



December 3, 2024

Mr. Caleb Bos
Washington State Department of Ecology
1250 Alder St.
Union Gap, WA 98903

Mr. Bos,

Attached is the summary data for Nason Creek flow and temperature monitoring, as required per Section S9.5 of the District's NPDES permit. The previous data summary report (dated December 11, 2023) included year 2023 information and this monitoring report includes the year 2024 data. The calculation spreadsheets have also been emailed to you via a separate correspondence. Those spreadsheets include the raw temperature data. Culvert flow calculations were provided by the District based on the same reference tables as provided in previous reports. The raw data recording sheet is included as an attachment.

Creek flows and temperature are summarized and graphically presented in the following pages. The first and last days of the set had fewer total data points (based on when the sampling was started and ended) but were treated as full days for purposes of the analysis (min/max/average). A 7-day running average of the maximum daily temperature is provided, with the calculation starting at the first data point (day) that had six previous days of data.

2024 Data

Flow: Measurements for flow were taken between 7/1/2024 and 10/25/2024. The minimum total daily culvert flow was approximately 1.01 CFS.

Temperature: Temperature data was taken from 7/1/2024 through 10/25/2024. The highest daily maximum recorded was 60.0°F. The maximum 7-day running average was 58.4°F.

If you have any additional questions, please feel free to contact me at any time.

Sincerely,

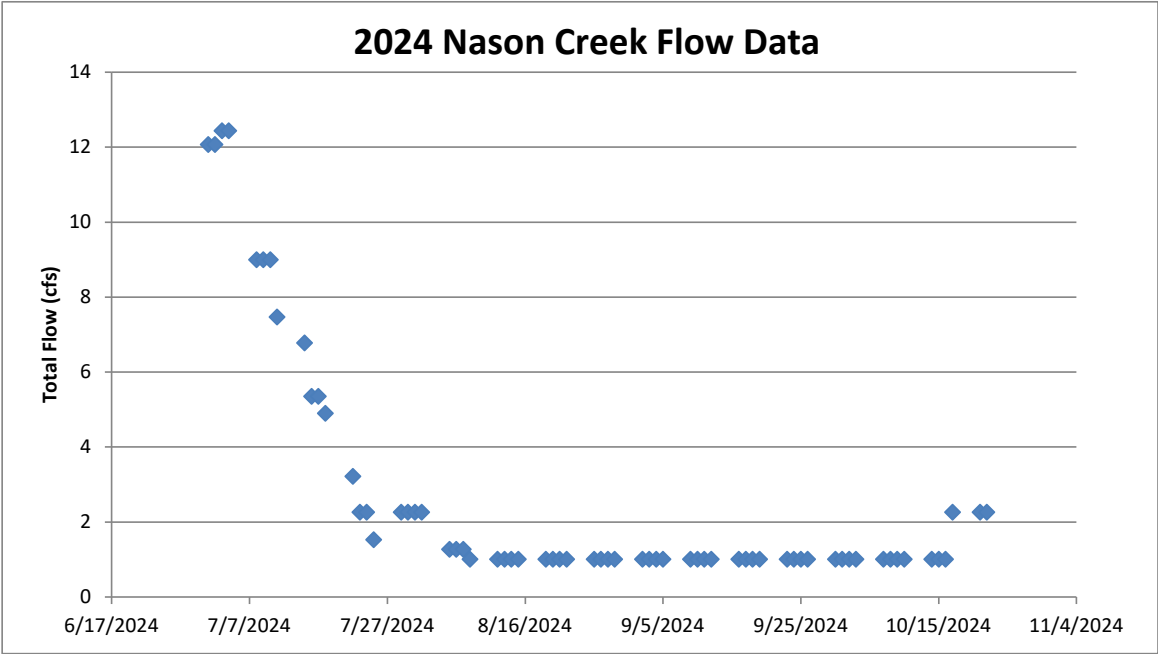
A handwritten signature in black ink, appearing to read 'Jeffrey Zahller'.

