

Montague, MA

# Montague, MA

November 2021 Report Submitted to **Montague, MA**  
December 10, 2021





December 10, 2021

Chelsey Little, BSBS MPH  
Superintendent  
Montague WPCF

**SUBJECT: Montague, MA**

Dear Mrs. Little

ADS is pleased to submit the report for the Montague, MA completed on behalf of Montague, MA. The metering was conducted at four (4) locations. The study was conducted during the period of Monday, 01 November 2021 to Tuesday, 30 November 2021.

The report contains depth, velocity, and quantity hydrographs as well as daily long tables for the metering period. An Excel file containing depth, quantity, and velocity entities for the monitoring location in 5-minute format was provided previously.

In addition, we would be happy to further explain any details about the report that may seem unclear. Should you have any questions or comments, you may contact the Project Manager, Michael Armes at 603-625-1212.

It has been our pleasure to be of service to you in the performance of this project. Thank you for choosing ADS products and services to meet your flow monitoring needs.

Sincerely,

**ADS ENVIRONMENTAL SERVICES**

Melissa Hygom  
Data Analyst III, Congers, NY

Monday, 01 November 2021 to Tuesday, 30 November 2021



# Montague, MA

## Prepared For:

Chelsey Little, BSBS MPH  
Superintendent  
Montague WPCF

## Prepared By:



ADS, LLC  
340 The Bridge Street, Suite 204  
Huntsville, AL 35806

# 7th\_L\_CSO

## Site Commentary

### SITE INFORMATION

Pipe	Round (14.25 in H)
Silt	0.00 (in)

### OBSERVATIONS

Average flow depth, velocity, and quantity data observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021**, along with observed minimum and maximum data, are provided in the following table.

One (1) overflow event occurred during the month of November.

Observed Flow Conditions			
Item	DFINAL (in)	VFINAL (ft/s)	
Average	1.70	1.24	-
Minimum	0.54	0.00	-
Maximum	9.79	12.76	-
Min Time	11/02/2021 2:10:00 AM	11/30/2021 4:35:00 PM	-
Max Time	11/12/2021 12:50:00 PM	11/12/2021 12:55:00 PM	-

Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Values in the Observed Flow Conditions and data on the graphical reports are based on the none average.

### DATA UPTIME

Data uptime observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021** is provided in the following table:

Percent Uptime	
DFINAL (in)	99.514
VFINAL (ft/s)	99.931
	0

<b>7th_L_CSO</b>	<b>Total</b>	<b>Duration</b>	<b>Start</b>	<b>Stop</b>	<b>Rain</b>
<b>W1</b>	615	0:30:00	11/12/21 12:40	11/12/21 13:10	1.4

