

Montague, MA

Montague, MA

March 2022 Report Submitted to Montague, MA
April 12, 2022





April 12, 2022

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 Tuesday, 01 March 2022 to Thursday, 31 March 2022.

The report contains depth, velocity, and quantity hydrographs as well as daily long tables for the metering period. An Excel file containing depth 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

Tuesday, 01 March 2022 to Thursday, 31 March 2022



Montague, MA

Prepared For:

Chelsey Little, BSBS MPH
Superintendent
Montague WPCF

Prepared By:



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

Table of Contents

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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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022**, along with observed minimum and maximum data, are provided in the following table.

Three (3) overflows were observed in the March monitoring period.

Observed Flow Conditions		
Item	DFINAL (in)	VFINAL (ft/s)
Average	2.30	1.95
Minimum	1.43	0.46
Maximum	12.06	15.47
Min Time	03/20/2022 5:00:00 AM	03/20/2022 4:30:00 AM
Max Time	03/07/2022 9:40:00 PM	03/07/2022 9:40:00 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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022** is provided in the following table:

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

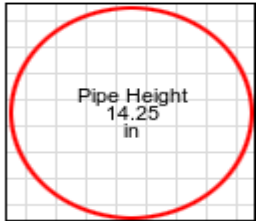
7th_L_CSO	Total	Duration	Start	Stop	Rain
W1	2,809	0:25:00	3/7/22 21:30	3/7/22 21:55	0.53
W2	295	0:10:00	3/19/22 22:15	3/19/22 22:25	0.81
W3	1,077	1:05:00	3/31/22 21:50	3/31/22 22:55	0.68