Jeffrey Zahller, PE
Senior Professional Associate

2024 Nason Creek Flow Summary

Calculated

Total Flow		
Ave	2.64	cfs
Median	1.01	cfs
Min	1.01	cfs
Max	12.44	cfs



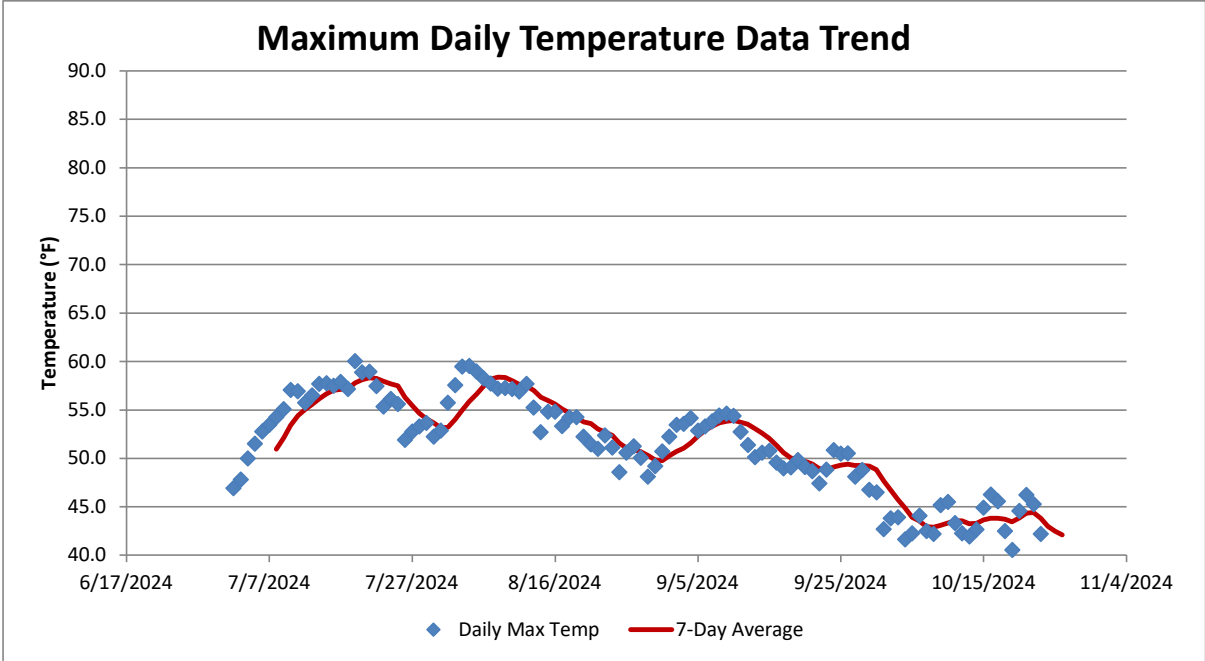
Summary of Flow Log Data July to October 2024