<b>Total</b>	<b>Gals.</b>	<b>Hrs.</b>	<b>Rain</b>
	615	0:30:00	1.4

# Hydrograph Report

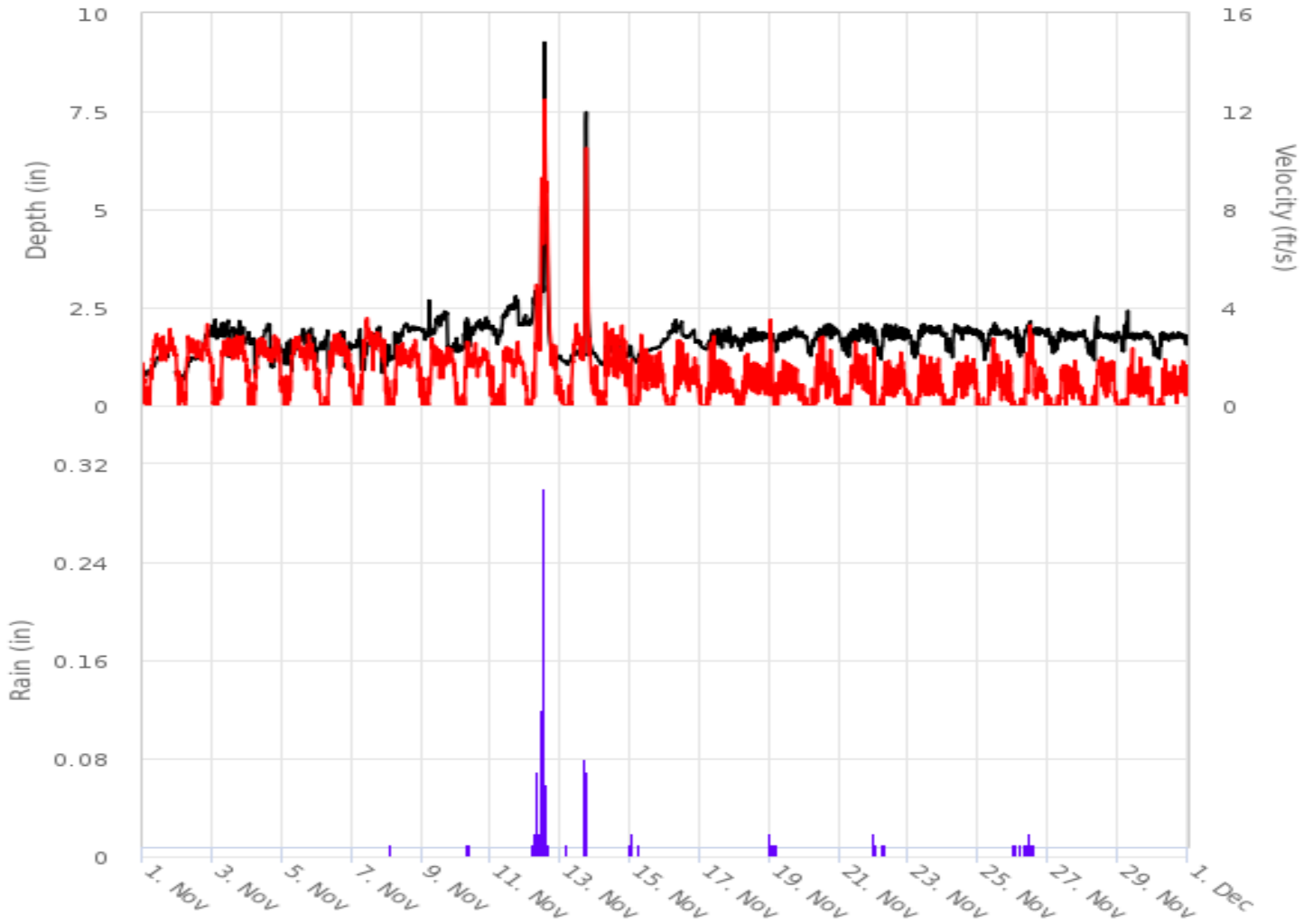
7th\_L\_CSO

**Flow Monitor**  
**7th\_L\_CSO**

Pipe Height  
14.25  
in

**Report Period**  
11/01/2021  
To  
11/30/2021

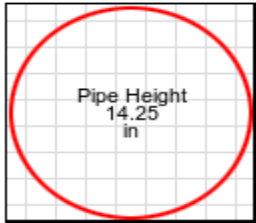
**Legend**  
— DFINAL  
— VFINAL  
— RAIN FINAL



# Scattergraph Report

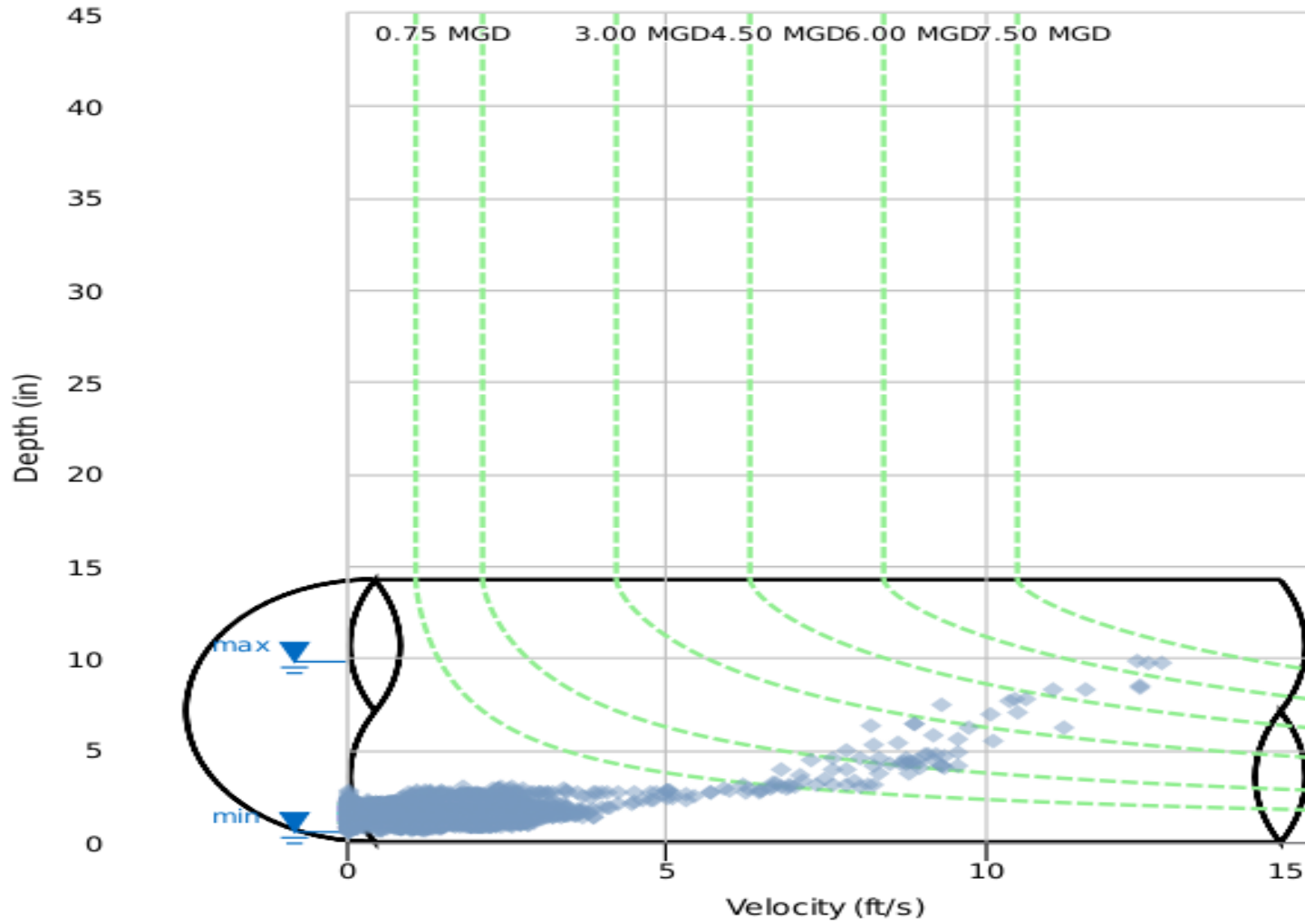
7th\_L\_CSO

Flow Monitor  
**7th\_L\_CSO**



Report Period  
11/01/2021  
To  
11/30/2021

Legend  
○ DFINAL - VFINAL  
--- Iso-Q™  
▼ Min-Max Depth



## Daily Tabular Report

11/01/2021 00:00 - 11/30/2021 23:59  
 7th\_L\_CSOPipe: Round (14.25 in H), Silt0.00 in

