	Paved roads and shoulders	98
RESIDENTIAL	4.18	C	Rooftops, driveways, paths	98
COMMERCIAL	0.00	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>9.27</b>	<b>N/A</b>	<b>N/A</b>	<b>98</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	127.15	C	See Pre-Development Cond.	75
LANDSCAPE	4.18	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>131.33</b>	<b>N/A</b>	<b>N/A</b>	<b>75</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN F**

LOT #	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	BASIC DISPERTION	NEW IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
139	1.76	10%	0.18	50%	0.09	0.09
140	2.03	10%	0.20	50%	0.10	0.10
141	1.41	10%	0.14	50%	0.07	0.07
142	1.50	10%	0.15	50%	0.08	0.08
143	1.98	10%	0.20	50%	0.10	0.10
144	1.65	10%	0.17	50%	0.08	0.08
<b>TOTAL</b>	<b>10.33</b>	<b>10%</b>	<b>1.03</b>	<b>50%</b>	<b>0.52</b>	<b>0.52</b>

**FOREST RIDGE  
PERFORMANCE BASED CLUSTER PLAT**

**BASIN F**

DEVELOPMENT AREA BREAKDOWN	AREA (acres)	% Impervious*	IMPERVIOUS AREA (acres)	TOTAL LANDSCAPE AREA (acres)
RESIDENTIAL DENSITY	12.71	10%	0.52	0.52
COMMERCIAL	0.00	80%	0.00	0.00
<b>TOTAL</b>	<b>12.71</b>	<b>N/A</b>	<b>N/A</b>	<b>0.52</b>

**IMPERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
PONDS	1.00	C	Ponds and watercourses	100
ROADWAY	1.22	C	Paved roads and shoulders	98
RESIDENTIAL	0.52	C	Rooftops, driveways, paths	98
RESIDENTIAL	0.00	C	Rooftops, driveways, paths	98
<b>TOTAL IMPERVIOUS</b>	<b>2.74</b>	<b>N/A</b>	<b>N/A</b>	<b>99</b>

**PERVIOUS AREAS**

AREA	AREA (acres)	HYDROLOGIC SOIL GROUP	DESCRIPTION	CN
OPEN SPACE/BUFFER	9.45	C	See Pre-Development Cond.	75
LANDSCAPE	0.52	C	Lawns (Good Condition)	74
<b>TOTAL PERVIOUS</b>	<b>9.97</b>	<b>N/A</b>	<b>N/A</b>	<b>75</b>

**APPENDIX 'E'**

# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN A

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Shallow Concentrated Flow from the top of small hill on the north side of the basin. It will flow in the south direction and then turn eastward for the total of 562 feet. The flow will change direction to southwest for additional 1479 feet before reaching the property line. The entire flow is assumed to be Shallow Concentrated Flow.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	55.18	acres	
Pervious area (w/o upstream open space) =	55.18	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	562	ft	L =	1479	ft
S <sub>0</sub> =	0.0489	ft/ft	S <sub>0</sub> =	0.181	ft/ft
k <sub>s</sub> =	8		k <sub>s</sub> =	8	
V =	1.77	fps	V =	3.40	fps
T <sub>1</sub> =	5.29	min.	T <sub>2</sub> =	7.24	min.
<b>T<sub>c</sub> =</b>	<b>12.54</b>	<b>min.</b>			

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc v6.066

Thursday, Dec 3, 2009

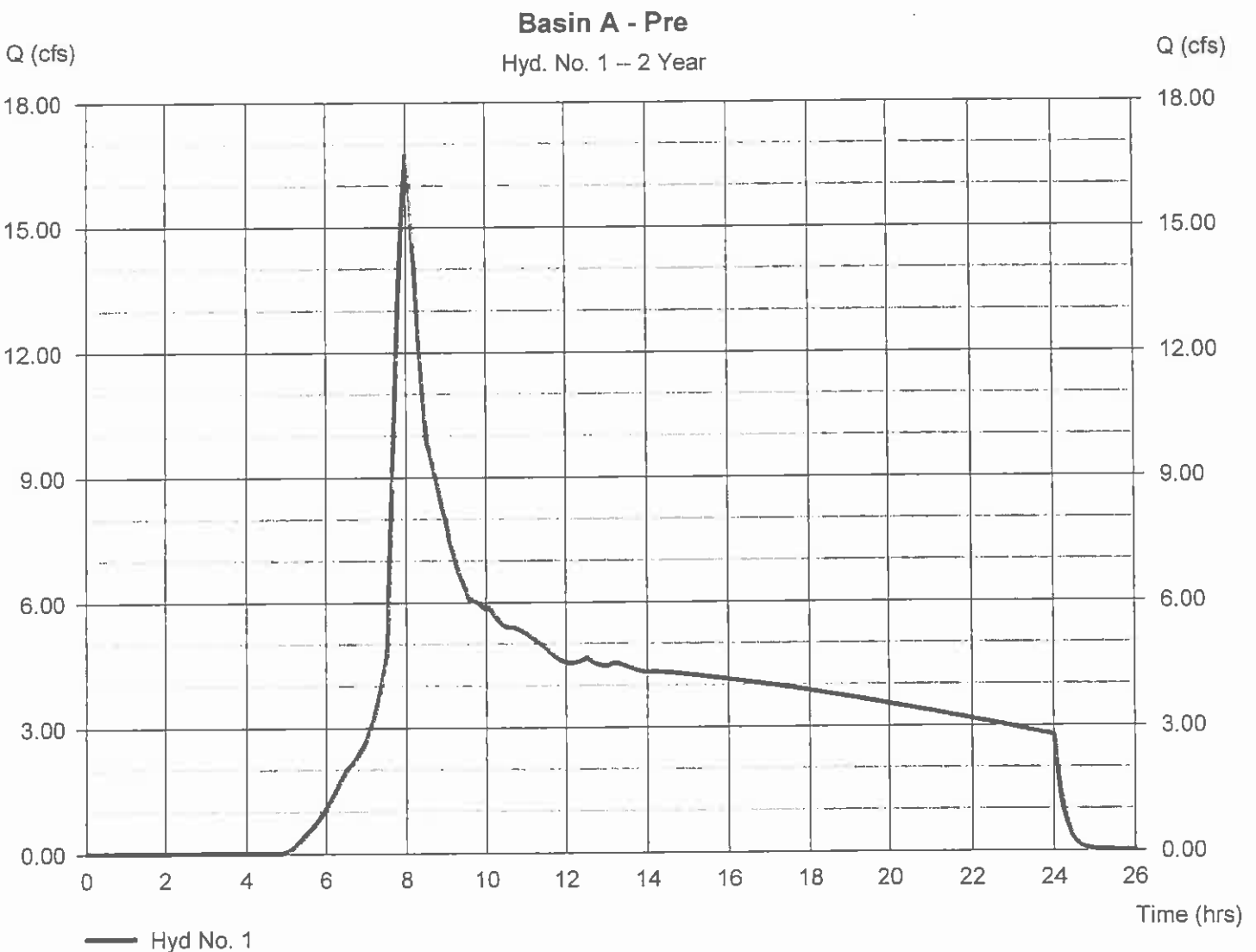
## Hyd. No. 1

Basin A - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 55.180 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 16.76 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 302,541 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.54 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(55.180 x 80)] / 55.180





# Hydrograph Report

## Hyd. No. 1

Basin A - Pre

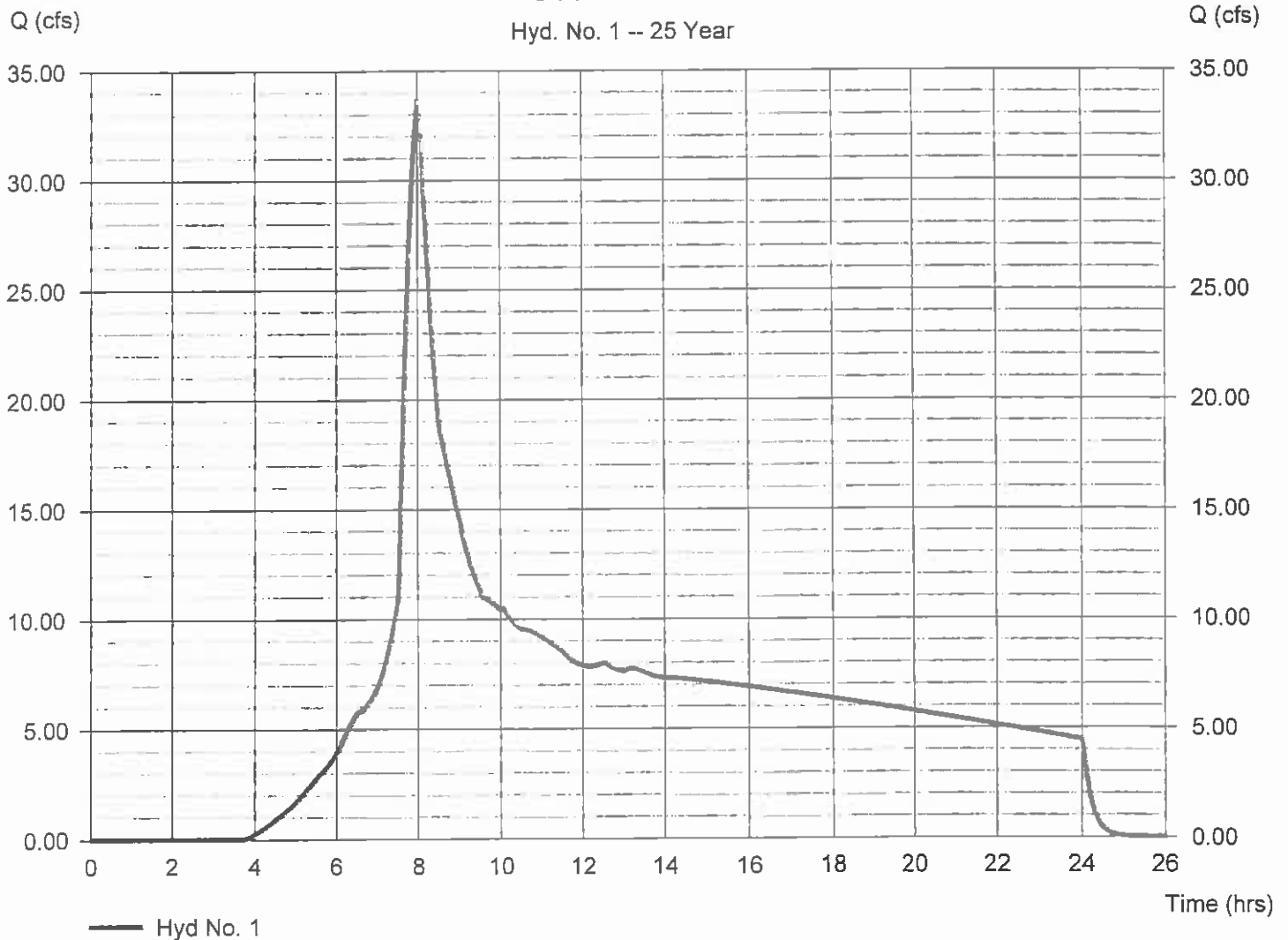
Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 55.180 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 33.68 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 551,584 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.54 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(55.180 x 80)] / 55.180

### Basin A - Pre

Hyd. No. 1 -- 25 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 3, 2009

## Hyd. No. 1

### Basin A - Pre

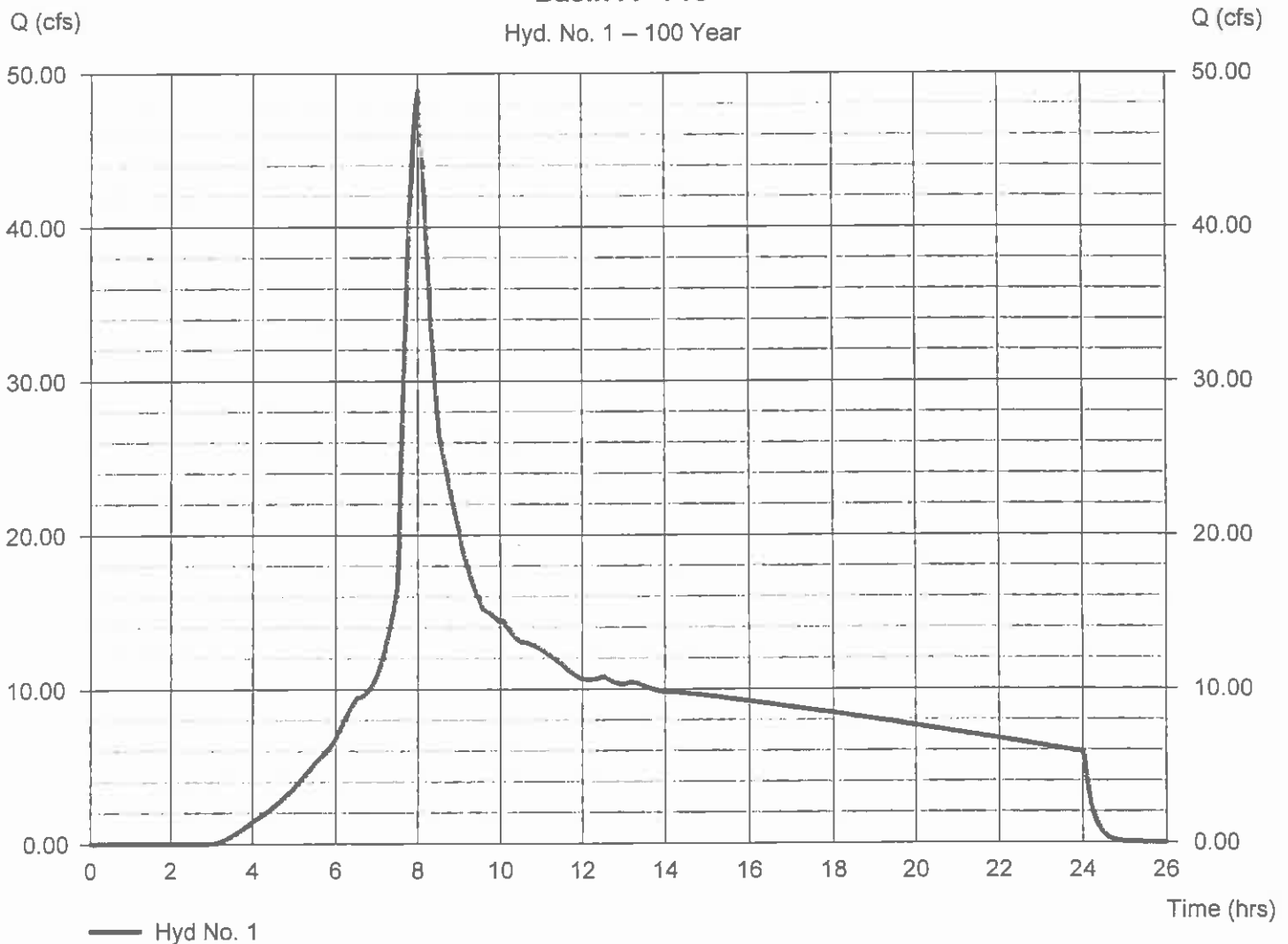
Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 55.180 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 48.86 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 773,683 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.54 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(55.180 x 80)] / 55.180

### Basin A - Pre

Hyd. No. 1 – 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN A

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch on the northeast side of the proposed basin. It will flow in the roadway ditches and will discharge at the proposed detention facility in the vicinity of Lot #11 in the south portion of the proposed basin.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	54.81	acres	
Pervious area (w/o upstream open space) =	49.08	acres	79 CN
Impervious area =	5.73	acres	98 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

$$L = 4782 \quad \text{ft}$$

$$S_0 = 0.0852 \quad \text{ft/ft}$$

$$k_s = 17$$

$$V = 4.96 \quad \text{fps}$$

$$T_t = 16.06 \quad \text{min.}$$

$$T_c = 16.06 \quad \text{min.}$$

# Hydrograph Report

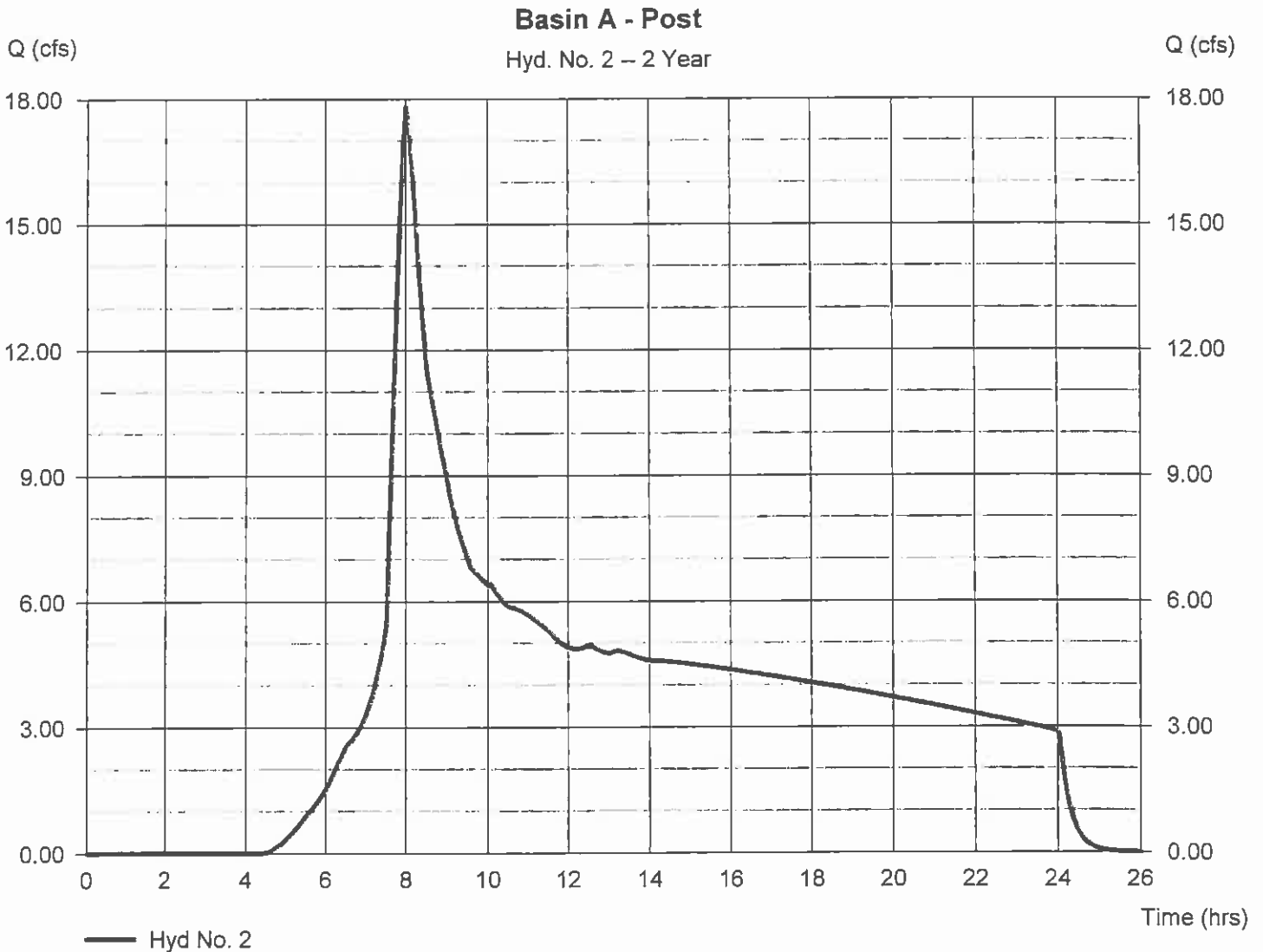
## Hyd. No. 2

### Basin A - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 54.810 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 17.80 cfs  
Time to peak = 482 min  
Hyd. volume = 328,562 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 16.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(5.730 x 98) + (46.960 x 80) + (2.120 x 74)] / 54.810



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc v6.066

Monday, Dec 7, 2009

## Hyd. No. 2

### Basin A - Post

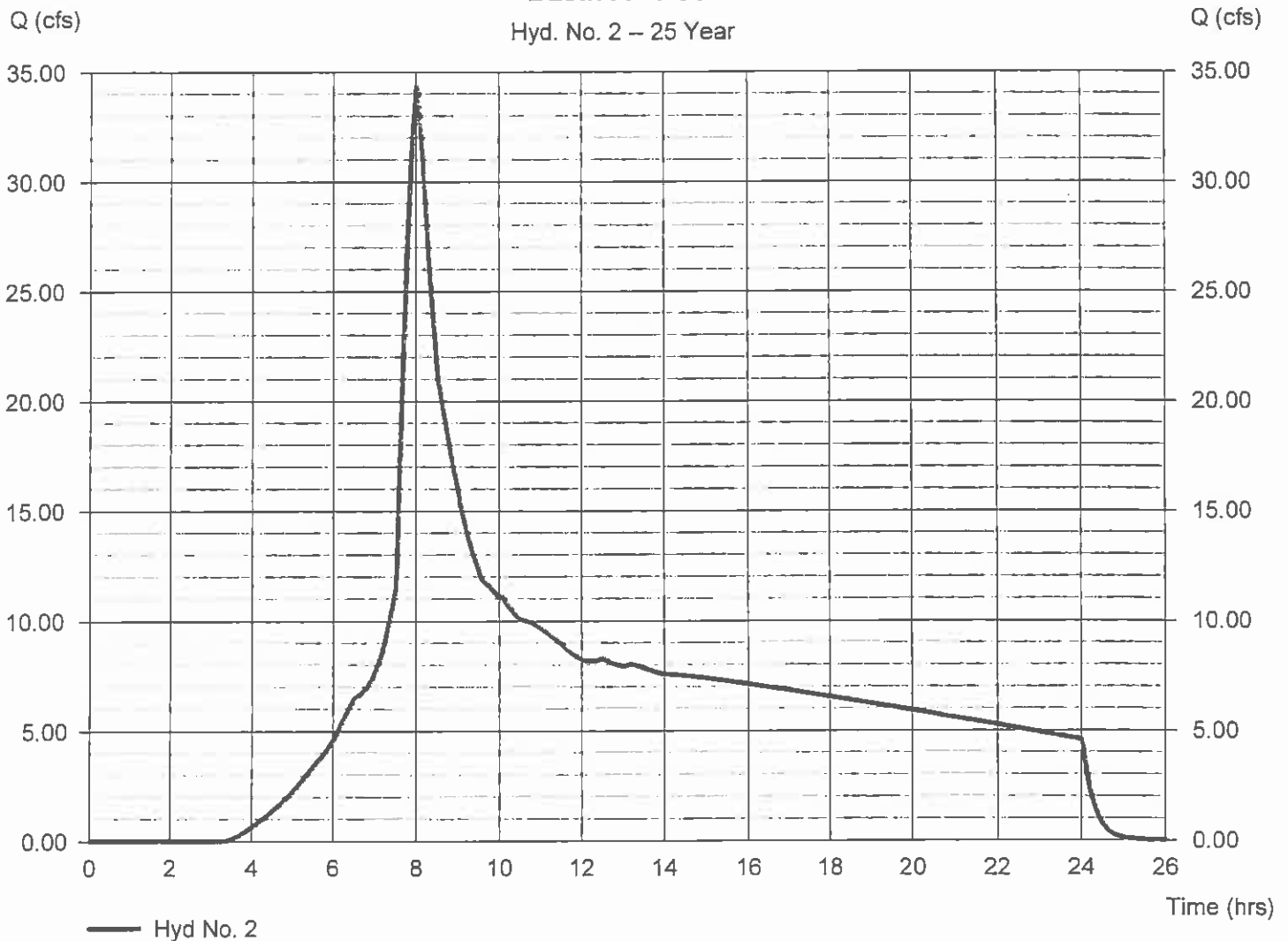
Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 54.810 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 34.36 cfs  
Time to peak = 480 min  
Hyd. volume = 584,221 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 16.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(5.730 x 98) + (46.960 x 80) + (2.120 x 74)] / 54.810

### Basin A - Post

Hyd. No. 2 - 25 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 2

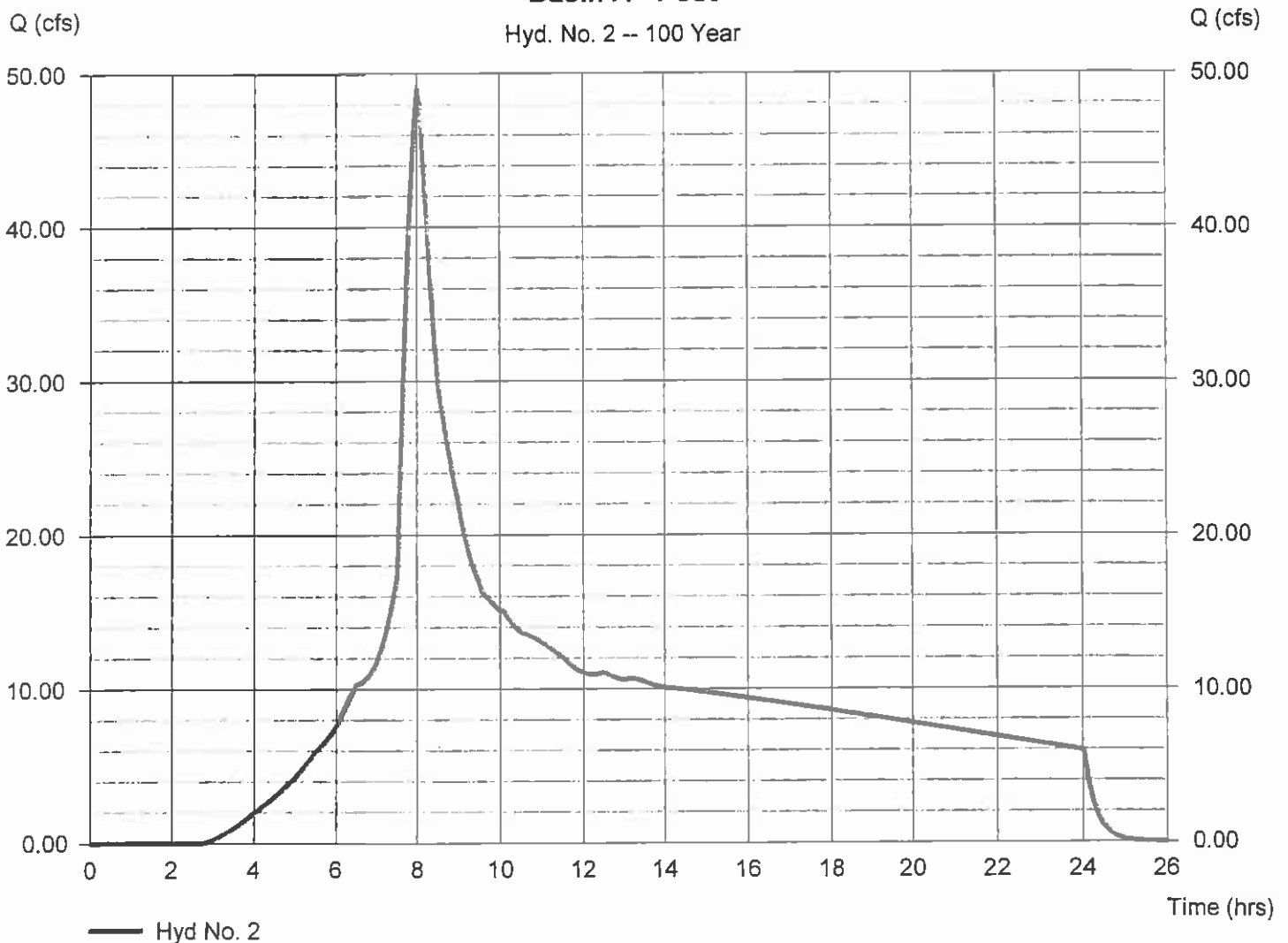
### Basin A - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 54.810 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 49.00 cfs  
Time to peak = 480 min  
Hyd. volume = 809,766 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 16.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(5.730 x 98) + (46.960 x 80) + (2.120 x 74)] / 54.810

**Basin A - Post**  
Hyd. No. 2 -- 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN B

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Shallow Concentrated Flow on the north side of the existing basin. It will flow in the southern direction for the total of 1082 feet before reaching the property line. The entire flow is assumed to be Shallow Concentrated Flow.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	23.67	acres	
Pervious area (w/o upstream open space) =	23.67	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	1082	ft	L =	0	ft
S <sub>0</sub> =	0.1645	ft/ft	S <sub>0</sub> =	0.181	ft/ft
k <sub>s</sub> =	8		k <sub>s</sub> =	8	
V =	3.24	fps	V =	3.40	fps
T <sub>1</sub> =	5.56	min.	T <sub>2</sub> =	0.00	min.
<b>T<sub>c</sub> =</b>	<b>5.56</b>	<b>min.</b>			

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

Basin B - Pre

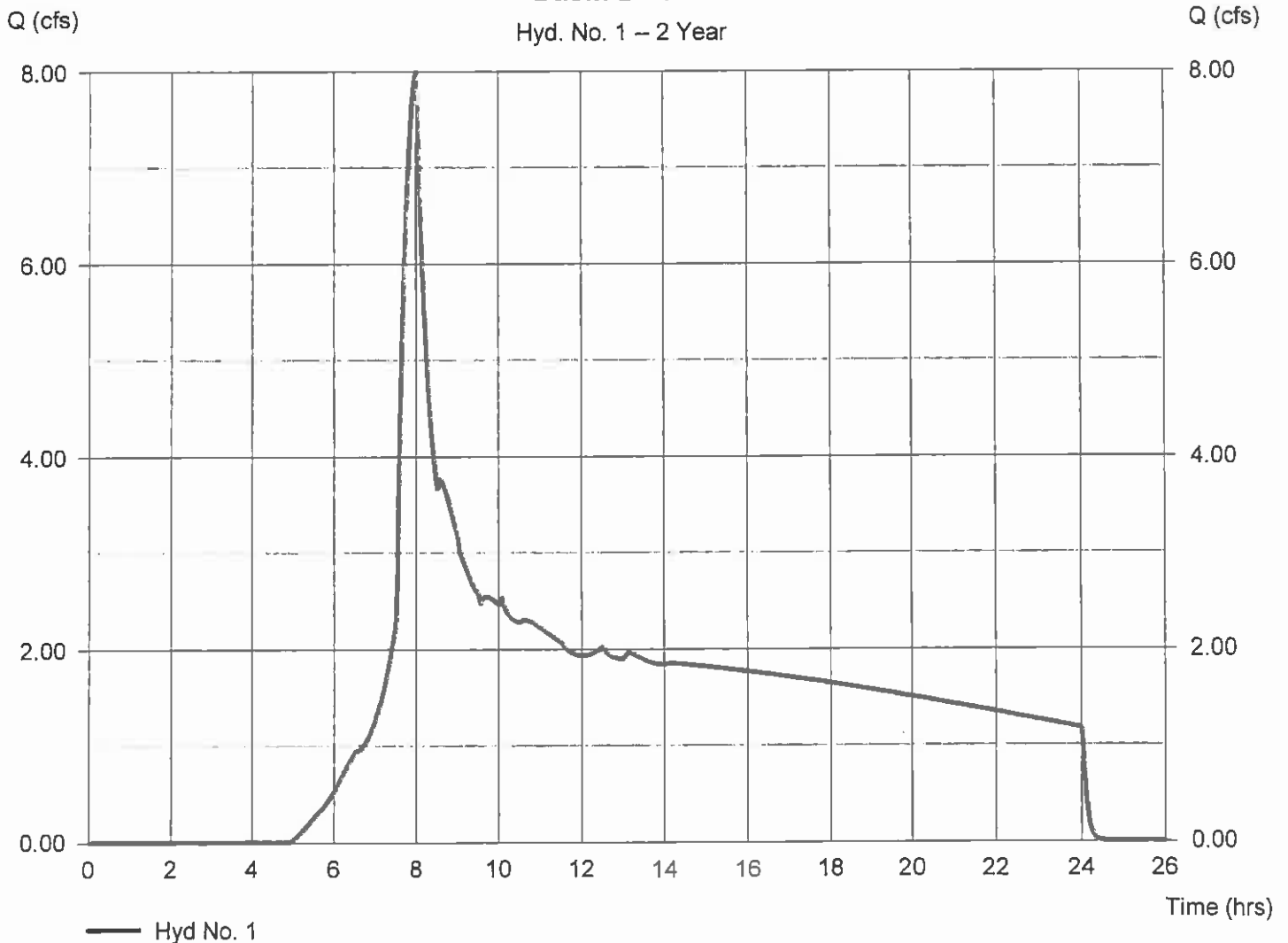
Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 23.670 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 7.996 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 129,778 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.56 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(11.840 \times 82) + (11.830 \times 77)] / 23.670$

### Basin B - Pre

Hyd. No. 1 -- 2 Year





# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

Basin B - Pre

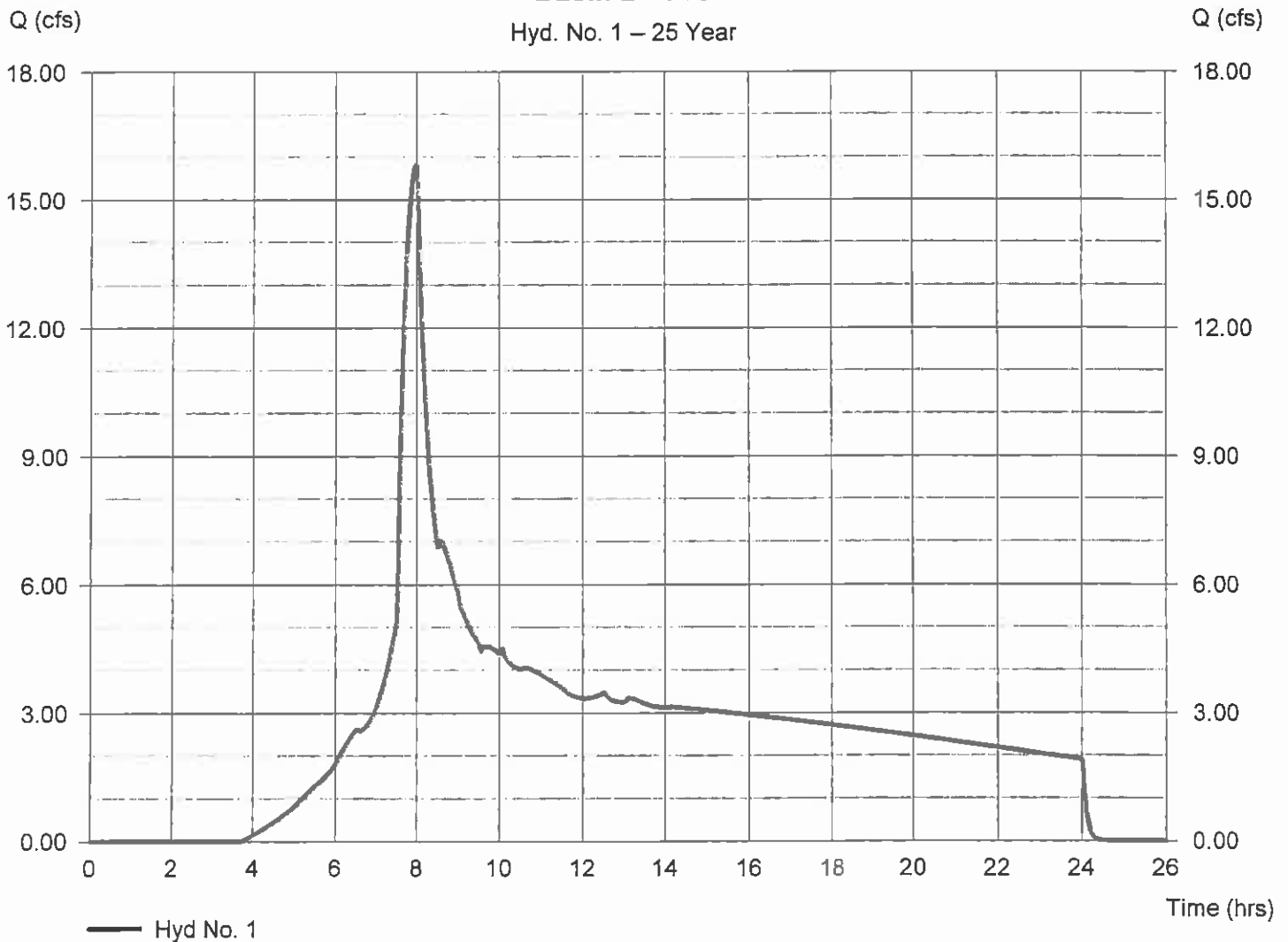
Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 23.670 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 15.81 cfs  
Time to peak = 7.97 hrs  
Hyd. volume = 236,607 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.56 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(11.840 \times 82) + (11.830 \times 77)] / 23.670$

### Basin B - Pre

Hyd. No. 1 - 25 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

### Basin B - Pre

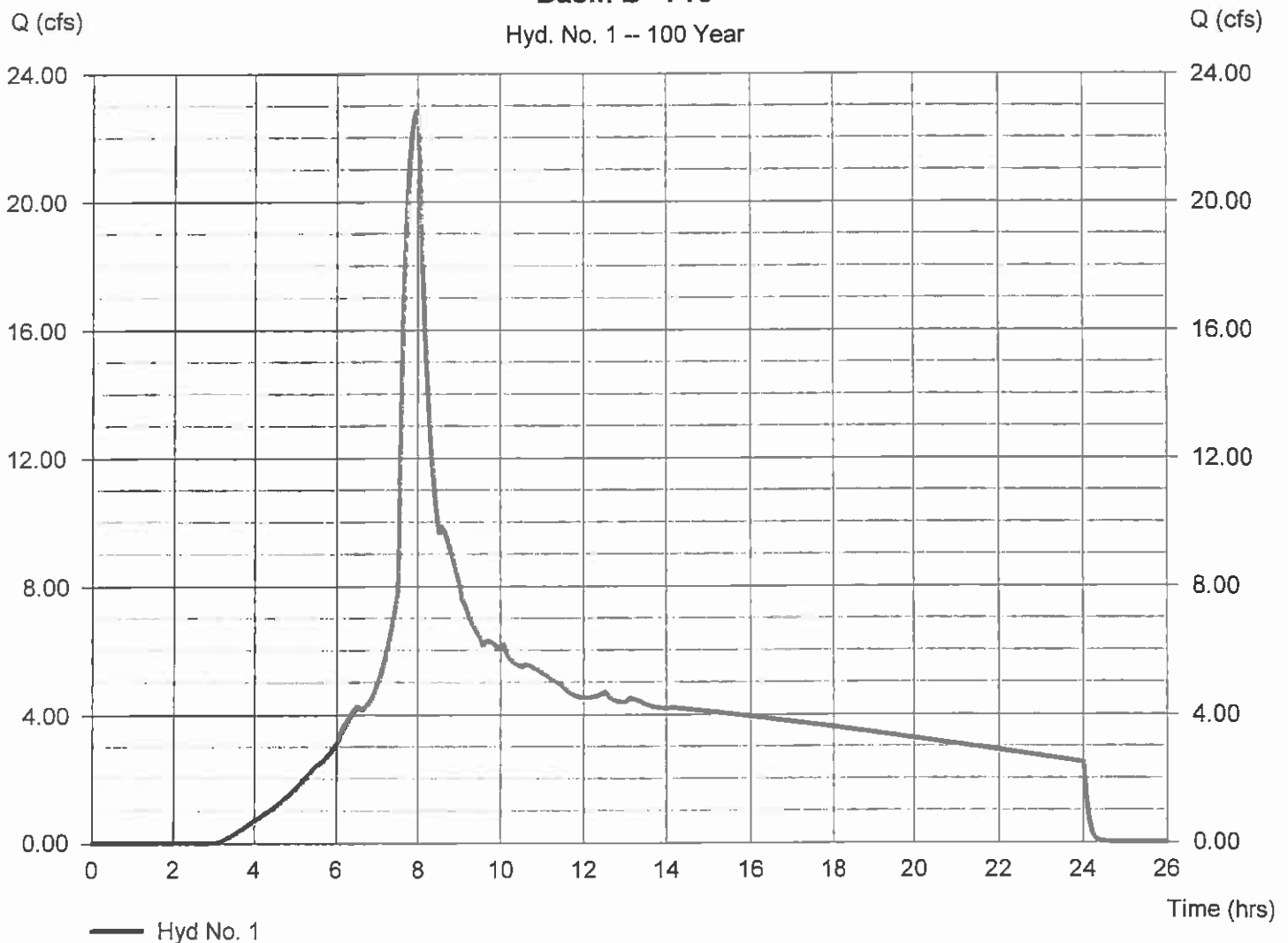
Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 23.670 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 22.82 cfs  
Time to peak = 7.97 hrs  
Hyd. volume = 331,879 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.56 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(11.840 x 82) + (11.830 x 77)] / 23.670