		Calculated	Calculated	Calculated		
Date		Culvert #1	Culvert #2	Culvert #3	Calculated	
		C	B	A	Total CFS	
7/1/2024		3.75	3.40	4.92		12.07
7/2/2024		3.75	3.40	4.92		12.07
7/3/2024		2.55	3.40	6.49		12.44
7/4/2024		2.55	3.40	6.49		12.44
7/8/2024		5.18	2.31	1.51		9.00
7/9/2024		5.18	2.31	1.51		9.00
7/10/2024		5.18	2.31	1.51		9.00
7/11/2024		5.18	0.78	1.51		7.47
7/15/2024		5.18	0.78	0.82		6.78
7/16/2024		3.75	0.78	0.82		5.35
7/17/2024		3.75	0.78	0.82		5.35
7/18/2024		3.75	0.33	0.82		4.90
7/22/2024		2.55	0.33	0.34		3.22
7/23/2024		1.59	0.33	0.34		2.26
7/24/2024		1.59	0.33	0.34		2.26
7/25/2024		0.86	0.33	0.34		1.53
7/29/2024		1.59	0.33	0.34		2.26
7/30/2024		1.59	0.33	0.34		2.26
7/31/2024		1.59	0.33	0.34		2.26
8/1/2024		1.59	0.33	0.34		2.26
8/5/2024		0.86	0.07	0.34		1.27
8/6/2024		0.86	0.07	0.34		1.27
8/7/2024		0.86	0.07	0.34		1.27
8/8/2024		0.86	0.07	0.08		1.01
8/12/2024		0.86	0.07	0.08		1.01
8/13/2024		0.86	0.07	0.08		1.01
8/14/2024		0.86	0.07	0.08		1.01
8/15/2024		0.86	0.07	0.08		1.01
8/19/2024		0.86	0.07	0.08		1.01
8/20/2024		0.86	0.07	0.08		1.01
8/21/2024		0.86	0.07	0.08		1.01
8/22/2024		0.86	0.07	0.08		1.01
8/26/2024		0.86	0.07	0.08		1.01
8/27/2024		0.86	0.07	0.08		1.01
8/28/2024		0.86	0.07	0.08		1.01
8/29/2024		0.86	0.07	0.08		1.01
9/2/2024		0.86	0.07	0.08		1.01
9/3/2024		0.86	0.07	0.08		1.01
9/4/2024		0.86	0.07	0.08		1.01
9/5/2024		0.86	0.07	0.08		1.01
9/9/2024		0.86	0.07	0.08		1.01
9/10/2024		0.86	0.07	0.08		1.01
9/11/2024		0.86	0.07	0.08		1.01
9/12/2024		0.86	0.07	0.08		1.01
9/16/2024		0.86	0.07	0.08		1.01
9/17/2024		0.86	0.07	0.08		1.01
9/18/2024		0.86	0.07	0.08		1.01
9/19/2024		0.86	0.07	0.08		1.01
9/23/2024		0.86	0.07	0.08		1.01
9/24/2024		0.86	0.07	0.08		1.01
9/25/2024		0.86	0.07	0.08		1.01
9/26/2024		0.86	0.07	0.08		1.01
9/30/2024		0.86	0.07	0.08		1.01
10/1/2024		0.86	0.07	0.08		1.01
10/2/2024		0.86	0.07	0.08		1.01
10/3/2024		0.86	0.07	0.08		1.01
10/7/2024		0.86	0.07	0.08		1.01
10/8/2024		0.86	0.07	0.08		1.01
10/9/2024		0.86	0.07	0.08		1.01
10/10/2024		0.86	0.07	0.08		1.01
10/14/2024		0.86	0.07	0.08		1.01
10/15/2024		0.86	0.07	0.08		1.01
10/16/2024		0.86	0.07	0.08		1.01
10/17/2024		1.59	0.33	0.34		2.26
10/21/2024		1.59	0.33	0.34		2.26
10/22/2024		1.59	0.33	0.34		2.26
10/23/2024		1.59	0.33	0.34		2.26
10/24/2024		1.59	0.33	0.34		2.26
10/25/2024		1.59	0.33	0.34		2.26

2024 Temperature Data Calculations and Summary Graph

Calculated

Temperature Summary		
Ave	51.0 °F	daily max
Median	51.5 °F	daily max
Min	37.7 °F	daily max
Max	60.0 °F	daily max
Min	42.1 °F	7-day Average
Max	58.4 °F	7-day Average



2024 Temperature Data Calculations and Summary Graph

Day	Calculated	Calculated
	Max Daily, °F	7-Day Running Average
7/1/2024	46.9	
7/2/2024	47.8	
7/3/2024	50.0	
7/4/2024	51.5	
7/5/2024	52.8	
7/6/2024	53.5	
7/7/2024	54.3	51.0
7/8/2024	55.1	52.1
7/9/2024	57.1	53.5
7/10/2024	56.9	54.4
7/11/2024	55.7	55.0
7/12/2024	56.5	55.6
7/13/2024	57.7	56.2
7/14/2024	57.8	56.7
7/15/2024	57.5	57.0
7/16/2024	57.9	57.1
7/17/2024	57.2	57.2
7/18/2024	60.0	57.8
7/19/2024	58.9	58.1
7/20/2024	58.9	58.3
7/21/2024	57.5	58.3
7/22/2024	55.3	58.0
7/23/2024	56.1	57.7
7/24/2024	55.6	57.5
7/25/2024	51.9	56.3
7/26/2024	52.8	55.4
7/27/2024	53.3	54.6
7/28/2024	53.6	54.1
7/29/2024	52.2	53.7
7/30/2024	52.9	53.2
7/31/2024	55.7	53.2
8/1/2024	57.5	54.0
8/2/2024	59.5	55.0
8/3/2024	59.5	55.9
8/4/2024	59.0	56.6
8/5/2024	58.2	57.5
8/6/2024	57.7	58.2
8/7/2024	57.2	58.4
8/8/2024	57.2	58.3
8/9/2024	57.2	58.0
8/10/2024	56.9	57.6
8/11/2024	57.7	57.5
8/12/2024	55.3	57.0
8/13/2024	52.7	56.3
8/14/2024	54.8	56.0
8/15/2024	54.8	55.6
8/16/2024	53.3	55.1
8/17/2024	54.2	54.7
8/18/2024	54.3	54.2
8/19/2024	52.2	53.8
8/20/2024	51.5	53.6
8/21/2024	51.0	53.0
8/22/2024	52.4	52.7
8/23/2024	51.1	52.4
8/24/2024	48.6	51.6
8/25/2024	50.6	51.0