Date	DFINAL (in)					VFINAL (ft/s)											RAIN FINAL (in)
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
11/01/2021	02:25	0.76	18:25	1.47	1.07	01:15	0.00	18:50	3.42	1.87	-						
11/02/2021	02:05	0.54	23:30	2.10	1.23	01:00	0.00	20:25	3.62	1.84	-						
11/03/2021	11:10	1.17	02:00	2.31	1.85	00:25	0.00	19:05	3.03	1.81	-						
11/04/2021	05:30	0.76	15:45	2.24	1.51	01:15	0.00	18:45	2.91	1.75	-						
11/05/2021	06:20	0.85	18:15	2.02	1.53	01:05	0.00	11:50	3.31	1.73	-						
11/06/2021	08:20	0.78	07:25	2.05	1.48	02:15	0.00	11:55	3.41	1.55	-						
11/07/2021	21:05	0.82	19:10	2.11	1.45	01:15	0.00	10:25	3.84	1.84	-						
11/08/2021	00:00	1.04	13:30	2.14	1.74	00:30	0.00	19:30	2.90	1.52	0.01						
11/09/2021	22:55	1.36	05:20	2.76	1.89	00:30	0.00	07:20	2.88	1.51	-						
11/10/2021	01:55	1.36	20:45	2.32	1.87	00:45	0.00	07:20	2.67	1.43	0.02						
11/11/2021	04:25	1.56	18:45	3.03	2.18	00:05	0.00	11:50	2.72	1.25	-						
11/12/2021	20:35	1.15	12:50	9.79	2.46	00:05	0.00	12:55	12.76	3.12	1.40						
11/13/2021	05:00	1.03	17:25	7.72	1.63	00:10	0.00	17:30	10.63	1.99	0.36						
11/14/2021	04:10	1.03	18:20	1.70	1.32	01:30	0.00	07:20	3.77	1.46	0.01						
11/15/2021	04:20	1.08	22:45	1.70	1.40	00:00	0.00	07:20	3.17	1.05	0.03						
11/16/2021	23:50	1.55	07:20	2.22	1.83	00:25	0.00	08:30	2.77	0.93	-						
11/17/2021	21:30	1.35	19:45	2.07	1.65	00:00	0.00	09:30	3.40	0.91	-						
11/18/2021	04:00	1.23	10:20	2.02	1.71	00:50	0.00	14:00	2.58	0.79	0.03						
11/19/2021	04:20	1.28	17:55	2.06	1.76	02:45	0.00	00:25	3.75	0.90	0.07						
11/20/2021	04:00	1.23	19:00	2.15	1.77	00:00	0.00	12:45	3.28	0.80	-						
11/21/2021	06:35	1.16	10:25	2.15	1.75	00:05	0.00	23:55	2.84	0.81	0.03						
11/22/2021	04:55	1.16	17:10	2.15	1.77	00:40	0.00	13:55	2.58	0.76	0.03						
11/23/2021	04:05	1.17	10:10	2.17	1.81	00:00	0.00	19:10	2.34	0.71	-						
11/24/2021	05:50	1.20	07:35	2.16	1.81	00:00	0.00	10:45	2.23	0.76	-						
11/25/2021	04:05	1.13	11:00	2.18	1.78	00:00	0.00	10:05	2.81	0.80	-						
11/26/2021	04:35	1.23	02:55	2.21	1.81	00:10	0.00	11:40	3.39	0.77	0.16						
11/27/2021	01:15	1.26	09:05	1.99	1.74	00:00	0.00	11:30	2.54	0.59	-						
11/28/2021	07:45	1.15	09:30	2.63	1.71	00:00	0.00	20:00	2.55	0.72	-						
11/29/2021	06:40	1.18	06:50	2.51	1.77	00:00	0.00	10:10	2.59	0.61	-						
11/30/2021	03:40	1.16	05:45	1.98	1.68	00:00	0.00	20:05	2.14	0.64	-						

11/01/2021 00:00 - 11/30/2021 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				2.15
Average	1.70	1.24		



# Ave\_A\_CSO

## Site Commentary

### SITE INFORMATION

Pipe	Round (21 in H)
Silt	0.00 (in)

### OBSERVATIONS

Average flow depth, velocity, and quantity data observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021**, along with observed minimum and maximum data, are provided in the following table.

Zero (0) overflow event occurred during the month of November.

Observed Flow Conditions			
Item	DFINAL (in)	VFINAL (ft/s)	
Average	2.79	-	-
Minimum	1.57	-	-
Maximum	21.89	-	-
Min Time	11/28/2021 3:15:00 AM	-	-
Max Time	11/12/2021 12:50:00 PM	-	-

Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Values in the Observed Flow Conditions and data on the graphical reports are based on the none average.