### Basin B - Pre

Hyd. No. 1 -- 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN B

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch on the north side of the proposed basin adjacent to proposed Lot 25. It will flow in the roadway ditch to the end of the cul-de-sac located between Lots 9 and 10 and then down a ditch between Lots 9 and 10 to another roadway ditch. The flow will follow this roadway ditch in the westerly direction and will discharge at the proposed detention facility in the vicinity of Lot #1 in the south portion of the proposed basin.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area (w/o upstream open space) =	24.45	acres	
Pervious area (w/o upstream open space) =	20.99	acres	80 CN
Impervious area =	3.46	acres	99 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

$$L = 2687 \quad \text{ft}$$

$$S_0 = 0.089 \quad \text{ft/ft}$$

$$k_s = 17$$

$$V = 5.07 \quad \text{fps}$$

$$T_t = 8.83 \quad \text{min.}$$

$$T_c = 8.83 \quad \text{min.}$$

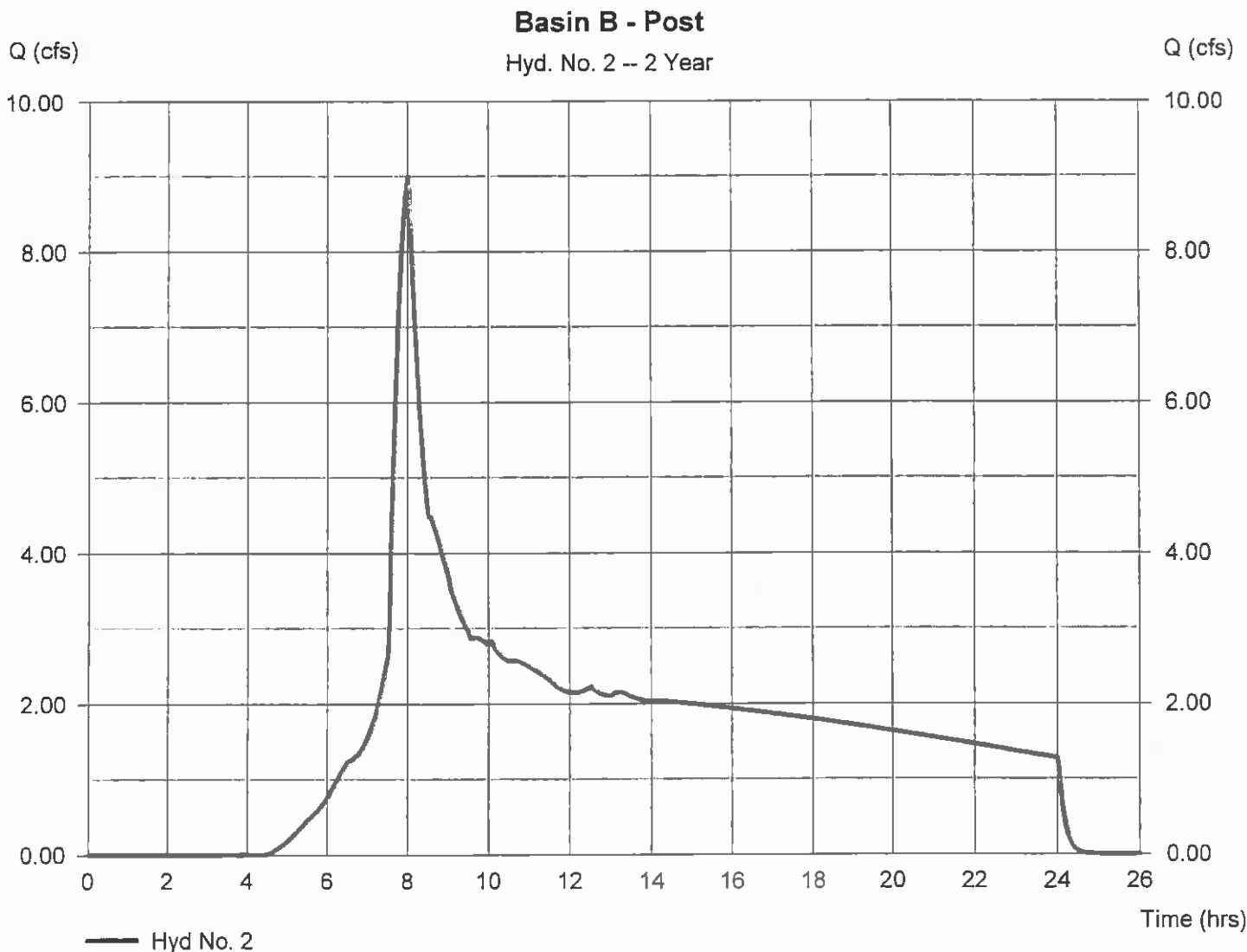
# Hydrograph Report

## Hyd. No. 2

### Basin B - Post

Hydrograph type	= SBUH Runoff	Peak discharge	= 9.003 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.00 hrs
Time interval	= 2 min	Hyd. volume	= 146,567 cuft
Drainage area	= 24.450 ac	Curve number	= 82*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 8.80 min
Total precip.	= 3.34 in	Distribution	= Type IA
Storm duration	= 24 hrs	Shape factor	= N/A

\* Composite (Area/CN) = [(20.040 x 80) + (3.460 x 99) + (0.950 x 74)] / 24.450



# Hydrograph Report

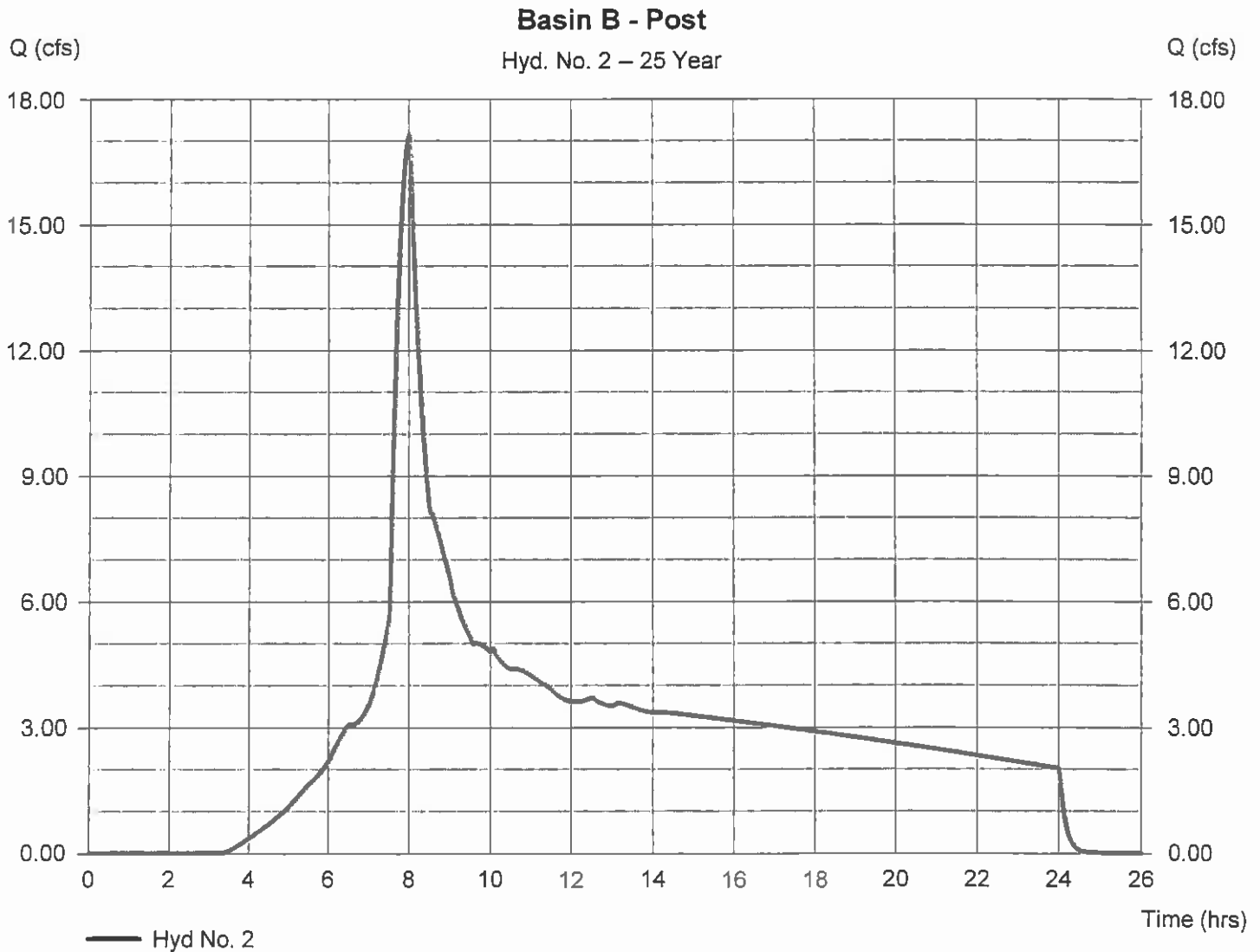
## Hyd. No. 2

### Basin B - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 24.450 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 17.15 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 260,613 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 8.80 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(20.040 \times 80) + (3.460 \times 99) + (0.950 \times 74)] / 24.450$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

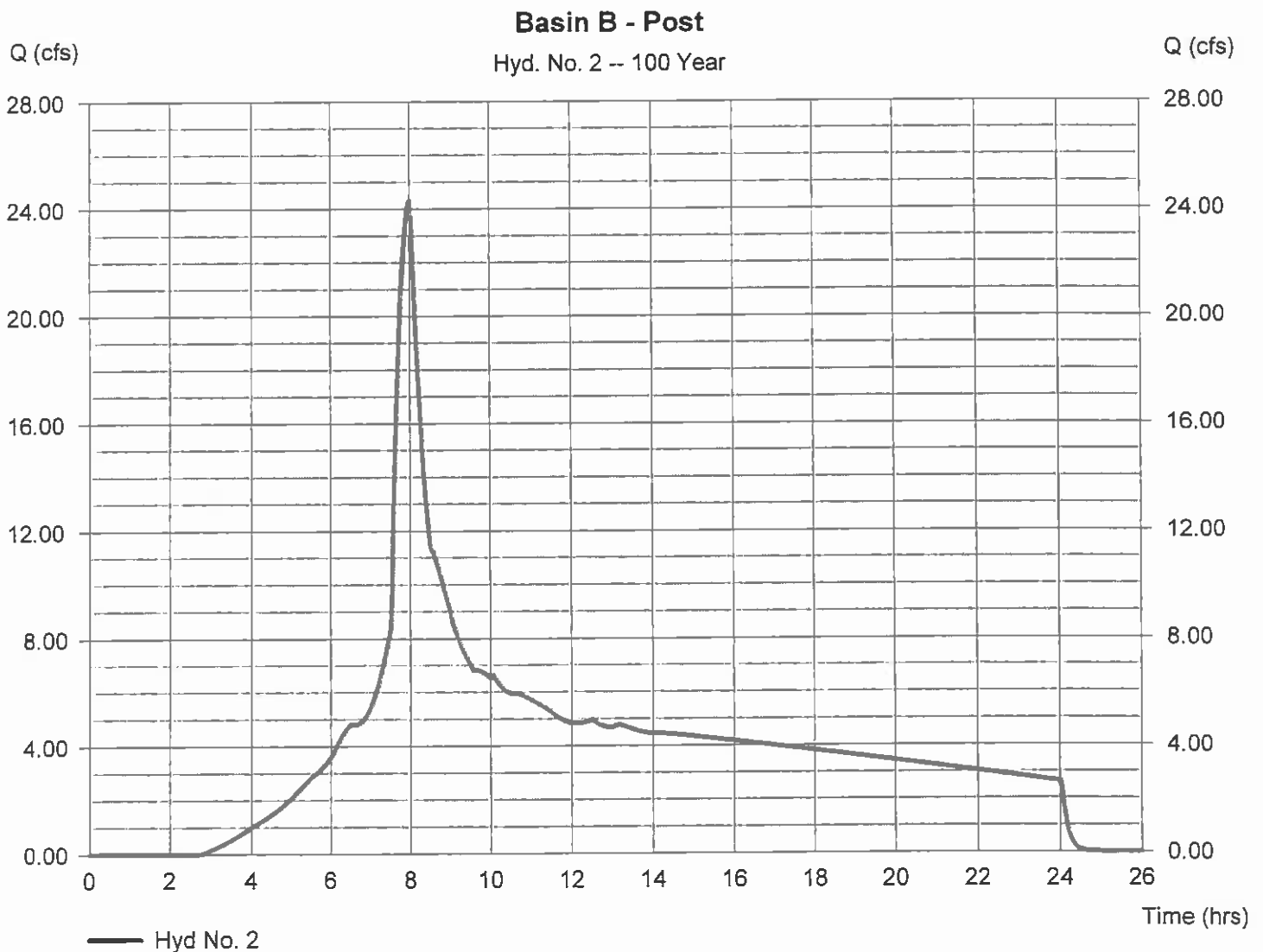
## Hyd. No. 2

Basin B - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 24.450 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 24.32 cfs  
Time to peak = 8.00 hrs  
Hyd. volume = 361,226 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 8.80 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(20.040 x 80) + (3.460 x 99) + (0.950 x 74)] / 24.450



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN C

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Shallow Concentrated Flow on the north side of the existing basin. It will flow in the southern direction for the total of 896 feet before converting to an Open Channel Flow. From here it will flow in the southern direction for the total of 2116 feet before reaching the property line.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	77.04	acres	
Pervious area (w/o upstream open space) =	77.04	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k\sqrt{S_0} \quad T_1 = \frac{L}{60V}$$

L =	896	ft	L =	2116	ft
S <sub>0</sub> =	0.2427	ft/ft	S <sub>0</sub> =	0.15	ft/ft
k <sub>s</sub> =	8		k <sub>s</sub> =	10	
V =	3.94	fps	V =	3.87	fps
T <sub>1</sub> =	3.79	min.	T <sub>2</sub> =	9.11	min.
<b>T<sub>c</sub> =</b>	<b>12.89</b>	<b>min.</b>			

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

Basin C - Pre

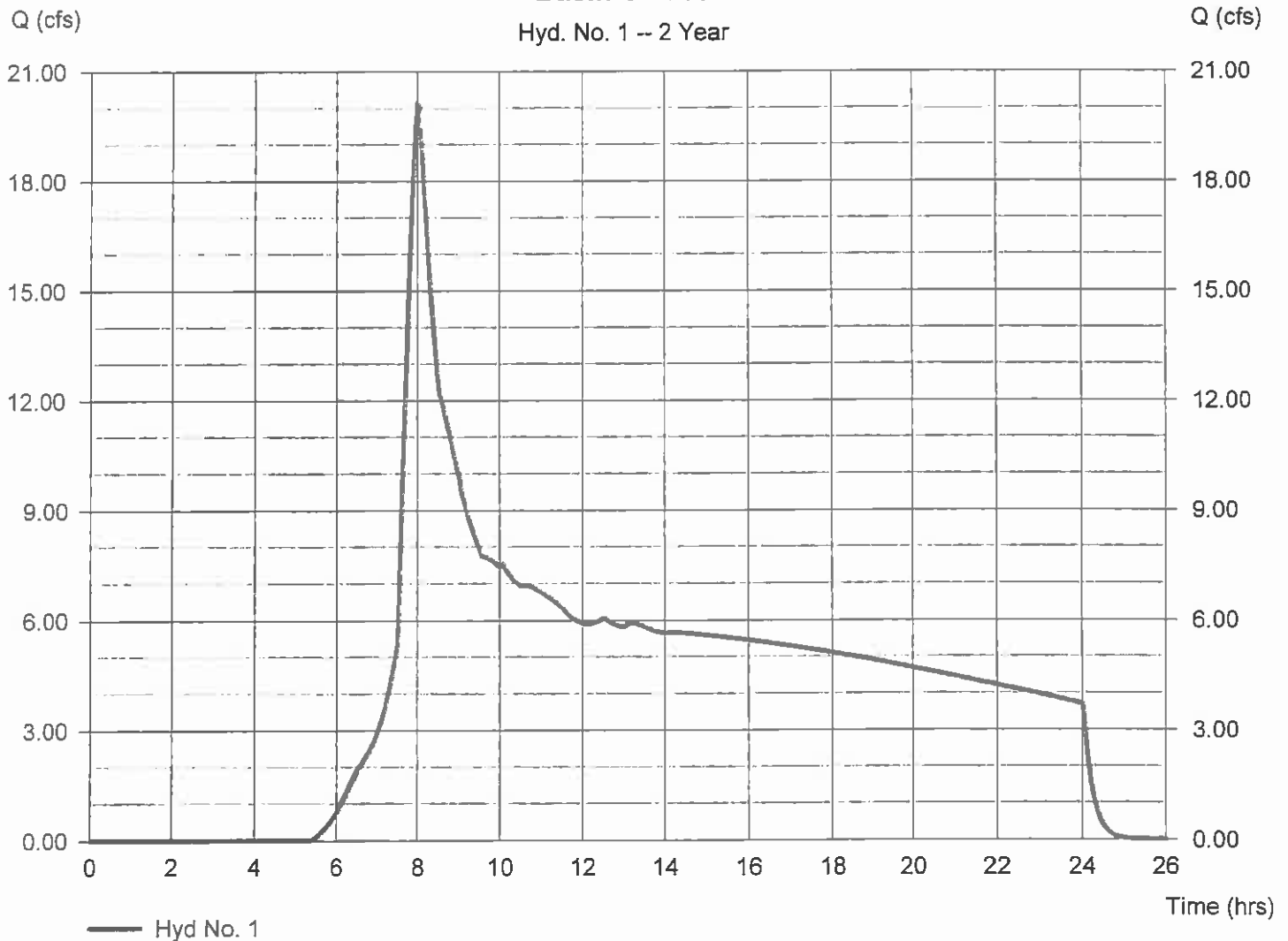
Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 77.040 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 20.15 cfs  
Time to peak = 480 min  
Hyd. volume = 385,053 cuft  
Curve number = 78\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(46.220 x 80) + (30.820 x 74)] / 77.040

### Basin C - Pre

Hyd. No. 1 -- 2 Year





# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

### Basin C - Pre

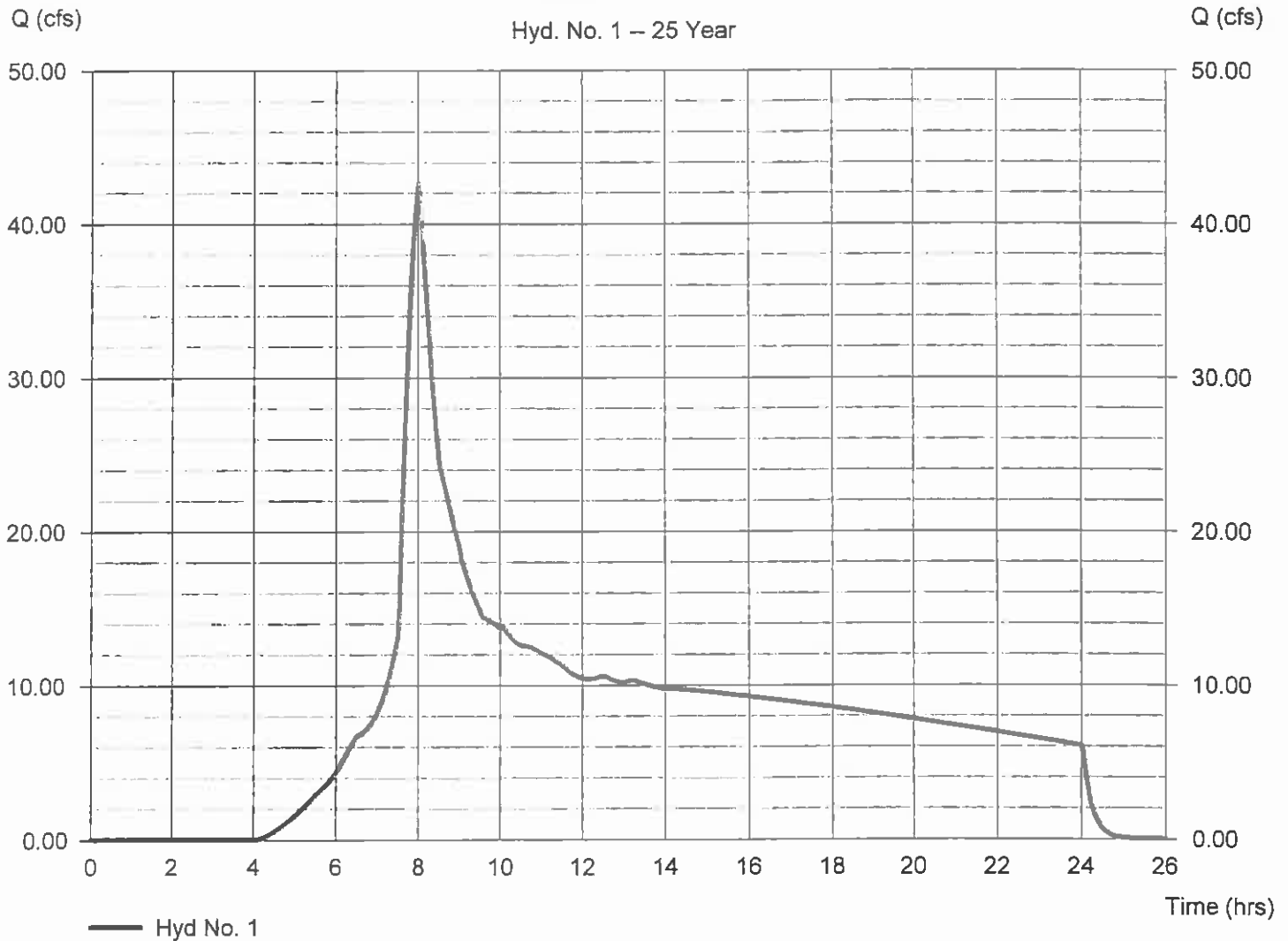
Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 77.040 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 42.66 cfs  
Time to peak = 480 min  
Hyd. volume = 720,508 cuft  
Curve number = 78\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(46.220 x 80) + (30.820 x 74)] / 77.040

### Basin C - Pre

Hyd. No. 1 – 25 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 1

### Basin C - Pre

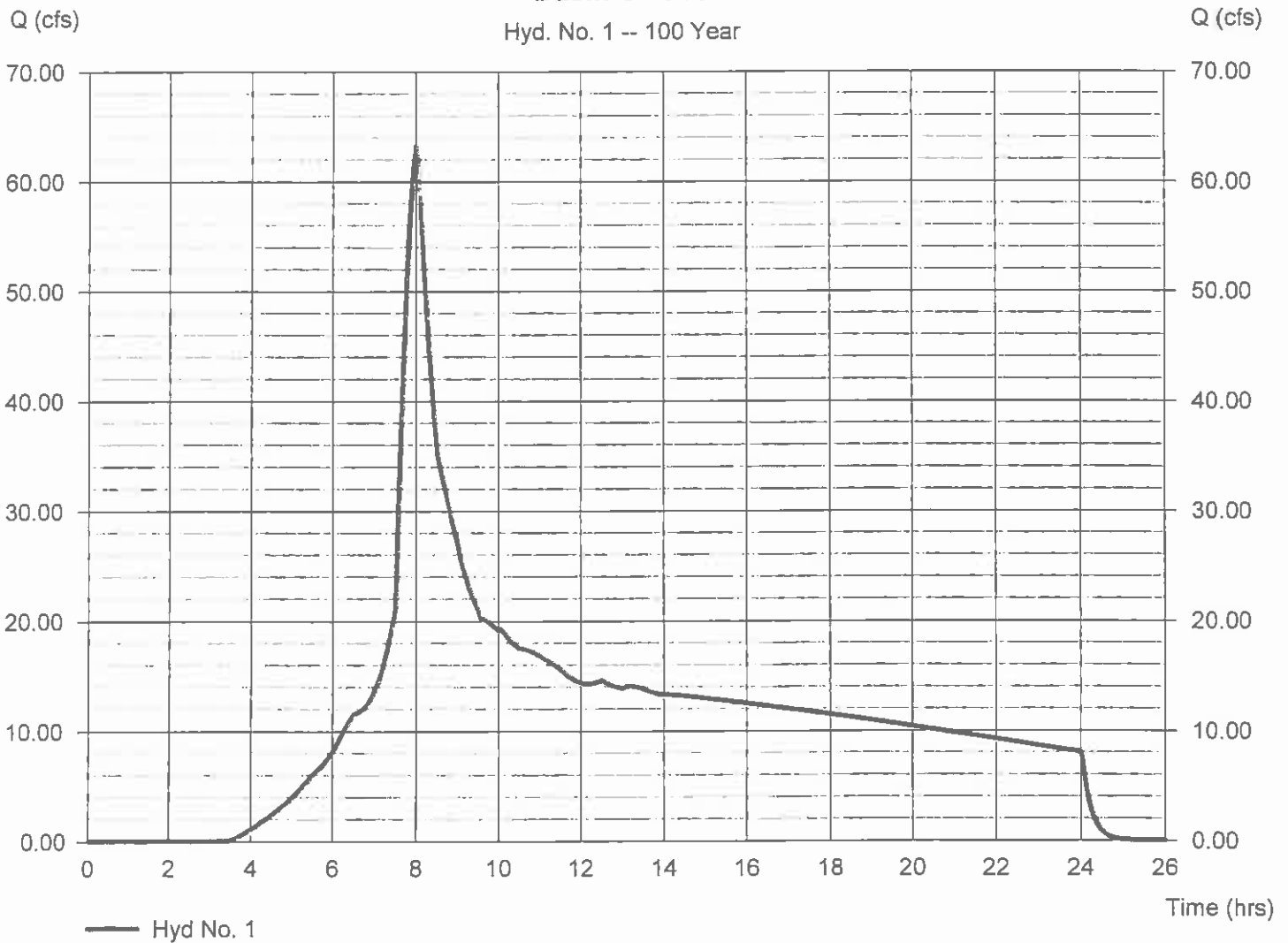
Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 77.040 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 63.23 cfs  
Time to peak = 480 min  
Hyd. volume = 1,023,125 cuft  
Curve number = 78\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 12.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(46.220 \times 80) + (30.820 \times 74)] / 77.040$

### Basin C - Pre

Hyd. No. 1 -- 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN C

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch on the north side of the proposed basin adjacent to proposed Lot 51. It will flow in the roadway ditch to the end of the cul-de-sac, down a proposed ditch between Lots 45 and 46 and will discharge at the proposed detention facility in the vicinity of Lot #45 in the central portion of the proposed basin

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area (w/o upstream open space) =	81.54	acres	
Pervious area (w/o upstream open space) =	75.34	acres	80 CN
Impervious area =	6.20	acres	98 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k\sqrt{S_0} \quad T_t = \frac{L}{60V}$$

$$L = 1994 \quad \text{ft}$$

$$S_0 = 0.104 \quad \text{ft/ft}$$

$$k_s = 17$$

$$V = 5.48 \quad \text{fps}$$

$$T_t = 6.06 \quad \text{min.}$$

$$T_c = 6.06 \quad \text{min.}$$

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 2

Basin C - Post

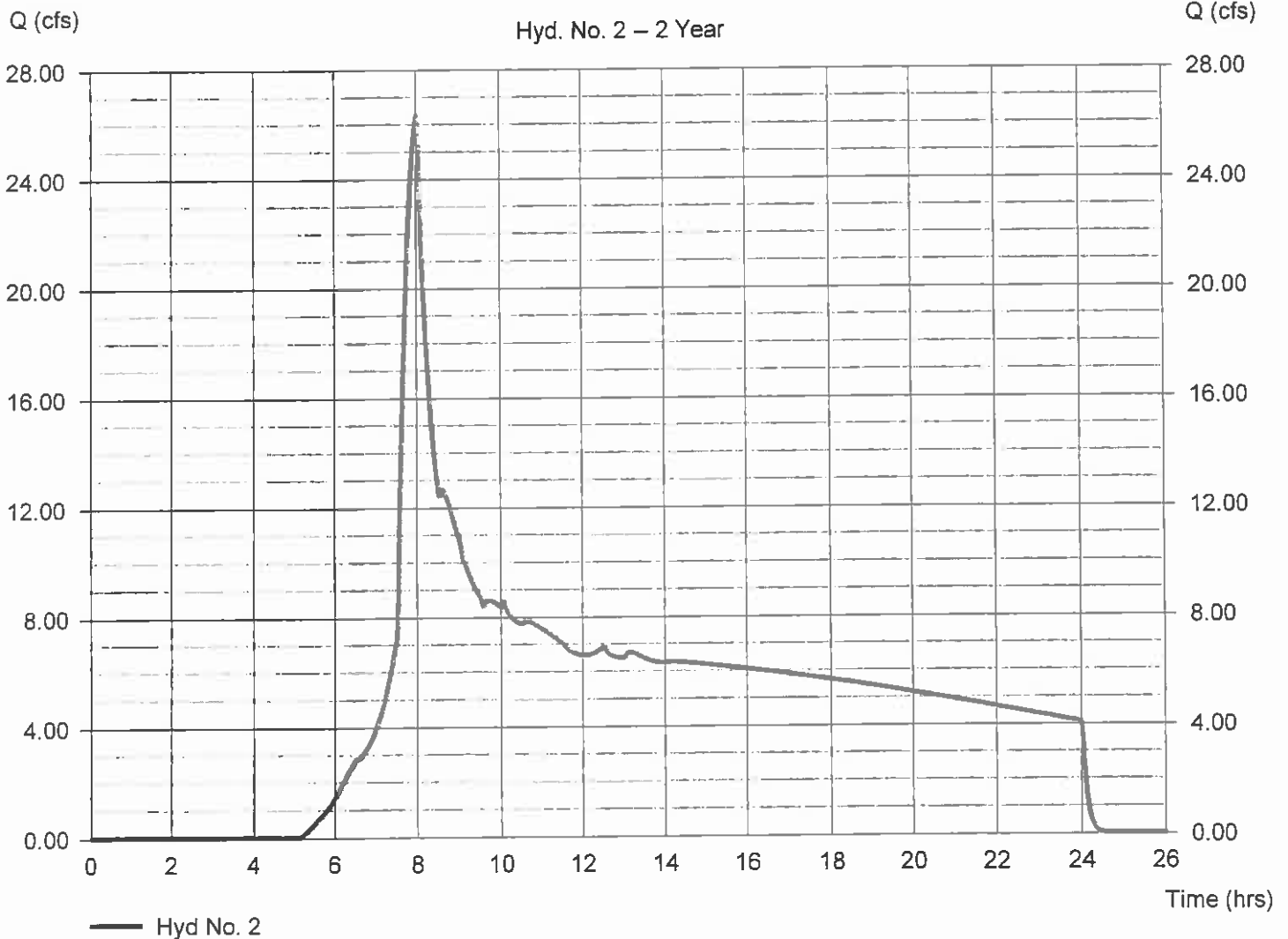
Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 83.750 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 26.35 cfs  
Time to peak = 480 min  
Hyd. volume = 438,611 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(6.200 x 98) + (75.340 x 78) + (2.210 x 74)] / 83.750

### Basin C - Post

Hyd. No. 2 - 2 Year



# Hydrograph Report

## Hyd. No. 2

Basin C - Post

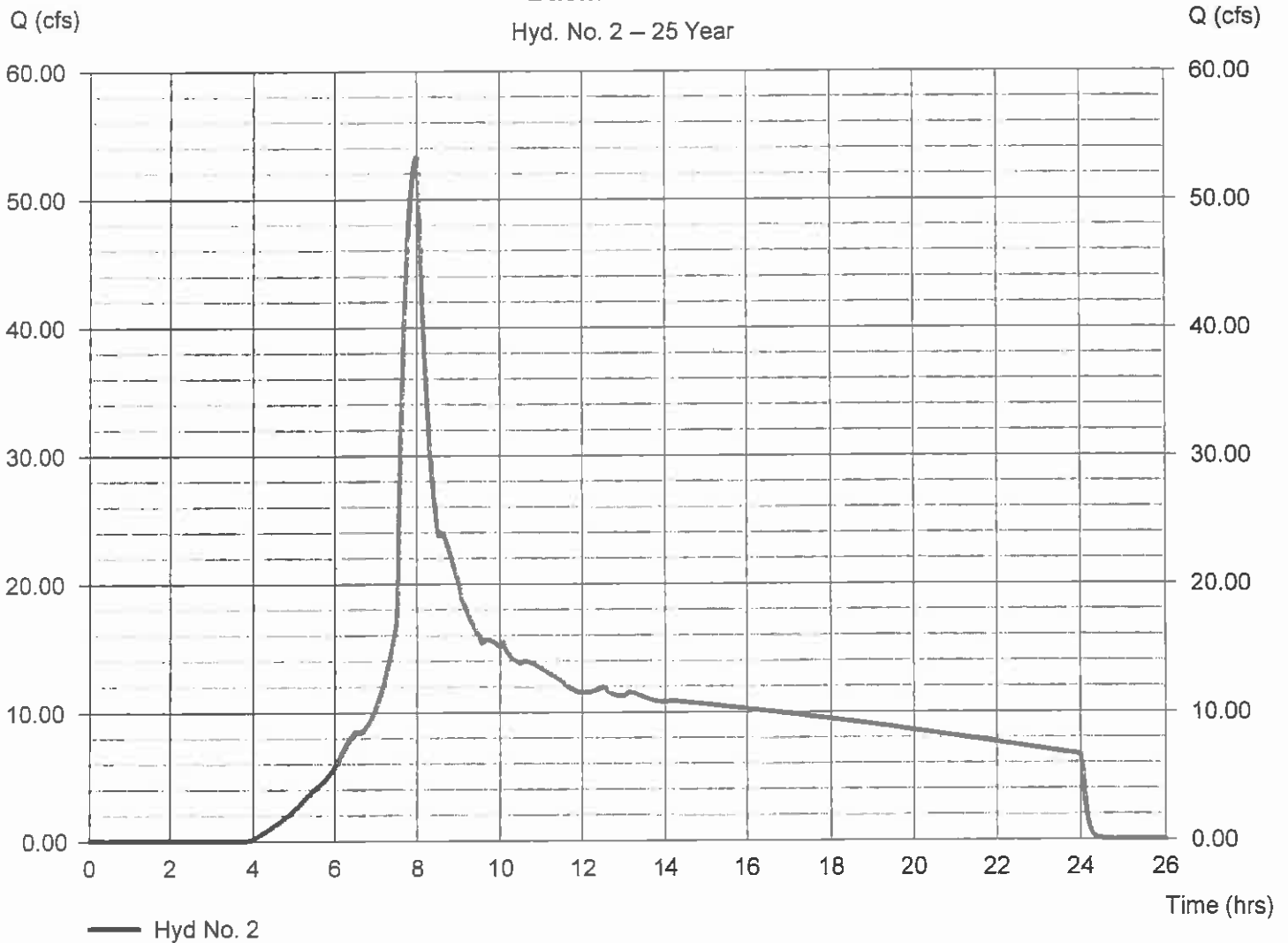
Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 83.750 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 53.29 cfs  
Time to peak = 480 min  
Hyd. volume = 810,017 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(6.200 x 98) + (75.340 x 78) + (2.210 x 74)] / 83.750

### Basin C - Post

Hyd. No. 2 - 25 Year



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

## Hyd. No. 2

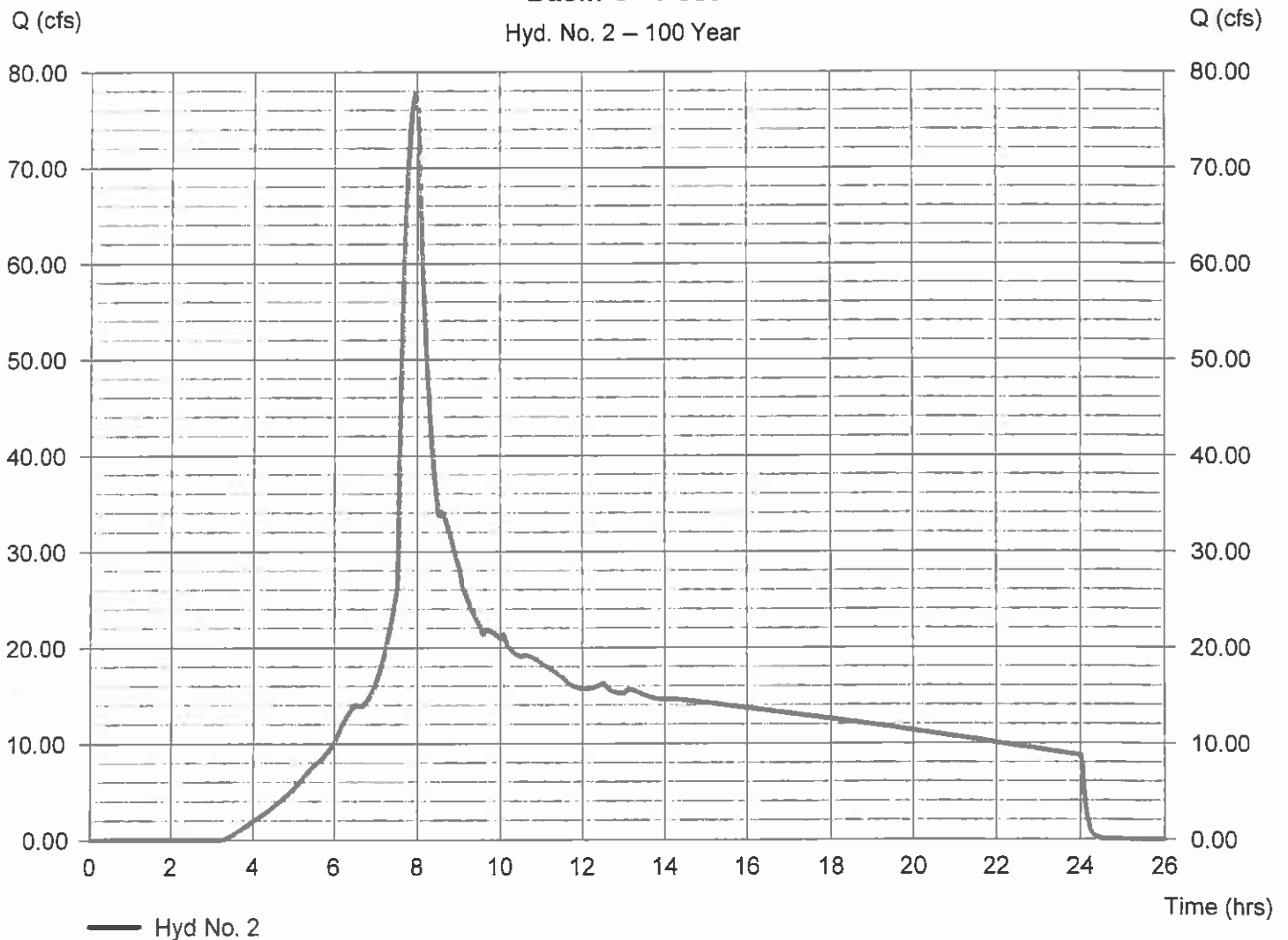
### Basin C - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 83.750 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 77.74 cfs  
Time to peak = 478 min  
Hyd. volume = 1,143,122 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(6.200 x 98) + (75.340 x 78) + (2.210 x 74)] / 83.750

**Basin C - Post**  
Hyd. No. 2 – 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN D

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Open Channel Flow on the northwest side of the existing basin. It will flow in the southeastern direction for the total of 5272 feet before reaching the property line.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	169.54	acres	
Pervious area (w/o upstream open space) =	169.54	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	5272	ft	L =	0	ft
S <sub>0</sub> =	0.098	ft/ft	S <sub>0</sub> =	0.15	ft/ft
k <sub>s</sub> =	10		k <sub>s</sub> =	10	
V =	3.13	fps	V =	3.87	fps
T <sub>1</sub> =	28.07	min.	T <sub>2</sub> =	0.00	min.
<b>T<sub>c</sub> =</b>	<b>28.07</b>	<b>min.</b>			

# Hydrograph Report

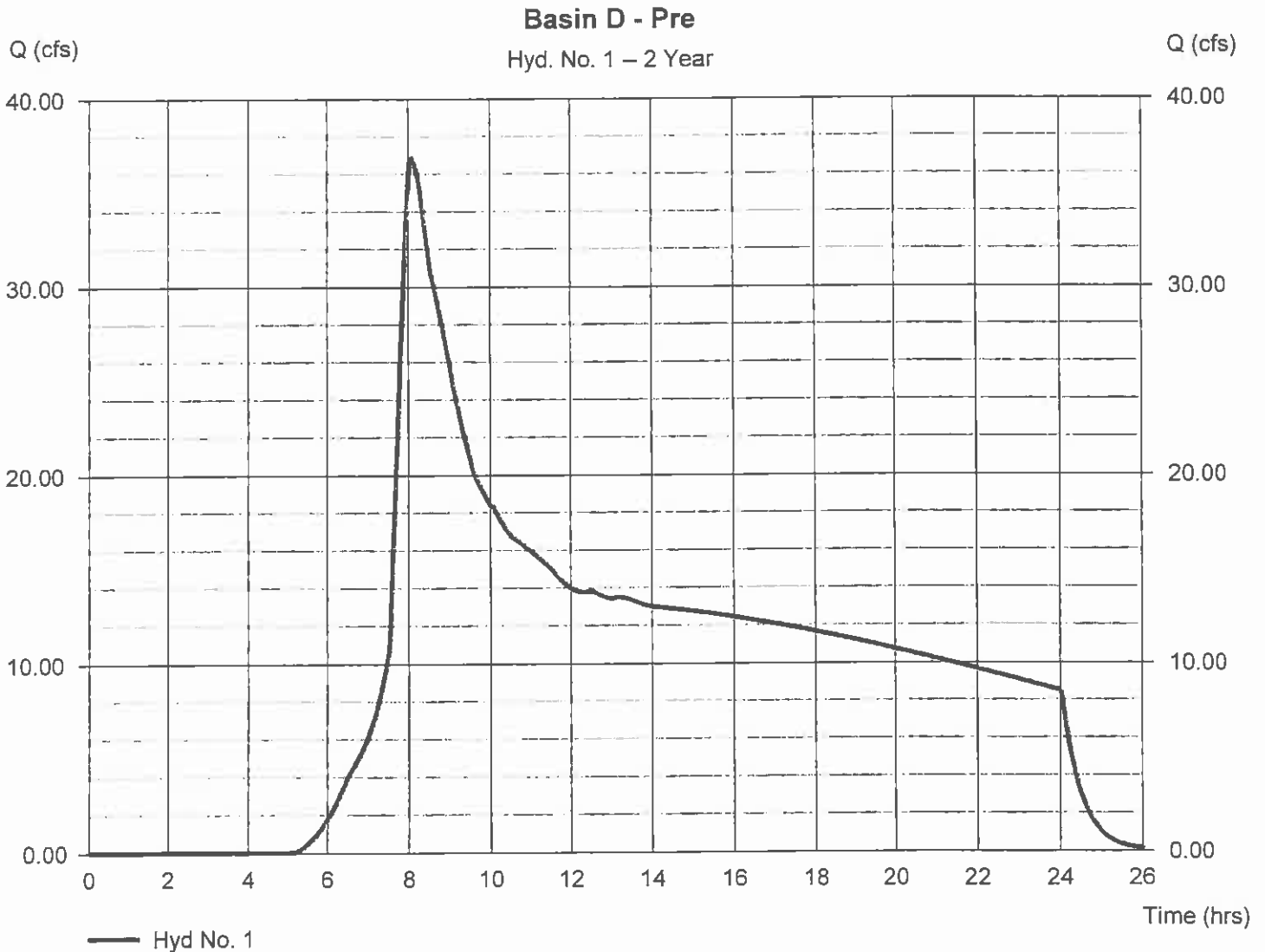
## Hyd. No. 1

Basin D - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 169.540 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 36.85 cfs  
Time to peak = 484 min  
Hyd. volume = 887,905 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 28.07 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(127.150 x 81) + (42.390 x 72)] / 169.540





# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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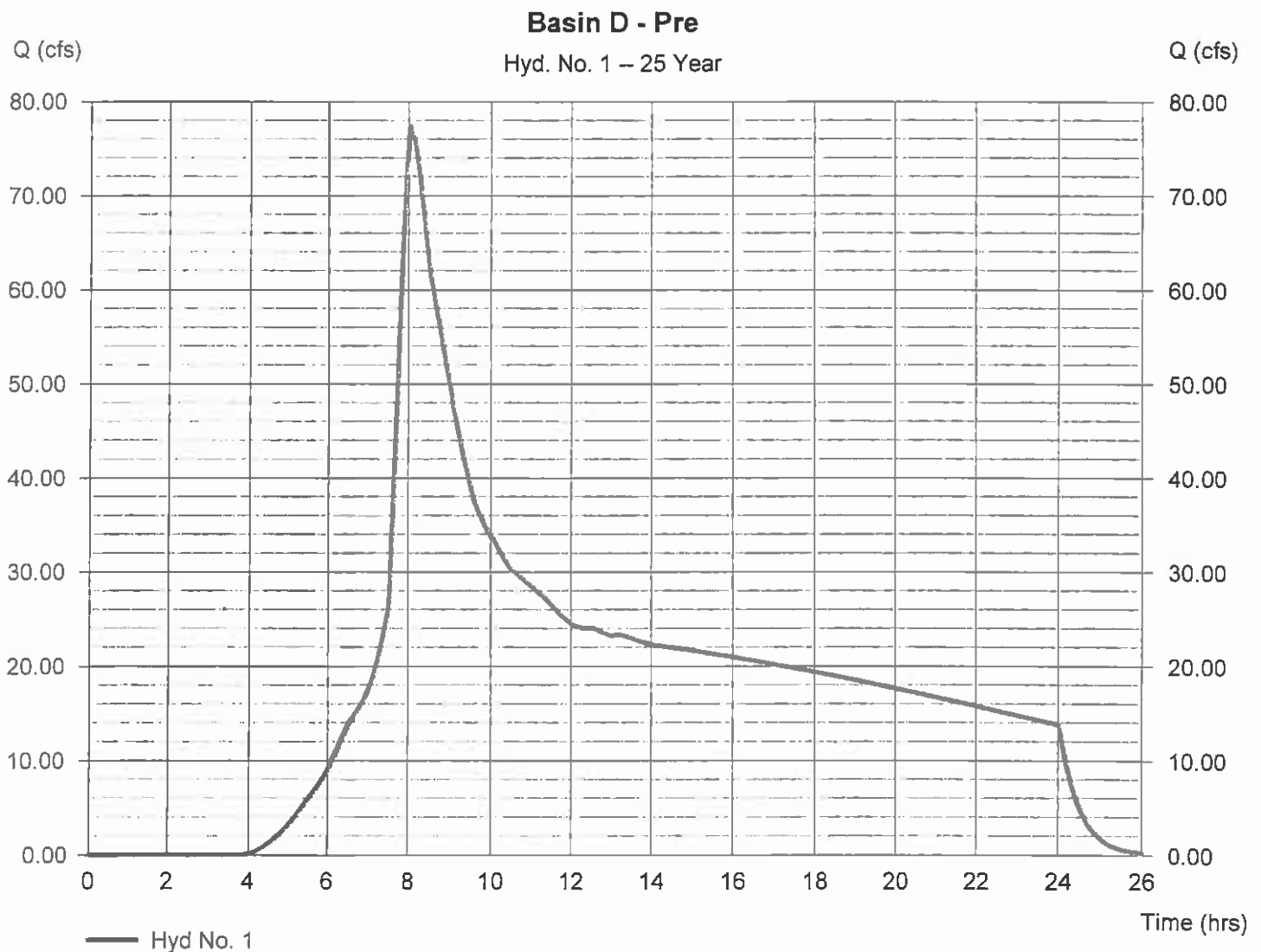
## Hyd. No. 1

### Basin D - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 169.540 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 77.45 cfs  
Time to peak = 482 min  
Hyd. volume = 1,639,765 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 28.07 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(127.150 \times 81) + (42.390 \times 72)] / 169.540$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

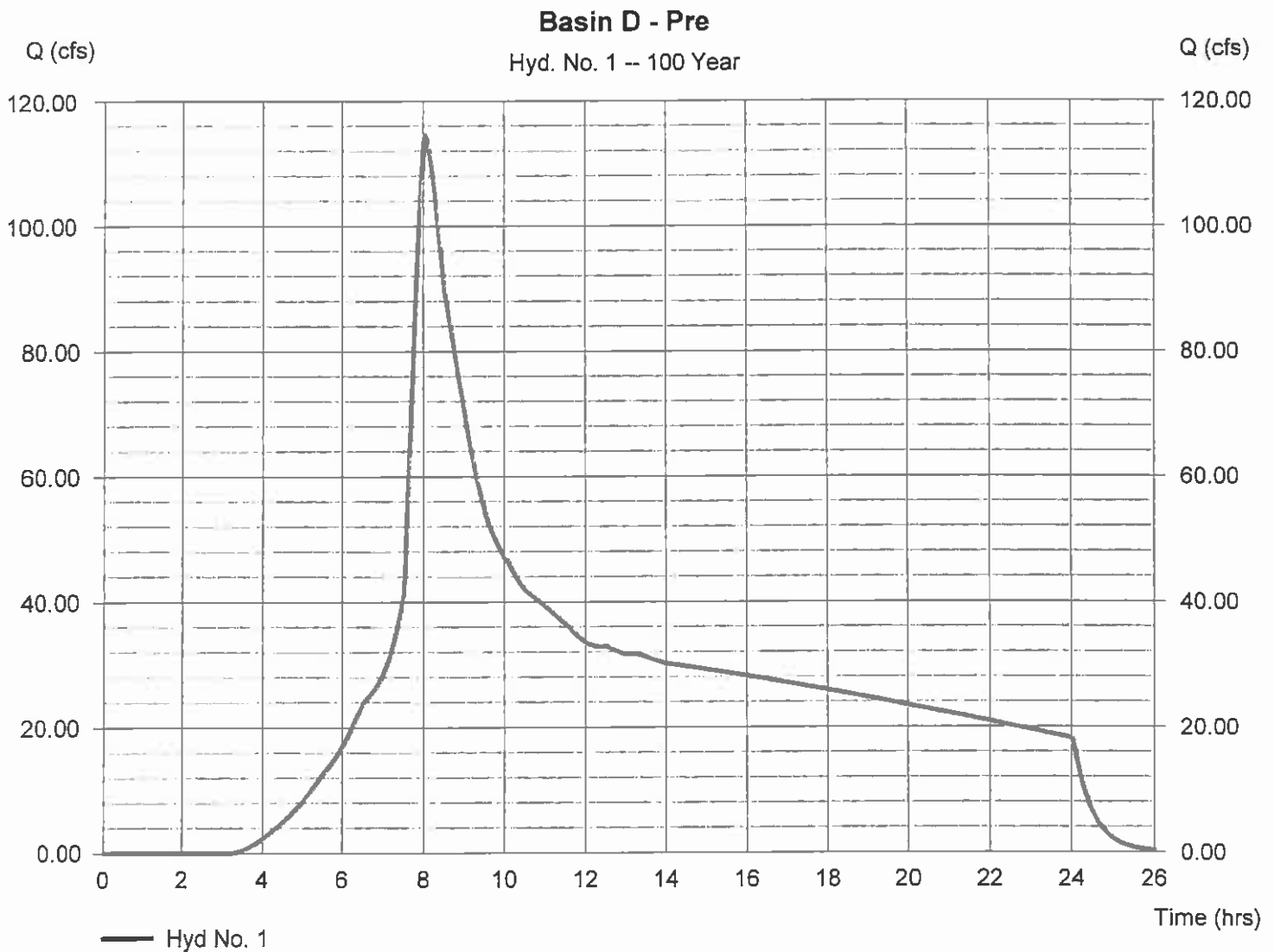
## Hyd. No. 1

Basin D - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 169.540 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 114.55 cfs  
Time to peak = 482 min  
Hyd. volume = 2,314,088 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 28.07 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(127.150 x 81) + (42.390 x 72)] / 169.540



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN D

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch on the north side of the proposed basin adjacent to proposed Lot 37 and it will flow in the southerly direction for approximately 908 feet to another roadside ditch adjacent to Lot 40. From here it will flow in the roadside ditch in the easterly direction for approximately 2284 feet adjacent to Lot 89. The roadside ditch will change direction toward south for approximately 2045 feet to Lot 149 and then change direction to southwest for approximately 1612 feet to the end of the cul-de-sac terminating at the proposed detention facility in the vicinity of Lot #170 in the south portion of the proposed basin.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area (w/o upstream open space) =	162.13	acres	
Pervious area (w/o upstream open space) =	148.09	acres	80 CN
Impervious area =	14.04	acres	98 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L = 908 ft	L = 2284 ft	L = 2045 ft
S <sub>0</sub> = 0.1156 ft/ft	S <sub>0</sub> = 0.048 ft/ft	S <sub>0</sub> = 0.104 ft/ft
k <sub>s</sub> = 17	k <sub>s</sub> = 17	k <sub>s</sub> = 17
V = 5.78 fps	V = 3.72 fps	V = 5.48 fps
T <sub>1</sub> = 2.62 min.	T <sub>2</sub> = 10.22 min.	T <sub>3</sub> = 6.22 min.
L = 1612 ft		
S <sub>0</sub> = 0.073 ft/ft		
k <sub>s</sub> = 17		
V = 4.59 fps		
T <sub>4</sub> = 5.85 min.		
<b>T<sub>c</sub> = 24.91 min.</b>		

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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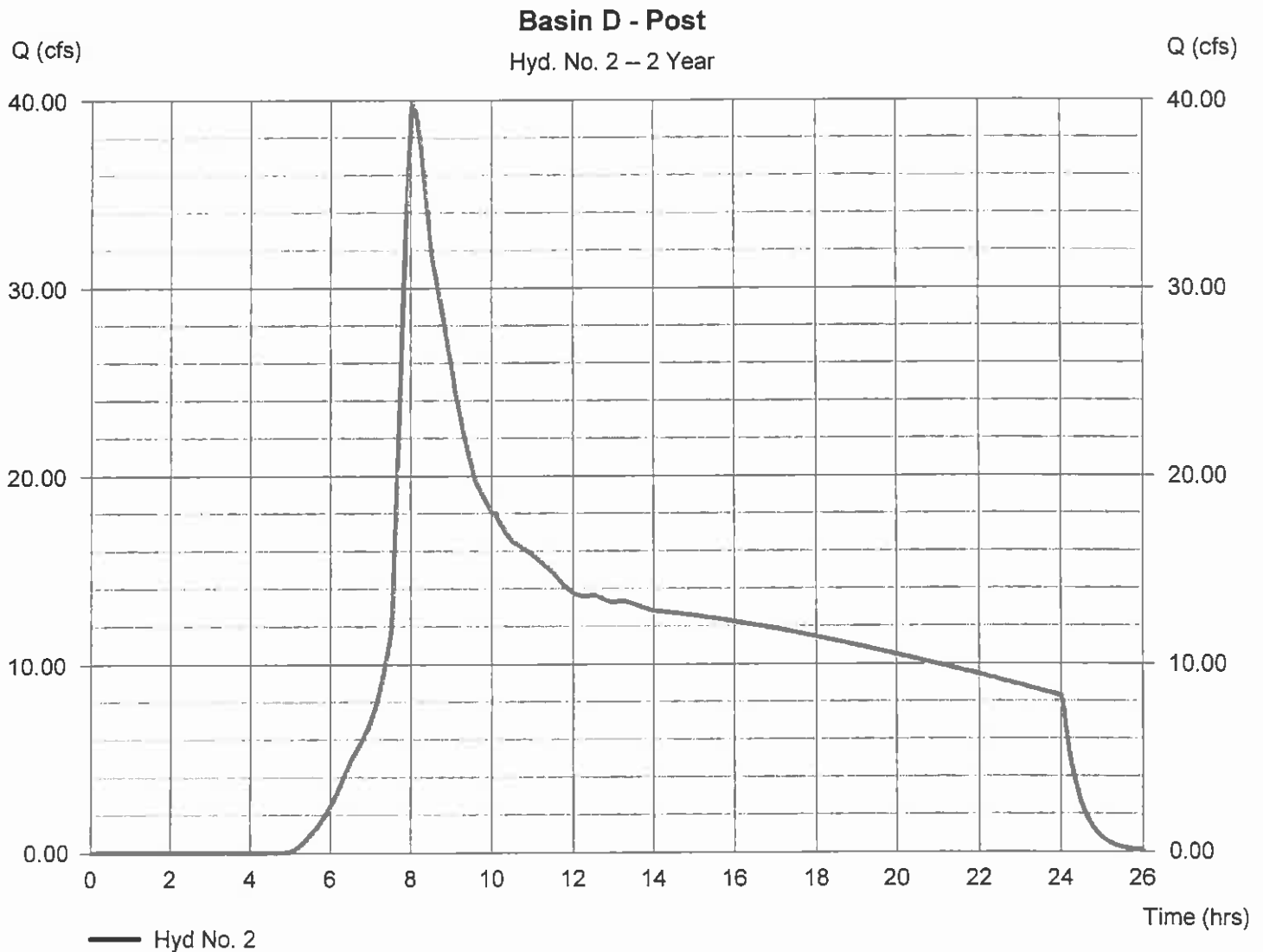
## Hyd. No. 2

### Basin D - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 162.130 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 39.85 cfs  
Time to peak = 482 min  
Hyd. volume = 888,925 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 24.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(14.040 x 98) + (143.020 x 79) + (5.070 x 74)] / 162.130



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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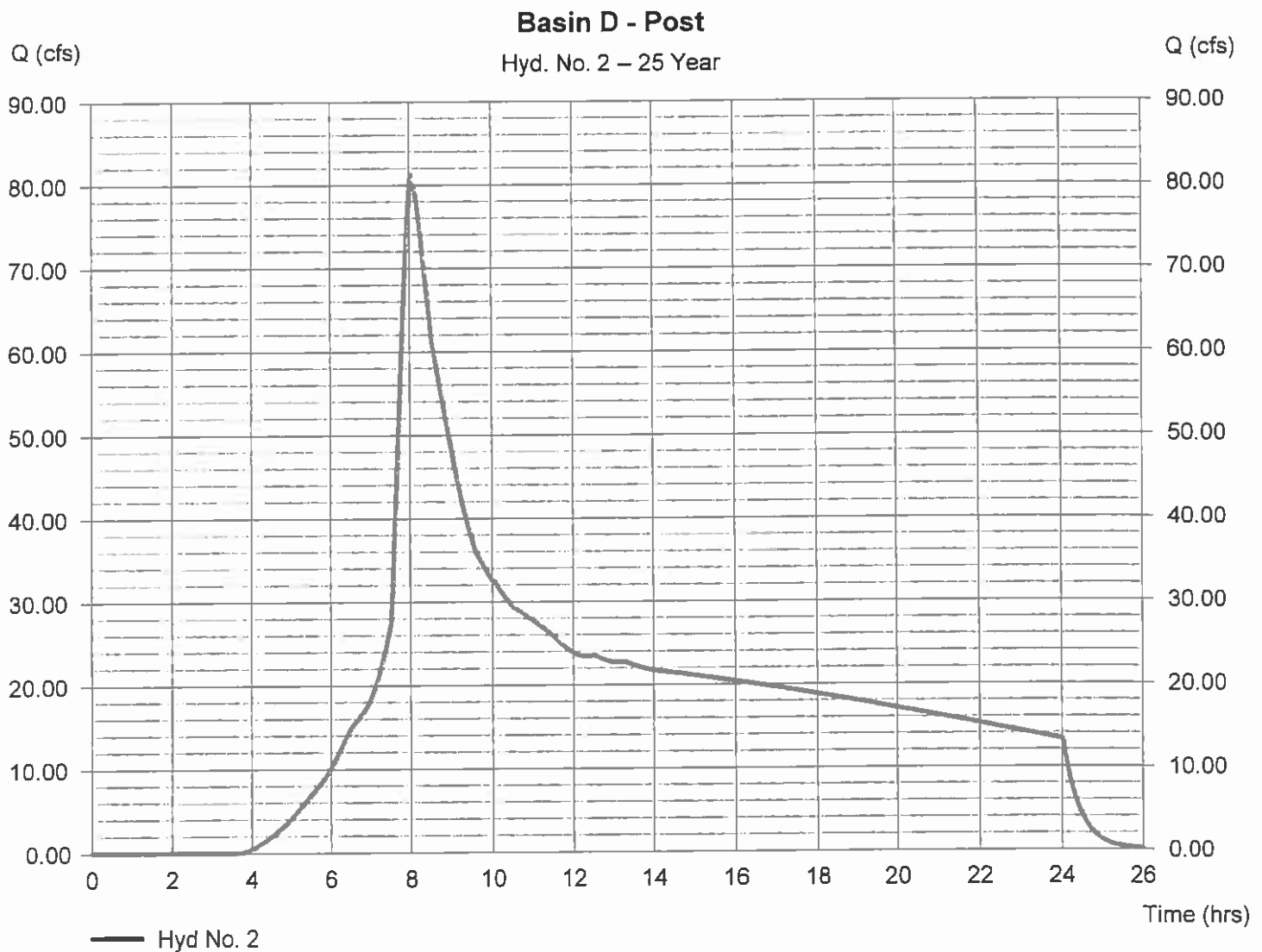
## Hyd. No. 2

Basin D - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 162.130 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 81.31 cfs  
Time to peak = 482 min  
Hyd. volume = 1,620,664 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 24.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(14.040 x 98) + (143.020 x 79) + (5.070 x 74)] / 162.130



# Hydrograph Report

## Hyd. No. 2

### Basin D - Post

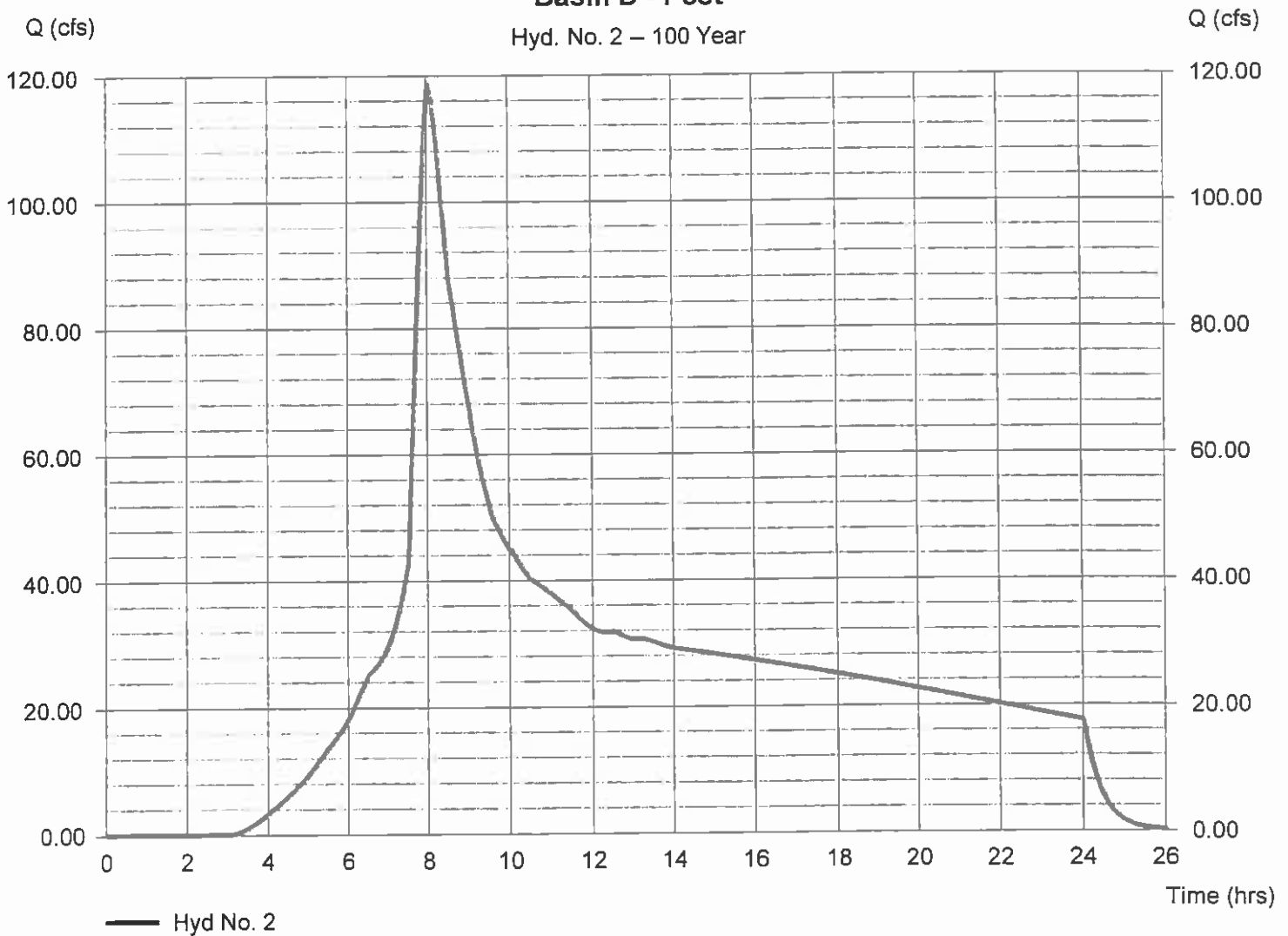
Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 162.130 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 118.74 cfs  
Time to peak = 482 min  
Hyd. volume = 2,273,238 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 24.90 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(14.040 x 98) + (143.020 x 79) + (5.070 x 74)] / 162.130

### Basin D - Post

Hyd. No. 2 – 100 Year



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN E

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Open Channel Flow on the north side of the existing basin. It will flow in the southeastern direction for the total of 4379 feet before reaching the property line.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	138.66	acres	
Pervious area (w/o upstream open space) =	138.66	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	4379	ft	L =	0	ft
S <sub>0</sub> =	0.102	ft/ft	S <sub>0</sub> =	0.15	ft/ft
k <sub>s</sub> =	10		k <sub>s</sub> =	10	
V =	3.19	fps	V =	3.87	fps
T <sub>1</sub> =	22.85	min.	T <sub>2</sub> =	0.00	min.
<b>T<sub>c</sub> =</b>	<b>22.85</b>	<b>min.</b>			

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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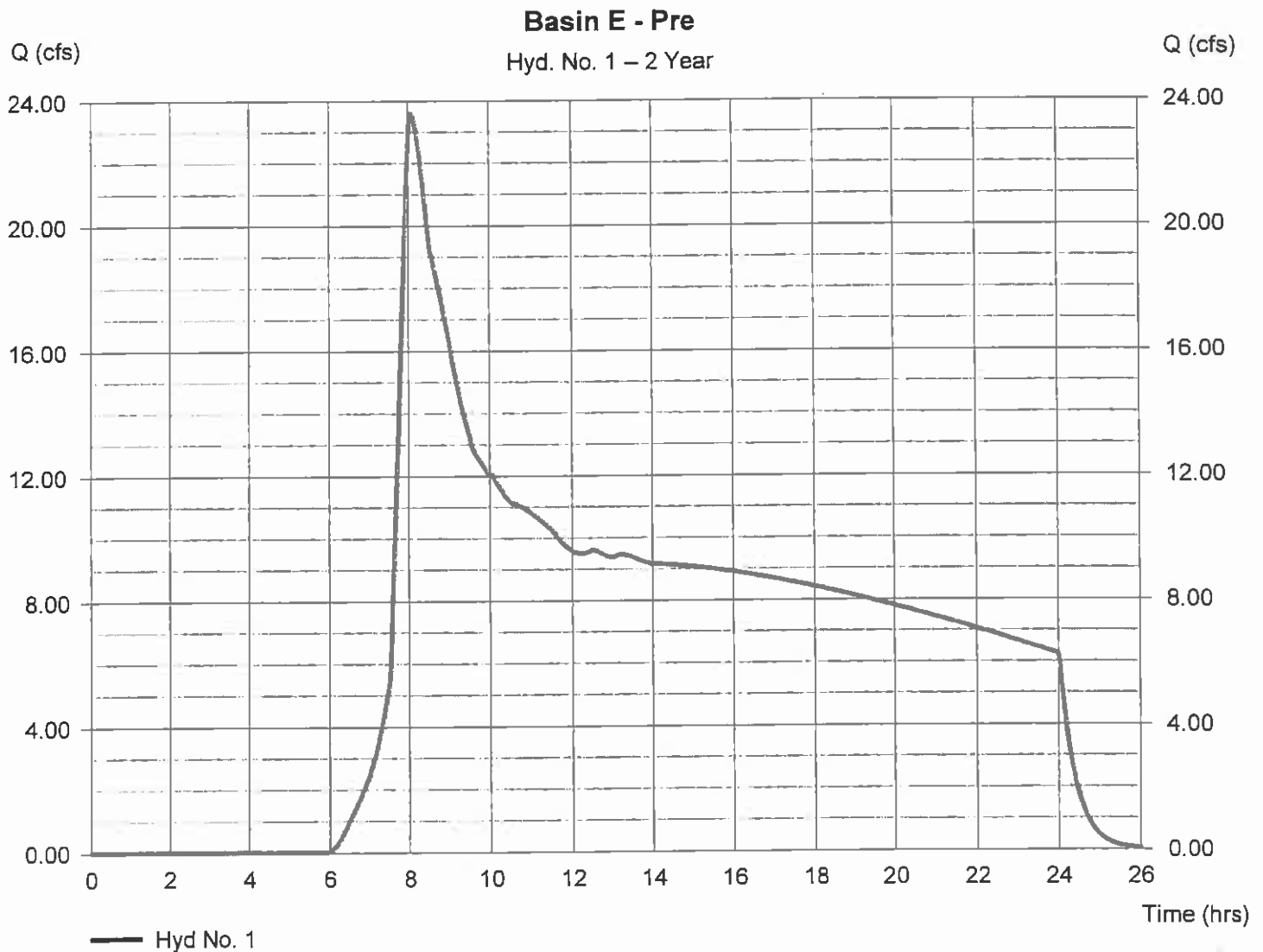
## Hyd. No. 1

### Basin E - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 138.660 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 23.61 cfs  
Time to peak = 482 min  
Hyd. volume = 598,867 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 22.85 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(46.220 x 81) + (92.440 x 72)] / 138.660





# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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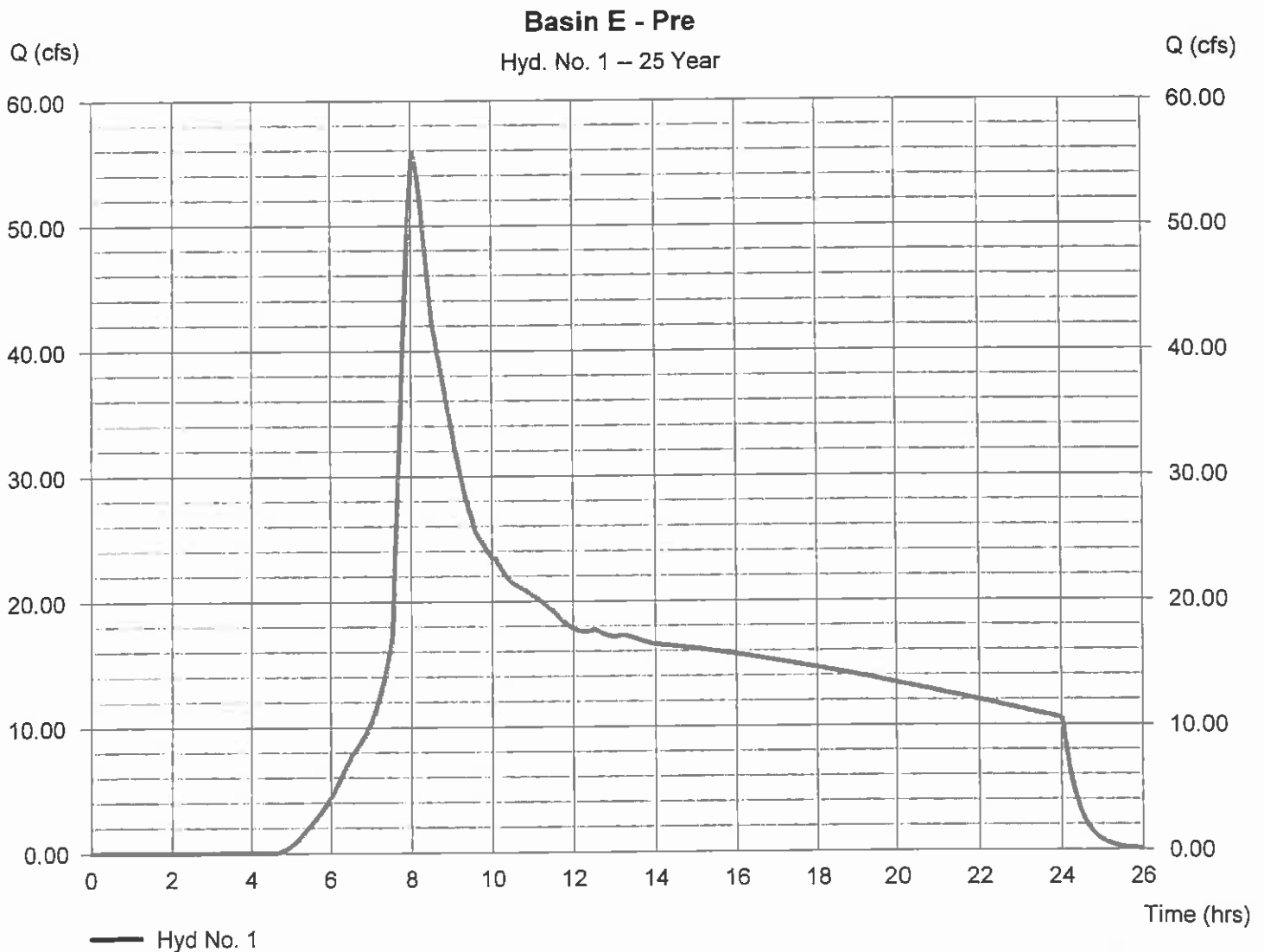
## Hyd. No. 1

Basin E - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 138.660 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 55.87 cfs  
Time to peak = 482 min  
Hyd. volume = 1,167,822 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 22.85 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(46.220 x 81) + (92.440 x 72)] / 138.660



# Hydrograph Report

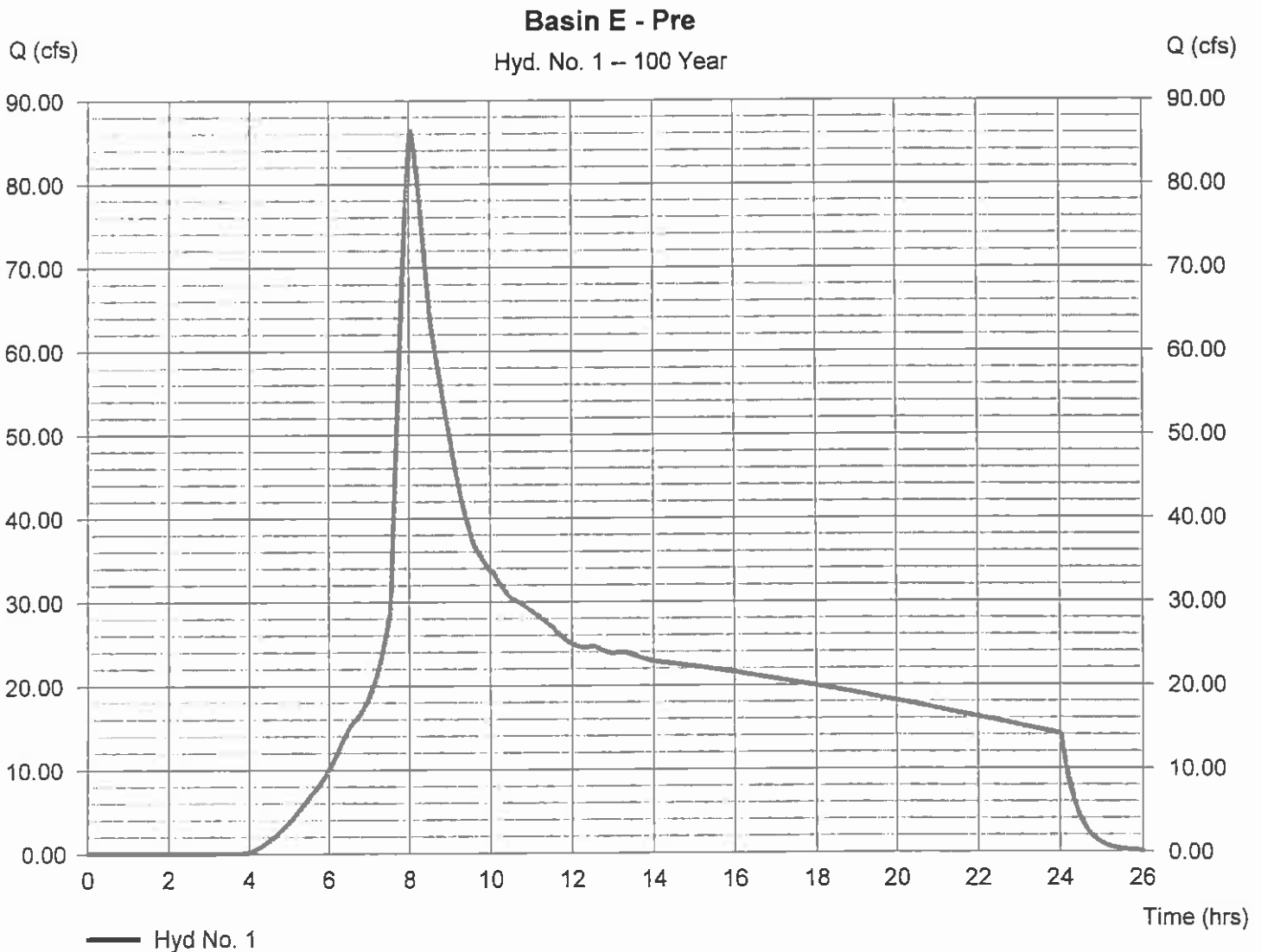
## Hyd. No. 1

### Basin E - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 138.660 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 86.34 cfs  
Time to peak = 482 min  
Hyd. volume = 1,690,642 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 22.85 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(46.220 x 81) + (92.440 x 72)] / 138.660



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN E

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch in the northeasy corner of the proposed basin adjacent to proposed Lot 118 and it will flow in the southwesterly direction for approximately 2517 feet to another roadway ditch adjacent to Lot 132. From here it will flow in the roadside ditch in the northwesterly direction for approximately 162 feet adjacent to Lot 149. The roadside ditch will enter another roadside ditch and will start to flow toward southwest for approximately 592 feet to Lot 152 and then enter a cul-de-sac and start flowing toward south for approximately 333 feet to the end of the cul-de-sac terminating at the proposed detention facility in the vicinity of Lot #154 in the south portion of the proposed basin.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area (w/o upstream open space) =	140.60	acres	
Pervious area (w/o upstream open space) =	131.33	acres	80 CN
Impervious area =	9.27	acres	98 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	2517	ft	L =	162	ft	L =	592	ft
S <sub>0</sub> =	0.087	ft/ft	S <sub>0</sub> =	0.077	ft/ft	S <sub>0</sub> =	0.055	ft/ft
k <sub>s</sub> =	17		k <sub>s</sub> =	17		k <sub>s</sub> =	17	
V =	5.01	fps	V =	4.72	fps	V =	3.99	fps
T <sub>1</sub> =	8.37	min.	T <sub>2</sub> =	0.57	min.	T <sub>3</sub> =	2.47	min.
L =	333	ft						
S <sub>0</sub> =	0.038	ft/ft						
k <sub>s</sub> =	17							
V =	3.31	fps						
T <sub>4</sub> =	1.67	min.						
<b>T<sub>c</sub> =</b>	<b>13.09</b>	<b>min.</b>						

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

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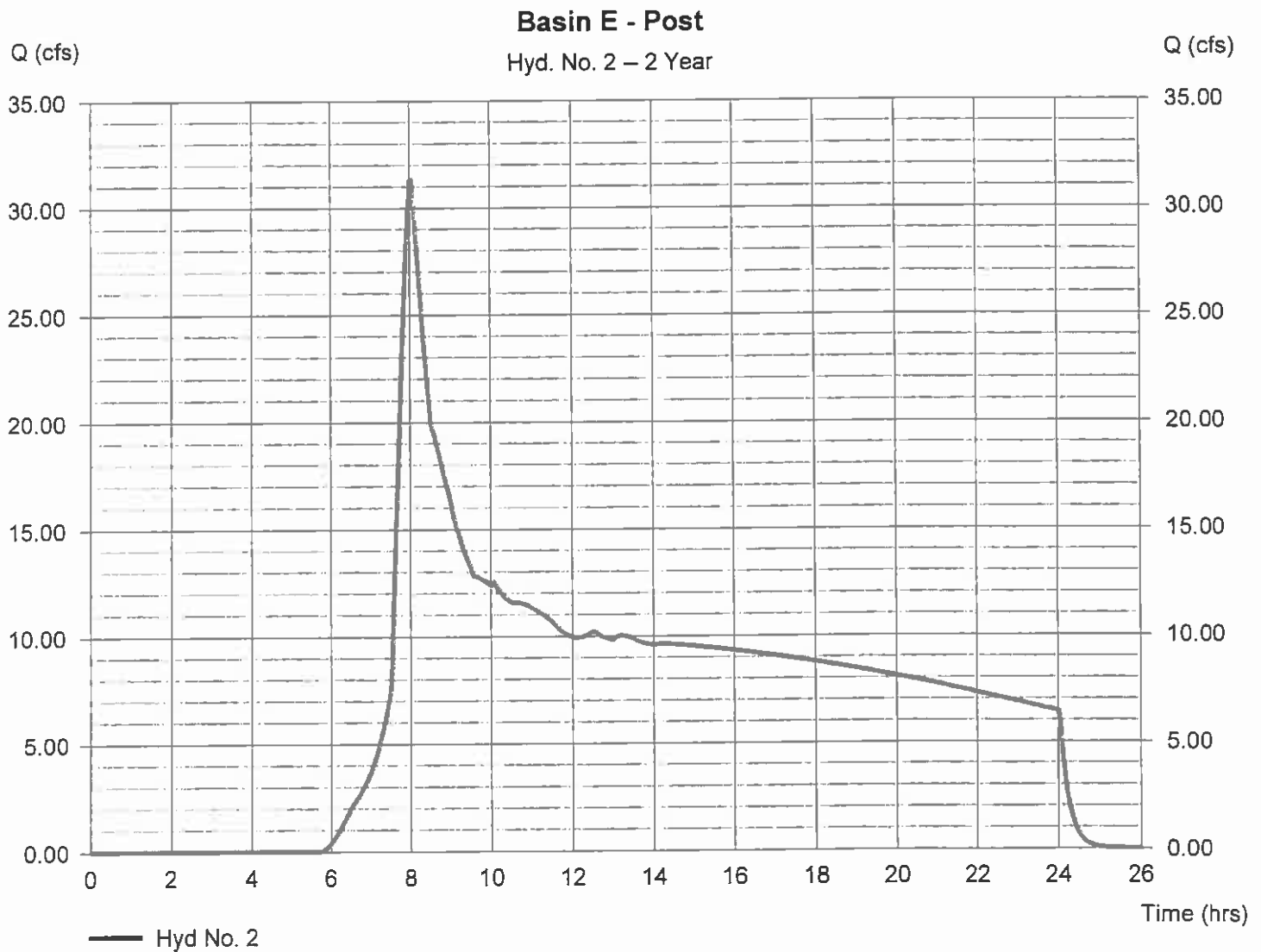
## Hyd. No. 2