	Gals.	Hrs.	Rain
Total	4,182	1:40:00	2.02

Hydrograph Report

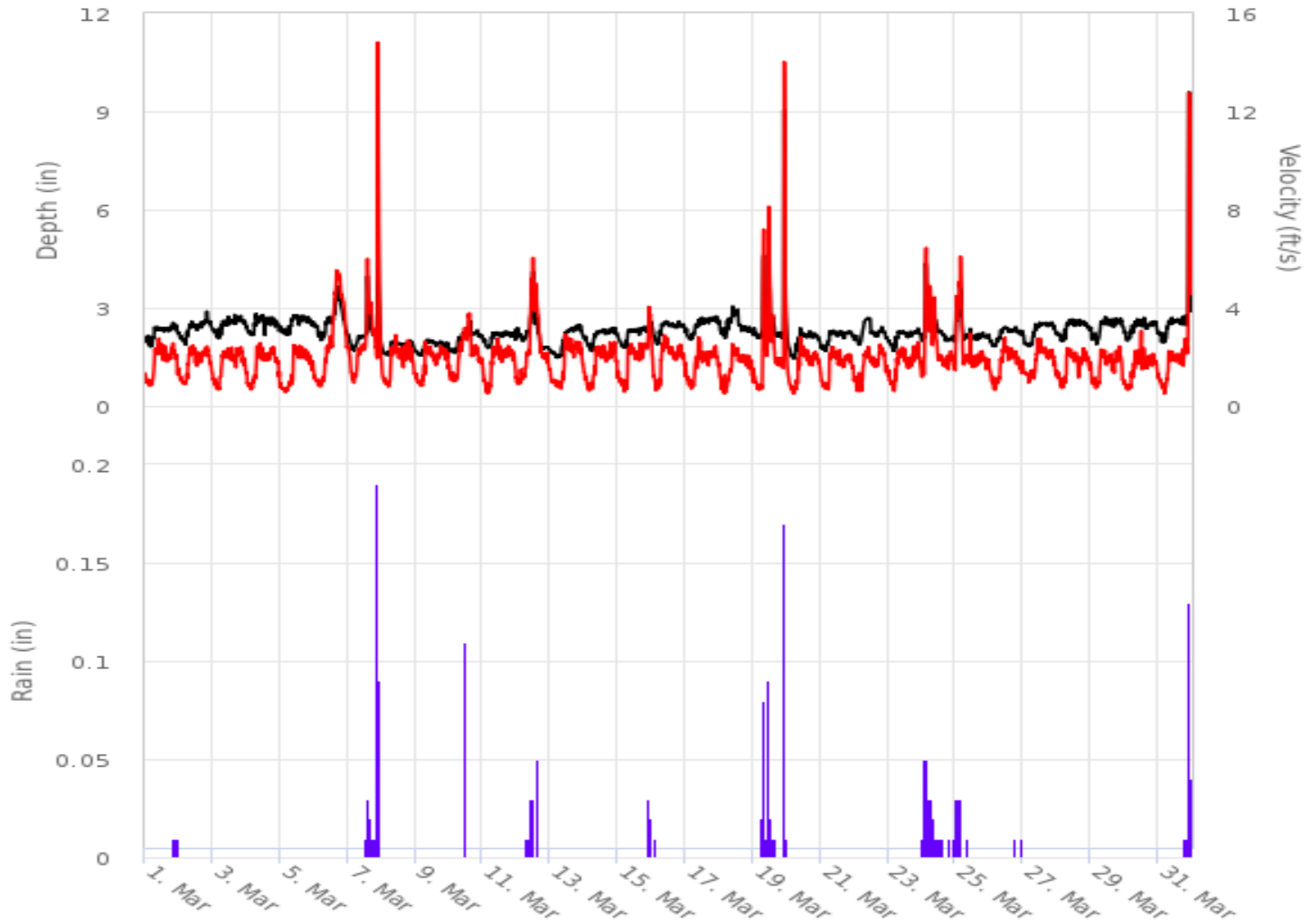
7th_L_CSO

Flow Monitor
7th_L_CSO



Report Period
03/01/2022
To
03/31/2022

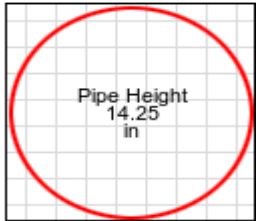
Legend
— DFINAL
— RAIN FINAL
— VFINAL



Scattergraph Report

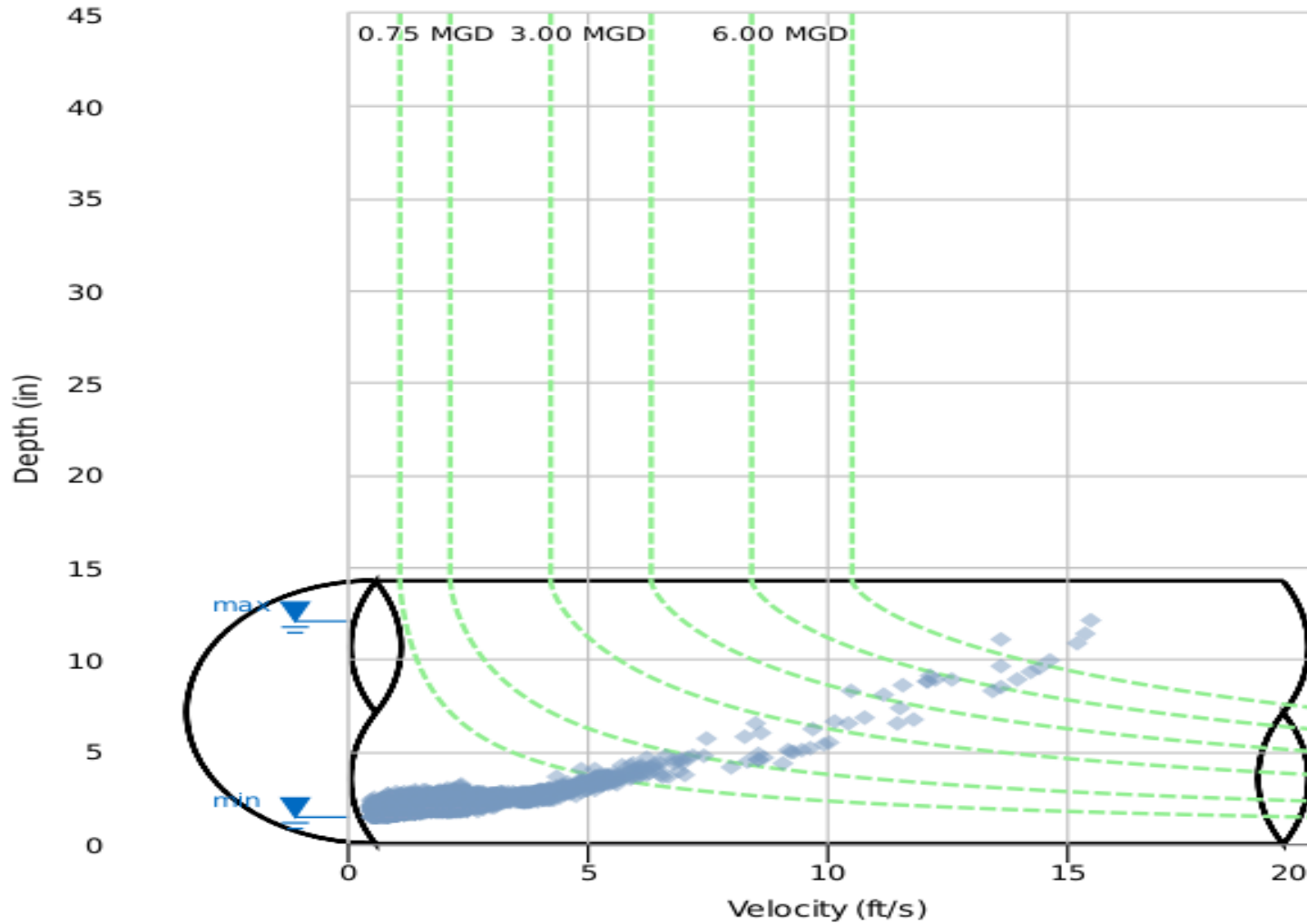
7th_L_CSO

Flow Monitor
7th_L_CSO



Report Period
03/01/2022
To
03/31/2022

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



Daily Tabular Report

03/01/2022 00:00 - 03/31/2022 23:59

7th_L_CSOPipe: Round (14.25 in H), Silt0.00 in

Date	DFINAL (in)					VFINAL (ft/s)					RAIN
	Time	Min	Time	Max	Avg	Time	Min	Time	Max	Avg	FINAL (in)
											Total
03/01/2022	04:10	1.72	20:00	2.58	2.25	02:55	0.80	10:10	2.87	1.82	0.06
03/02/2022	05:00	1.73	20:05	2.94	2.36	04:45	0.85	08:10	2.67	1.79	-
03/03/2022	04:05	1.89	15:50	2.91	2.49	04:35	0.61	17:50	2.44	1.76	-
03/04/2022	13:15	1.80	07:00	2.90	2.50	23:15	0.50	10:05	2.71	1.71	-
03/05/2022	05:25	2.17	10:05	2.80	2.53	04:05	0.52	09:50	2.67	1.57	-
03/06/2022	06:10	1.95	16:45	3.68	2.62	04:40	0.70	16:20	5.63	2.76	-
03/07/2022	04:40	1.66	21:40	12.06	2.41	04:30	0.93	21:40	15.47	2.95	0.53
03/08/2022	04:20	1.54	20:30	2.05	1.83	05:05	0.74	10:15	3.05	1.82	-
03/09/2022	04:25	1.53	09:00	2.03	1.84	06:55	0.66	07:20	2.68	1.81	-
03/10/2022	04:15	1.60	14:55	2.64	2.05	06:10	0.87	14:40	3.84	2.12	0.35
03/11/2022	03:50	1.76	23:55	2.34	2.11	03:25	0.46	10:25	2.88	1.80	-
03/12/2022	23:55	1.70	11:45	4.38	2.23	02:15	0.80	11:55	6.11	2.43	0.42
03/13/2022	04:55	1.46	20:25	2.50	2.03	07:40	0.54	10:20	2.96	1.79	-
03/14/2022	05:15	1.61	21:40	2.39	2.15	03:50	0.58	21:50	2.76	1.75	-
03/15/2022	05:25	1.75	22:45	2.72	2.21	04:50	0.53	22:15	4.13	1.97	0.15
03/16/2022	04:10	1.88	07:20	2.65	2.37	03:15	0.53	00:00	2.99	1.92	0.01
03/17/2022	04:15	2.00	11:40	2.88	2.46	04:15	0.65	09:25	2.82	1.75	-