### DATA UPTIME

Data uptime observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021** is provided in the following table:

Percent Uptime	
DFINAL (in)	100
VFINAL (ft/s)	0
	0

# Hydrograph Report

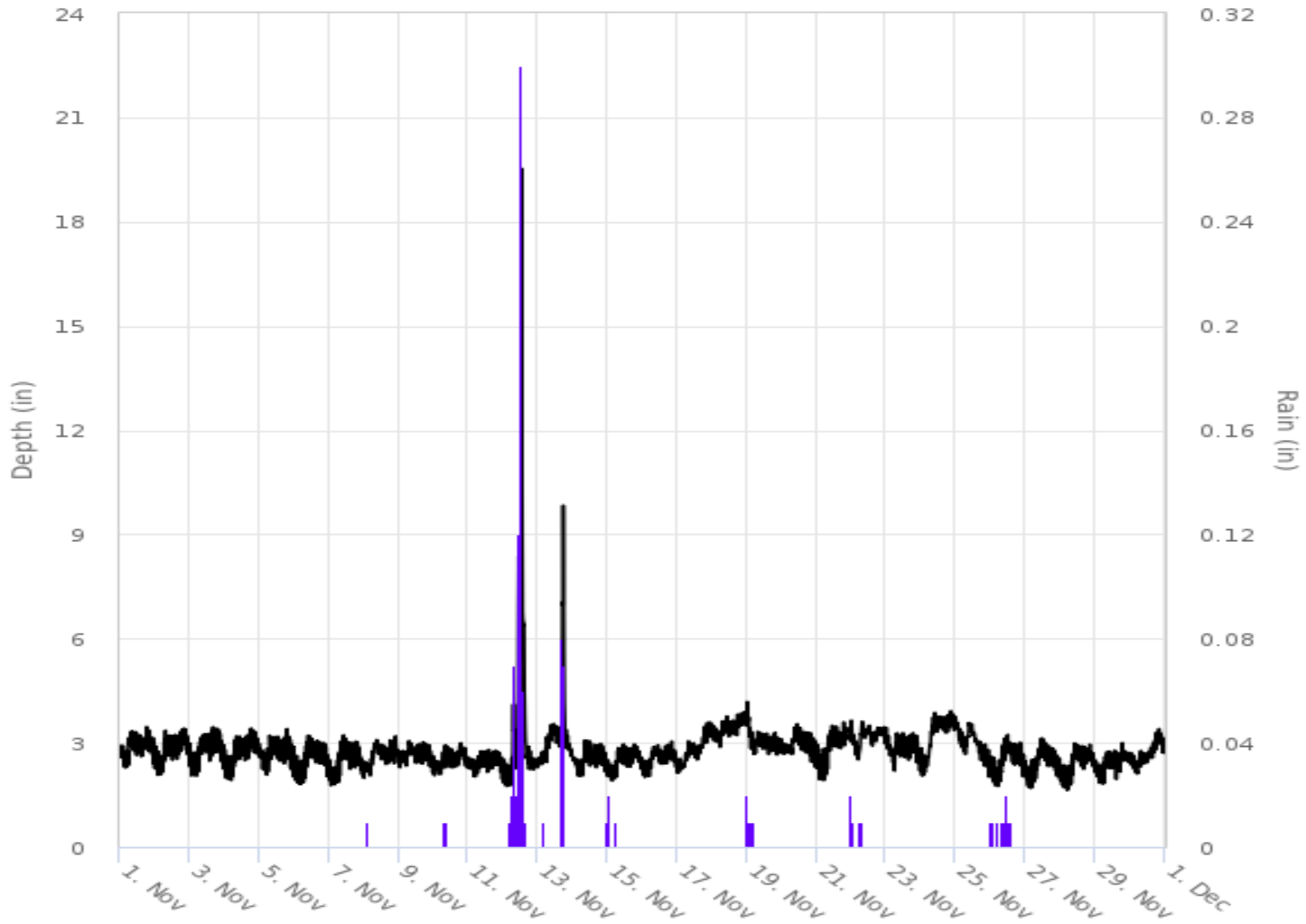
Ave\_A\_CSO

**Flow Monitor**  
**Ave\_A\_CSO**

Pipe Height  
21.00  
in

**Report Period**  
11/01/2021  
To  
11/30/2021

**Legend**  
— DFINAL  
— VFINAL  
— RAIN FINAL



## Daily Tabular Report

11/01/2021 00:00 - 11/30/2021 23:59

Ave\_A\_CSOPipe: Round (21 in H), Silt0.00 in

Date	DFINAL (in)					VFINAL (ft/s)										RAIN FINAL (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
11/01/2021	03:50	2.18	09:30	4.04	2.90	-	-	-	-	-	-	-	-	-	-	-	-
11/02/2021	03:30	2.02	07:35	4.10	2.82	-	-	-	-	-	-	-	-	-	-	-	-
11/03/2021	02:00	1.96	18:55	4.33	2.82	-	-	-	-	-	-	-	-	-	-	-	-
11/04/2021	03:45	1.81	21:35	4.24	2.74	-	-	-	-	-	-	-	-	-	-	-	-
11/05/2021	04:05	1.82	12:45	4.06	2.75	-	-	-	-	-	-	-	-	-	-	-	-
11/06/2021	03:00	1.76	09:50	4.01	2.53	-	-	-	-	-	-	-	-	-	-	-	-
11/07/2021	03:10	1.66	10:00	3.88	2.52	-	-	-	-	-	-	-	-	-	-	-	-
11/08/2021	04:40	1.68	07:40	3.79	2.65	-	-	-	-	-	-	-	-	-	-	0.01	-
11/09/2021	01:00	1.83	15:40	3.72	2.67	-	-	-	-	-	-	-	-	-	-	-	-
11/10/2021	04:45	1.73	11:55	3.66	2.54	-	-	-	-	-	-	-	-	-	-	0.02	-
11/11/2021	04:35	1.58	06:25	3.50	2.47	-	-	-	-	-	-	-	-	-	-	-	-
11/12/2021	04:30	1.64	12:50	21.89	3.47	-	-	-	-	-	-	-	-	-	-	1.40	-
11/13/2021	02:15	1.91	17:30	10.92	3.24	-	-	-	-	-	-	-	-	-	-	0.36	-
11/14/2021	04:35	1.82	09:15	3.77	2.54	-	-	-	-	-	-	-	-	-	-	0.01	-
11/15/2021	04:40	1.86	19:40	3.62	2.50	-	-	-	-	-	-	-	-	-	-	0.03	-
11/16/2021	01:50	1.82	20:00	3.60	2.57	-	-	-	-	-	-	-	-	-	-	-	-
11/17/2021	03:10	1.85	21:00	4.03	2.81	-	-	-	-	-	-	-	-	-	-	-	-
11/18/2021	02:30	2.42	10:15	4.33	3.43	-	-	-	-	-	-	-	-	-	-	0.03	-
11/19/2021	04:50	2.06	00:50	4.60	3.08	-	-	-	-	-	-	-	-	-	-	0.07	-
11/20/2021	04:55	2.04	09:55	4.24	2.97	-	-	-	-	-	-	-	-	-	-	-	-
11/21/2021	04:45	1.79	10:50	4.32	2.93	-	-	-	-	-	-	-	-	-	-	0.03	-