### Basin E - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 140.600 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 31.32 cfs  
Time to peak = 482 min  
Hyd. volume = 638,203 cuft  
Curve number = 76\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 13.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(9.270 x 98) + (127.150 x 75) + (4.180 x 74)] / 140.600



# Hydrograph Report

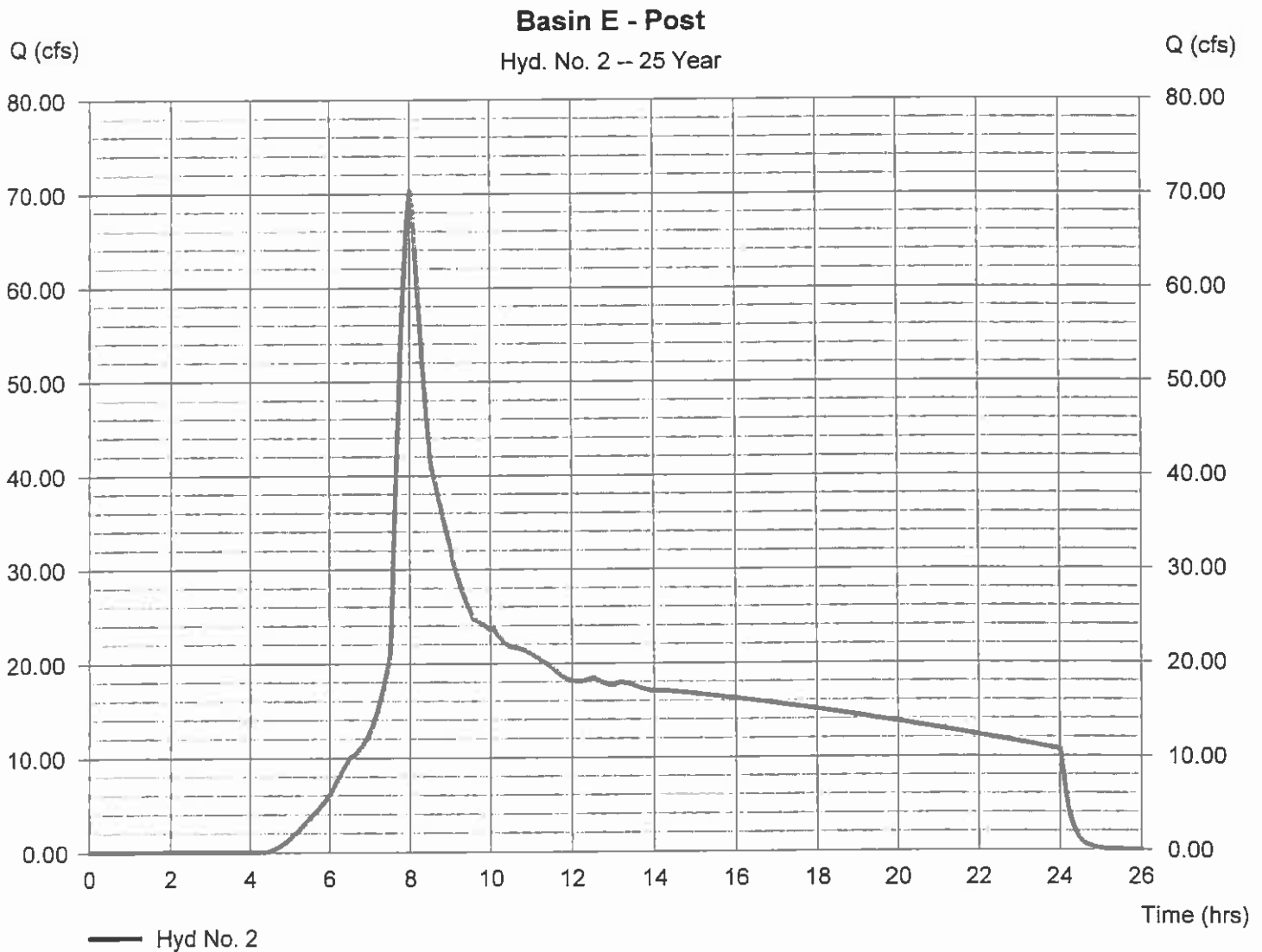
## Hyd. No. 2

### Basin E - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 140.600 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 70.33 cfs  
Time to peak = 480 min  
Hyd. volume = 1,227,100 cuft  
Curve number = 76\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 13.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(9.270 \times 98) + (127.150 \times 75) + (4.180 \times 74)] / 140.600$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

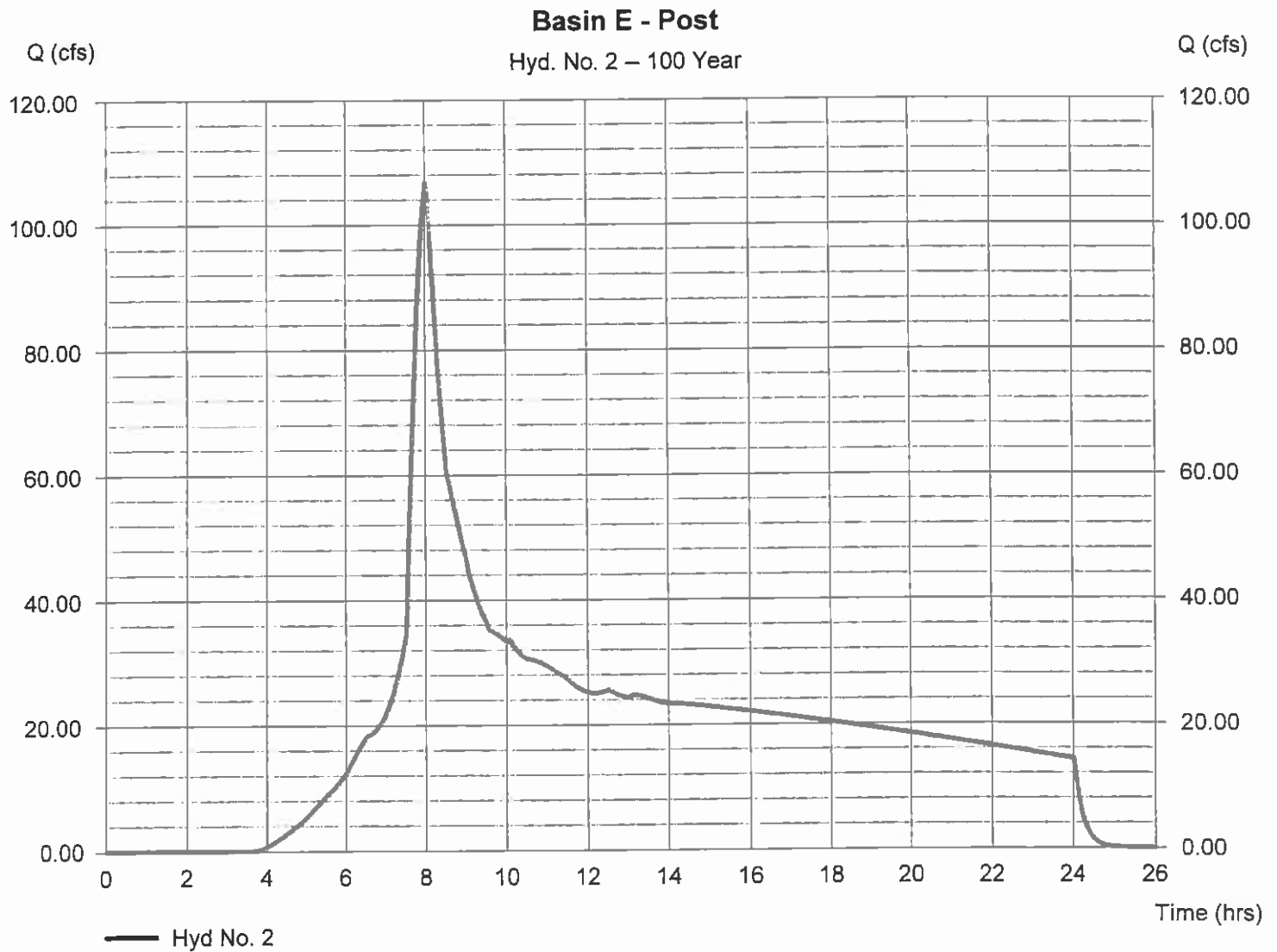
## Hyd. No. 2

Basin E - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 140.600 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 106.68 cfs  
Time to peak = 480 min  
Hyd. volume = 1,764,836 cuft  
Curve number = 76\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 13.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(9.270 x 98) + (127.150 x 75) + (4.180 x 74)] / 140.600



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN F

### PRE-DEVELOPMENT CONDITIONS

The pre-development run-off flow path will begin flowing as Shallow Concentrated Flow on the west side of the existing basin. It will flow in the southeastern direction for the total of 518 feet as Shallow Concentrated Flow before reaching the property line.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area =	138.66	acres	
Pervious area (w/o upstream open space) =	138.66	acres	80 CN
Impervious area =	0.00	acres	98 CN

Calculate Time of Concentration assuming Shallow Concentrated Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L =	518	ft	L =	0	ft
S <sub>0</sub> =	0.135	ft/ft	S <sub>0</sub> =	0.121	ft/ft
k <sub>s</sub> =	8		k <sub>s</sub> =	7	
V =	2.94	fps	V =	2.43	fps
T <sub>1</sub> =	2.94	min.	T <sub>2</sub> =	0.00	min.
<b>T<sub>c</sub> =</b>	<b>2.94</b>	<b>min.</b>	<b>→</b>	<b>Assume 5 min.</b>	

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc v6.066

Monday, Dec 7, 2009

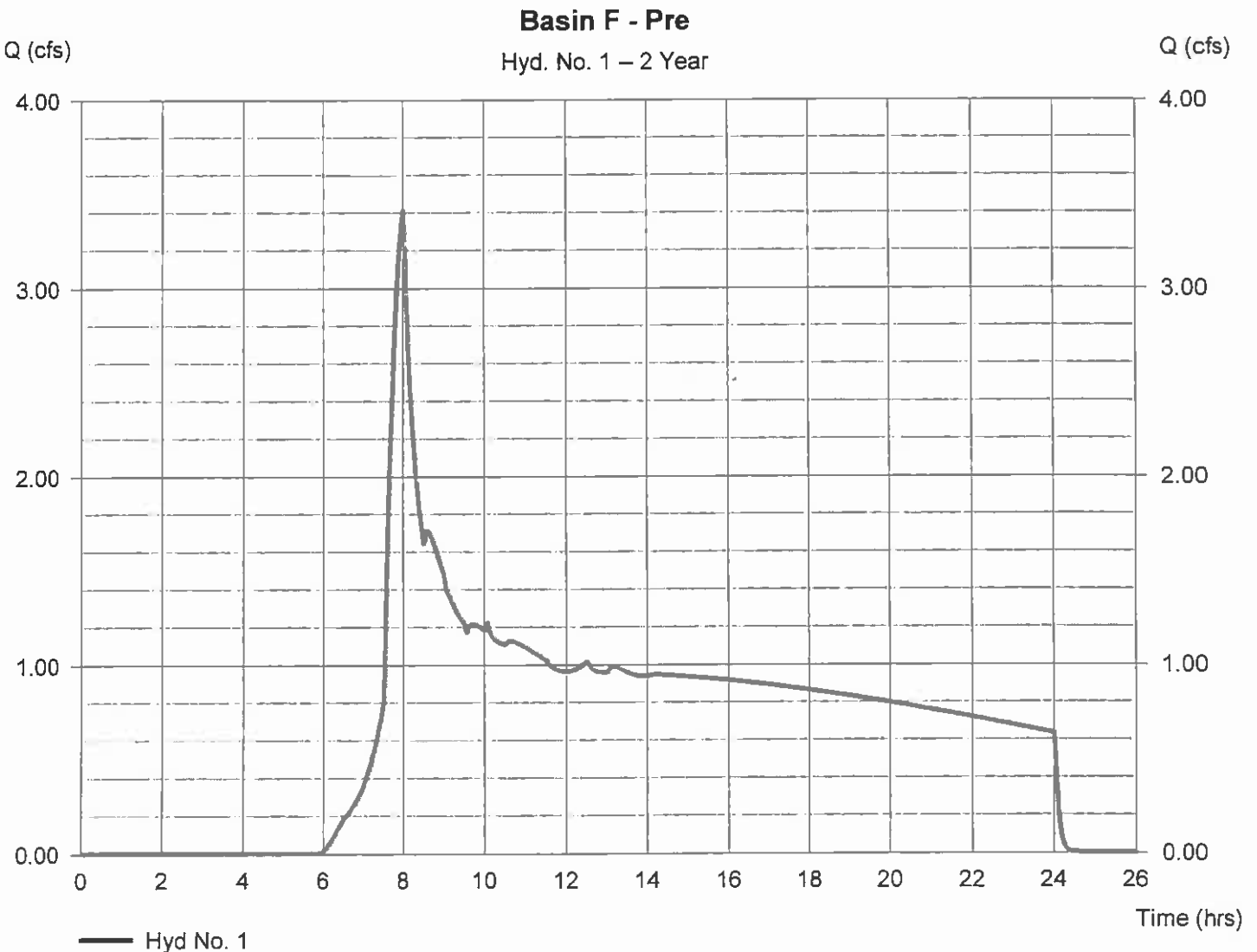
## Hyd. No. 1

### Basin F - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 14.360 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 3.414 cfs  
Time to peak = 480 min  
Hyd. volume = 62,020 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(4.790 x 81) + (9.570 x 72)] / 14.360





# Hydrograph Report

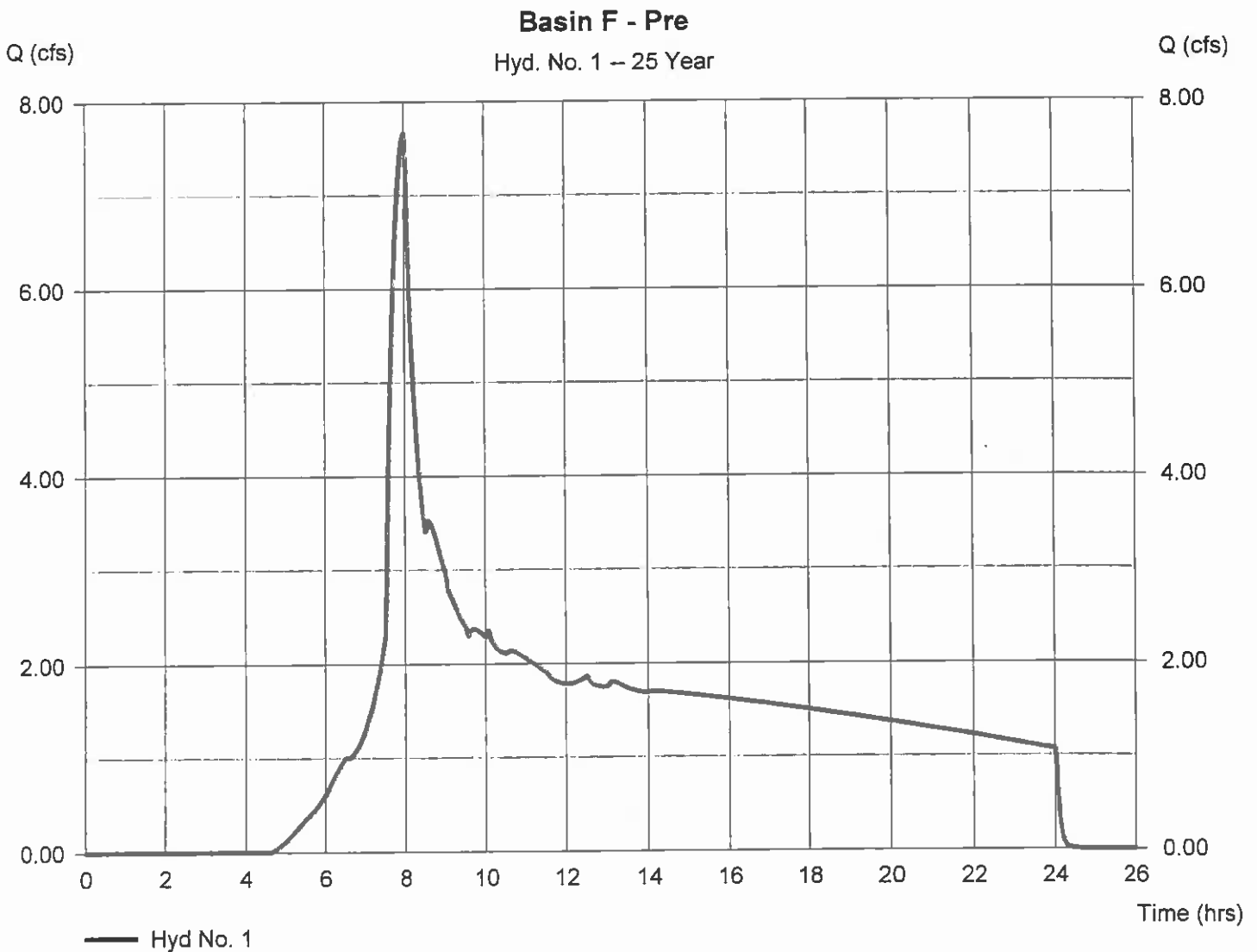
## Hyd. No. 1

### Basin F - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 14.360 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 7.657 cfs  
Time to peak = 480 min  
Hyd. volume = 120,943 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(4.790 x 81) + (9.570 x 72)] / 14.360



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Monday, Dec 7, 2009

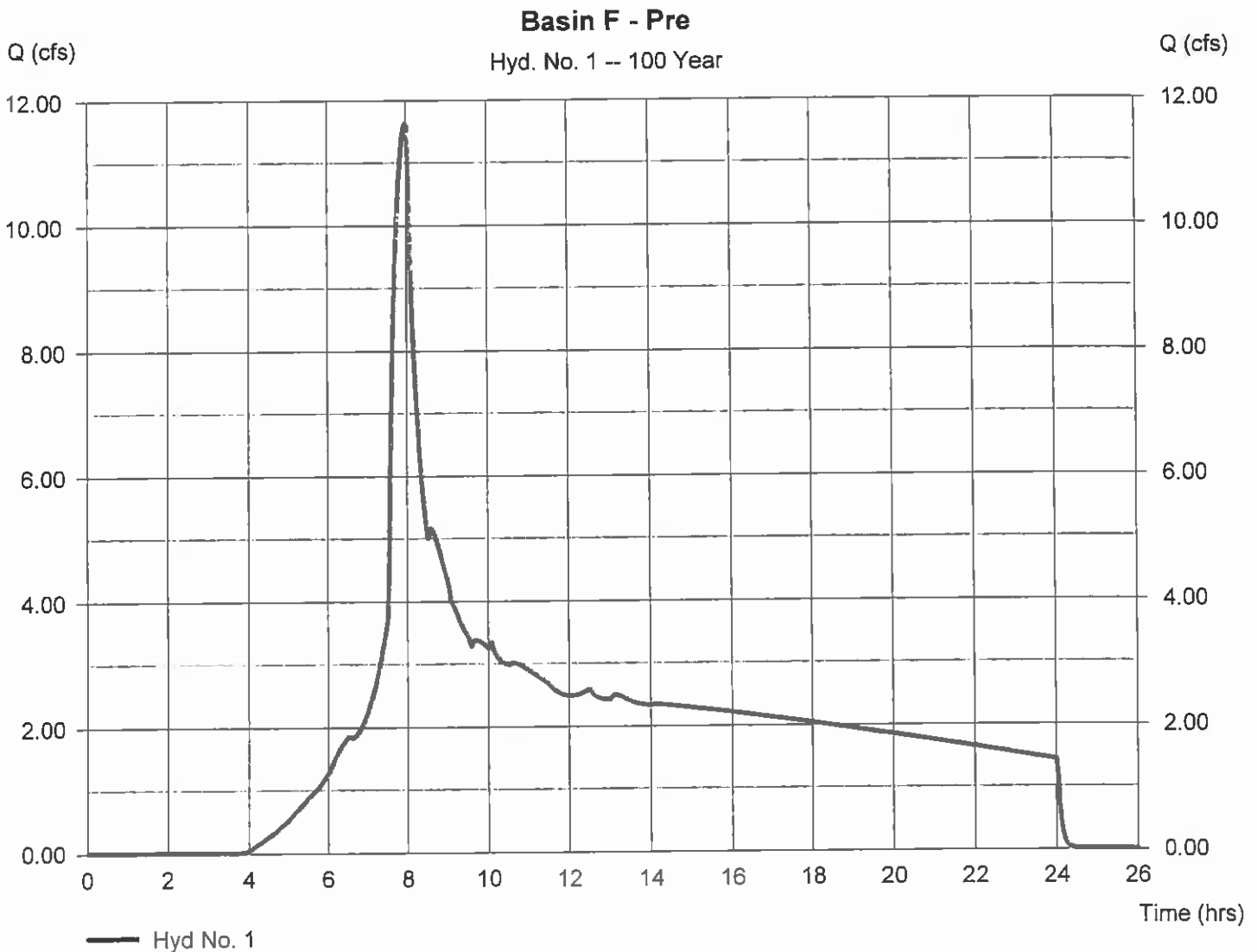
## Hyd. No. 1

### Basin F - Pre

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 14.360 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 11.64 cfs  
Time to peak = 478 min  
Hyd. volume = 175,087 cuft  
Curve number = 75\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.00 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(4.790 x 81) + (9.570 x 72)] / 14.360



# FOREST RIDGE PERFORMANCE BASED CLUSTER PLAT

## BASIN F

### POST-DEVELOPMENT CONDITIONS

The post-development run-off flow path will begin flowing as Open Channel Flow in the roadside ditch in the northeasterly corner of the proposed basin adjacent to proposed Lot 136 and it will flow in the southwesterly direction for approximately 888 feet to another roadway ditch adjacent to Lot 148. From here it will flow in the roadside ditch in the south and southwesterly direction for approximately 870 feet terminating at the proposed detention facility in the vicinity of Lot #143 in the southeast portion of the proposed basin.

The Soil Survey of Kittitas County Area, Washington identifies the soil in this area as a Type "C" soil.

### CALCULATE TIME OF CONCENTRATION

Total area (w/o upstream open space) =	12.71	acres	
Pervious area (w/o upstream open space) =	9.97	acres	80 CN
Impervious area =	2.74	acres	98 CN

Calculate Time of Concentration assuming Open Channel Flow approach:

$$V = k_s \sqrt{S_0} \quad T_t = \frac{L}{60V}$$

L = 888 ft	L = 618 ft	L = 0 ft
S <sub>0</sub> = 0.073 ft/ft	S <sub>0</sub> = 0.086 ft/ft	S <sub>0</sub> = 0.055 ft/ft
k <sub>s</sub> = 17	k <sub>s</sub> = 17	k <sub>s</sub> = 17
V = 4.59 fps	V = 4.99 fps	V = 3.99 fps
T <sub>1</sub> = 3.22 min.	T <sub>2</sub> = 2.07 min.	T <sub>3</sub> = 0.00 min.
L = 0 ft		
S <sub>0</sub> = 0.038 ft/ft		
k <sub>s</sub> = 17		
V = 3.31 fps		
T <sub>4</sub> = 0.00 min.		
<b>T<sub>c</sub> = 5.29 min.</b>		

# Hydrograph Report

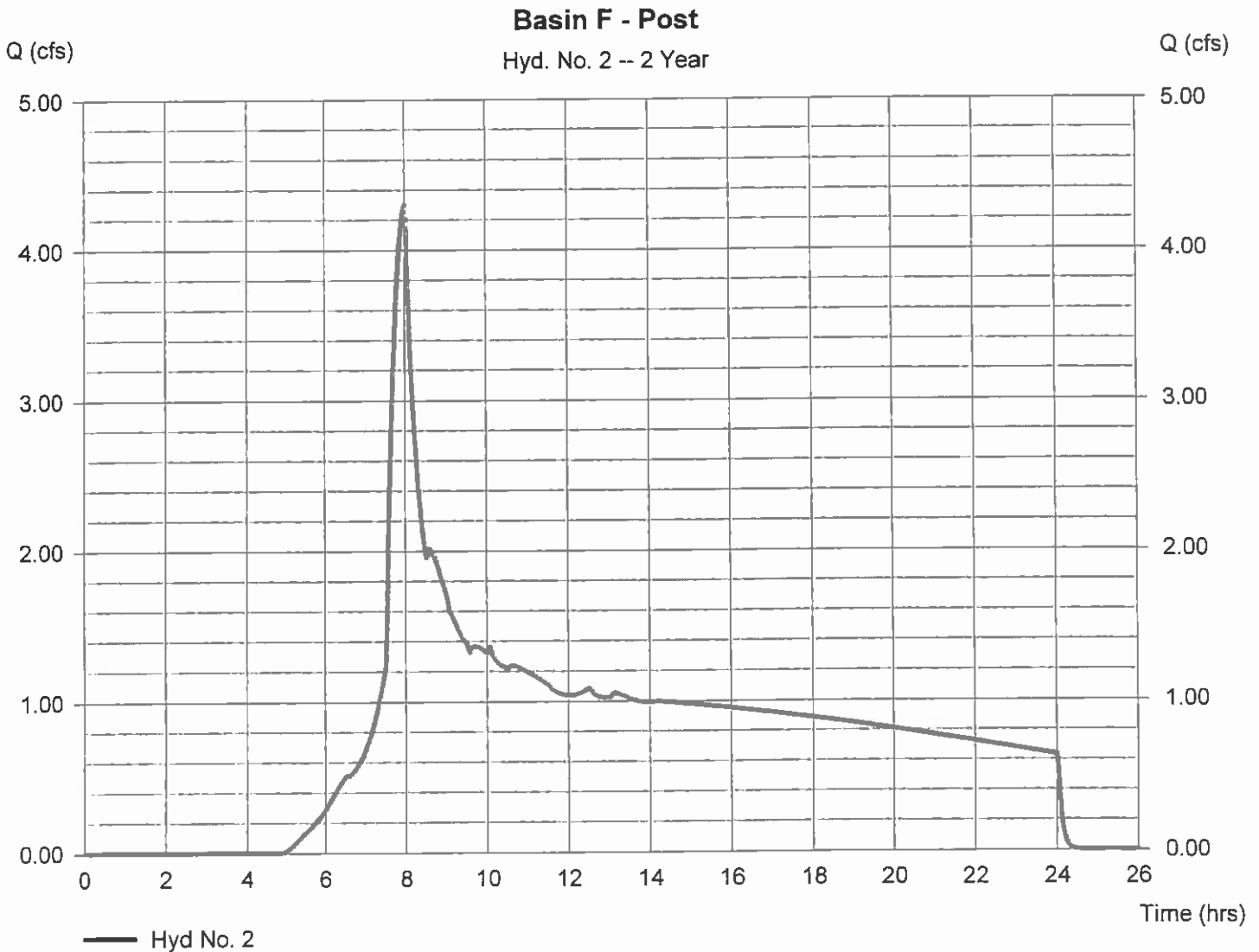
## Hyd. No. 2

Basin F - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 2 yrs  
Time interval = 2 min  
Drainage area = 12.710 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 3.34 in  
Storm duration = 24 hrs

Peak discharge = 4.303 cfs  
Time to peak = 480 min  
Hyd. volume = 69,686 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.30 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(9.450 \times 75) + (2.740 \times 99) + (0.520 \times 74)] / 12.710$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

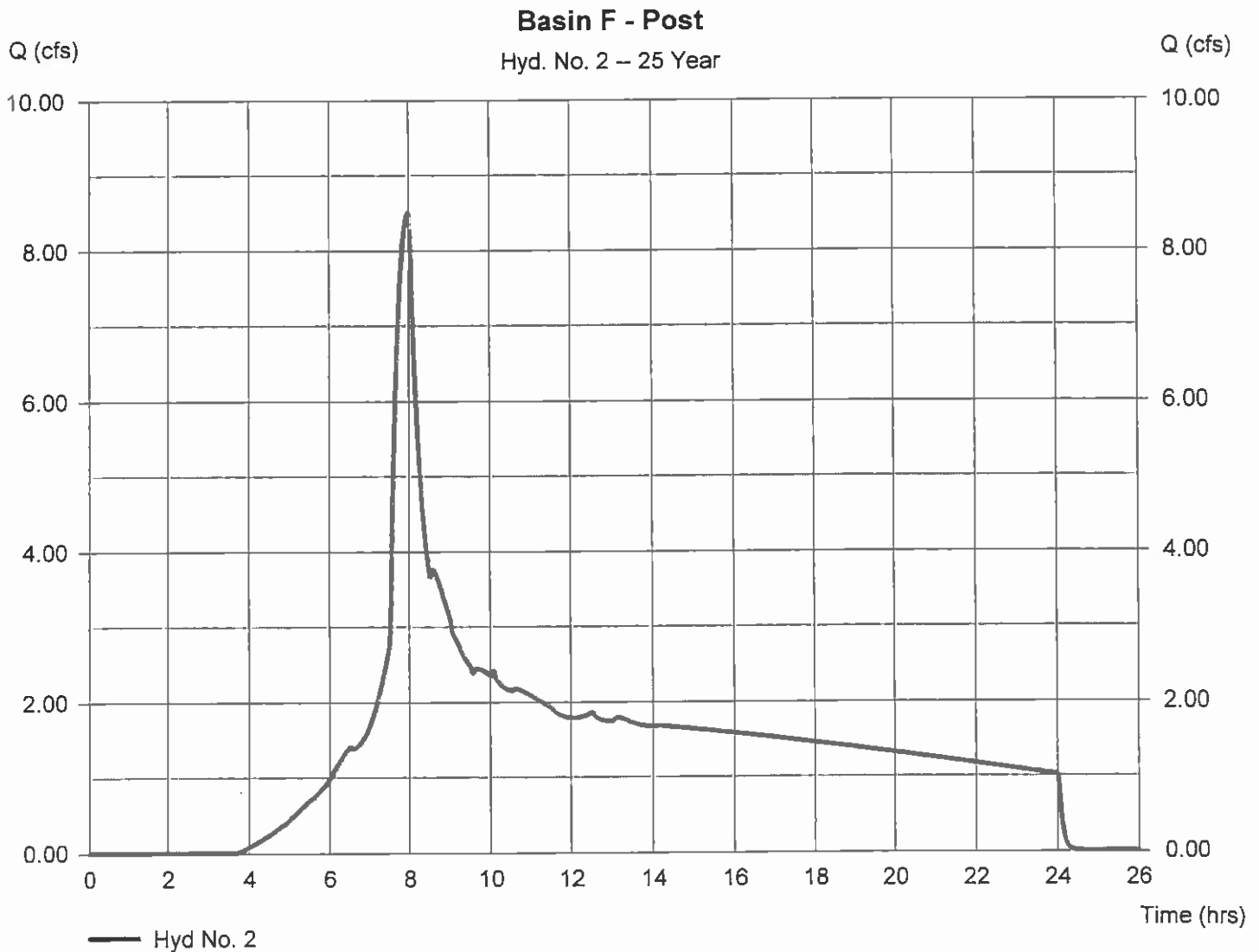
## Hyd. No. 2

Basin F - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 25 yrs  
Time interval = 2 min  
Drainage area = 12.710 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 4.84 in  
Storm duration = 24 hrs

Peak discharge = 8.506 cfs  
Time to peak = 478 min  
Hyd. volume = 127,050 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.30 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(9.450 \times 75) + (2.740 \times 99) + (0.520 \times 74)] / 12.710$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

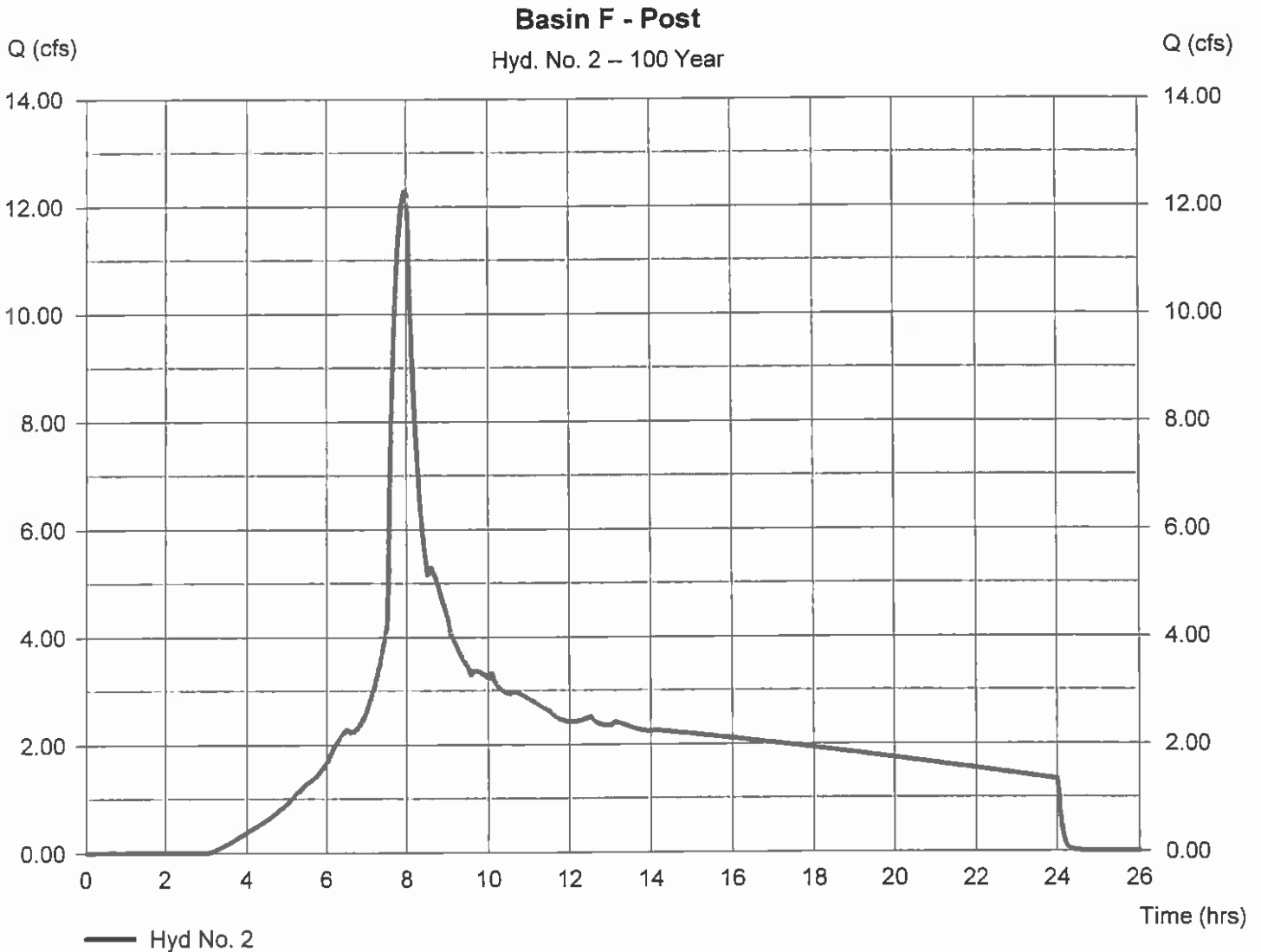
## Hyd. No. 2

Basin F - Post

Hydrograph type = SBUH Runoff  
Storm frequency = 100 yrs  
Time interval = 2 min  
Drainage area = 12.710 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 6.09 in  
Storm duration = 24 hrs

Peak discharge = 12.28 cfs  
Time to peak = 478 min  
Hyd. volume = 178,208 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.30 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(9.450 \times 75) + (2.740 \times 99) + (0.520 \times 74)] / 12.710$



**APPENDIX 'F'**

# Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

## Pond No. 1 - Pond A

### Pond Data

Trapezoid - Bottom L x W = 125.0 x 125.0 ft, Side slope = 2.00:1, Bottom elev. = 1000.00 ft, Depth = 5.50 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	15,625	0	0
0.55	1000.55	16,180	8,746	8,746
1.10	1001.10	16,744	9,054	17,800
1.65	1001.65	17,319	9,367	27,166
2.20	1002.20	17,902	9,685	36,852
2.75	1002.75	18,496	10,009	46,861
3.30	1003.30	19,099	10,338	57,199
3.85	1003.85	19,712	10,673	67,872
4.40	1004.40	20,335	11,012	78,884
4.95	1004.95	20,967	11,358	90,242
5.50	1005.50	21,609	11,708	101,950

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	10.80	17.60	0.00
Span (in)	= 36.00	10.80	17.60	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1002.20	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 3.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 18.85	6.00	0.00	0.00
Crest El. (ft)	= 1004.50	1003.30	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s)

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	—	0.00	0.00	—	—	—	—	0.000
0.06	875	1000.06	0.01 ic	0.01 ic	0.00	—	0.00	0.00	—	—	—	—	0.009
0.11	1,749	1000.11	0.04 ic	0.04 ic	0.00	—	0.00	0.00	—	—	—	—	0.040
0.17	2,624	1000.17	0.10 ic	0.09 ic	0.00	—	0.00	0.00	—	—	—	—	0.088
0.22	3,498	1000.22	0.16 ic	0.16 ic	0.00	—	0.00	0.00	—	—	—	—	0.157
0.28	4,373	1000.28	0.26 ic	0.25 ic	0.00	—	0.00	0.00	—	—	—	—	0.247
0.33	5,248	1000.33	0.37 ic	0.35 ic	0.00	—	0.00	0.00	—	—	—	—	0.346
0.39	6,122	1000.39	0.46 ic	0.46 ic	0.00	—	0.00	0.00	—	—	—	—	0.462
0.44	6,997	1000.44	0.61 ic	0.60 ic	0.00	—	0.00	0.00	—	—	—	—	0.601
0.50	7,871	1000.50	0.74 ic	0.74 ic	0.00	—	0.00	0.00	—	—	—	—	0.739
0.55	8,746	1000.55	0.89 ic	0.89 ic	0.00	—	0.00	0.00	—	—	—	—	0.889
0.61	9,651	1000.61	1.05 ic	1.05 ic	0.00	—	0.00	0.00	—	—	—	—	1.051
0.66	10,557	1000.66	1.23 ic	1.23 ic	0.00	—	0.00	0.00	—	—	—	—	1.227
0.72	11,462	1000.72	1.42 ic	1.40 ic	0.00	—	0.00	0.00	—	—	—	—	1.398
0.77	12,367	1000.77	1.56 ic	1.56 ic	0.00	—	0.00	0.00	—	—	—	—	1.556
0.83	13,273	1000.83	1.76 ic	1.73 ic	0.00	—	0.00	0.00	—	—	—	—	1.735
0.88	14,178	1000.88	1.89 ic	1.89 ic	0.00	—	0.00	0.00	—	—	—	—	1.891
0.94	15,083	1000.94	2.02 ic	2.00 ic	0.00	—	0.00	0.00	—	—	—	—	2.001
0.99	15,989	1000.99	2.16 ic	2.09 ic	0.00	—	0.00	0.00	—	—	—	—	2.087
1.05	16,894	1001.05	2.18 ic	2.18 ic	0.00	—	0.00	0.00	—	—	—	—	2.182
1.10	17,800	1001.10	2.30 ic	2.28 ic	0.00	—	0.00	0.00	—	—	—	—	2.284
1.16	18,736	1001.16	2.45 ic	2.36 ic	0.00	—	0.00	0.00	—	—	—	—	2.358
1.21	19,673	1001.21	2.46 ic	2.46 ic	0.00	—	0.00	0.00	—	—	—	—	2.459
1.27	20,610	1001.27	2.61 ic	2.53 ic	0.00	—	0.00	0.00	—	—	—	—	2.534
1.32	21,546	1001.32	2.62 ic	2.62 ic	0.00	—	0.00	0.00	—	—	—	—	2.622
1.38	22,483	1001.38	2.77 ic	2.70 ic	0.00	—	0.00	0.00	—	—	—	—	2.697
1.43	23,420	1001.43	2.78 ic	2.78 ic	0.00	—	0.00	0.00	—	—	—	—	2.782
1.49	24,356	1001.49	2.94 ic	2.85 ic	0.00	—	0.00	0.00	—	—	—	—	2.851
1.54	25,293	1001.54	2.94 ic	2.94 ic	0.00	—	0.00	0.00	—	—	—	—	2.939
1.60	26,230	1001.60	3.11 ic	3.00 ic	0.00	—	0.00	0.00	—	—	—	—	2.997
1.65	27,166	1001.65	3.11 ic	3.08 ic	0.00	—	0.00	0.00	—	—	—	—	3.082

Continues on next page...