8/26/2024	51.2	50.9
8/27/2024	50.0	50.7
8/28/2024	48.1	50.3
8/29/2024	49.2	49.8
8/30/2024	50.7	49.8
8/31/2024	52.2	50.3
9/1/2024	53.5	50.7
9/2/2024	53.6	51.0
9/3/2024	54.2	51.6
9/4/2024	52.9	52.3
9/5/2024	53.3	52.9
9/6/2024	53.8	53.3
9/7/2024	54.4	53.7
9/8/2024	54.6	53.8
9/9/2024	54.4	53.9
9/10/2024	52.7	53.7
9/11/2024	51.4	53.5
9/12/2024	50.1	53.1
9/13/2024	50.6	52.6
9/14/2024	50.8	52.1
9/15/2024	49.6	51.4
9/16/2024	49.0	50.6
9/17/2024	49.1	50.1
9/18/2024	49.8	49.9
9/19/2024	49.1	49.7
9/20/2024	48.7	49.4
9/21/2024	47.4	49.0
9/22/2024	48.9	48.8
9/23/2024	50.8	49.1
9/24/2024	50.5	49.3
9/25/2024	50.5	49.4
9/26/2024	48.1	49.3
9/27/2024	48.8	49.3
9/28/2024	46.8	49.2
9/29/2024	46.5	48.9
9/30/2024	42.7	47.7
10/1/2024	43.8	46.7
10/2/2024	43.9	45.8
10/3/2024	41.6	44.9
10/4/2024	42.2	43.9
10/5/2024	44.1	43.6
10/6/2024	42.5	43.0
10/7/2024	42.2	42.9
10/8/2024	45.2	43.1
10/9/2024	45.5	43.3
10/10/2024	43.3	43.6
10/11/2024	42.2	43.6
10/12/2024	41.9	43.3
10/13/2024	42.7	43.3
10/14/2024	44.9	43.7
10/15/2024	46.3	43.8
10/16/2024	45.6	43.8
10/17/2024	42.5	43.7
10/18/2024	40.5	43.5
10/19/2024	44.6	43.9
10/20/2024	46.2	44.4
10/21/2024	45.3	44.4
10/22/2024	42.2	43.8
10/23/2024	39.8	43.0
10/24/2024	38.9	42.5
10/25/2024	37.7	42.1