11/22/2021	04:55	1.90	07:45	4.44	3.20	-	-	-	-	-	-	-	-	-	-	0.03	-
11/23/2021	04:45	1.88	07:35	4.07	2.87	-	-	-	-	-	-	-	-	-	-	-	-
11/24/2021	02:35	1.77	14:05	4.46	3.25	-	-	-	-	-	-	-	-	-	-	-	-
11/25/2021	23:10	1.98	09:25	4.30	3.02	-	-	-	-	-	-	-	-	-	-	-	-
11/26/2021	04:00	1.62	20:00	3.65	2.45	-	-	-	-	-	-	-	-	-	-	0.16	-
11/27/2021	02:55	1.60	08:55	3.71	2.38	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2021	03:15	1.57	09:40	3.59	2.42	-	-	-	-	-	-	-	-	-	-	-	-
11/29/2021	04:05	1.59	18:30	3.58	2.43	-	-	-	-	-	-	-	-	-	-	-	-
11/30/2021	03:55	1.67	20:00	3.80	2.68	-	-	-	-	-	-	-	-	-	-	-	-

11/01/2021 00:00 - 11/30/2021 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				2.15
Average	2.79			

# Greenfield\_M1

## Site Commentary

### SITE INFORMATION

Pipe	Round (36 in H)
Silt	0.00 (in)

### OBSERVATIONS

Average flow depth, velocity, and quantity data observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021**, along with observed minimum and maximum data, are provided in the following table.

One (1) overflow event occurred during the month of November.

Observed Flow Conditions			
Item	DFINAL (in)	VFINAL (ft/s)	
Average	5.26	2.29	-
Minimum	3.43	0.65	-
Maximum	45.14	3.18	-
Min Time	11/21/2021 6:30:00 AM	11/12/2021 11:45:00 AM	-
Max Time	11/12/2021 1:36:00 PM	11/13/2021 5:30:00 PM	-

Based upon the quality and consistency of the observed flow depth and velocity data, the Continuity equation was used to calculate flow rate and quantities during the monitoring period.

Values in the Observed Flow Conditions and data on the graphical reports are based on the none average.

### DATA UPTIME

Data uptime observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021** is provided in the following table:

Percent Uptime	
DFINAL (in)	100
VFINAL (ft/s)	100
	0

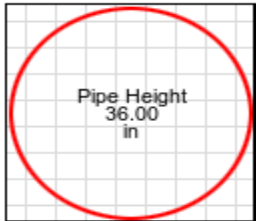
<b>GFLD_CSO</b>	<b>Total</b>	<b>Duration</b>	<b>Start</b>	<b>Stop</b>	<b>Rain</b>
<b>W1</b>	11,515	0:32:00	11/12/21 13:28	11/12/21 14:00	1.4