Pond A

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.71	28,135	1001.71	3.15 ic	3.14 ic	0.00	—	0.00	0.00	—	—	—	—	3.145
1.76	29,104	1001.76	3.30 ic	3.22 ic	0.00	—	0.00	0.00	—	—	—	—	3.217
1.82	30,072	1001.82	3.30 ic	3.30 ic	0.00	—	0.00	0.00	—	—	—	—	3.296
1.87	31,041	1001.87	3.48 ic	3.48 ic	0.00	—	0.00	0.00	—	—	—	—	3.346
1.93	32,009	1001.93	3.48 ic	3.42 ic	0.00	—	0.00	0.00	—	—	—	—	3.422
1.98	32,978	1001.98	3.49 ic	3.49 ic	0.00	—	0.00	0.00	—	—	—	—	3.492
2.04	33,946	1002.04	3.68 ic	3.54 ic	0.00	—	0.00	0.00	—	—	—	—	3.544
2.09	34,915	1002.09	3.68 ic	3.62 ic	0.00	—	0.00	0.00	—	—	—	—	3.616
2.15	35,883	1002.15	3.68 ic	3.68 ic	0.00	—	0.00	0.00	—	—	—	—	3.684
2.20	36,852	1002.20	3.73 ic	3.73 ic	0.00	—	0.00	0.00	—	—	—	—	3.731
2.26	37,853	1002.26	3.88 ic	3.80 ic	0.02 ic	—	0.00	0.00	—	—	—	—	3.816
2.31	38,854	1002.31	3.92 ic	3.85 ic	0.07 ic	—	0.00	0.00	—	—	—	—	3.918
2.37	39,855	1002.37	4.09 ic	3.91 ic	0.15 ic	—	0.00	0.00	—	—	—	—	4.057
2.42	40,855	1002.42	4.31 ic	3.95 ic	0.26 ic	—	0.00	0.00	—	—	—	—	4.209
2.48	41,856	1002.48	4.53 ic	3.99 ic	0.41 ic	—	0.00	0.00	—	—	—	—	4.400
2.53	42,857	1002.53	4.76 ic	4.03 ic	0.56 ic	—	0.00	0.00	—	—	—	—	4.589
2.59	43,858	1002.59	4.99 ic	4.07 ic	0.76 ic	—	0.00	0.00	—	—	—	—	4.832
2.64	44,859	1002.64	5.24 ic	4.11 ic	0.97 ic	—	0.00	0.00	—	—	—	—	5.078
2.70	45,860	1002.70	5.49 ic	4.15 ic	1.20 ic	—	0.00	0.00	—	—	—	—	5.351
2.75	46,861	1002.75	5.74 ic	4.19 ic	1.46 ic	—	0.00	0.00	—	—	—	—	5.650
2.81	47,895	1002.81	6.01 ic	4.22 ic	1.75 ic	—	0.00	0.00	—	—	—	—	5.972
2.86	48,929	1002.86	6.31 ic	4.25 ic	2.06 ic	—	0.00	0.00	—	—	—	—	6.307
2.92	49,962	1002.92	6.84 ic	4.27 ic	2.38 ic	—	0.00	0.00	—	—	—	—	6.655
2.97	50,996	1002.97	7.13 ic	4.31 ic	2.73 ic	—	0.00	0.00	—	—	—	—	7.033
3.03	52,030	1003.03	7.43 ic	4.34 ic	3.03 ic	—	0.00	0.00	—	—	—	—	7.371
3.08	53,064	1003.08	7.76 ic	4.37 ic	3.39 ic	—	0.00	0.00	—	—	—	—	7.760
3.14	54,098	1003.14	8.36 ic	4.39 ic	3.76 ic	—	0.00	0.00	—	—	—	—	8.145
3.19	55,132	1003.19	8.68 ic	4.42 ic	4.12 ic	—	0.00	0.00	—	—	—	—	8.545
3.25	56,165	1003.25	9.01 ic	4.46 ic	4.48 ic	—	0.00	0.00	—	—	—	—	8.941
3.30	57,199	1003.30	9.37 ic	4.49 ic	4.88 ic	—	0.00	0.00	—	—	—	—	9.369
3.36	58,266	1003.36	10.04 ic	4.50 ic	5.22 ic	—	0.00	0.26	—	—	—	—	9.980
3.41	59,334	1003.41	10.84 ic	4.49 ic	5.62 ic	—	0.00	0.73	—	—	—	—	10.84
3.47	60,401	1003.47	11.86 ic	4.49 ic	5.94 ic	—	0.00	1.34	—	—	—	—	11.78
3.52	61,468	1003.52	13.02 ic	4.48 ic	6.29 ic	—	0.00	2.06	—	—	—	—	12.83
3.58	62,536	1003.58	13.92 ic	4.46 ic	6.57 ic	—	0.00	2.88	—	—	—	—	13.92
3.63	63,603	1003.63	15.08 ic	4.46 ic	6.83 ic	—	0.00	3.79	—	—	—	—	15.08
3.69	64,670	1003.69	16.29 ic	4.45 ic	7.05 ic	—	0.00	4.77	—	—	—	—	16.28
3.74	65,737	1003.74	17.57 ic	4.44 ic	7.30 ic	—	0.00	5.83	—	—	—	—	17.57
3.80	66,805	1003.80	18.92 ic	4.41 ic	7.55 ic	—	0.00	6.96	—	—	—	—	18.92
3.85	67,872	1003.85	20.62 ic	4.38 ic	7.79 ic	—	0.00	8.15	—	—	—	—	20.32
3.91	68,973	1003.91	21.94 ic	4.37 ic	8.02 ic	—	0.00	9.40	—	—	—	—	21.79
3.96	70,074	1003.96	23.30 ic	4.34 ic	8.24 ic	—	0.00	10.71	—	—	—	—	23.30
4.02	71,176	1004.02	25.00 ic	4.31 ic	8.46 ic	—	0.00	12.08	—	—	—	—	24.85
4.07	72,277	1004.07	26.71 ic	4.28 ic	8.67 ic	—	0.00	13.50	—	—	—	—	26.45
4.13	73,378	1004.13	28.37 ic	4.25 ic	8.88 ic	—	0.00	14.97	—	—	—	—	28.10
4.18	74,479	1004.18	29.97 ic	4.22 ic	9.08 ic	—	0.00	16.49	—	—	—	—	29.79
4.23	75,581	1004.24	31.53 ic	4.19 ic	9.28 ic	—	0.00	18.06	—	—	—	—	31.53
4.29	76,682	1004.29	33.30 ic	4.14 ic	9.47 ic	—	0.00	19.68	—	—	—	—	33.30
4.34	77,783	1004.35	35.20 ic	4.09 ic	9.66 ic	—	0.00	21.34	—	—	—	—	35.10
4.40	78,884	1004.40	36.94 ic	4.04 ic	9.85 ic	—	0.00	23.05	—	—	—	—	36.94
4.46	80,020	1004.46	38.89 ic	3.97 ic	10.03 ic	—	0.00	24.80	—	—	—	—	38.80
4.51	81,156	1004.51	40.76 ic	3.87 ic	10.21 ic	—	0.06	26.59	—	—	—	—	40.74
4.57	82,292	1004.57	43.03 ic	3.71 ic	9.85 ic	—	1.04	28.43	—	—	—	—	43.03
4.62	83,427	1004.62	45.74 ic	3.51 ic	9.32 ic	—	2.61	30.30 s	—	—	—	—	45.74
4.67	84,563	1004.68	48.19 ic	3.31 ic	8.80 ic	—	4.59	31.49 s	—	—	—	—	48.19
4.73	85,699	1004.73	50.45 ic	3.11 ic	8.27 ic	—	6.92	32.14 s	—	—	—	—	50.45
4.78	86,835	1004.79	52.57 ic	2.90 ic	7.71 ic	—	9.55	32.40 s	—	—	—	—	52.57
4.84	87,970	1004.84	54.55 ic	2.69 ic	7.14 ic	—	12.44	32.28 s	—	—	—	—	54.55
4.89	89,106	1004.90	56.40 ic	2.47 ic	6.55 ic	—	15.58	31.80 s	—	—	—	—	56.40
4.95	90,242	1004.95	58.11 ic	2.24 ic	5.94 ic	—	18.95	30.98 s	—	—	—	—	58.11
5.01	91,413	1005.01	59.58 ic	2.03 ic	5.39 ic	—	22.12 s	30.04 s	—	—	—	—	59.58
5.06	92,583	1005.06	60.70 ic	1.88 ic	5.00 ic	—	24.31 s	29.51 s	—	—	—	—	60.70
5.12	93,754	1005.12	61.68 ic	1.76 ic	4.67 ic	—	26.16 s	29.08 s	—	—	—	—	61.68
5.17	94,925	1005.17	62.56 ic	1.65 ic	4.39 ic	—	27.80 s	28.72 s	—	—	—	—	62.56
5.22	96,096	1005.23	63.36 ic	1.56 ic	4.13 ic	—	29.28 s	28.39 s	—	—	—	—	63.36
5.28	97,267	1005.28	64.12 ic	1.47 ic	3.90 ic	—	30.63 s	28.10 s	—	—	—	—	64.11
5.33	98,437	1005.34	64.82 ic	1.39 ic	3.70 ic	—	31.88 s	27.84 s	—	—	—	—	64.81
5.39	99,608	1005.39	65.49 ic	1.32 ic	3.51 ic	—	33.05 s	27.60 s	—	—	—	—	65.48
5.44	100,779	1005.45	66.13 ic	1.26 ic	3.35 ic	—	34.13 s	27.38 s	—	—	—	—	66.12
5.50	101,950	1005.50	66.74 ic	1.20 ic	3.19 ic	—	35.15 s	27.18 s	—	—	—	—	66.73

...End

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

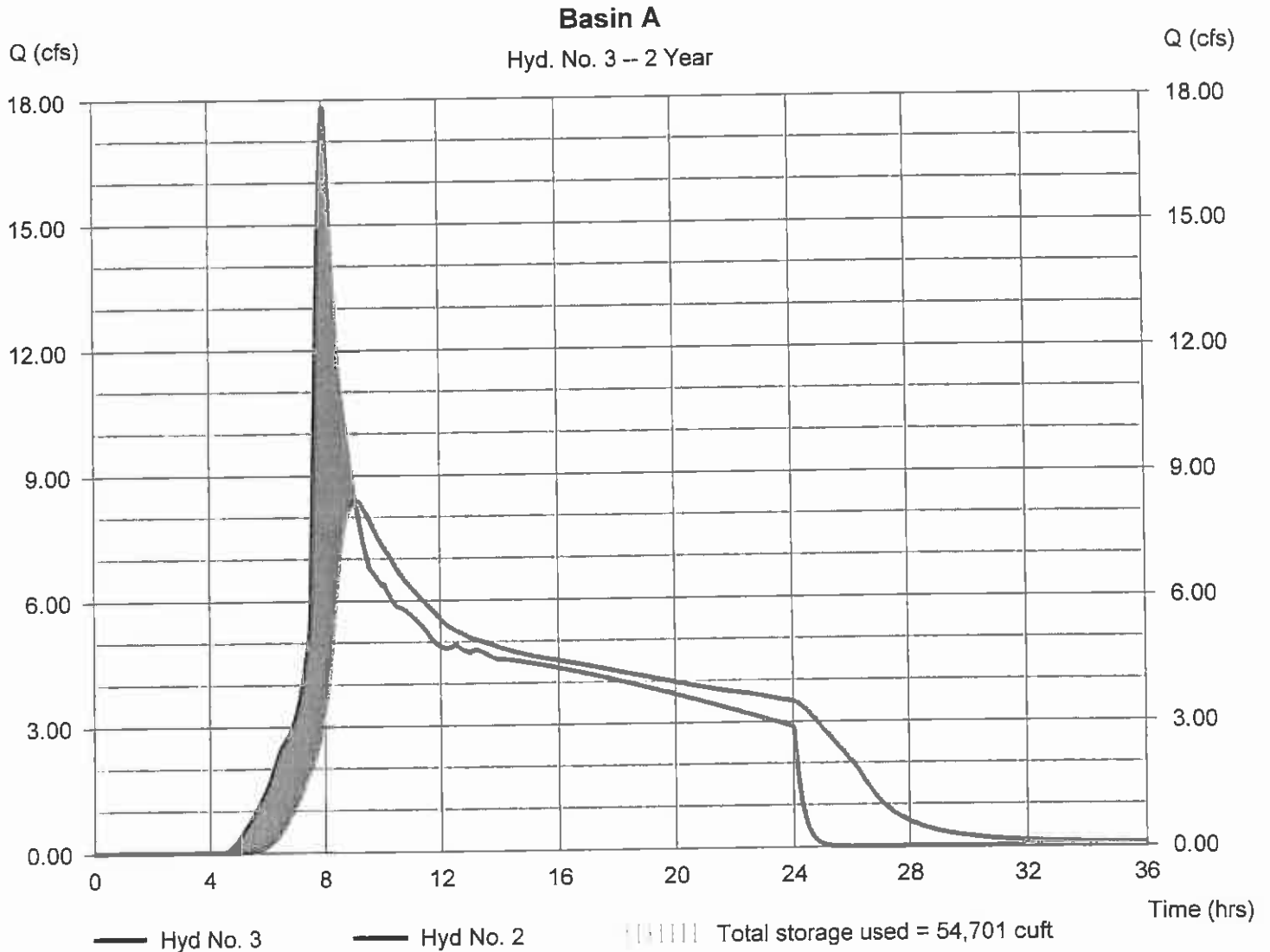
## Hyd. No. 3

### Basin A

Hydrograph type = Reservoir  
Storm frequency = 2 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin A - Post  
Reservoir name = Pond A

Peak discharge = 8.378 cfs  
Time to peak = 9.10 hrs  
Hyd. volume = 328,404 cuft  
Max. Elevation = 1003.17 ft  
Max. Storage = 54,701 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

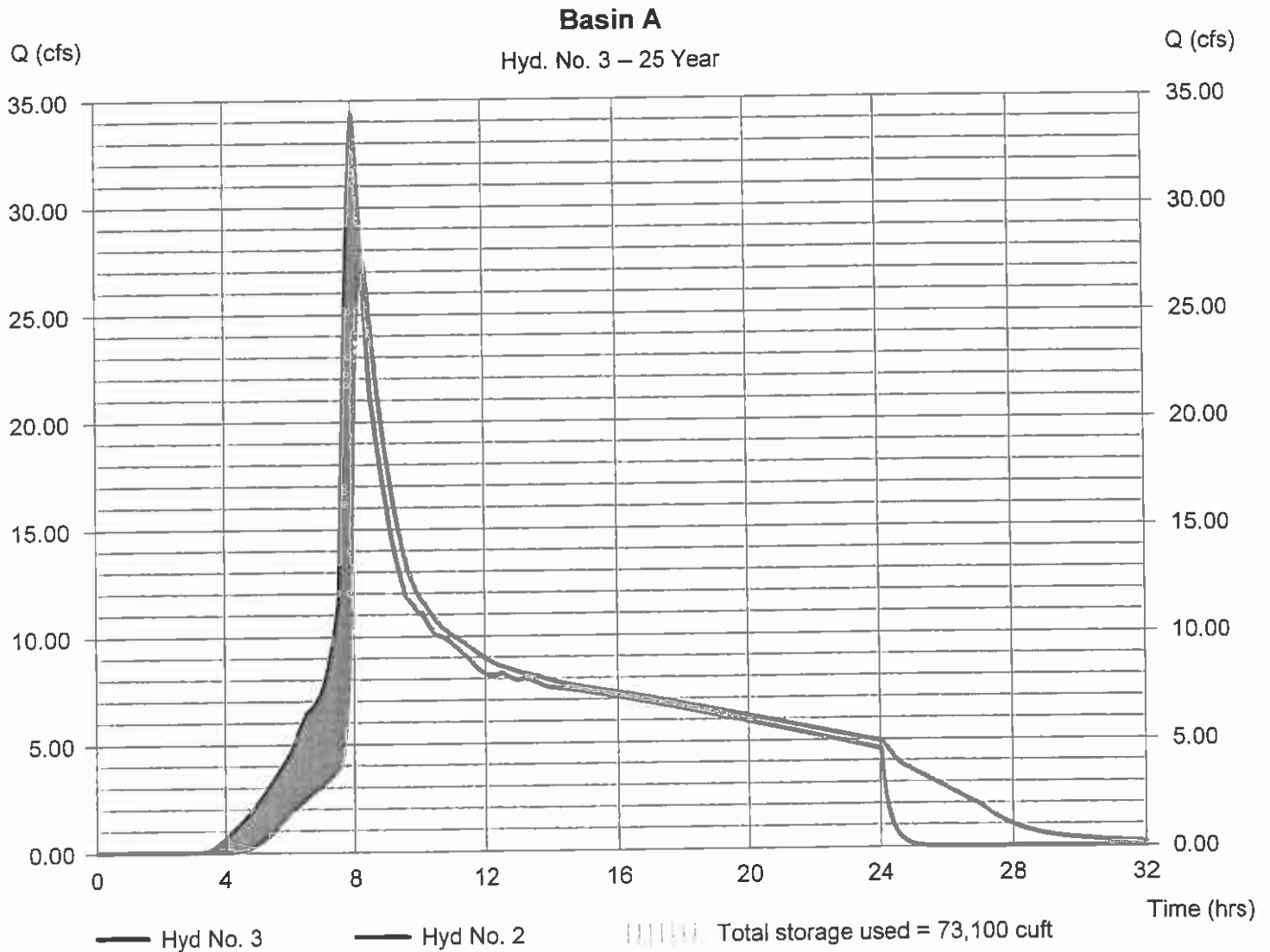
## Hyd. No. 3

### Basin A

Hydrograph type = Reservoir  
Storm frequency = 25 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin A - Post  
Reservoir name = Pond A

Peak discharge = 27.68 cfs  
Time to peak = 8.27 hrs  
Hyd. volume = 584,060 cuft  
Max. Elevation = 1004.11 ft  
Max. Storage = 73,100 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

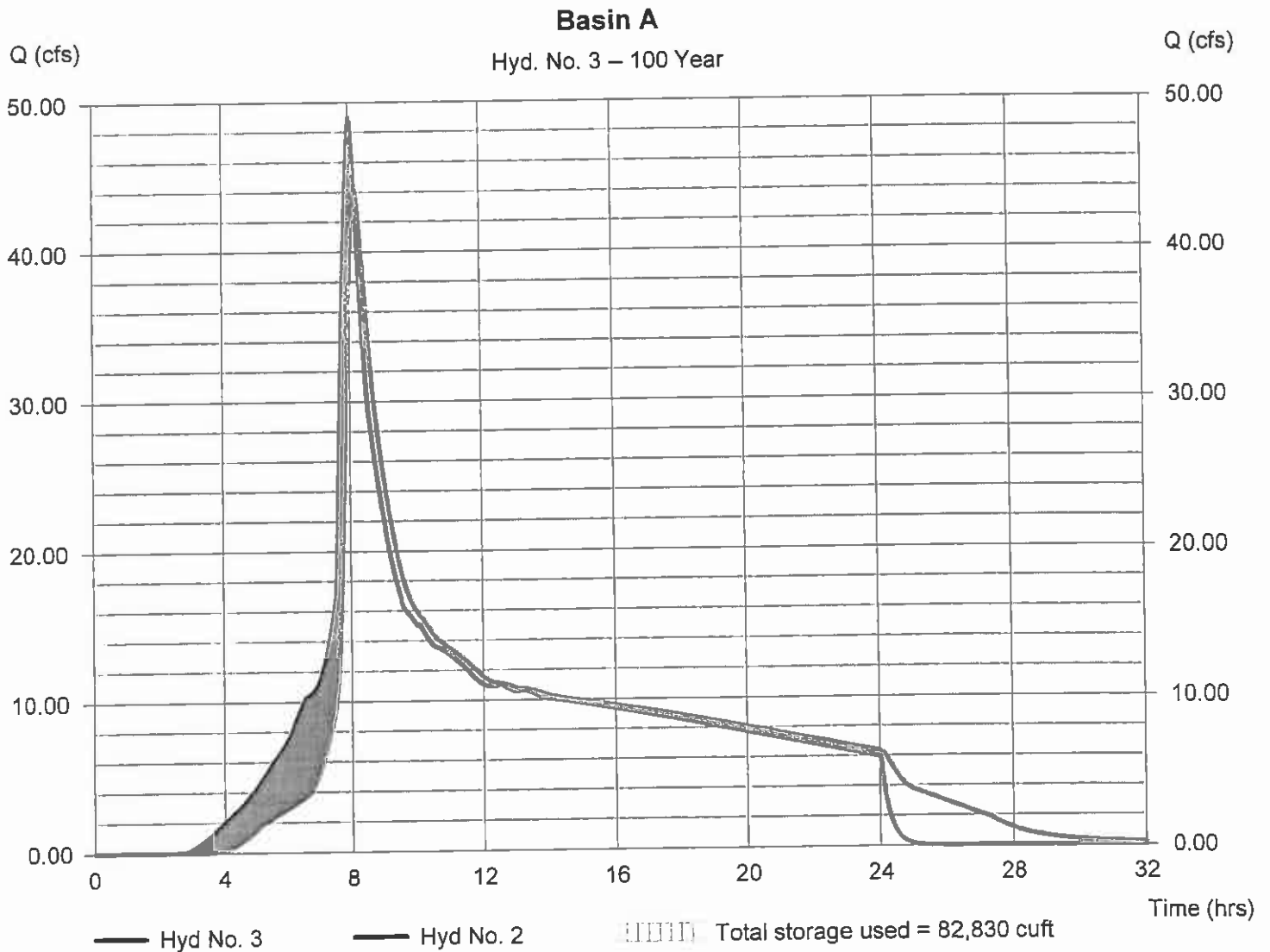
## Hyd. No. 3

Basin A

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin A - Post  
Reservoir name = Pond A

Peak discharge = 44.31 cfs  
Time to peak = 8.13 hrs  
Hyd. volume = 809,602 cuft  
Max. Elevation = 1004.59 ft  
Max. Storage = 82,830 cuft

Storage Indication method used.



# Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Thursday, Dec 10, 2009

## Pond No. 1 - Pond B

### Pond Data

Trapezoid - Bottom L x W = 97.0 x 97.0 ft, Side slope = 2.00:1, Bottom elev. = 1000.00 ft, Depth = 5.00 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	9,409	0	0
0.50	1000.50	9,801	4,802	4,802
1.00	1001.00	10,201	5,000	9,802
1.50	1001.50	10,609	5,202	15,005
2.00	1002.00	11,025	5,408	20,413
2.50	1002.50	11,449	5,618	26,031
3.00	1003.00	11,881	5,832	31,863
3.50	1003.50	12,321	6,050	37,913
4.00	1004.00	12,769	6,272	44,185
4.50	1004.50	13,225	6,498	50,683
5.00	1005.00	13,689	6,728	57,412

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 30.00	8.58	12.50	0.00
Span (in)	= 30.00	8.58	12.50	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1001.50	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 12.57	4.50	0.00	0.00
Crest El. (ft)	= 1004.00	1002.70	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	—	0.00	0.00	—	—	—	—	0.000
0.05	480	1000.05	0.01 ic	0.01 ic	0.00	—	0.00	0.00	—	—	—	—	0.006
0.10	960	1000.10	0.03 ic	0.03 ic	0.00	—	0.00	0.00	—	—	—	—	0.029
0.15	1,441	1000.15	0.07 ic	0.06 ic	0.00	—	0.00	0.00	—	—	—	—	0.064
0.20	1,921	1000.20	0.11 ic	0.11 ic	0.00	—	0.00	0.00	—	—	—	—	0.113
0.25	2,401	1000.25	0.18 ic	0.18 ic	0.00	—	0.00	0.00	—	—	—	—	0.177
0.30	2,881	1000.30	0.26 ic	0.25 ic	0.00	—	0.00	0.00	—	—	—	—	0.251
0.35	3,362	1000.35	0.35 ic	0.33 ic	0.00	—	0.00	0.00	—	—	—	—	0.332
0.40	3,842	1000.40	0.43 ic	0.43 ic	0.00	—	0.00	0.00	—	—	—	—	0.429
0.45	4,322	1000.45	0.56 ic	0.52 ic	0.00	—	0.00	0.00	—	—	—	—	0.524
0.50	4,802	1000.50	0.66 ic	0.64 ic	0.00	—	0.00	0.00	—	—	—	—	0.638
0.55	5,302	1000.55	0.77 ic	0.75 ic	0.00	—	0.00	0.00	—	—	—	—	0.748
0.60	5,802	1000.60	0.90 ic	0.85 ic	0.00	—	0.00	0.00	—	—	—	—	0.854
0.65	6,302	1000.65	0.97 ic	0.97 ic	0.00	—	0.00	0.00	—	—	—	—	0.971
0.70	6,802	1000.70	1.06 ic	1.06 ic	0.00	—	0.00	0.00	—	—	—	—	1.060
0.75	7,302	1000.75	1.13 ic	1.13 ic	0.00	—	0.00	0.00	—	—	—	—	1.134
0.80	7,802	1000.80	1.20 ic	1.20 ic	0.00	—	0.00	0.00	—	—	—	—	1.203
0.85	8,302	1000.85	1.28 ic	1.26 ic	0.00	—	0.00	0.00	—	—	—	—	1.262
0.90	8,802	1000.90	1.37 ic	1.31 ic	0.00	—	0.00	0.00	—	—	—	—	1.313
0.95	9,302	1000.95	1.38 ic	1.38 ic	0.00	—	0.00	0.00	—	—	—	—	1.376
1.00	9,802	1001.00	1.46 ic	1.43 ic	0.00	—	0.00	0.00	—	—	—	—	1.429
1.05	10,323	1001.05	1.48 ic	1.48 ic	0.00	—	0.00	0.00	—	—	—	—	1.478
1.10	10,843	1001.10	1.55 ic	1.54 ic	0.00	—	0.00	0.00	—	—	—	—	1.536
1.15	11,363	1001.15	1.58 ic	1.58 ic	0.00	—	0.00	0.00	—	—	—	—	1.578
1.20	11,883	1001.20	1.65 ic	1.64 ic	0.00	—	0.00	0.00	—	—	—	—	1.636
1.25	12,403	1001.25	1.68 ic	1.68 ic	0.00	—	0.00	0.00	—	—	—	—	1.676
1.30	12,924	1001.30	1.76 ic	1.73 ic	0.00	—	0.00	0.00	—	—	—	—	1.729
1.35	13,444	1001.35	1.77 ic	1.77 ic	0.00	—	0.00	0.00	—	—	—	—	1.772
1.40	13,964	1001.40	1.86 ic	1.82 ic	0.00	—	0.00	0.00	—	—	—	—	1.818
1.45	14,484	1001.45	1.87 ic	1.87 ic	0.00	—	0.00	0.00	—	—	—	—	1.866
1.50	15,005	1001.50	1.97 ic	1.90 ic	0.00	—	0.00	0.00	—	—	—	—	1.903

Continues on next page...

Pond B

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.55	15,545	1001.55	1.97 ic	1.95 ic	0.01 ic	—	0.00	0.00	—	—	—	—	1.964
1.60	16,086	1001.60	2.09 ic	1.98 ic	0.05 ic	—	0.00	0.00	—	—	—	—	2.031
1.65	16,627	1001.65	2.12 ic	2.02 ic	0.10 ic	—	0.00	0.00	—	—	—	—	2.118
1.70	17,168	1001.70	2.23 ic	2.05 ic	0.18 ic	—	0.00	0.00	—	—	—	—	2.228
1.75	17,709	1001.75	2.36 ic	2.08 ic	0.28 ic	—	0.00	0.00	—	—	—	—	2.356
1.80	18,249	1001.80	2.59 ic	2.11 ic	0.39 ic	—	0.00	0.00	—	—	—	—	2.496
1.85	18,790	1001.85	2.73 ic	2.13 ic	0.51 ic	—	0.00	0.00	—	—	—	—	2.645
1.90	19,331	1001.90	2.87 ic	2.16 ic	0.66 ic	—	0.00	0.00	—	—	—	—	2.828
1.95	19,872	1001.95	3.02 ic	2.19 ic	0.82 ic	—	0.00	0.00	—	—	—	—	3.009
2.00	20,413	1002.00	3.19 ic	2.21 ic	0.98 ic	—	0.00	0.00	—	—	—	—	3.193
2.05	20,974	1002.05	3.48 ic	2.23 ic	1.16 ic	—	0.00	0.00	—	—	—	—	3.393
2.10	21,536	1002.10	3.64 ic	2.26 ic	1.35 ic	—	0.00	0.00	—	—	—	—	3.604
2.15	22,098	1002.15	3.82 ic	2.28 ic	1.54 ic	—	0.00	0.00	—	—	—	—	3.817
2.20	22,660	1002.20	4.16 ic	2.30 ic	1.75 ic	—	0.00	0.00	—	—	—	—	4.044
2.25	23,222	1002.25	4.34 ic	2.32 ic	1.94 ic	—	0.00	0.00	—	—	—	—	4.258
2.30	23,784	1002.30	4.52 ic	2.35 ic	2.16 ic	—	0.00	0.00	—	—	—	—	4.503
2.35	24,345	1002.35	4.71 ic	2.37 ic	2.34 ic	—	0.00	0.00	—	—	—	—	4.714
2.40	24,907	1002.40	4.92 ic	2.39 ic	2.53 ic	—	0.00	0.00	—	—	—	—	4.920
2.45	25,469	1002.45	5.12 ic	2.41 ic	2.71 ic	—	0.00	0.00	—	—	—	—	5.123
2.50	26,031	1002.50	5.31 ic	2.44 ic	2.87 ic	—	0.00	0.00	—	—	—	—	5.307
2.55	26,614	1002.55	5.50 ic	2.47 ic	2.98 ic	—	0.00	0.00	—	—	—	—	5.452
2.60	27,197	1002.60	5.71 ic	2.49 ic	3.12 ic	—	0.00	0.00	—	—	—	—	5.613
2.65	27,780	1002.65	5.77 ic	2.51 ic	3.25 ic	—	0.00	0.00	—	—	—	—	5.769
2.70	28,364	1002.70	5.93 ic	2.55 ic	3.38 ic	—	0.00	0.00	—	—	—	—	5.931
2.75	28,947	1002.75	6.36 ic	2.56 ic	3.50 ic	—	0.00	0.17	—	—	—	—	6.230
2.80	29,530	1002.80	6.82 ic	2.57 ic	3.62 ic	—	0.00	0.47	—	—	—	—	6.663
2.85	30,113	1002.85	7.28 ic	2.58 ic	3.74 ic	—	0.00	0.87	—	—	—	—	7.182
2.90	30,697	1002.90	7.77 ic	2.58 ic	3.85 ic	—	0.00	1.34	—	—	—	—	7.768
2.95	31,280	1002.95	8.50 ic	2.58 ic	3.95 ic	—	0.00	1.87	—	—	—	—	8.404
3.00	31,863	1003.00	9.27 ic	2.57 ic	4.06 ic	—	0.00	2.46	—	—	—	—	9.094
3.05	32,468	1003.05	9.84 ic	2.57 ic	4.16 ic	—	0.00	3.10	—	—	—	—	9.836
3.10	33,073	1003.10	10.62 ic	2.57 ic	4.26 ic	—	0.00	3.79	—	—	—	—	10.62
3.15	33,678	1003.15	11.44 ic	2.56 ic	4.36 ic	—	0.00	4.52	—	—	—	—	11.44
3.20	34,283	1003.20	12.30 ic	2.55 ic	4.46 ic	—	0.00	5.30	—	—	—	—	12.30
3.25	34,888	1003.25	13.35 ic	2.54 ic	4.55 ic	—	0.00	6.11	—	—	—	—	13.20
3.30	35,493	1003.30	14.19 ic	2.54 ic	4.64 ic	—	0.00	6.96	—	—	—	—	14.14
3.35	36,098	1003.35	15.10 ic	2.52 ic	4.73 ic	—	0.00	7.85	—	—	—	—	15.10
3.40	36,703	1003.40	16.12 ic	2.51 ic	4.82 ic	—	0.00	8.77	—	—	—	—	16.10
3.45	37,308	1003.45	17.20 ic	2.50 ic	4.90 ic	—	0.00	9.73	—	—	—	—	17.13
3.50	37,913	1003.50	18.24 ic	2.48 ic	4.99 ic	—	0.00	10.72	—	—	—	—	18.19
3.55	38,540	1003.55	19.28 ic	2.46 ic	5.07 ic	—	0.00	11.74	—	—	—	—	19.28
3.60	39,168	1003.60	20.43 ic	2.44 ic	5.16 ic	—	0.00	12.79	—	—	—	—	20.39
3.65	39,795	1003.65	21.52 ic	2.42 ic	5.15 ic	—	0.00	13.87	—	—	—	—	21.44
3.70	40,422	1003.70	22.50 ic	2.41 ic	5.11 ic	—	0.00	14.98	—	—	—	—	22.50
3.75	41,049	1003.75	23.56 ic	2.38 ic	5.06 ic	—	0.00	16.12	—	—	—	—	23.56
3.80	41,676	1003.80	24.66 ic	2.35 ic	5.00 ic	—	0.00	17.29	—	—	—	—	24.64
3.85	42,304	1003.85	25.71 ic	2.32 ic	4.92 ic	—	0.00	18.48	—	—	—	—	25.71
3.90	42,931	1003.90	26.76 ic	2.26 ic	4.80 ic	—	0.00	19.70	—	—	—	—	26.76
3.95	43,558	1003.95	27.85 ic	2.21 ic	4.70 ic	—	0.00	20.94	—	—	—	—	27.85
4.00	44,185	1004.00	28.91 ic	2.16 ic	4.59 ic	—	0.00	22.15 s	—	—	—	—	28.91
4.05	44,835	1004.05	30.10 ic	2.10 ic	4.45 ic	—	0.47	23.08 s	—	—	—	—	30.10
4.10	45,485	1004.10	31.39 ic	2.01 ic	4.28 ic	—	1.32	23.77 s	—	—	—	—	31.39
4.15	46,135	1004.15	32.67 ic	1.92 ic	4.08 ic	—	2.43	24.24 s	—	—	—	—	32.67
4.20	46,785	1004.20	33.94 ic	1.82 ic	3.87 ic	—	3.74	24.51 s	—	—	—	—	33.94
4.25	47,434	1004.25	35.15 ic	1.72 ic	3.64 ic	—	5.23	24.57 s	—	—	—	—	35.15
4.30	48,084	1004.30	36.31 ic	1.60 ic	3.41 ic	—	6.88	24.43 s	—	—	—	—	36.31
4.35	48,734	1004.35	37.41 ic	1.49 ic	3.16 ic	—	8.66	24.09 s	—	—	—	—	37.41
4.40	49,384	1004.40	38.44 ic	1.37 ic	2.91 ic	—	10.59	23.57 s	—	—	—	—	38.44
4.45	50,034	1004.45	39.38 ic	1.26 ic	2.67 ic	—	12.56 s	22.89 s	—	—	—	—	39.38
4.50	50,683	1004.50	40.12 ic	1.17 ic	2.49 ic	—	13.99 s	22.47 s	—	—	—	—	40.12
4.55	51,356	1004.55	40.77 ic	1.10 ic	2.34 ic	—	15.18 s	22.15 s	—	—	—	—	40.76
4.60	52,029	1004.60	41.35 ic	1.04 ic	2.20 ic	—	16.24 s	21.86 s	—	—	—	—	41.35
4.65	52,702	1004.65	41.89 ic	0.98 ic	2.09 ic	—	17.20 s	21.61 s	—	—	—	—	41.89
4.70	53,375	1004.70	42.39 ic	0.93 ic	1.98 ic	—	18.09 s	21.38 s	—	—	—	—	42.38
4.75	54,048	1004.75	42.86 ic	0.89 ic	1.88 ic	—	18.91 s	21.18 s	—	—	—	—	42.86
4.80	54,720	1004.80	43.31 ic	0.84 ic	1.79 ic	—	19.68 s	20.99 s	—	—	—	—	43.30
4.85	55,393	1004.85	43.74 ic	0.81 ic	1.71 ic	—	20.40 s	20.82 s	—	—	—	—	43.73
4.90	56,066	1004.90	44.15 ic	0.77 ic	1.64 ic	—	21.07 s	20.66 s	—	—	—	—	44.15
4.95	56,739	1004.95	44.55 ic	0.74 ic	1.57 ic	—	21.72 s	20.52 s	—	—	—	—	44.55
5.00	57,412	1005.00	44.93 ic	0.71 ic	1.51 ic	—	22.32 s	20.39 s	—	—	—	—	44.93

...End

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

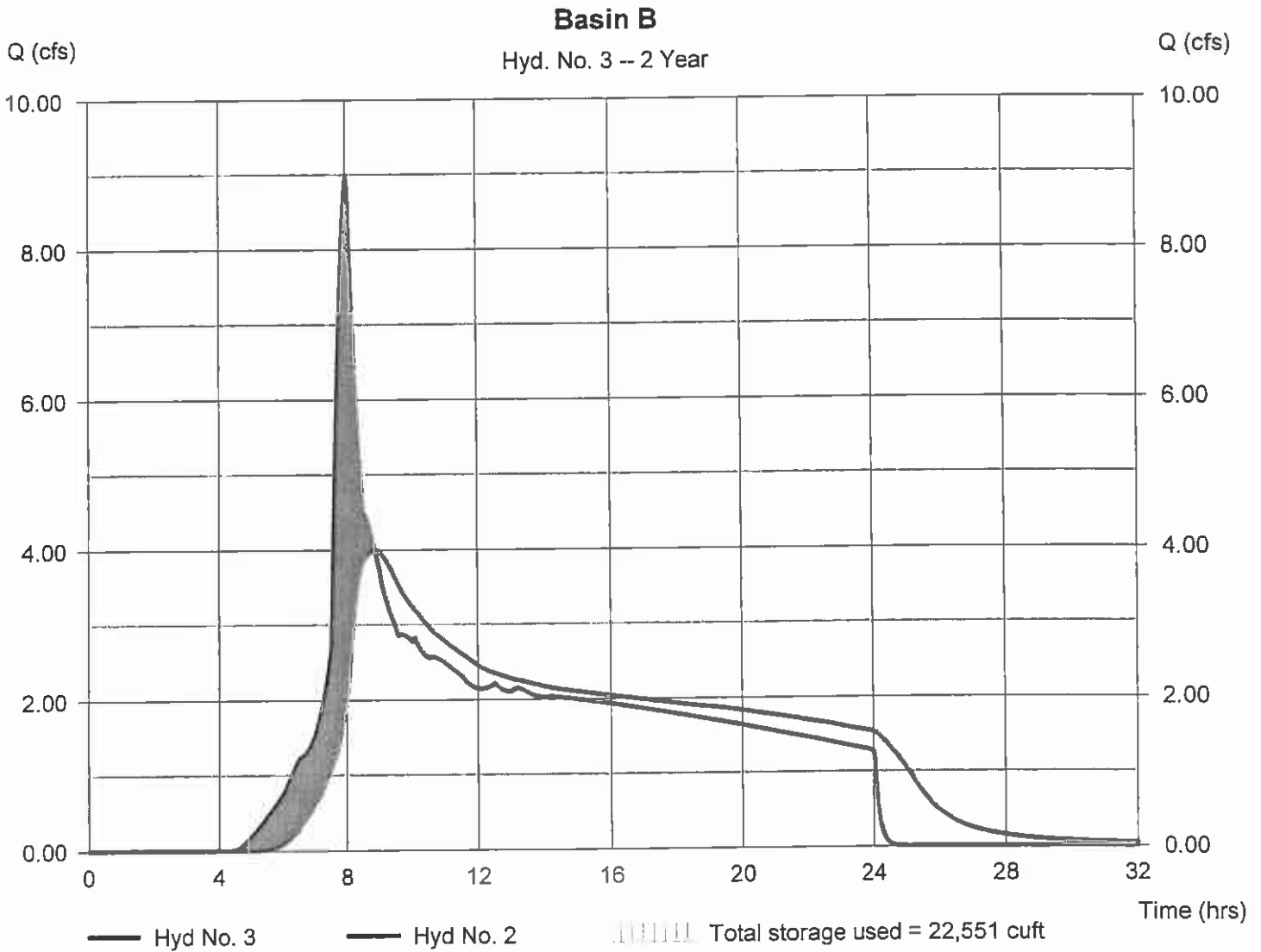
Thursday, Dec 10, 2009

## Hyd. No. 3

### Basin B

Hydrograph type	= Reservoir	Peak discharge	= 4.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 8.83 hrs
Time interval	= 2 min	Hyd. volume	= 146,492 cuft
Inflow hyd. No.	= 2 - Basin B - Post	Max. Elevation	= 1002.19 ft
Reservoir name	= Pond B	Max. Storage	= 22,551 cuft

Storage Indication method used.