Nason Creek Monitoring

Date	Time	Air Temp. (f)	Weather	Op. Init.	Culvert Reading			Culvert Flow			Total Flow (CFS)	Total Flow MGD
					A(flume)	B	C	A	B	C		
7/1/2024	9:30 AM	60	Sunny	SOB	54	54	53	3.75	3.40	4.92	12.07	7.81
7/2/2024	9:30 AM	60	Sunny	SOB	54	54	53	3.75	3.40	4.92	12.07	7.81
7/3/2024	11:30 AM	70	Sunny	SOB	55	54	52	2.55	3.40	6.49	12.44	8.04
7/4/2024	8:45 AM	62	Sunny	MF	55	54	52	2.55	3.40	6.49	12.44	8.04
7/8/2024	11:00 AM	80	Sunny	SOB	53	55	56	5.18	2.31	1.51	9.00	5.82
7/9/2024	11:00 AM	80	Sunny	SOB	53	55	56	5.18	2.31	1.51	9.00	5.82
7/10/2024	11:00 AM	80	Sunny	SOB	53	55	56	5.18	2.31	1.51	9.00	5.82
7/11/2024	10:30 AM	80	Sunny	SOB	53	57	56	5.18	0.78	1.51	7.47	4.83
7/15/2024	10:30 AM	80	Sunny	SOB	53	57	57	5.18	0.78	0.82	6.78	4.38
7/16/2024	10:30 AM	80	sunny	SOB	54	57	57	3.75	0.78	0.82	5.35	3.46
7/17/2024	9:00 AM	70	Sunny	SOB	54	57	57	3.75	0.78	0.82	5.35	3.46
7/18/2024	9:00 AM	70	Sunny	SOB	54	58	57	3.75	0.33	0.82	4.90	3.17
7/22/2024	8:30 AM	60	Cloudy	SOB	55	58	58	2.55	0.33	0.34	3.22	2.08
7/23/2024	8:30 AM	60	Sunny	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
7/24/2024	9:00 AM	65	Sunny	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
7/25/2024	9:30 AM	55	Cloudy	TM	57	58	58	0.86	0.33	0.34	1.53	0.99
7/29/2024	9:00 AM	52	Rain	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
7/30/2024	9:00 AM	50	Rain	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
7/31/2024	9:00 AM	54	Cloudy	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
8/1/2024	11:00 AM	75	Sunny	TM	56	58	58	1.59	0.33	0.34	2.26	1.46
8/5/2024	9:00 AM	68	Sunny	SOB	57	59	58	0.86	0.07	0.34	1.27	0.82
8/6/2024	9:30 AM	70	Sunny	SOB	57	59	58	0.86	0.07	0.34	1.27	0.82
8/7/2024	8:00 AM	62	Sunny	SOB	57	59	58	0.86	0.07	0.34	1.27	0.82
8/8/2024	8:00 AM	62	Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/12/2024	8:00 AM	56	Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/13/2024	8:00 AM	54	Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/14/2024	8:00 AM	56	Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/15/2024	8:45 AM	52	Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/19/2024	8:00 AM	56	Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/20/2024	8:30 AM	52	Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/21/2024	8:45 AM	50	Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/22/2024	8:00 AM	56	Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65

8/26/2024	8:30 AM	50 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/27/2024	8:00 AM	52 Rain	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/28/2024	8:30 AM	56 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
8/29/2024	8:30 AM	50 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/2/2024	8:00 AM	52 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/3/2024	8:00 AM	54 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/4/2024	8:00 AM	50 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/5/2024	8:00 AM	55 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/9/2024	8:00 AM	56 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/10/2024	8:30 AM	58 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/11/2024	8:30 AM	50 Rain	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/12/2024	9:00 AM	50 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/16/2024	9:00 AM	50 Sunny	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/17/2024	11:00 AM	51 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/18/2024	9:00 AM	50 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/19/2024	9:00 AM	50 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/23/2024	9:00 AM	54 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/24/2024	9:00 AM	50 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/25/2024	10:00 AM	55 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
9/26/2024	9:00 AM	50 Sunny	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
9/30/2024	10:00 AM	33 Sunny	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
10/1/2024	9:00 AM	36 Cloudy	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
10/2/2024	9:00 AM	38 Cloudy	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
10/3/2024	10:00 AM	31 Sunny	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
10/7/2024	11:00 AM	45 Sunny	MF	57	59	59	0.86	0.07	0.08	1.01	0.65
10/8/2024	11:00 AM	45 Mix	MF	57	59	59	0.86	0.07	0.08	1.01	0.65
10/9/2024	11:30 AM	45 Cloudy	TM	57	59	59	0.86	0.07	0.08	1.01	0.65
10/10/2024	9:00 AM	43 Clear	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
10/14/2024	10:00 AM	54 Clear	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
10/15/2024	9:00 AM	45 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
10/16/2024	9:30 AM	46 Cloudy	SOB	57	59	59	0.86	0.07	0.08	1.01	0.65
10/17/2024	11:30 AM	36 Mix	TM	56	58	58	1.59	0.33	0.34	2.26	1.46
10/21/2024	9:00 AM	45 Mix	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
10/22/2024	10:00 AM	42 Mix	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
10/23/2024	12:30 PM	34 Cloudy	TM	56	58	58	1.59	0.33	0.34	2.26	1.46
10/24/2024	8:00 AM	36 Cloudy	TM	56	58	58	1.59	0.33	0.34	2.26	1.46

10/25/2024	10:00 AM	40 Cloudy	SOB	56	58	58	1.59	0.33	0.34	2.26	1.46
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