<b>Total</b>	<b>Gals.</b>	<b>Hrs.</b>	<b>Rain</b>
	11,515	0:32:00	1.4

# Hydrograph Report

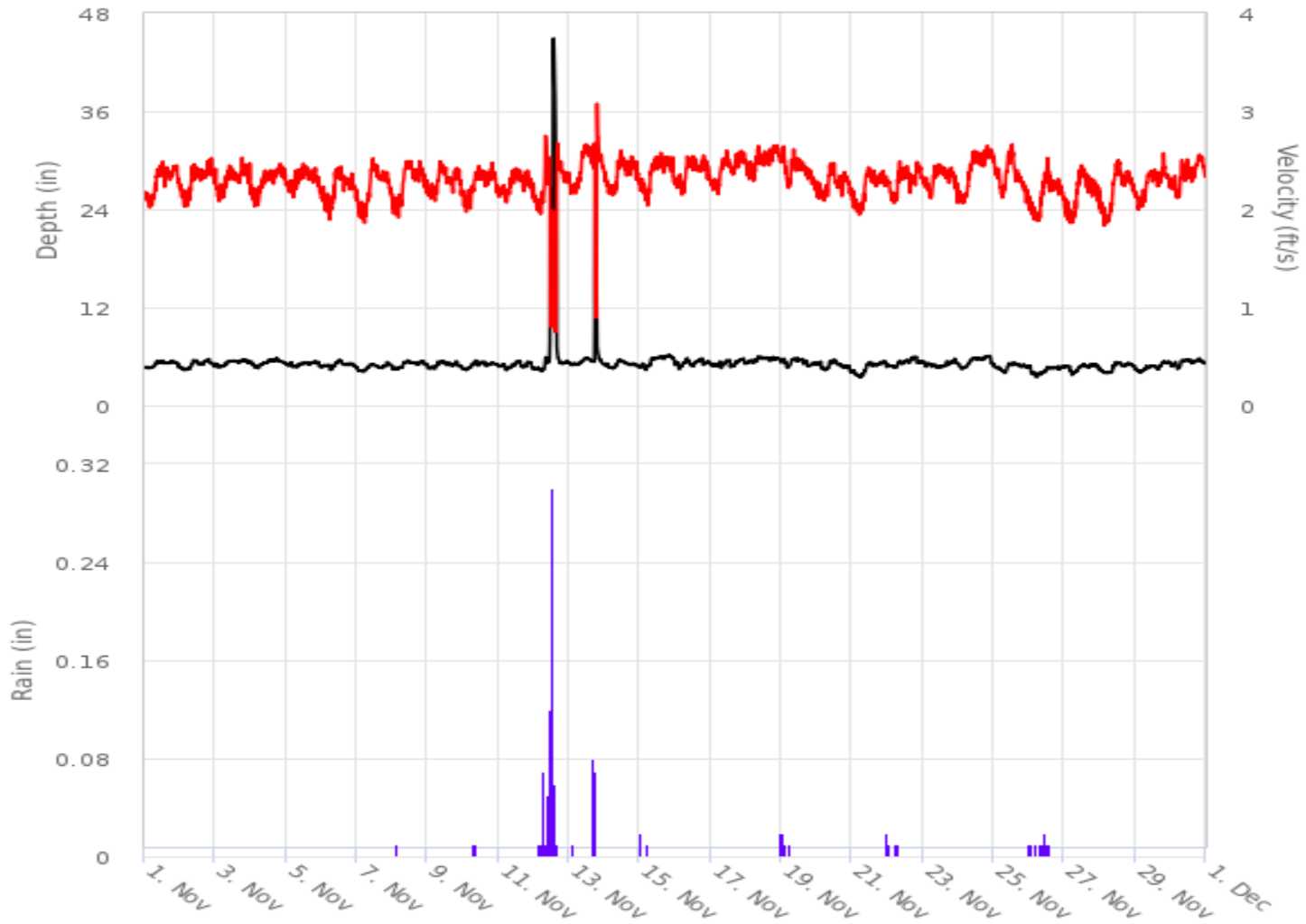
## Greenfield\_M1

**Flow Monitor**  
**Greenfield\_M1**



**Report Period**  
11/01/2021  
To  
11/30/2021

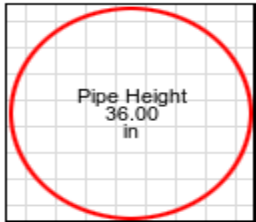
**Legend**  
— DFINAL  
— VFINAL  
— RAIN FINAL