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Thursday, Dec 10, 2009

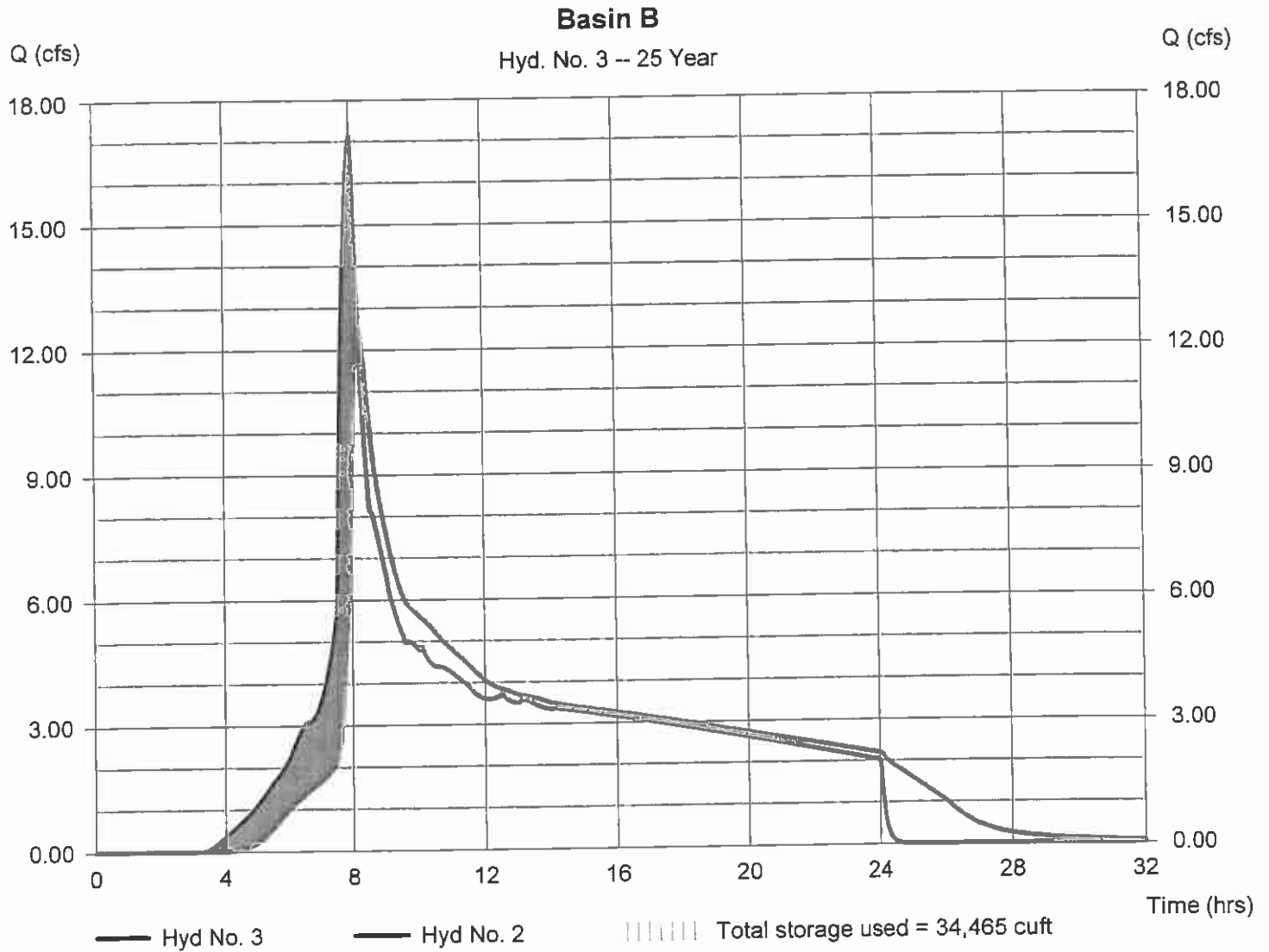
## Hyd. No. 3

### Basin B

Hydrograph type = Reservoir  
Storm frequency = 25 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin B - Post  
Reservoir name = Pond B

Peak discharge = 12.57 cfs  
Time to peak = 8.20 hrs  
Hyd. volume = 260,538 cuft  
Max. Elevation = 1003.22 ft  
Max. Storage = 34,465 cuft

Storage Indication method used.





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Thursday, Dec 10, 2009

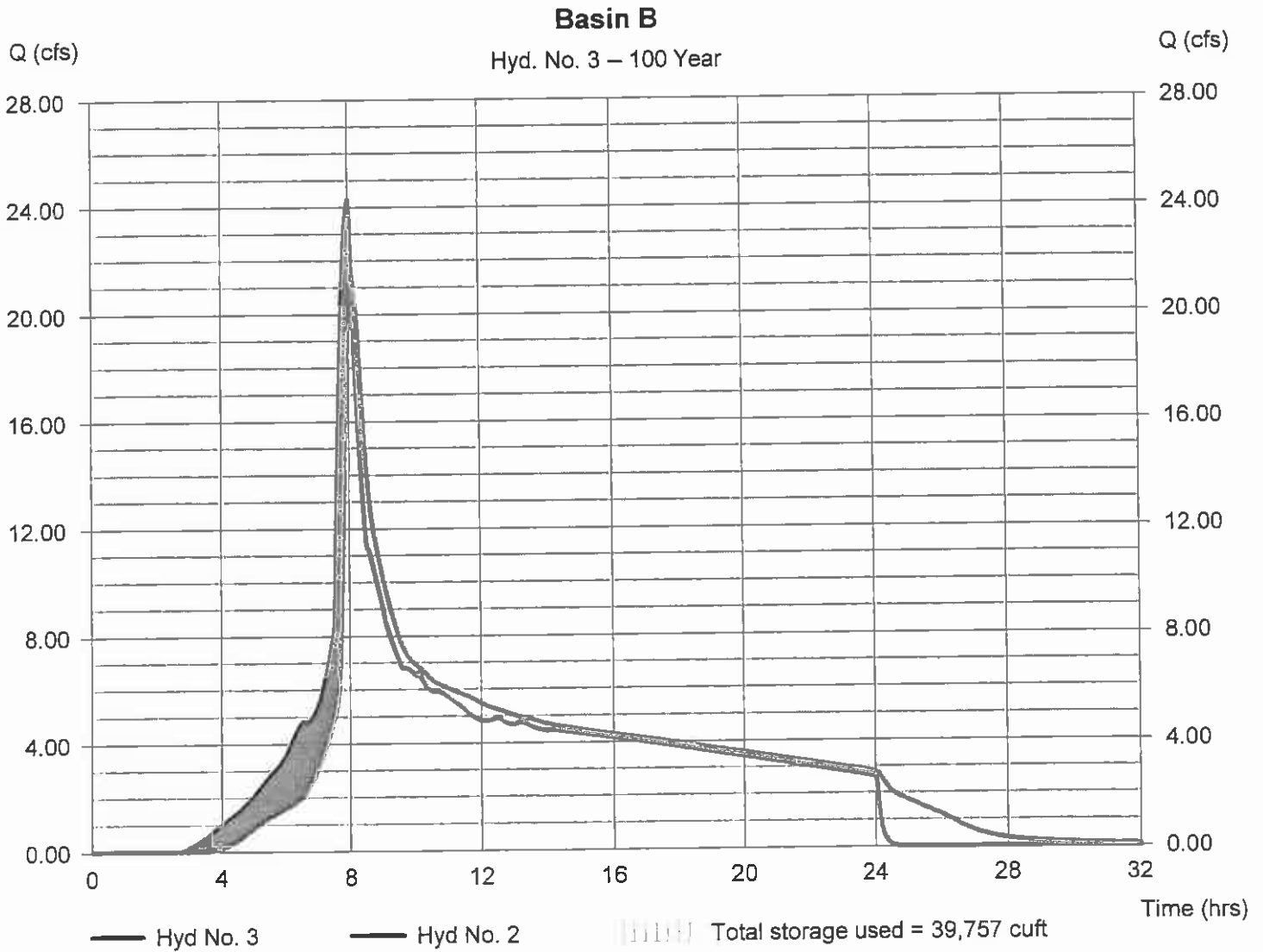
## Hyd. No. 3

### Basin B

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin B - Post  
Reservoir name = Pond B

Peak discharge = 21.38 cfs  
Time to peak = 8.10 hrs  
Hyd. volume = 361,151 cuft  
Max. Elevation = 1003.65 ft  
Max. Storage = 39,757 cuft

Storage Indication method used.



# Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

## Pond No. 1 - Pond C

### Pond Data

Trapezoid - Bottom L x W = 156.0 x 156.0 ft, Side slope = 2.00:1, Bottom elev. = 1000.00 ft, Depth = 6.00 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	24,336	0	0
0.60	1000.60	25,091	14,827	14,827
1.20	1001.20	25,857	15,284	30,111
1.80	1001.80	26,634	15,747	45,858
2.40	1002.40	27,423	16,217	62,074
3.00	1003.00	28,224	16,694	78,768
3.60	1003.60	29,036	17,177	95,945
4.20	1004.20	29,860	17,668	113,614
4.80	1004.80	30,695	18,166	131,780
5.40	1005.40	31,542	18,670	150,450
6.00	1006.00	32,400	19,182	169,632

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	18.30	24.00	0.00
Span (in)	= 36.00	18.30	24.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1002.40	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 3.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 18.85	6.50	0.00	0.00
Crest El. (ft)	= 1005.00	1003.30	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	---	---
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	---	0.00	0.00	---	---	---	---	0.000
0.06	1,483	1000.06	0.01 ic	0.01 ic	0.00	---	0.00	0.00	---	---	---	---	0.013
0.12	2,965	1000.12	0.06 ic	0.06 ic	0.00	---	0.00	0.00	---	---	---	---	0.058
0.18	4,448	1000.18	0.13 ic	0.13 ic	0.00	---	0.00	0.00	---	---	---	---	0.132
0.24	5,931	1000.24	0.23 ic	0.23 ic	0.00	---	0.00	0.00	---	---	---	---	0.229
0.30	7,414	1000.30	0.37 ic	0.36 ic	0.00	---	0.00	0.00	---	---	---	---	0.360
0.36	8,896	1000.36	0.51 ic	0.51 ic	0.00	---	0.00	0.00	---	---	---	---	0.508
0.42	10,379	1000.42	0.68 ic	0.68 ic	0.00	---	0.00	0.00	---	---	---	---	0.684
0.48	11,862	1000.48	0.88 ic	0.88 ic	0.00	---	0.00	0.00	---	---	---	---	0.884
0.54	13,345	1000.54	1.13 ic	1.13 ic	0.00	---	0.00	0.00	---	---	---	---	1.128
0.60	14,827	1000.60	1.34 ic	1.34 ic	0.00	---	0.00	0.00	---	---	---	---	1.343
0.66	16,356	1000.66	1.64 ic	1.63 ic	0.00	---	0.00	0.00	---	---	---	---	1.630
0.72	17,884	1000.72	1.90 ic	1.90 ic	0.00	---	0.00	0.00	---	---	---	---	1.904
0.78	19,412	1000.78	2.19 ic	2.19 ic	0.00	---	0.00	0.00	---	---	---	---	2.190
0.84	20,941	1000.84	2.61 ic	2.51 ic	0.00	---	0.00	0.00	---	---	---	---	2.507
0.90	22,469	1000.90	2.94 ic	2.84 ic	0.00	---	0.00	0.00	---	---	---	---	2.842
0.96	23,998	1000.96	3.30 ic	3.18 ic	0.00	---	0.00	0.00	---	---	---	---	3.179
1.02	25,526	1001.02	3.68 ic	3.56 ic	0.00	---	0.00	0.00	---	---	---	---	3.560
1.08	27,054	1001.08	3.92 ic	3.92 ic	0.00	---	0.00	0.00	---	---	---	---	3.920
1.14	28,583	1001.14	4.33 ic	4.32 ic	0.00	---	0.00	0.00	---	---	---	---	4.325
1.20	30,111	1001.20	4.76 ic	4.76 ic	0.00	---	0.00	0.00	---	---	---	---	4.672
1.26	31,686	1001.26	5.05 ic	5.05 ic	0.00	---	0.00	0.00	---	---	---	---	5.047
1.32	33,260	1001.32	5.49 ic	5.44 ic	0.00	---	0.00	0.00	---	---	---	---	5.444
1.38	34,835	1001.38	5.79 ic	5.79 ic	0.00	---	0.00	0.00	---	---	---	---	5.790
1.44	36,410	1001.44	6.28 ic	6.14 ic	0.00	---	0.00	0.00	---	---	---	---	6.143
1.50	37,984	1001.50	6.55 ic	6.50 ic	0.00	---	0.00	0.00	---	---	---	---	6.499
1.56	39,559	1001.56	6.84 ic	6.76 ic	0.00	---	0.00	0.00	---	---	---	---	6.755
1.62	41,134	1001.62	7.13 ic	6.97 ic	0.00	---	0.00	0.00	---	---	---	---	6.969
1.68	42,708	1001.68	7.20 ic	7.20 ic	0.00	---	0.00	0.00	---	---	---	---	7.195
1.74	44,283	1001.74	7.45 ic	7.45 ic	0.00	---	0.00	0.00	---	---	---	---	7.454
1.80	45,858	1001.80	7.73 ic	7.68 ic	0.00	---	0.00	0.00	---	---	---	---	7.683

Continues on next page...

Pond C

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.86	47,479	1001.86	8.04 ic	7.87 ic	0.00	—	0.00	0.00	—	—	—	—	7.870
1.92	49,101	1001.92	8.09 ic	8.09 ic	0.00	—	0.00	0.00	—	—	—	—	8.094
1.98	50,723	1001.98	8.36 ic	8.33 ic	0.00	—	0.00	0.00	—	—	—	—	8.335
2.04	52,344	1002.04	8.68 ic	8.51 ic	0.00	—	0.00	0.00	—	—	—	—	8.506
2.10	53,966	1002.10	8.73 ic	8.73 ic	0.00	—	0.00	0.00	—	—	—	—	8.726
2.16	55,588	1002.16	9.01 ic	8.94 ic	0.00	—	0.00	0.00	—	—	—	—	8.937
2.22	57,209	1002.22	9.10 ic	9.10 ic	0.00	—	0.00	0.00	—	—	—	—	9.100
2.28	58,831	1002.28	9.35 ic	9.35 ic	0.00	—	0.00	0.00	—	—	—	—	9.348
2.34	60,453	1002.34	9.69 ic	9.50 ic	0.00	—	0.00	0.00	—	—	—	—	9.500
2.40	62,074	1002.40	9.72 ic	9.72 ic	0.00 ic	—	0.00	0.00	—	—	—	—	9.716
2.46	63,744	1002.46	10.04 ic	9.89 ic	0.03 ic	—	0.00	0.00	—	—	—	—	9.913
2.52	65,413	1002.52	10.13 ic	10.13 ic	0.09 ic	—	0.00	0.00	—	—	—	—	10.13
2.58	67,082	1002.58	10.43 ic	10.22 ic	0.21 ic	—	0.00	0.00	—	—	—	—	10.43
2.64	68,752	1002.64	10.76 ic	10.39 ic	0.38 ic	—	0.00	0.00	—	—	—	—	10.76
2.70	70,421	1002.70	11.12 ic	10.53 ic	0.56 ic	—	0.00	0.00	—	—	—	—	11.09
2.76	72,091	1002.76	11.49 ic	10.67 ic	0.79 ic	—	0.00	0.00	—	—	—	—	11.46
2.82	73,760	1002.82	11.87 ic	10.79 ic	1.08 ic	—	0.00	0.00	—	—	—	—	11.87
2.88	75,429	1002.88	12.30 ic	10.89 ic	1.41 ic	—	0.00	0.00	—	—	—	—	12.30
2.94	77,099	1002.94	12.72 ic	10.98 ic	1.74 ic	—	0.00	0.00	—	—	—	—	12.72
3.00	78,768	1003.00	13.41 ic	11.10 ic	2.10 ic	—	0.00	0.00	—	—	—	—	13.21
3.06	80,486	1003.06	13.81 ic	11.23 ic	2.51 ic	—	0.00	0.00	—	—	—	—	13.74
3.12	82,204	1003.12	14.27 ic	11.32 ic	2.95 ic	—	0.00	0.00	—	—	—	—	14.27
3.18	83,921	1003.18	15.03 ic	11.40 ic	3.42 ic	—	0.00	0.00	—	—	—	—	14.82
3.24	85,639	1003.24	15.45 ic	11.52 ic	3.93 ic	—	0.00	0.00	—	—	—	—	15.45
3.30	87,357	1003.30	16.29 ic	11.56 ic	4.47 ic	—	0.00	0.00	—	—	—	—	16.03
3.36	89,075	1003.36	17.14 ic	11.61 ic	5.03 ic	—	0.00	0.32	—	—	—	—	16.96
3.42	90,792	1003.42	18.10 ic	11.58 ic	5.62 ic	—	0.00	0.90	—	—	—	—	18.10
3.48	92,510	1003.48	19.42 ic	11.54 ic	6.22 ic	—	0.00	1.65	—	—	—	—	19.42
3.54	94,228	1003.54	21.06 ic	11.51 ic	6.73 ic	—	0.00	2.54	—	—	—	—	20.78
3.60	95,945	1003.60	22.39 ic	11.47 ic	7.36 ic	—	0.00	3.56	—	—	—	—	22.39
3.66	97,712	1003.66	24.13 ic	11.38 ic	8.00 ic	—	0.00	4.68	—	—	—	—	24.05
3.72	99,479	1003.72	25.86 ic	11.28 ic	8.63 ic	—	0.00	5.89	—	—	—	—	25.81
3.78	101,246	1003.78	27.62 ic	11.15 ic	9.27 ic	—	0.00	7.20	—	—	—	—	27.62
3.84	103,013	1003.84	29.61 ic	11.02 ic	10.00 ic	—	0.00	8.59	—	—	—	—	29.61
3.90	104,780	1003.90	31.54 ic	10.88 ic	10.60 ic	—	0.00	10.06	—	—	—	—	31.54
3.96	106,546	1003.96	33.61 ic	10.72 ic	11.20 ic	—	0.00	11.61	—	—	—	—	33.52
4.02	108,313	1004.02	35.59 ic	10.52 ic	11.85 ic	—	0.00	13.22	—	—	—	—	35.59
4.08	110,080	1004.08	37.67 ic	10.30 ic	12.46 ic	—	0.00	14.91	—	—	—	—	37.67
4.14	111,847	1004.14	39.78 ic	10.02 ic	13.09 ic	—	0.00	16.66	—	—	—	—	39.78
4.20	113,614	1004.20	41.75 ic	9.61 ic	13.65 ic	—	0.00	18.48	—	—	—	—	41.75
4.26	115,430	1004.26	43.76 ic	9.25 ic	14.14 ic	—	0.00	20.36	—	—	—	—	43.75
4.32	117,247	1004.32	45.77 ic	8.84 ic	14.64 ic	—	0.00	22.29 s	—	—	—	—	45.77
4.38	119,064	1004.38	47.24 ic	8.58 ic	14.74 ic	—	0.00	23.91 s	—	—	—	—	47.24
4.44	120,880	1004.44	48.38 ic	8.43 ic	14.50 ic	—	0.00	25.45 s	—	—	—	—	48.38
4.50	122,697	1004.50	49.46 ic	8.28 ic	14.25 ic	—	0.00	26.93 s	—	—	—	—	49.46
4.56	124,513	1004.56	50.51 ic	8.14 ic	14.01 ic	—	0.00	28.35 s	—	—	—	—	50.50
4.62	126,330	1004.62	51.51 ic	8.01 ic	13.77 ic	—	0.00	29.73 s	—	—	—	—	51.51
4.68	128,146	1004.68	52.48 ic	7.87 ic	13.54 ic	—	0.00	31.06 s	—	—	—	—	52.48
4.74	129,963	1004.74	53.42 ic	7.74 ic	13.32 ic	—	0.00	32.36 s	—	—	—	—	53.42
4.80	131,780	1004.80	54.34 ic	7.62 ic	13.10 ic	—	0.00	33.62 s	—	—	—	—	54.34
4.86	133,647	1004.86	55.23 ic	7.49 ic	12.89 ic	—	0.00	34.85 s	—	—	—	—	55.23
4.92	135,514	1004.92	56.10 ic	7.37 ic	12.68 ic	—	0.00	36.04 s	—	—	—	—	56.09
4.98	137,381	1004.98	56.94 ic	7.25 ic	12.48 ic	—	0.00	37.21 s	—	—	—	—	56.94
5.04	139,248	1005.04	57.87 ic	7.08 ic	12.17 ic	—	0.50	38.12 s	—	—	—	—	57.87
5.10	141,115	1005.10	58.98 ic	6.79 ic	11.68 ic	—	1.98	38.53 s	—	—	—	—	58.98
5.16	142,982	1005.16	60.14 ic	6.44 ic	11.08 ic	—	4.02	38.59 s	—	—	—	—	60.13
5.22	144,849	1005.22	61.30 ic	6.06 ic	10.43 ic	—	6.48	38.33 s	—	—	—	—	61.30
5.28	146,716	1005.28	62.44 ic	5.66 ic	9.73 ic	—	9.30	37.76 s	—	—	—	—	62.44
5.34	148,583	1005.34	63.54 ic	5.23 ic	8.99 ic	—	12.44	36.88 s	—	—	—	—	63.54
5.40	150,450	1005.40	64.52 ic	4.86 ic	8.36 ic	—	15.15 s	36.13 s	—	—	—	—	64.51
5.46	152,368	1005.46	65.38 ic	4.56 ic	7.85 ic	—	17.38 s	35.59 s	—	—	—	—	65.38
5.52	154,286	1005.52	66.17 ic	4.30 ic	7.39 ic	—	19.37 s	35.10 s	—	—	—	—	66.17
5.58	156,205	1005.58	66.92 ic	4.06 ic	6.99 ic	—	21.19 s	34.67 s	—	—	—	—	66.91
5.64	158,123	1005.64	67.62 ic	3.85 ic	6.62 ic	—	22.87 s	34.28 s	—	—	—	—	67.62
5.70	160,041	1005.70	68.29 ic	3.65 ic	6.28 ic	—	24.43 s	33.91 s	—	—	—	—	68.28
5.76	161,959	1005.76	68.94 ic	3.48 ic	5.98 ic	—	25.90 s	33.58 s	—	—	—	—	68.93
5.82	163,877	1005.82	69.56 ic	3.31 ic	5.70 ic	—	27.26 s	33.27 s	—	—	—	—	69.55
5.88	165,796	1005.88	70.16 ic	3.17 ic	5.45 ic	—	28.55 s	32.99 s	—	—	—	—	70.15
5.94	167,714	1005.94	70.74 ic	3.03 ic	5.21 ic	—	29.76 s	32.73 s	—	—	—	—	70.73
6.00	169,632	1006.00	71.31 ic	2.90 ic	4.99 ic	—	30.91 s	32.49 s	—	—	—	—	71.29

...End

# Hydrograph Report

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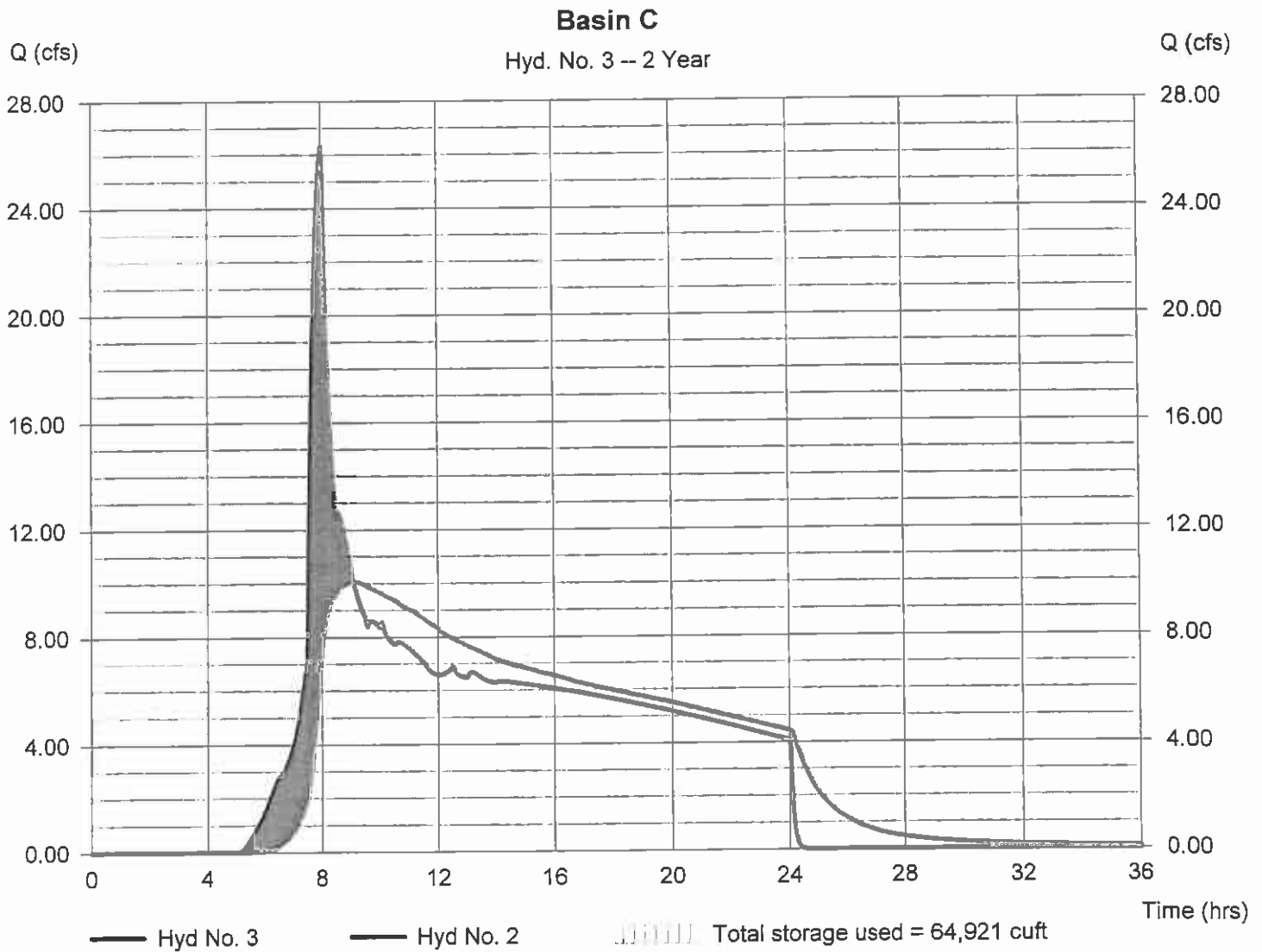
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin C

Hydrograph type	= Reservoir	Peak discharge	= 10.07 cfs
Storm frequency	= 2 yrs	Time to peak	= 9.10 hrs
Time interval	= 2 min	Hyd. volume	= 438,273 cuft
Inflow hyd. No.	= 2 - Basin C - Post	Max. Elevation	= 1002.50 ft
Reservoir name	= Pond C	Max. Storage	= 64,921 cuft

Storage Indication method used.



# Hydrograph Report

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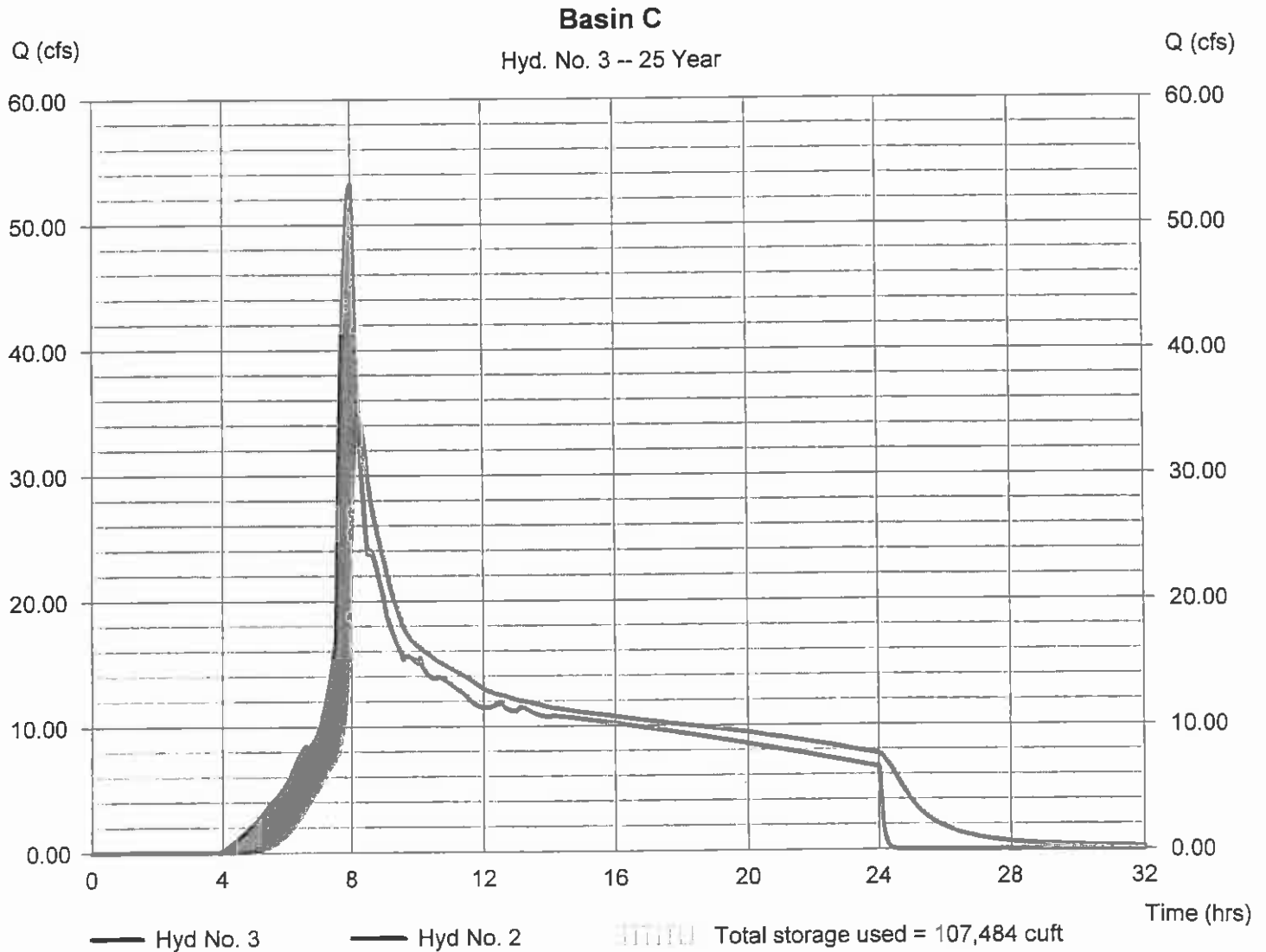
Tuesday, Dec 8, 2009

## Hyd. No. 3

### Basin C

Hydrograph type	= Reservoir	Peak discharge	= 34.62 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.23 hrs
Time interval	= 2 min	Hyd. volume	= 809,670 cuft
Inflow hyd. No.	= 2 - Basin C - Post	Max. Elevation	= 1003.99 ft
Reservoir name	= Pond C	Max. Storage	= 107,484 cuft

Storage Indication method used.



# Hydrograph Report

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Tuesday, Dec 8, 2009

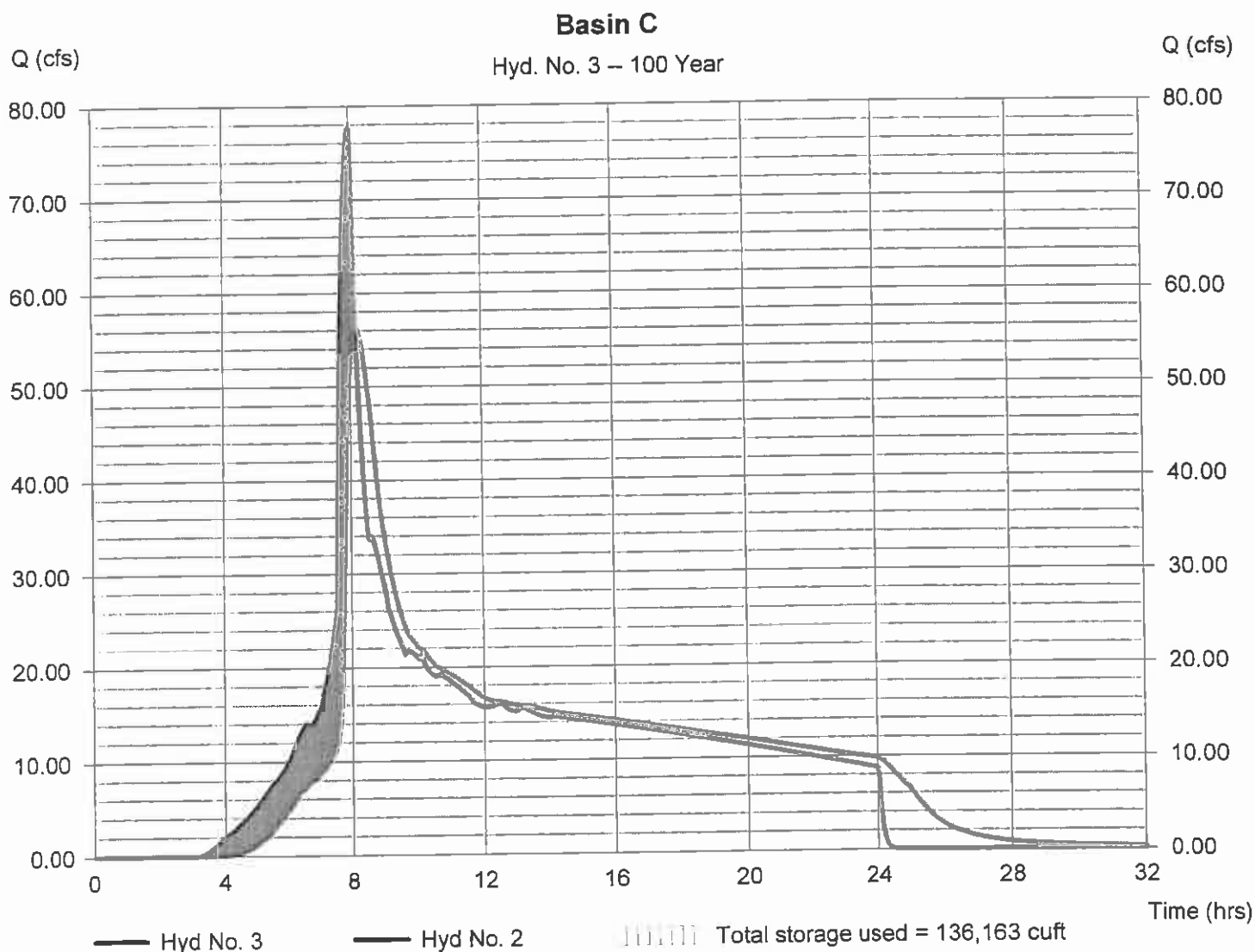
## Hyd. No. 3

Basin C

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin C - Post  
Reservoir name = Pond C

Peak discharge = 56.39 cfs  
Time to peak = 8.17 hrs  
Hyd. volume = 1,142,768 cuft  
Max. Elevation = 1004.94 ft  
Max. Storage = 136,163 cuft

Storage Indication method used.



# Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

## Pond No. 1 - Pond D

### Pond Data

Trapezoid - Bottom L x W = 200.0 x 200.0 ft, Side slope = 3.00:1, Bottom elev. = 1000.00 ft, Depth = 7.00 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	40,000	0	0
0.70	1000.70	41,698	28,592	28,592
1.40	1001.40	43,431	29,793	58,385
2.10	1002.10	45,199	31,018	89,403
2.80	1002.80	47,002	32,268	121,671
3.50	1003.50	48,841	33,543	155,215
4.20	1004.20	50,715	34,843	190,057
4.90	1004.90	52,624	36,167	226,224
5.60	1005.60	54,569	37,516	263,739
6.30	1006.30	56,549	38,889	302,629
7.00	1007.00	58,564	40,287	342,916

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	19.45	36.00	0.00
Span (in)	= 36.00	19.45	36.00	0.00
No. Barrels	= 3	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1002.80	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 0.50	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 37.70	16.00	0.00	0.00
Crest El. (ft)	= 1006.00	1004.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir users checked for orifice conditions (ic) and submergence (s).

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	—	0.00	0.00	—	—	—	—	0.000
0.07	2,859	1000.07	0.02 ic	0.02 ic	0.00	—	0.00	0.00	—	—	—	—	0.021
0.14	5,718	1000.14	0.10 ic	0.10 ic	0.00	—	0.00	0.00	—	—	—	—	0.099
0.21	8,578	1000.21	0.25 ic	0.23 ic	0.00	—	0.00	0.00	—	—	—	—	0.227
0.28	11,437	1000.28	0.41 ic	0.41 ic	0.00	—	0.00	0.00	—	—	—	—	0.409
0.35	14,296	1000.35	0.68 ic	0.64 ic	0.00	—	0.00	0.00	—	—	—	—	0.636
0.42	17,155	1000.42	0.98 ic	0.92 ic	0.00	—	0.00	0.00	—	—	—	—	0.925
0.49	20,014	1000.49	1.24 ic	1.24 ic	0.00	—	0.00	0.00	—	—	—	—	1.236
0.56	22,874	1000.56	1.66 ic	1.60 ic	0.00	—	0.00	0.00	—	—	—	—	1.597
0.63	25,733	1000.63	2.02 ic	1.95 ic	0.00	—	0.00	0.00	—	—	—	—	1.951
0.70	28,592	1000.70	2.42 ic	2.40 ic	0.00	—	0.00	0.00	—	—	—	—	2.396
0.77	31,571	1000.77	2.88 ic	2.88 ic	0.00	—	0.00	0.00	—	—	—	—	2.879
0.84	34,551	1000.84	3.38 ic	3.33 ic	0.00	—	0.00	0.00	—	—	—	—	3.328
0.91	37,530	1000.91	3.96 ic	3.86 ic	0.00	—	0.00	0.00	—	—	—	—	3.863
0.98	40,509	1000.98	4.35 ic	4.35 ic	0.00	—	0.00	0.00	—	—	—	—	4.347
1.05	43,489	1001.05	4.93 ic	4.90 ic	0.00	—	0.00	0.00	—	—	—	—	4.904
1.12	46,468	1001.12	5.67 ic	5.46 ic	0.00	—	0.00	0.00	—	—	—	—	5.459
1.19	49,447	1001.19	6.06 ic	6.00 ic	0.00	—	0.00	0.00	—	—	—	—	6.003
1.26	52,426	1001.26	6.53 ic	6.53 ic	0.00	—	0.00	0.00	—	—	—	—	6.527
1.33	55,406	1001.33	7.35 ic	7.07 ic	0.00	—	0.00	0.00	—	—	—	—	7.073
1.40	58,385	1001.40	7.82 ic	7.57 ic	0.00	—	0.00	0.00	—	—	—	—	7.571
1.47	61,487	1001.47	8.31 ic	8.08 ic	0.00	—	0.00	0.00	—	—	—	—	8.076
1.54	64,589	1001.54	8.81 ic	8.50 ic	0.00	—	0.00	0.00	—	—	—	—	8.505
1.61	67,690	1001.61	8.87 ic	8.87 ic	0.00	—	0.00	0.00	—	—	—	—	8.866
1.68	70,792	1001.68	9.34 ic	9.21 ic	0.00	—	0.00	0.00	—	—	—	—	9.210
1.75	73,894	1001.75	9.89 ic	9.58 ic	0.00	—	0.00	0.00	—	—	—	—	9.578
1.82	76,996	1001.82	9.93 ic	9.93 ic	0.00	—	0.00	0.00	—	—	—	—	9.932
1.89	80,098	1001.89	10.45 ic	10.27 ic	0.00	—	0.00	0.00	—	—	—	—	10.27
1.96	83,199	1001.96	11.04 ic	10.60 ic	0.00	—	0.00	0.00	—	—	—	—	10.60
2.03	86,301	1002.03	11.04 ic	10.93 ic	0.00	—	0.00	0.00	—	—	—	—	10.93
2.10	89,403	1002.10	11.64 ic	11.24 ic	0.00	—	0.00	0.00	—	—	—	—	11.24

Continues on next page...

Pond D

**Stage / Storage / Discharge Table**

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.17	92,630	1002.17	11.64 ic	11.54 ic	0.00	—	0.00	0.00	—	—	—	—	11.54
2.24	95,857	1002.24	12.27 ic	11.84 ic	0.00	—	0.00	0.00	—	—	—	—	11.84
2.31	99,084	1002.31	12.27 ic	12.12 ic	0.00	—	0.00	0.00	—	—	—	—	12.12
2.38	102,310	1002.38	12.41 ic	12.41 ic	0.00	—	0.00	0.00	—	—	—	—	12.41
2.45	105,537	1002.45	12.92 ic	12.68 ic	0.00	—	0.00	0.00	—	—	—	—	12.68
2.52	108,764	1002.52	12.95 ic	12.95 ic	0.00	—	0.00	0.00	—	—	—	—	12.95
2.59	111,991	1002.59	13.58 ic	13.21 ic	0.00	—	0.00	0.00	—	—	—	—	13.21
2.66	115,218	1002.66	13.58 ic	13.47 ic	0.00	—	0.00	0.00	—	—	—	—	13.47
2.73	118,445	1002.73	13.73 ic	13.73 ic	0.00	—	0.00	0.00	—	—	—	—	13.73
2.80	121,671	1002.80	14.27 ic	13.98 ic	0.00	—	0.00	0.00	—	—	—	—	13.98
2.87	125,026	1002.87	14.27 ic	14.22 ic	0.04 ic	—	0.00	0.00	—	—	—	—	14.26
2.94	128,380	1002.94	14.98 ic	14.98 ic	0.16 ic	—	0.00	0.00	—	—	—	—	14.62
3.01	131,734	1003.01	15.05 ic	14.68 ic	0.37 ic	—	0.00	0.00	—	—	—	—	15.05
3.08	135,089	1003.08	15.71 ic	14.87 ic	0.62 ic	—	0.00	0.00	—	—	—	—	15.49
3.15	138,443	1003.15	16.46 ic	15.03 ic	0.97 ic	—	0.00	0.00	—	—	—	—	15.99
3.22	141,797	1003.22	16.56 ic	15.22 ic	1.34 ic	—	0.00	0.00	—	—	—	—	16.56
3.29	145,152	1003.29	17.23 ic	15.41 ic	1.80 ic	—	0.00	0.00	—	—	—	—	17.21
3.36	148,506	1003.36	18.02 ic	15.57 ic	2.34 ic	—	0.00	0.00	—	—	—	—	17.90
3.43	151,860	1003.43	18.83 ic	15.72 ic	2.97 ic	—	0.00	0.00	—	—	—	—	18.68
3.50	155,215	1003.50	19.66 ic	15.87 ic	3.69 ic	—	0.00	0.00	—	—	—	—	19.56
3.57	158,699	1003.57	20.52 ic	16.02 ic	4.34 ic	—	0.00	0.00	—	—	—	—	20.36
3.64	162,183	1003.64	21.39 ic	16.16 ic	5.06 ic	—	0.00	0.00	—	—	—	—	21.22
3.71	165,667	1003.71	22.32 ic	16.30 ic	6.03 ic	—	0.00	0.00	—	—	—	—	22.32
3.78	169,152	1003.78	23.30 ic	16.42 ic	6.87 ic	—	0.00	0.00	—	—	—	—	23.30
3.85	172,636	1003.85	24.33 ic	16.54 ic	7.78 ic	—	0.00	0.00	—	—	—	—	24.32
3.92	176,120	1003.92	26.05 ic	16.67 ic	8.74 ic	—	0.00	0.00	—	—	—	—	25.41
3.99	179,604	1003.99	27.04 ic	16.81 ic	9.76 ic	—	0.00	0.00	—	—	—	—	26.57
4.06	183,089	1004.06	28.97 oc	16.88 ic	10.83 ic	—	0.00	0.78	—	—	—	—	28.49
4.13	186,573	1004.13	31.54 oc	16.88 ic	11.94 ic	—	0.00	2.50	—	—	—	—	31.32
4.20	190,057	1004.20	35.05 oc	16.81 ic	13.10 ic	—	0.00	4.77	—	—	—	—	34.68
4.27	193,674	1004.27	38.61 oc	16.74 ic	14.30 ic	—	0.00	7.48	—	—	—	—	38.52
4.34	197,290	1004.34	43.08 oc	16.60 ic	15.53 ic	—	0.00	10.56	—	—	—	—	42.70
4.41	200,907	1004.41	47.52 oc	16.46 ic	16.79 ic	—	0.00	13.99	—	—	—	—	47.24
4.48	204,524	1004.48	52.72 oc	16.25 ic	18.08 ic	—	0.00	17.72	—	—	—	—	52.05
4.55	208,140	1004.55	57.69 oc	16.05 ic	19.39 ic	—	0.00	21.74	—	—	—	—	57.17
4.62	211,757	1004.62	63.07 oc	15.78 ic	20.71 ic	—	0.00	26.01	—	—	—	—	62.50
4.69	215,374	1004.69	68.52 oc	15.47 ic	22.04 ic	—	0.00	30.54	—	—	—	—	68.05
4.76	218,990	1004.76	74.08 oc	15.08 ic	23.37 ic	—	0.00	35.31	—	—	—	—	73.75
4.83	222,607	1004.83	79.56 oc	14.50 ic	24.70 ic	—	0.00	40.29	—	—	—	—	79.49
4.90	226,224	1004.90	85.29 oc	13.48 ic	26.31 ic	—	0.00	45.49	—	—	—	—	85.29
4.97	229,975	1004.97	91.93 oc	13.41 ic	27.61 ic	—	0.00	50.90	—	—	—	—	91.92
5.04	233,727	1005.04	98.70 oc	13.30 ic	28.89 ic	—	0.00	56.51	—	—	—	—	98.70
5.11	237,478	1005.11	105.86 oc	13.15 ic	30.40 ic	—	0.00	62.31	—	—	—	—	105.86
5.18	241,230	1005.18	112.88 oc	12.97 ic	31.61 ic	—	0.00	68.30	—	—	—	—	112.88
5.25	244,982	1005.25	120.21 oc	12.73 ic	33.01 ic	—	0.00	74.47	—	—	—	—	120.21
5.32	248,733	1005.32	127.61 oc	12.46 ic	34.34 ic	—	0.00	80.81	—	—	—	—	127.60
5.39	252,485	1005.39	135.05 oc	12.14 ic	35.59 ic	—	0.00	87.32	—	—	—	—	135.05
5.46	256,236	1005.46	142.43 oc	11.78 ic	36.91 ic	—	0.00	93.74 s	—	—	—	—	142.43
5.53	259,988	1005.53	148.42 oc	11.51 ic	37.77 ic	—	0.00	99.14 s	—	—	—	—	148.42
5.60	263,739	1005.60	153.35 oc	11.32 ic	37.69 ic	—	0.00	104.33 s	—	—	—	—	153.34
5.67	267,628	1005.67	158.04 oc	11.13 ic	37.61 ic	—	0.00	109.30 s	—	—	—	—	158.04
5.74	271,517	1005.74	162.46 oc	10.96 ic	37.38 ic	—	0.00	114.11 s	—	—	—	—	162.45
5.81	275,406	1005.81	166.63 oc	10.80 ic	37.00 ic	—	0.00	118.82 s	—	—	—	—	166.63
5.88	279,295	1005.88	170.59 oc	10.65 ic	36.49 ic	—	0.00	123.44 s	—	—	—	—	170.59
5.95	283,184	1005.95	174.44 oc	10.50 ic	35.99 ic	—	0.00	127.94 s	—	—	—	—	174.44
6.02	287,073	1006.02	178.31 oc	10.34 ic	35.42 ic	—	0.36	132.18 s	—	—	—	—	178.31
6.09	290,962	1006.09	183.03 oc	10.05 ic	34.42 ic	—	3.39	135.17 s	—	—	—	—	183.03
6.16	294,851	1006.16	188.07 oc	9.68 ic	33.16 ic	—	8.04	137.18 s	—	—	—	—	188.06
6.23	298,740	1006.23	193.19 oc	9.27 ic	31.74 ic	—	13.85	138.33 s	—	—	—	—	193.19
6.30	302,629	1006.30	198.26 oc	8.82 ic	30.20 ic	—	20.63	138.61 s	—	—	—	—	198.26
6.37	306,657	1006.37	203.23 oc	8.34 ic	28.57 ic	—	28.25	138.06 s	—	—	—	—	203.22
6.44	310,686	1006.44	208.04 oc	7.84 ic	26.87 ic	—	36.64	136.68 s	—	—	—	—	208.03
6.51	314,715	1006.51	212.66 oc	7.33 ic	25.11 ic	—	45.72	134.48 s	—	—	—	—	212.65
6.58	318,744	1006.58	216.77 oc	6.88 ic	23.56 ic	—	53.87 s	132.45 s	—	—	—	—	216.75
6.65	322,772	1006.65	220.36 oc	6.51 ic	22.29 ic	—	60.43 s	131.12 s	—	—	—	—	220.35
6.72	326,801	1006.72	223.65 oc	6.18 ic	21.17 ic	—	66.31 s	129.99 s	—	—	—	—	223.65
6.79	330,830	1006.79	226.73 oc	5.88 ic	20.15 ic	—	71.72 s	128.98 s	—	—	—	—	226.73
6.86	334,859	1006.86	229.25 ic	5.60 ic	19.18 ic	—	76.63 s	127.84 s	—	—	—	—	229.24
6.93	338,887	1006.93	231.50 ic	5.34 ic	18.28 ic	—	81.15 s	126.71 s	—	—	—	—	231.47
7.00	342,916	1007.00	233.63 ic	5.10 ic	17.45 ic	—	85.38 s	125.70 s	—	—	—	—	233.63

...End



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

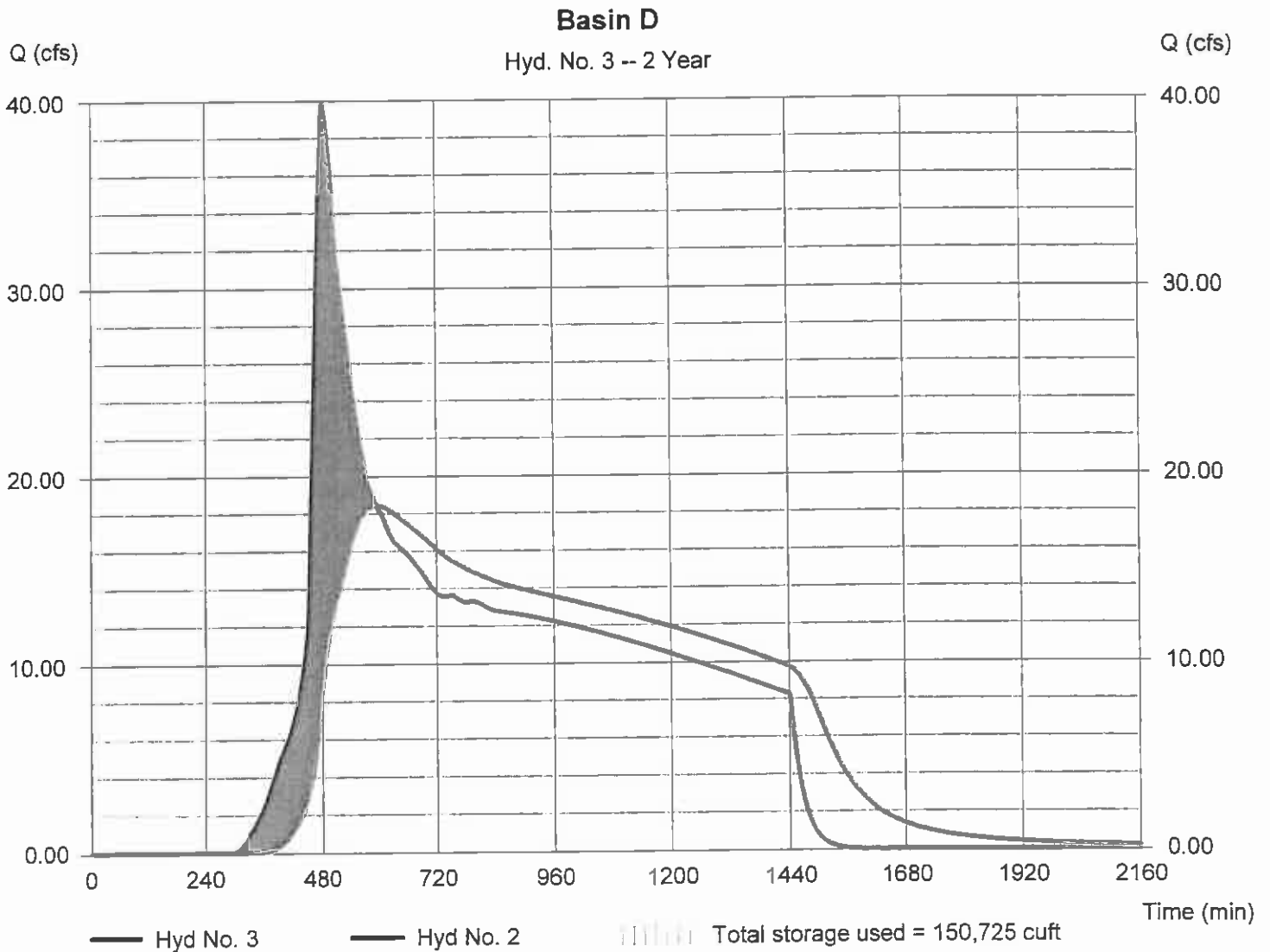
## Hyd. No. 3

Basin D

Hydrograph type = Reservoir  
Storm frequency = 2 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin D - Post  
Reservoir name = Pond D

Peak discharge = 18.42 cfs  
Time to peak = 594 min  
Hyd. volume = 887,982 cuft  
Max. Elevation = 1003.41 ft  
Max. Storage = 150,725 cuft

Storage Indication method used.



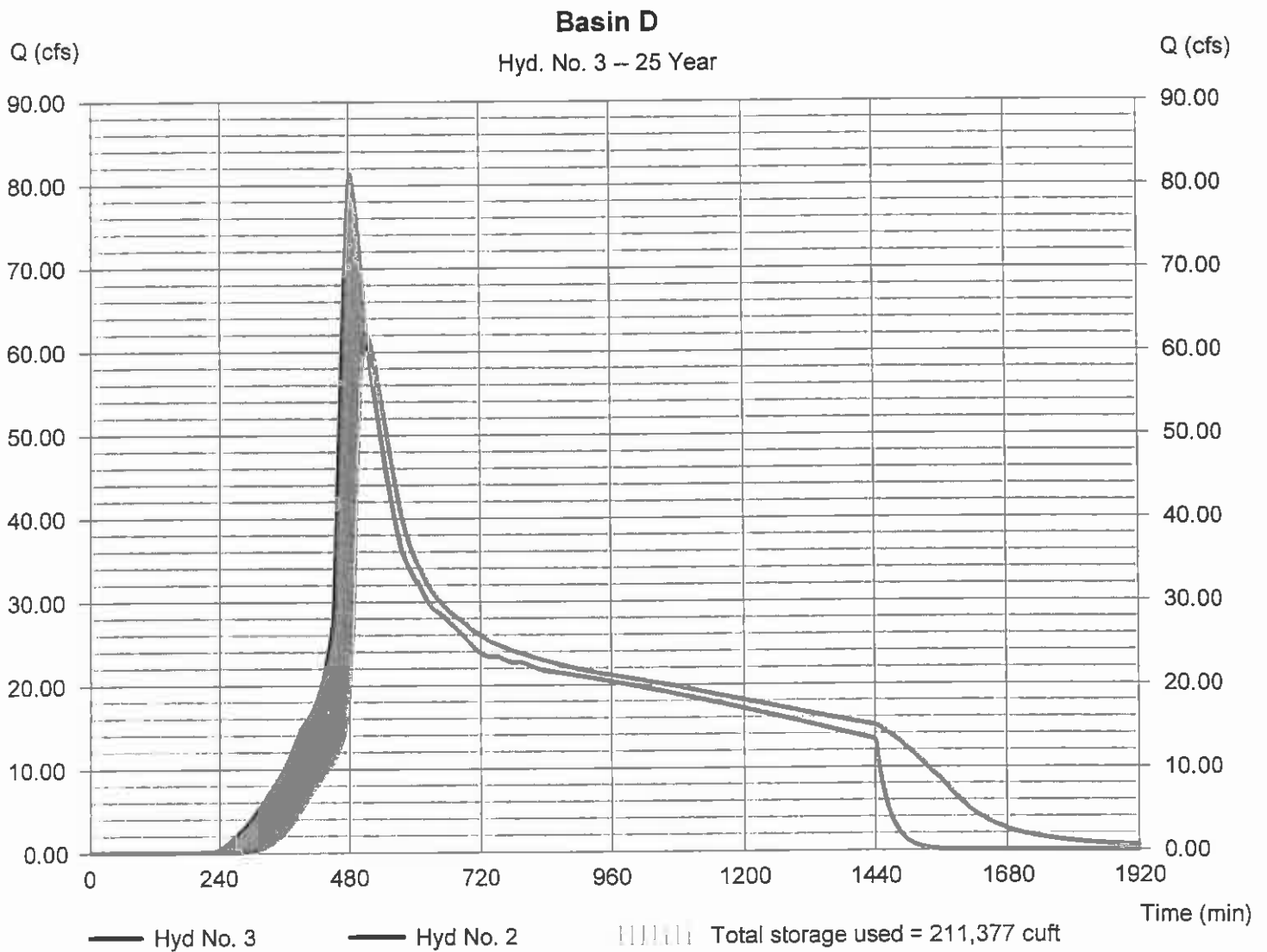
# Hydrograph Report

## Hyd. No. 3

Basin D

Hydrograph type	= Reservoir	Peak discharge	= 61.94 cfs
Storm frequency	= 25 yrs	Time to peak	= 510 min
Time interval	= 2 min	Hyd. volume	= 1,619,687 cuft
Inflow hyd. No.	= 2 - Basin D - Post	Max. Elevation	= 1004.61 ft
Reservoir name	= Pond D	Max. Storage	= 211,377 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

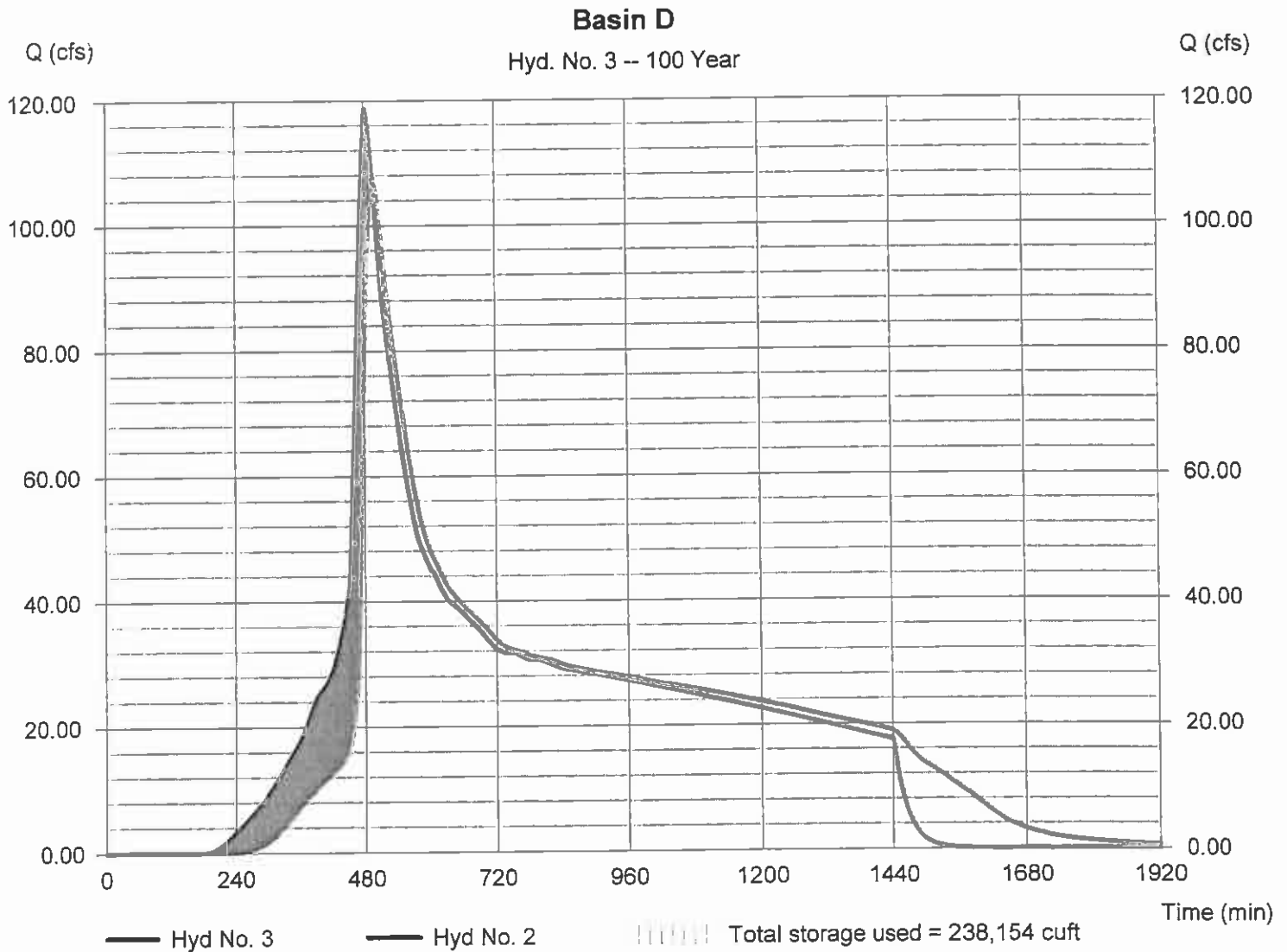
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin D

Hydrograph type	= Reservoir	Peak discharge	= 107.12 cfs
Storm frequency	= 100 yrs	Time to peak	= 496 min
Time interval	= 2 min	Hyd. volume	= 2,272,256 cuft
Inflow hyd. No.	= 2 - Basin D - Post	Max. Elevation	= 1005.12 ft
Reservoir name	= Pond D	Max. Storage	= 238,154 cuft

Storage Indication method used.



# Pond Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

## Pond No. 1 - Pond E

### Pond Data

Trapezoid - Bottom L x W = 145.0 x 145.0 ft, Side slope = 2.00:1, Bottom elev. = 1000.00 ft, Depth = 8.50 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	21,025	0	0
0.85	1000.85	22,023	18,294	18,294
1.70	1001.70	23,043	19,151	37,445
2.55	1002.55	24,087	20,029	57,474
3.40	1003.40	25,154	20,926	78,399
4.25	1004.25	26,244	21,842	100,242
5.10	1005.10	27,357	22,779	123,021
5.95	1005.95	28,493	23,735	146,756
6.80	1006.80	29,653	24,711	171,466
7.65	1007.65	30,835	25,706	197,172
8.50	1008.50	32,041	26,721	223,893

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	15.50	36.00	0.00
Span (in)	= 36.00	15.50	36.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1003.93	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 3.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 31.42	10.00	0.00	0.00
Crest El. (ft)	= 1007.00	1005.80	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir users checked for orifice conditions (ic) and submergence (s).

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	—	0.00	0.00	—	—	—	—	0.000
0.09	1,829	1000.09	0.03 ic	0.03 ic	0.00	—	0.00	0.00	—	—	—	—	0.026
0.17	3,659	1000.17	0.11 ic	0.11 ic	0.00	—	0.00	0.00	—	—	—	—	0.107
0.26	5,488	1000.26	0.26 ic	0.24 ic	0.00	—	0.00	0.00	—	—	—	—	0.243
0.34	7,317	1000.34	0.45 ic	0.42 ic	0.00	—	0.00	0.00	—	—	—	—	0.424
0.43	9,147	1000.43	0.67 ic	0.66 ic	0.00	—	0.00	0.00	—	—	—	—	0.657
0.51	10,976	1000.51	0.96 ic	0.93 ic	0.00	—	0.00	0.00	—	—	—	—	0.931
0.60	12,806	1000.60	1.24 ic	1.24 ic	0.00	—	0.00	0.00	—	—	—	—	1.241
0.68	14,635	1000.68	1.64 ic	1.58 ic	0.00	—	0.00	0.00	—	—	—	—	1.583
0.76	16,464	1000.77	2.02 ic	1.95 ic	0.00	—	0.00	0.00	—	—	—	—	1.948
0.85	18,294	1000.85	2.45 ic	2.35 ic	0.00	—	0.00	0.00	—	—	—	—	2.347
0.94	20,209	1000.94	2.79 ic	2.79 ic	0.00	—	0.00	0.00	—	—	—	—	2.786
1.02	22,124	1001.02	3.30 ic	3.21 ic	0.00	—	0.00	0.00	—	—	—	—	3.212
1.11	24,039	1001.11	3.68 ic	3.65 ic	0.00	—	0.00	0.00	—	—	—	—	3.647
1.19	25,954	1001.19	4.09 ic	4.08 ic	0.00	—	0.00	0.00	—	—	—	—	4.084
1.28	27,869	1001.28	4.53 ic	4.43 ic	0.00	—	0.00	0.00	—	—	—	—	4.430
1.36	29,784	1001.36	4.76 ic	4.73 ic	0.00	—	0.00	0.00	—	—	—	—	4.729
1.45	31,700	1001.45	4.99 ic	4.99 ic	0.00	—	0.00	0.00	—	—	—	—	4.992
1.53	33,615	1001.53	5.24 ic	5.24 ic	0.00	—	0.00	0.00	—	—	—	—	5.238
1.62	35,530	1001.62	5.49 ic	5.48 ic	0.00	—	0.00	0.00	—	—	—	—	5.477
1.70	37,445	1001.70	5.74 ic	5.70 ic	0.00	—	0.00	0.00	—	—	—	—	5.703
1.79	39,448	1001.79	6.01 ic	5.92 ic	0.00	—	0.00	0.00	—	—	—	—	5.920
1.87	41,451	1001.87	6.28 ic	6.13 ic	0.00	—	0.00	0.00	—	—	—	—	6.129
1.96	43,454	1001.96	6.34 ic	6.34 ic	0.00	—	0.00	0.00	—	—	—	—	6.341
2.04	45,456	1002.04	6.58 ic	6.58 ic	0.00	—	0.00	0.00	—	—	—	—	6.575
2.13	47,459	1002.13	6.84 ic	6.78 ic	0.00	—	0.00	0.00	—	—	—	—	6.781
2.21	49,462	1002.21	7.13 ic	6.96 ic	0.00	—	0.00	0.00	—	—	—	—	6.963
2.30	51,465	1002.30	7.17 ic	7.17 ic	0.00	—	0.00	0.00	—	—	—	—	7.170
2.38	53,468	1002.38	7.43 ic	7.37 ic	0.00	—	0.00	0.00	—	—	—	—	7.373
2.47	55,471	1002.47	7.73 ic	7.54 ic	0.00	—	0.00	0.00	—	—	—	—	7.540
2.55	57,474	1002.55	7.75 ic	7.75 ic	0.00	—	0.00	0.00	—	—	—	—	7.749

Continues on next page...

Pond E

**Stage / Storage / Discharge Table**

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.64	59,566	1002.64	8.04 ic	7.92 ic	0.00	—	0.00	0.00	—	—	—	—	7.920
2.72	61,659	1002.72	8.10 ic	8.10 ic	0.00	—	0.00	0.00	—	—	—	—	8.096
2.81	63,751	1002.81	8.36 ic	8.28 ic	0.00	—	0.00	0.00	—	—	—	—	8.282
2.89	65,844	1002.89	8.44 ic	8.44 ic	0.00	—	0.00	0.00	—	—	—	—	8.436
2.98	67,937	1002.98	8.68 ic	8.63 ic	0.00	—	0.00	0.00	—	—	—	—	8.629
3.06	70,029	1003.06	9.01 ic	8.77 ic	0.00	—	0.00	0.00	—	—	—	—	8.771
3.15	72,122	1003.15	9.01 ic	8.96 ic	0.00	—	0.00	0.00	—	—	—	—	8.962
3.23	74,214	1003.23	9.10 ic	9.10 ic	0.00	—	0.00	0.00	—	—	—	—	9.100
3.32	76,307	1003.32	9.35 ic	9.28 ic	0.00	—	0.00	0.00	—	—	—	—	9.283
3.40	78,399	1003.40	9.42 ic	9.42 ic	0.00	—	0.00	0.00	—	—	—	—	9.424
3.49	80,584	1003.49	9.69 ic	9.59 ic	0.00	—	0.00	0.00	—	—	—	—	9.593
3.57	82,768	1003.57	9.74 ic	9.74 ic	0.00	—	0.00	0.00	—	—	—	—	9.742
3.66	84,952	1003.66	10.04 ic	9.89 ic	0.00	—	0.00	0.00	—	—	—	—	9.893
3.74	87,136	1003.74	10.05 ic	10.05 ic	0.00	—	0.00	0.00	—	—	—	—	10.05
3.83	89,321	1003.83	10.39 ic	10.18 ic	0.00	—	0.00	0.00	—	—	—	—	10.18
3.91	91,505	1003.91	10.39 ic	10.39 ic	0.00	—	0.00	0.00	—	—	—	—	10.35
4.00	93,689	1004.00	10.75 ic	10.47 ic	0.03 ic	—	0.00	0.00	—	—	—	—	10.50
4.08	95,873	1004.08	10.79 ic	10.61 ic	0.18 ic	—	0.00	0.00	—	—	—	—	10.79
4.17	98,058	1004.17	11.17 ic	10.72 ic	0.45 ic	—	0.00	0.00	—	—	—	—	11.17
4.25	100,242	1004.25	11.86 ic	10.81 ic	0.81 ic	—	0.00	0.00	—	—	—	—	11.63
4.34	102,520	1004.34	12.24 ic	10.93 ic	1.24 ic	—	0.00	0.00	—	—	—	—	12.17
4.42	104,798	1004.42	13.02 ic	11.00 ic	1.80 ic	—	0.00	0.00	—	—	—	—	12.79
4.51	107,076	1004.51	13.81 ic	11.06 ic	2.48 ic	—	0.00	0.00	—	—	—	—	13.54
4.59	109,353	1004.59	14.62 ic	11.13 ic	3.30 ic	—	0.00	0.00	—	—	—	—	14.43
4.68	111,631	1004.68	15.45 ic	11.20 ic	4.11 ic	—	0.00	0.00	—	—	—	—	15.31
4.76	113,909	1004.76	16.29 ic	11.26 ic	5.03 ic	—	0.00	0.00	—	—	—	—	16.29
4.85	116,187	1004.85	17.57 ic	11.29 ic	6.04 ic	—	0.00	0.00	—	—	—	—	17.33
4.93	118,465	1004.93	18.50 ic	11.34 ic	7.16 ic	—	0.00	0.00	—	—	—	—	18.50
5.02	120,743	1005.02	19.75 ic	11.38 ic	8.37 ic	—	0.00	0.00	—	—	—	—	19.75
5.10	123,021	1005.10	21.06 ic	11.41 ic	9.43 ic	—	0.00	0.00	—	—	—	—	20.84
5.19	125,394	1005.19	22.38 ic	11.44 ic	10.81 ic	—	0.00	0.00	—	—	—	—	22.25
5.27	127,768	1005.27	23.73 ic	11.46 ic	12.26 ic	—	0.00	0.00	—	—	—	—	23.72
5.36	130,141	1005.36	25.00 ic	11.50 ic	13.50 ic	—	0.00	0.00	—	—	—	—	25.00
5.44	132,515	1005.44	26.71 ic	11.50 ic	15.08 ic	—	0.00	0.00	—	—	—	—	26.58
5.53	134,888	1005.53	28.37 ic	11.50 ic	16.71 ic	—	0.00	0.00	—	—	—	—	28.21
5.61	137,262	1005.61	29.61 ic	11.53 ic	18.08 ic	—	0.00	0.00	—	—	—	—	29.61
5.70	139,635	1005.70	31.49 ic	11.52 ic	19.78 ic	—	0.00	0.00	—	—	—	—	31.30
5.78	142,009	1005.78	32.93 ic	11.53 ic	21.19 ic	—	0.00	0.00	—	—	—	—	32.72
5.87	144,382	1005.87	34.95 ic	11.48 ic	22.91 ic	—	0.00	0.55	—	—	—	—	34.95
5.95	146,756	1005.95	37.91 ic	11.34 ic	24.64 ic	—	0.00	1.94	—	—	—	—	37.91
6.04	149,227	1006.04	41.21 ic	11.08 ic	26.34 ic	—	0.00	3.79	—	—	—	—	41.21
6.12	151,698	1006.12	44.77 ic	10.72 ic	28.02 ic	—	0.00	6.03	—	—	—	—	44.77
6.21	154,169	1006.21	48.55 ic	10.31 ic	29.65 ic	—	0.00	8.59	—	—	—	—	48.54
6.29	156,640	1006.29	52.46 ic	9.80 ic	31.23 ic	—	0.00	11.43	—	—	—	—	52.46
6.38	159,111	1006.38	56.65 ic	9.15 ic	32.98 ic	—	0.00	14.52	—	—	—	—	56.65
6.46	161,582	1006.46	60.85 ic	8.38 ic	34.61 ic	—	0.00	17.86	—	—	—	—	60.85
6.55	164,053	1006.55	64.99 ic	7.46 ic	36.11 ic	—	0.00	21.42	—	—	—	—	64.99
6.63	166,524	1006.63	67.50 ic	6.90 ic	35.41 ic	—	0.00	25.19	—	—	—	—	67.50
6.72	168,995	1006.72	69.45 ic	6.47 ic	33.82 ic	—	0.00	29.16	—	—	—	—	69.45
6.80	171,466	1006.80	71.23 ic	6.05 ic	32.17 ic	—	0.00	33.00 s	—	—	—	—	71.23
6.89	174,037	1006.89	72.62 ic	5.75 ic	30.94 ic	—	0.00	35.93 s	—	—	—	—	72.62
6.97	176,607	1006.97	73.83 ic	5.51 ic	29.73 ic	—	0.00	38.58 s	—	—	—	—	73.83
7.06	179,178	1007.06	75.15 ic	5.20 ic	28.04 ic	—	1.35	40.56 s	—	—	—	—	75.15
7.14	181,748	1007.14	76.73 ic	4.71 ic	25.40 ic	—	5.49	41.13 s	—	—	—	—	76.72
7.23	184,319	1007.23	78.28 ic	4.15 ic	22.41 ic	—	11.17	40.55 s	—	—	—	—	78.28
7.31	186,890	1007.31	79.74 ic	3.57 ic	19.23 ic	—	18.07	38.87 s	—	—	—	—	79.73
7.40	189,460	1007.40	80.90 ic	3.12 ic	16.83 ic	—	23.44 s	37.51 s	—	—	—	—	80.89
7.48	192,031	1007.48	81.85 ic	2.78 ic	15.02 ic	—	27.49 s	36.56 s	—	—	—	—	81.85
7.57	194,601	1007.57	82.71 ic	2.51 ic	13.54 ic	—	30.91 s	35.75 s	—	—	—	—	82.70
7.65	197,172	1007.65	83.49 ic	2.28 ic	12.30 ic	—	33.85 s	35.05 s	—	—	—	—	83.48
7.74	199,844	1007.74	84.23 ic	2.08 ic	11.24 ic	—	36.44 s	34.45 s	—	—	—	—	84.21
7.82	202,516	1007.82	84.93 ic	1.92 ic	10.34 ic	—	38.73 s	33.91 s	—	—	—	—	84.90
7.91	205,188	1007.91	85.59 ic	1.77 ic	9.55 ic	—	40.79 s	33.44 s	—	—	—	—	85.56
7.99	207,860	1007.99	86.24 ic	1.64 ic	8.87 ic	—	42.66 s	33.03 s	—	—	—	—	86.20
8.08	210,532	1008.08	86.87 ic	1.53 ic	8.27 ic	—	44.38 s	32.68 s	—	—	—	—	86.86
8.16	213,204	1008.16	87.48 ic	1.43 ic	7.74 ic	—	45.93 s	32.34 s	—	—	—	—	87.43
8.25	215,877	1008.25	88.08 ic	1.35 ic	7.27 ic	—	47.39 s	32.07 s	—	—	—	—	88.07
8.33	218,549	1008.33	88.68 ic	1.27 ic	6.84 ic	—	48.72 s	31.80 s	—	—	—	—	88.63
8.42	221,221	1008.42	89.26 ic	1.20 ic	6.45 ic	—	49.96 s	31.57 s	—	—	—	—	89.17
8.50	223,893	1008.50	89.83 ic	1.13 ic	6.11 ic	—	51.12 s	31.36 s	—	—	—	—	89.73

...End

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

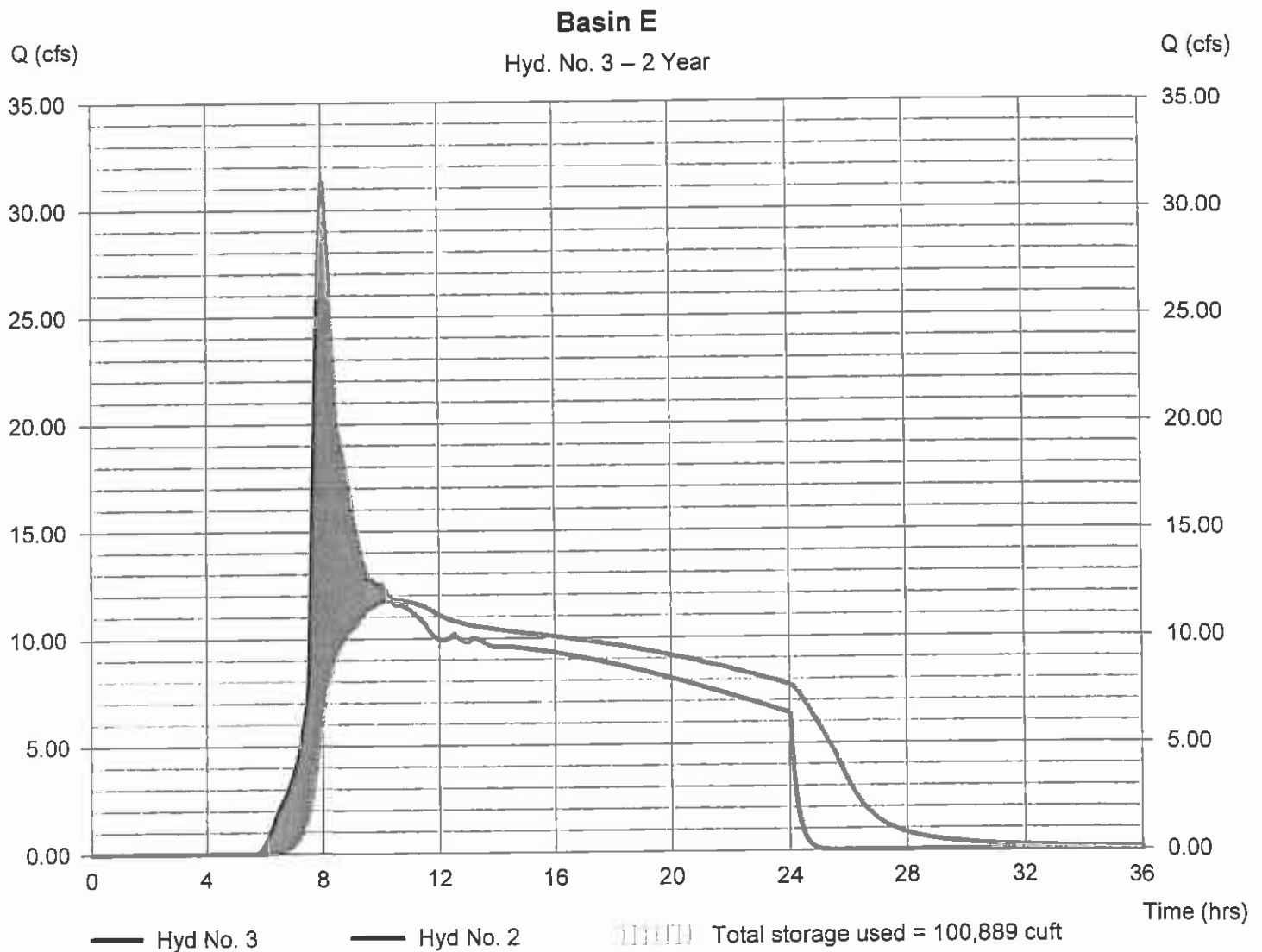
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin E

Hydrograph type	= Reservoir	Peak discharge	= 11.78 cfs
Storm frequency	= 2 yrs	Time to peak	= 10.37 hrs
Time interval	= 2 min	Hyd. volume	= 638,086 cuft
Inflow hyd. No.	= 2 - Basin E - Post	Max. Elevation	= 1004.27 ft
Reservoir name	= Pond E	Max. Storage	= 100,889 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

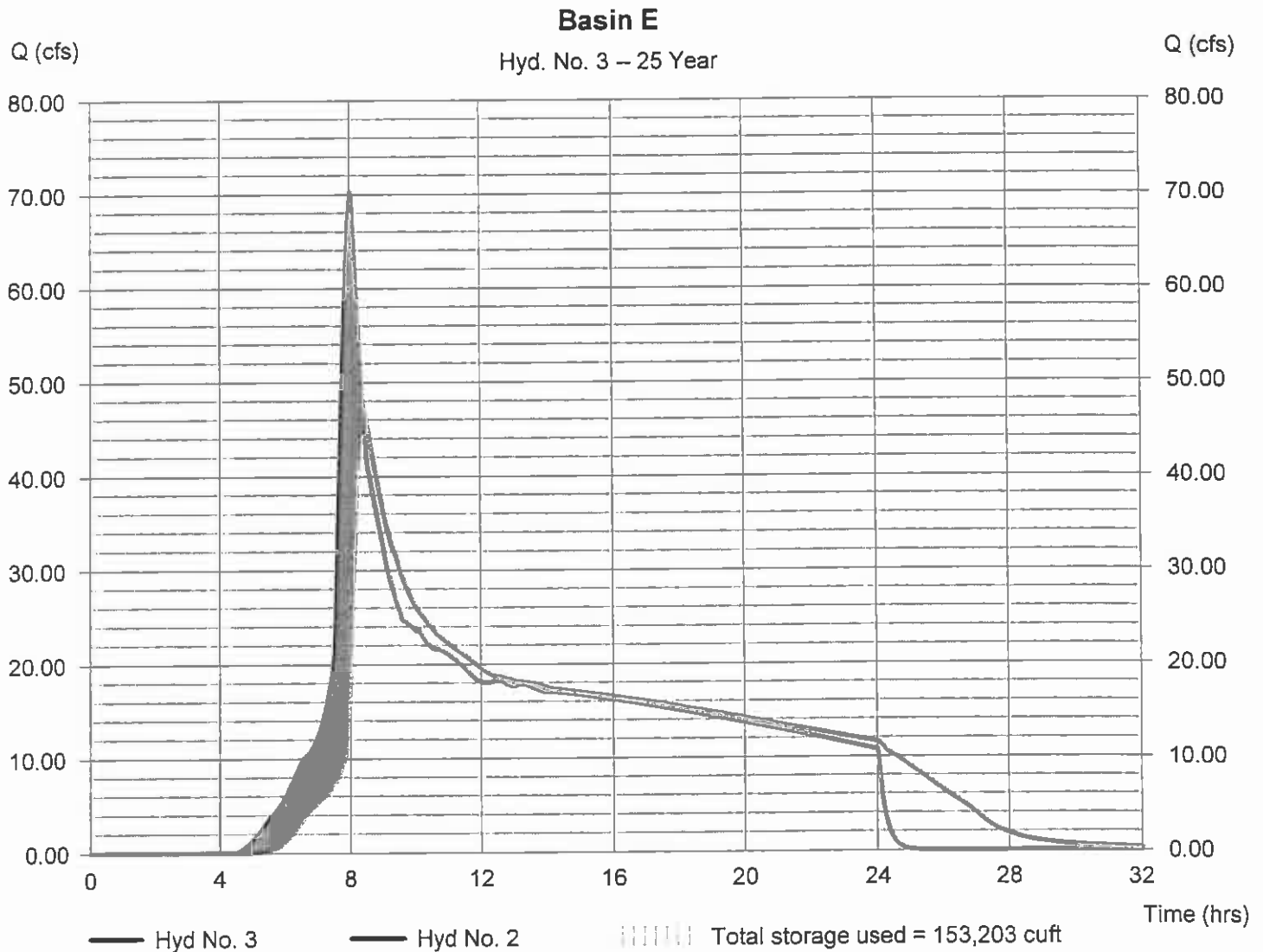
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin E

Hydrograph type	= Reservoir	Peak discharge	= 47.07 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.40 hrs
Time interval	= 2 min	Hyd. volume	= 1,226,975 cuft
Inflow hyd. No.	= 2 - Basin E - Post	Max. Elevation	= 1006.17 ft
Reservoir name	= Pond E	Max. Storage	= 153,203 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

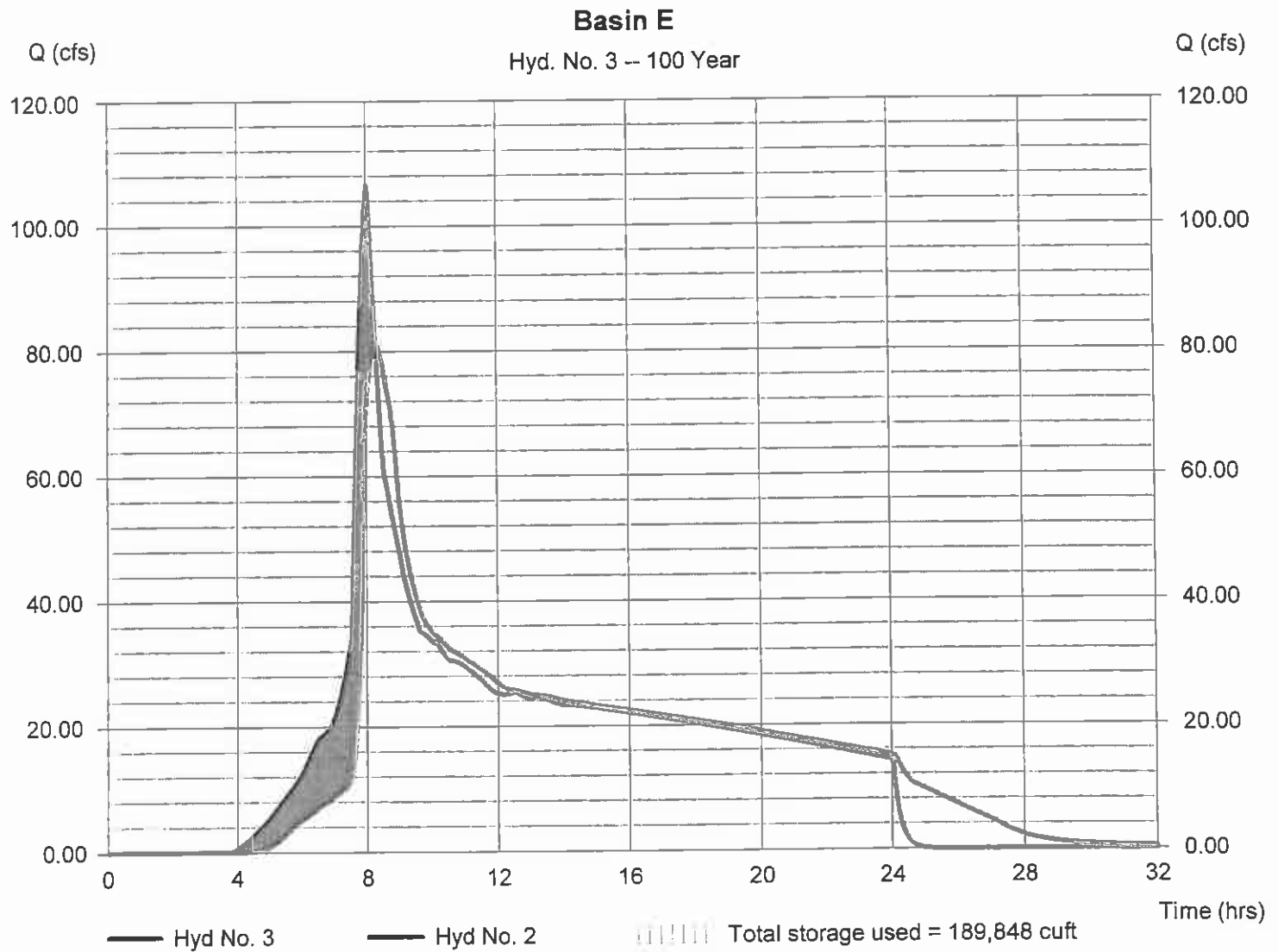
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin E

Hydrograph type	= Reservoir	Peak discharge	= 81.03 cfs
Storm frequency	= 100 yrs	Time to peak	= 8.27 hrs
Time interval	= 2 min	Hyd. volume	= 1,764,708 cuft
Inflow hyd. No.	= 2 - Basin E - Post	Max. Elevation	= 1007.41 ft
Reservoir name	= Pond E	Max. Storage	= 189,848 cuft

Storage Indication method used.