# Scattergraph Report

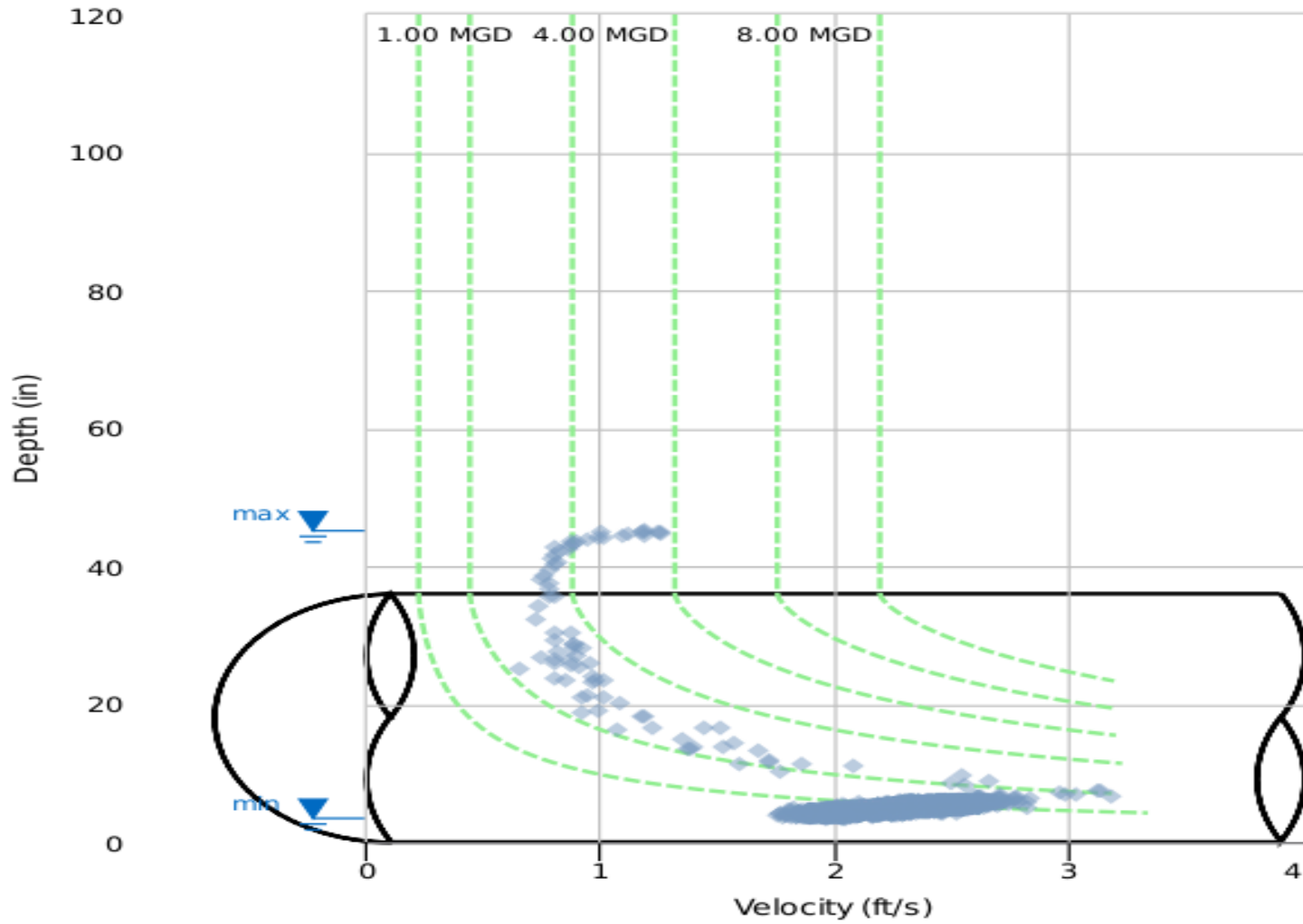
Greenfield\_M1

Flow Monitor  
**Greenfield\_M1**



Report Period  
11/01/2021  
To  
11/30/2021

Legend  
○ DFINAL - VFINAL  
--- Iso-Q™  
▼ Min-Max Depth



## Daily Tabular Report

11/01/2021 00:00 - 11/30/2021 23:59  
 Greenfield\_M1Pipe: Round (36 in H), Silt0.00 in

Date	DFINAL (in)					VFINAL (ft/s)											RAIN FINAL (in)
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
11/01/2021	02:35	4.53	12:30	5.60	5.07	03:30	2.00	12:25	2.53	2.29	-						
11/02/2021	03:00	4.30	19:35	5.76	5.01	06:05	1.96	21:15	2.60	2.30	-						
11/03/2021	02:20	4.60	18:45	5.70	5.23	02:35	2.06	23:15	2.71	2.31	-						
11/04/2021	04:55	4.50	17:25	5.87	5.22	02:40	1.92	22:35	2.52	2.29	-						
11/05/2021	07:15	4.60	19:25	5.50	5.05	05:20	2.11	11:45	2.56	2.31	-						
11/06/2021	06:05	4.33	12:05	5.65	4.98	05:30	1.83	13:25	2.59	2.21	-						
11/07/2021	04:40	4.12	20:35	5.39	4.70	02:00	1.77	11:00	2.61	2.22	-						
11/08/2021	03:50	4.39	10:25	5.57	5.01	04:15	1.85	13:05	2.61	2.28	0.01						
11/09/2021	04:55	4.43	19:15	5.59	4.95	05:00	2.01	08:30	2.70	2.28	-						
11/10/2021	02:40	4.32	08:35	5.53	4.97	02:25	1.81	20:00	2.62	2.26	0.02						
11/11/2021	05:15	4.33	15:00	5.52	4.91	05:35	2.00	12:40	2.47	2.26	-						
11/12/2021	05:15	4.13	13:36	45.14	9.31	11:45	0.65	08:10	2.79	2.06	1.40						
11/13/2021	01:35	4.89	18:15	28.67	6.35	18:10	0.89	17:30	3.18	2.38	0.36						
11/14/2021	05:45	4.48	10:20	5.72	5.02	04:00	2.07	09:05	2.66	2.36	0.01						
11/15/2021	04:20	4.32	19:35	6.18	5.51	05:30	2.00	13:55	2.69	2.37	0.03						
11/16/2021	02:45	4.38	08:05	5.86	5.21	04:35	2.11	19:40	2.60	2.39	-						
11/17/2021	07:20	4.53	22:20	5.87	5.15	05:15	2.09	22:50	2.70	2.41	-						
11/18/2021	00:50	5.12	09:10	6.09	5.62	02:15	2.19	19:30	2.69	2.50	0.03						
11/19/2021	04:00	4.66	11:00	5.89	5.27	23:10	2.16	08:30	2.78	2.40	0.07						
11/20/2021	22:40	3.92	10:55	5.63	4.89	02:15	2.01	11:45	2.56	2.26	-						
11/21/2021	06:30	3.43	22:50	5.48	4.60	05:10	1.87	13:40	2.50	2.23	0.03						
11/22/2021	06:05	4.54	17:25	6.04	5.24	04:15	1.91	08:30	2.59	2.30	0.03						
11/23/2021	09:55	4.58	21:45	5.83	5.03	23:55	2.01	09:40	2.49	2.32	-						
11/24/2021	02:50	4.40	21:35	6.14	5.40	01:50	2.04	20:05	2.68	2.40	-						
11/25/2021	07:50	3.89	13:45	5.30	4.73	23:35	1.97	12:55	2.82	2.34	-						
11/26/2021	05:15	3.46	00:00	4.91	4.32	05:55	1.78	12:50	2.55	2.16	0.16						
11/27/2021	05:20	3.72	21:00	5.18	4.66	06:20	1.79	11:45	2.51	2.16	-						
11/28/2021	06:05	3.93	11:35	5.36	4.68	03:20	1.76	12:50	2.54	2.19	-						
11/29/2021	04:05	3.97	19:45	5.45	4.72	02:40	1.89	19:50	2.59	2.27	-						
11/30/2021	05:05	4.42	19:00	5.82	5.27	05:05	2.05	11:35	2.61	2.36	-						