# Pond Report

## Pond No. 1 - Pond F

### Pond Data

Trapezoid - Bottom L x W = 70.0 x 70.0 ft, Side slope = 3.00:1, Bottom elev. = 1000.00 ft, Depth = 4.00 ft

### Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1000.00	4,900	0	0
0.40	1000.40	5,242	2,028	2,028
0.80	1000.80	5,595	2,167	4,195
1.20	1001.20	5,960	2,311	6,506
1.60	1001.60	6,336	2,459	8,964
2.00	1002.00	6,724	2,612	11,576
2.40	1002.40	7,123	2,769	14,345
2.80	1002.80	7,534	2,931	17,276
3.20	1003.20	7,957	3,098	20,374
3.60	1003.60	8,391	3,269	23,643
4.00	1004.00	8,836	3,445	27,088

### Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 18.00	7.50	Inactive	0.00
Span (in)	= 18.00	7.50	6.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 1000.00	1000.01	1001.00	0.00
Length (ft)	= 100.00	0.00	0.00	0.00
Slope (%)	= 3.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

### Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	3.00	0.00	0.00
Crest El. (ft)	= 1003.00	1001.90	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Riser	Rect	—	—
Multi-Stage	= Yes	Yes	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

### Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Civ A cfs	Civ B cfs	Civ C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1000.00	0.00	0.00	0.00	—	0.00	0.00	—	—	—	—	0.000
0.04	203	1000.04	0.00	0.00 ic	0.00	—	0.00	0.00	—	—	—	—	0.003
0.08	406	1000.08	0.00	0.02 ic	0.00	—	0.00	0.00	—	—	—	—	0.017
0.12	608	1000.12	0.00	0.04 ic	0.00	—	0.00	0.00	—	—	—	—	0.041
0.16	811	1000.16	0.00	0.07 ic	0.00	—	0.00	0.00	—	—	—	—	0.075
0.20	1,014	1000.20	0.00	0.12 ic	0.00	—	0.00	0.00	—	—	—	—	0.117
0.24	1,217	1000.24	0.00	0.17 ic	0.00	—	0.00	0.00	—	—	—	—	0.167
0.28	1,420	1000.28	0.00	0.22 ic	0.00	—	0.00	0.00	—	—	—	—	0.224
0.32	1,622	1000.32	0.00	0.29 ic	0.00	—	0.00	0.00	—	—	—	—	0.288
0.36	1,825	1000.36	0.00	0.36 ic	0.00	—	0.00	0.00	—	—	—	—	0.356
0.40	2,028	1000.40	0.00	0.43 ic	0.00	—	0.00	0.00	—	—	—	—	0.428
0.44	2,245	1000.44	0.00	0.50 ic	0.00	—	0.00	0.00	—	—	—	—	0.503
0.48	2,461	1000.48	0.00	0.58 ic	0.00	—	0.00	0.00	—	—	—	—	0.578
0.52	2,678	1000.52	0.00	0.65 ic	0.00	—	0.00	0.00	—	—	—	—	0.652
0.56	2,895	1000.56	0.00	0.72 ic	0.00	—	0.00	0.00	—	—	—	—	0.722
0.60	3,111	1000.60	0.00	0.78 ic	0.00	—	0.00	0.00	—	—	—	—	0.785
0.64	3,328	1000.64	0.00	0.83 ic	0.00	—	0.00	0.00	—	—	—	—	0.832
0.68	3,545	1000.68	0.00	0.88 ic	0.00	—	0.00	0.00	—	—	—	—	0.883
0.72	3,762	1000.72	0.00	0.93 ic	0.00	—	0.00	0.00	—	—	—	—	0.931
0.76	3,978	1000.76	0.00	0.98 ic	0.00	—	0.00	0.00	—	—	—	—	0.977
0.80	4,195	1000.80	0.00	1.02 ic	0.00	—	0.00	0.00	—	—	—	—	1.021
0.84	4,426	1000.84	0.00	1.06 ic	0.00	—	0.00	0.00	—	—	—	—	1.062
0.88	4,657	1000.88	0.00	1.10 ic	0.00	—	0.00	0.00	—	—	—	—	1.103
0.92	4,888	1000.92	0.00	1.14 ic	0.00	—	0.00	0.00	—	—	—	—	1.142
0.96	5,119	1000.96	0.00	1.18 ic	0.00	—	0.00	0.00	—	—	—	—	1.179
1.00	5,350	1001.00	0.00	1.22 ic	0.00	—	0.00	0.00	—	—	—	—	1.216
1.04	5,581	1001.04	0.00	1.25 ic	0.00	—	0.00	0.00	—	—	—	—	1.251
1.08	5,812	1001.08	0.00	1.29 ic	0.00	—	0.00	0.00	—	—	—	—	1.285
1.12	6,043	1001.12	0.00	1.32 ic	0.00	—	0.00	0.00	—	—	—	—	1.319
1.16	6,274	1001.16	0.00	1.35 ic	0.00	—	0.00	0.00	—	—	—	—	1.352
1.20	6,506	1001.20	0.00	1.38 ic	0.00	—	0.00	0.00	—	—	—	—	1.384

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Pond F

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.24	6,751	1001.24	0.00	1.41 ic	0.00	—	0.00	0.00	—	—	—	—	1.415
1.28	6,997	1001.28	0.00	1.45 ic	0.00	—	0.00	0.00	—	—	—	—	1.445
1.32	7,243	1001.32	0.00	1.48 ic	0.00	—	0.00	0.00	—	—	—	—	1.475
1.36	7,489	1001.36	0.00	1.50 ic	0.00	—	0.00	0.00	—	—	—	—	1.504
1.40	7,735	1001.40	0.00	1.53 ic	0.00	—	0.00	0.00	—	—	—	—	1.533
1.44	7,981	1001.44	0.00	1.56 ic	0.00	—	0.00	0.00	—	—	—	—	1.561
1.48	8,227	1001.48	0.00	1.59 ic	0.00	—	0.00	0.00	—	—	—	—	1.589
1.52	8,473	1001.52	0.00	1.62 ic	0.00	—	0.00	0.00	—	—	—	—	1.616
1.56	8,718	1001.56	0.00	1.64 ic	0.00	—	0.00	0.00	—	—	—	—	1.643
1.60	8,964	1001.60	0.00	1.67 ic	0.00	—	0.00	0.00	—	—	—	—	1.669
1.64	9,226	1001.64	0.00	1.70 ic	0.00	—	0.00	0.00	—	—	—	—	1.695
1.68	9,487	1001.68	0.00	1.72 ic	0.00	—	0.00	0.00	—	—	—	—	1.721
1.72	9,748	1001.72	0.00	1.75 ic	0.00	—	0.00	0.00	—	—	—	—	1.746
1.76	10,009	1001.76	0.00	1.77 ic	0.00	—	0.00	0.00	—	—	—	—	1.771
1.80	10,270	1001.80	0.00	1.80 ic	0.00	—	0.00	0.00	—	—	—	—	1.795
1.84	10,531	1001.84	0.00	1.82 ic	0.00	—	0.00	0.00	—	—	—	—	1.819
1.88	10,793	1001.88	0.00	1.84 ic	0.00	—	0.00	0.00	—	—	—	—	1.843
1.92	11,054	1001.92	0.03 ic	1.87 ic	0.00	—	0.00	0.03	—	—	—	—	1.895
1.96	11,315	1001.96	0.16 ic	1.89 ic	0.00	—	0.00	0.15	—	—	—	—	2.036
2.00	11,576	1002.00	0.32 ic	1.91 ic	0.00	—	0.00	0.32	—	—	—	—	2.229
2.04	11,853	1002.04	0.52 ic	1.94 ic	0.00	—	0.00	0.52	—	—	—	—	2.459
2.08	12,130	1002.08	0.76 ic	1.96 ic	0.00	—	0.00	0.76	—	—	—	—	2.721
2.12	12,407	1002.12	1.06 ic	1.98 ic	0.00	—	0.00	1.03	—	—	—	—	3.010
2.16	12,684	1002.16	1.32 ic	2.00 ic	0.00	—	0.00	1.32	—	—	—	—	3.326
2.20	12,961	1002.20	1.65 ic	2.02 ic	0.00	—	0.00	1.64	—	—	—	—	3.664
2.24	13,237	1002.24	1.98 ic	2.05 ic	0.00	—	0.00	1.98	—	—	—	—	4.024
2.28	13,514	1002.28	2.37 ic	2.07 ic	0.00	—	0.00	2.34	—	—	—	—	4.405
2.32	13,791	1002.32	2.73 ic	2.09 ic	0.00	—	0.00	2.72	—	—	—	—	4.805
2.36	14,068	1002.36	3.11 ic	2.11 ic	0.00	—	0.00	3.11	—	—	—	—	5.223
2.40	14,345	1002.40	3.57 ic	2.13 ic	0.00	—	0.00	3.53	—	—	—	—	5.661
2.44	14,638	1002.44	3.96 ic	2.15 ic	0.00	—	0.00	3.96	—	—	—	—	6.113
2.48	14,931	1002.48	4.42 ic	2.17 ic	0.00	—	0.00	4.41	—	—	—	—	6.582
2.52	15,224	1002.52	4.88 ic	2.19 ic	0.00	—	0.00	4.88	—	—	—	—	7.066
2.56	15,518	1002.56	5.37 ic	2.21 ic	0.00	—	0.00	5.36	—	—	—	—	7.565
2.60	15,811	1002.60	5.88 ic	2.23 ic	0.00	—	0.00	5.85	—	—	—	—	8.078
2.64	16,104	1002.64	6.38 ic	2.25 ic	0.00	—	0.00	6.36	—	—	—	—	8.606
2.68	16,397	1002.68	6.88 ic	2.27 ic	0.00	—	0.00	6.88	—	—	—	—	9.148
2.72	16,690	1002.72	7.42 ic	2.29 ic	0.00	—	0.00	7.42	—	—	—	—	9.703
2.76	16,983	1002.76	7.96 ic	2.31 ic	0.00	—	0.00	7.96	—	—	—	—	10.27
2.80	17,276	1002.80	8.53 ic	2.32 ic	0.00	—	0.00	8.53	—	—	—	—	10.85
2.84	17,586	1002.84	9.10 ic	2.34 ic	0.00	—	0.00	9.10	—	—	—	—	11.45
2.88	17,896	1002.88	9.55 ic	2.36 ic	0.00	—	0.00	9.55 s	—	—	—	—	11.91
2.92	18,206	1002.92	9.91 ic	2.38 ic	0.00	—	0.00	9.91 s	—	—	—	—	12.29
2.96	18,515	1002.96	10.24 ic	2.40 ic	0.00	—	0.00	10.24 s	—	—	—	—	12.64
3.00	18,825	1003.00	10.54 ic	2.42 ic	0.00	—	0.00	10.54 s	—	—	—	—	12.96
3.04	19,135	1003.04	10.88 ic	2.43 ic	0.00	—	0.17	10.72 s	—	—	—	—	13.32
3.08	19,445	1003.08	11.25 ic	2.45 ic	0.00	—	0.47	10.78 s	—	—	—	—	13.70
3.12	19,754	1003.12	11.60 ic	2.47 ic	0.00	—	0.87	10.74 s	—	—	—	—	14.07
3.16	20,064	1003.16	11.94 ic	2.49 ic	0.00	—	1.34	10.61 s	—	—	—	—	14.43
3.20	20,374	1003.20	12.26 ic	2.51 ic	0.00	—	1.87	10.39 s	—	—	—	—	14.76
3.24	20,701	1003.24	12.55 ic	2.52 ic	0.00	—	2.46	10.09 s	—	—	—	—	15.08
3.28	21,028	1003.28	12.82 ic	2.54 ic	0.00	—	3.07 s	9.75 s	—	—	—	—	15.36
3.32	21,355	1003.32	13.04 ic	2.56 ic	0.00	—	3.52 s	9.51 s	—	—	—	—	15.59
3.36	21,682	1003.36	13.23 ic	2.57 ic	0.00	—	3.90 s	9.32 s	—	—	—	—	15.80
3.40	22,009	1003.40	13.40 ic	2.59 ic	0.00	—	4.24 s	9.16 s	—	—	—	—	15.99
3.44	22,335	1003.44	13.56 ic	2.61 ic	0.00	—	4.54 s	9.01 s	—	—	—	—	16.16
3.48	22,662	1003.48	13.71 ic	2.62 ic	0.00	—	4.82 s	8.88 s	—	—	—	—	16.33
3.52	22,989	1003.52	13.85 ic	2.64 ic	0.00	—	5.08 s	8.77 s	—	—	—	—	16.49
3.56	23,316	1003.56	13.98 ic	2.66 ic	0.00	—	5.32 s	8.66 s	—	—	—	—	16.64
3.60	23,643	1003.60	14.11 ic	2.67 ic	0.00	—	5.55 s	8.56 s	—	—	—	—	16.79
3.64	23,988	1003.64	14.24 ic	2.69 ic	0.00	—	5.76 s	8.47 s	—	—	—	—	16.93
3.68	24,332	1003.68	14.36 ic	2.71 ic	0.00	—	5.96 s	8.39 s	—	—	—	—	17.06
3.72	24,677	1003.72	14.48 ic	2.72 ic	0.00	—	6.15 s	8.32 s	—	—	—	—	17.20
3.76	25,021	1003.76	14.59 ic	2.74 ic	0.00	—	6.34 s	8.26 s	—	—	—	—	17.33
3.80	25,366	1003.80	14.70 ic	2.75 ic	0.00	—	6.51 s	8.19 s	—	—	—	—	17.45
3.84	25,710	1003.84	14.81 ic	2.77 ic	0.00	—	6.67 s	8.14 s	—	—	—	—	17.58
3.88	26,055	1003.88	14.92 ic	2.79 ic	0.00	—	6.83 s	8.09 s	—	—	—	—	17.70
3.92	26,399	1003.92	15.03 ic	2.80 ic	0.00	—	6.98 s	8.04 s	—	—	—	—	17.82
3.96	26,743	1003.96	15.13 ic	2.82 ic	0.00	—	7.13 s	8.00 s	—	—	—	—	17.94
4.00	27,088	1004.00	15.24 ic	2.83 ic	0.00	—	7.27 s	7.96 s	—	—	—	—	18.05

...End

# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

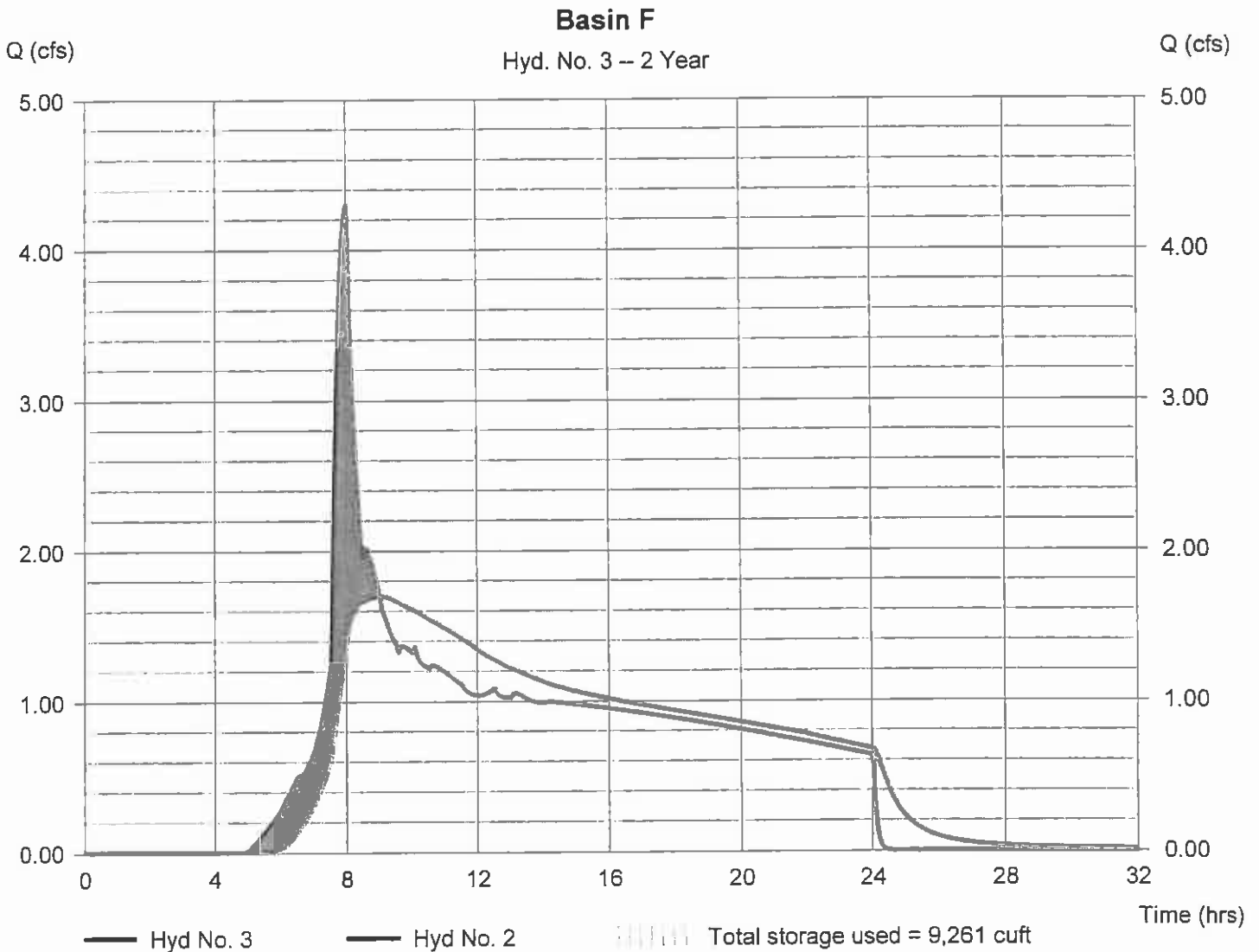
Tuesday, Dec 8, 2009

## Hyd. No. 3

### Basin F

Hydrograph type	= Reservoir	Peak discharge	= 1.699 cfs
Storm frequency	= 2 yrs	Time to peak	= 9.00 hrs
Time interval	= 2 min	Hyd. volume	= 69,623 cuft
Inflow hyd. No.	= 2 - Basin F - Post	Max. Elevation	= 1001.65 ft
Reservoir name	= Pond F	Max. Storage	= 9,261 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

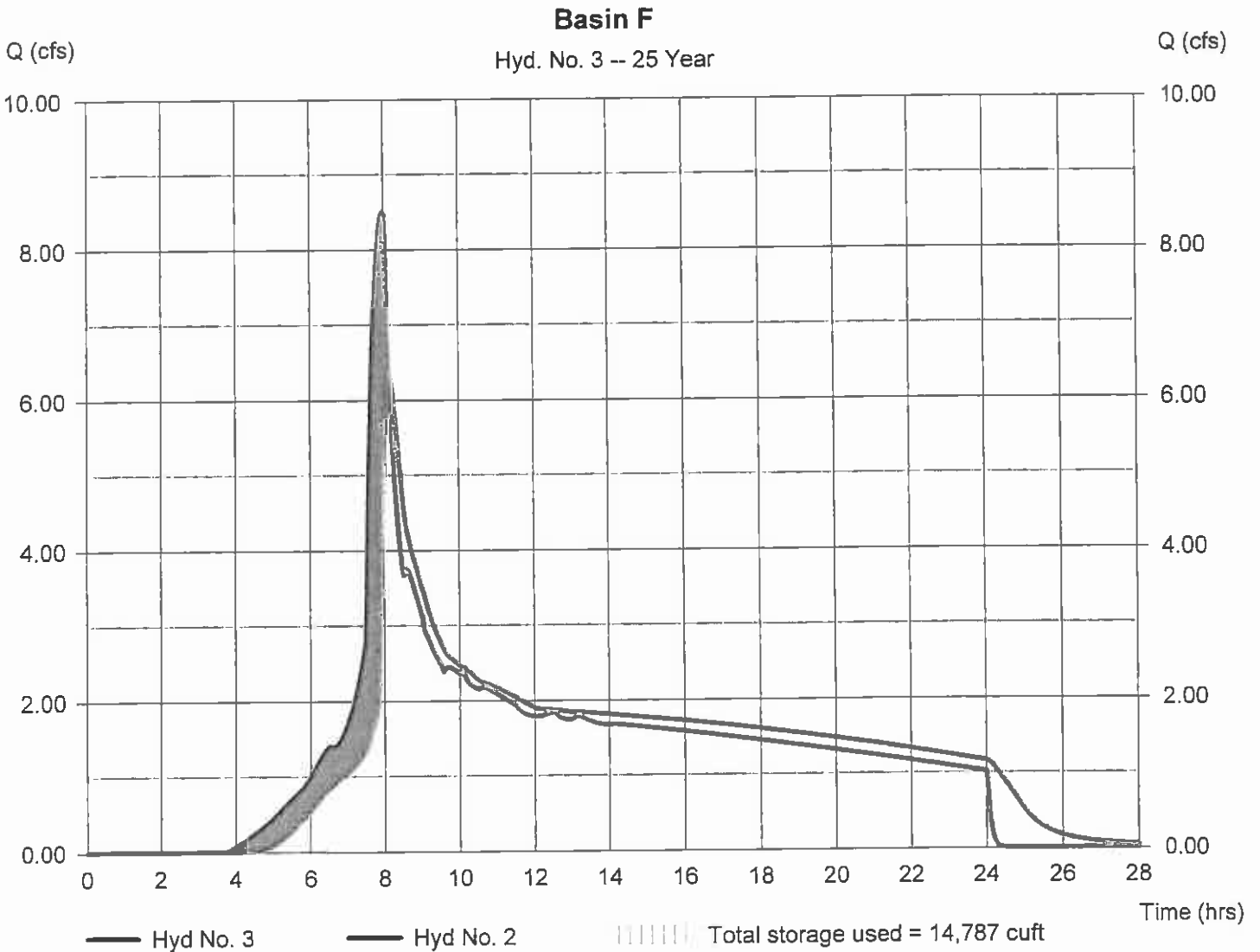
Tuesday, Dec 8, 2009

## Hyd. No. 3

Basin F

Hydrograph type	= Reservoir	Peak discharge	= 6.351 cfs
Storm frequency	= 25 yrs	Time to peak	= 8.13 hrs
Time interval	= 2 min	Hyd. volume	= 126,987 cuft
Inflow hyd. No.	= 2 - Basin F - Post	Max. Elevation	= 1002.46 ft
Reservoir name	= Pond F	Max. Storage	= 14,787 cuft

Storage Indication method used.



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Dec 8, 2009

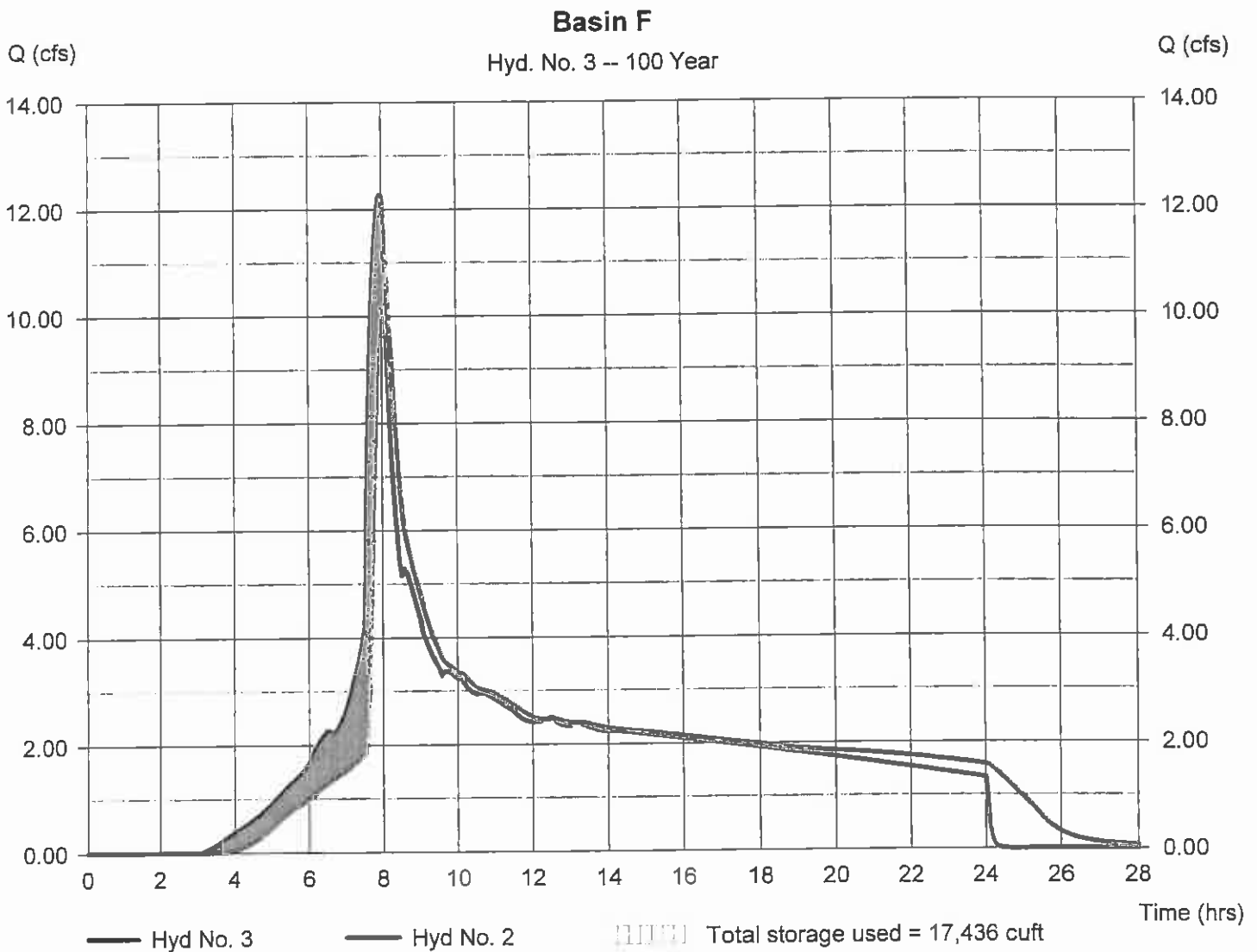
## Hyd. No. 3

### Basin F

Hydrograph type = Reservoir  
Storm frequency = 100 yrs  
Time interval = 2 min  
Inflow hyd. No. = 2 - Basin F - Post  
Reservoir name = Pond F

Peak discharge = 11.16 cfs  
Time to peak = 8.03 hrs  
Hyd. volume = 178,145 cuft  
Max. Elevation = 1002.82 ft  
Max. Storage = 17,436 cuft

Storage Indication method used.



**APPENDIX 'G'**

# Hydrograph Report

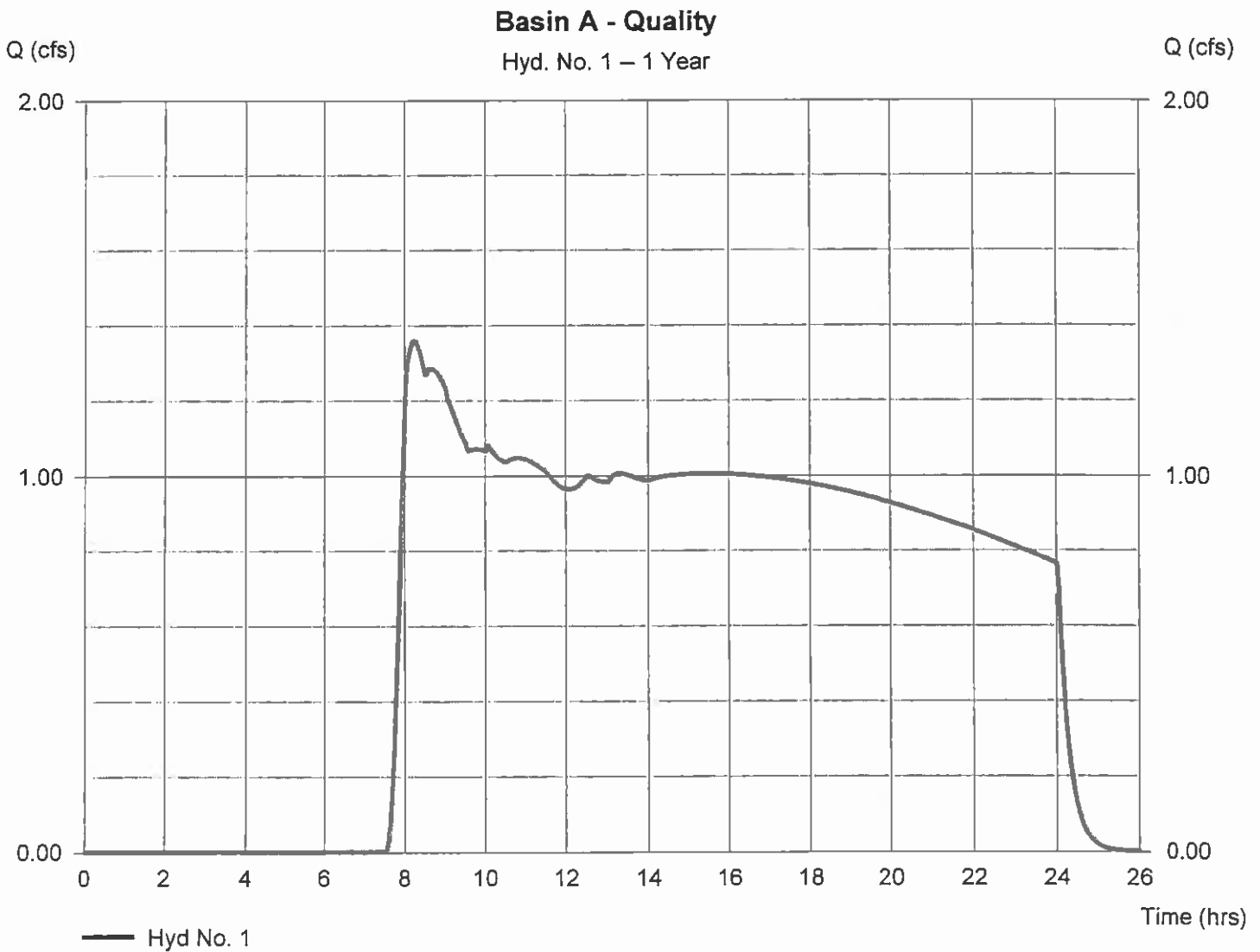
## Hyd. No. 1

### Basin A - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 54.810 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 1.360 cfs  
Time to peak = 8.23 hrs  
Hyd. volume = 58,216 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 16.10 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(5.730 x 98) + (46.960 x 80) + (2.120 x 74)] / 54.810



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Dec 9, 2009

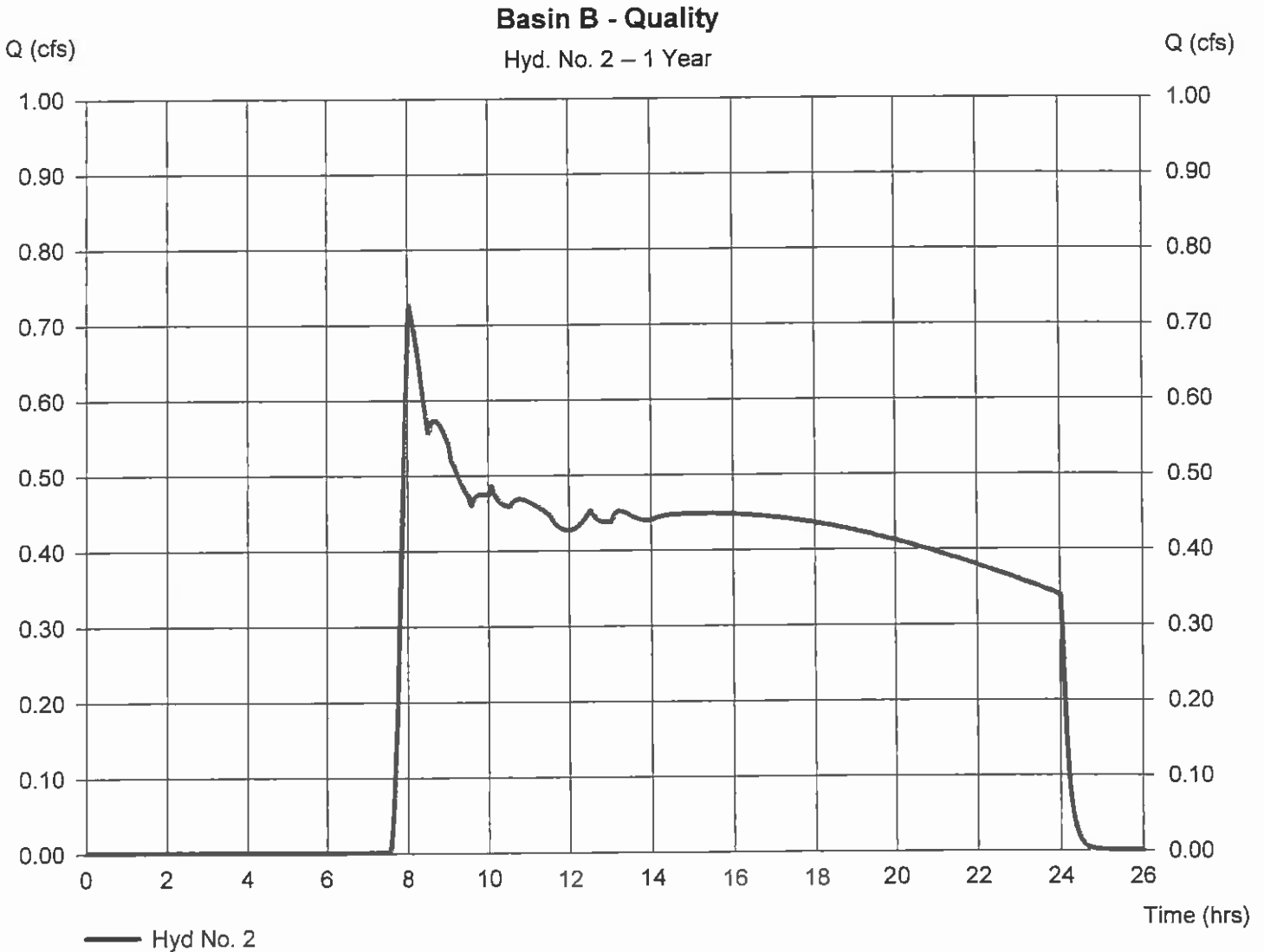
## Hyd. No. 2

### Basin B - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 24.450 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 0.726 cfs  
Time to peak = 8.03 hrs  
Hyd. volume = 25,969 cuft  
Curve number = 82\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 8.83 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(3.460 x 99) + (20.040 x 80) + (0.950 x 74)] / 24.450





# Hydrograph Report

## Hyd. No. 3

### Basin C - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 83.750 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 1.210 cfs  
Time to peak = 16.60 hrs  
Hyd. volume = 65,003 cuft  
Curve number = 79\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 6.06 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) = [(6.200 x 98) + (75.340 x 78) + (2.210 x 74)] / 83.750



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Dec 9, 2009

## Hyd. No. 4

### Basin D - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 162.130 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 2.538 cfs  
Time to peak = 16.50 hrs  
Hyd. volume = 140,209 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 24.91 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(14.040 \times 98) + (143.020 \times 79) + (5.070 \times 74)] / 162.130$



# Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Wednesday, Dec 9, 2009

## Hyd. No. 5

### Basin E - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 140.600 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 1.570 cfs  
Time to peak = 18.10 hrs  
Hyd. volume = 76,755 cuft  
Curve number = 76\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 13.09 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(9.270 \times 98) + (127.150 \times 75) + (4.180 \times 74)] / 140.600$



# Hydrograph Report

## Hyd. No. 6

### Basin F - Quality

Hydrograph type = SBUH Runoff  
Storm frequency = 1 yrs  
Time interval = 2 min  
Drainage area = 12.710 ac  
Basin Slope = 0.0 %  
Tc method = USER  
Total precip. = 1.40 in  
Storm duration = 24 hrs

Peak discharge = 0.209 cfs  
Time to peak = 8.03 hrs  
Hyd. volume = 10,992 cuft  
Curve number = 80\*  
Hydraulic length = 0 ft  
Time of conc. (Tc) = 5.29 min  
Distribution = Type IA  
Shape factor = N/A

\* Composite (Area/CN) =  $[(2.740 \times 99) + (9.450 \times 75) + (0.520 \times 74)] / 12.710$