11/01/2021 00:00 - 11/30/2021 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				2.15
Average	5.20	2.30		



# RG1

## Site Commentary

### DATA UPTIME

Data uptime observed during **Monday, 01 November 2021 to Tuesday, 30 November 2021** is provided in the following table:

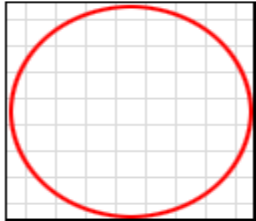
Percent Uptime	
Rainfall (in)	100



# Hydrograph Report

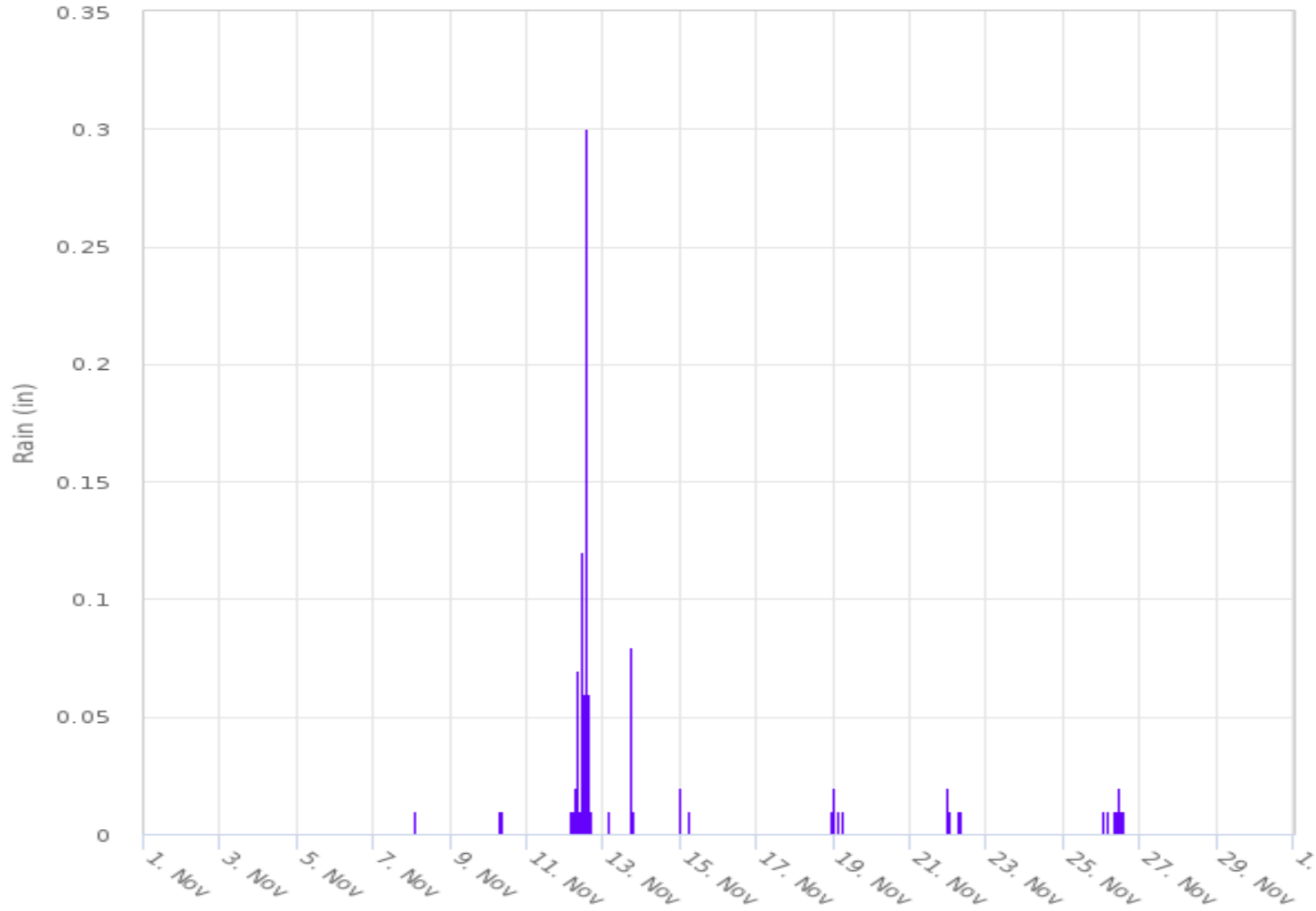
## RG1

Rain Gauge  
**RG1**



Report Period  
11/01/2021  
To  
11/30/2021

Legend  
— DFINAL  
— VFINAL  
— RAIN FINAL



## Daily Tabular Report

11/01/2021 00:00 - 11/30/2021 23:59

RG1RainGauge: Unknown (0 H x 0 W), Silt0.00

Date	DFINAL (in)					VFINAL (ft/s)										RAIN FINAL (in)	
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	Total	Total
11/01/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/02/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/03/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/04/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/05/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/06/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/07/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/08/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-
11/09/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/10/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	-
11/11/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/12/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.40	-
11/13/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.36	-
11/14/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-
11/15/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-
11/16/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/17/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/18/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-
11/19/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.07	-
11/20/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/21/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-
11/22/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.03	-
11/23/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/24/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/25/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/26/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	-
11/27/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/28/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/29/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11/30/2021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

11/01/2021 00:00 - 11/30/2021 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				2.15
Average				