03/18/2022	04:45	2.05	09:40	3.22	2.46	04:25	0.48	09:30	2.68	1.59	-
03/19/2022	22:00	1.99	22:20	9.91	2.67	00:00	0.57	22:20	14.65	2.70	0.81
03/20/2022	05:00	1.43	00:00	2.46	1.99	04:30	0.46	09:40	3.02	1.62	0.01
03/21/2022	03:55	1.66	09:25	2.31	2.10	05:50	0.64	08:10	2.55	1.64	-
03/22/2022	03:40	1.86	10:10	2.70	2.25	02:55	0.49	18:35	2.66	1.67	-
03/23/2022	04:35	1.67	21:40	2.39	2.12	05:05	0.55	21:30	2.80	1.72	-
03/24/2022	23:50	1.93	03:10	4.79	2.40	19:10	0.64	03:15	6.76	2.59	0.62
03/25/2022	00:10	1.95	03:35	3.74	2.28	00:10	1.33	03:40	6.48	2.38	0.27
03/26/2022	03:45	1.80	11:10	2.42	2.19	04:20	0.63	11:15	2.89	1.69	0.03
03/27/2022	04:15	1.80	20:20	2.60	2.28	04:00	0.48	10:25	2.96	1.81	-
03/28/2022	04:45	1.96	09:25	2.80	2.40	03:40	0.69	10:10	2.46	1.70	-
03/29/2022	04:15	1.82	13:50	2.79	2.42	04:00	0.69	07:55	2.81	1.63	-
03/30/2022	02:45	1.98	09:25	2.74	2.40	02:40	0.54	11:55	3.97	1.61	-
03/31/2022	04:10	1.85	22:00	11.05	2.81	04:35	0.48	21:55	13.61	2.45	0.68

03/01/2022 00:00 - 03/31/2022 23:59

	DFINAL (in)	VFINAL (ft/s)	RAIN FINAL (in)
Total			3.94
Average	2.30	1.95	

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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022**, along with observed minimum and maximum data, are provided in the following table.

Two (2) overflows were observed in the March monitoring period.

Observed Flow Conditions	
Item	DFINAL (in)
Average	2.81
Minimum	1.69
Maximum	39.70
Min Time	03/01/2022 4:50:00 AM
Max Time	03/31/2022 9:55:00 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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022** is provided in the following table:

Percent Uptime	
DFINAL (in)	100

Ave_A_CSO	Total	Duration	Start	Stop	Rain
W1	596	0:10:00	3/7/22 21:40	3/7/22 21:50	0.53
W2	25,630	0:55:00	3/31/22 21:50	3/31/22 22:45	0.68

	Gals.	Hrs.	Rain
Total	26,226	1:05:00	1.21

Hydrograph Report

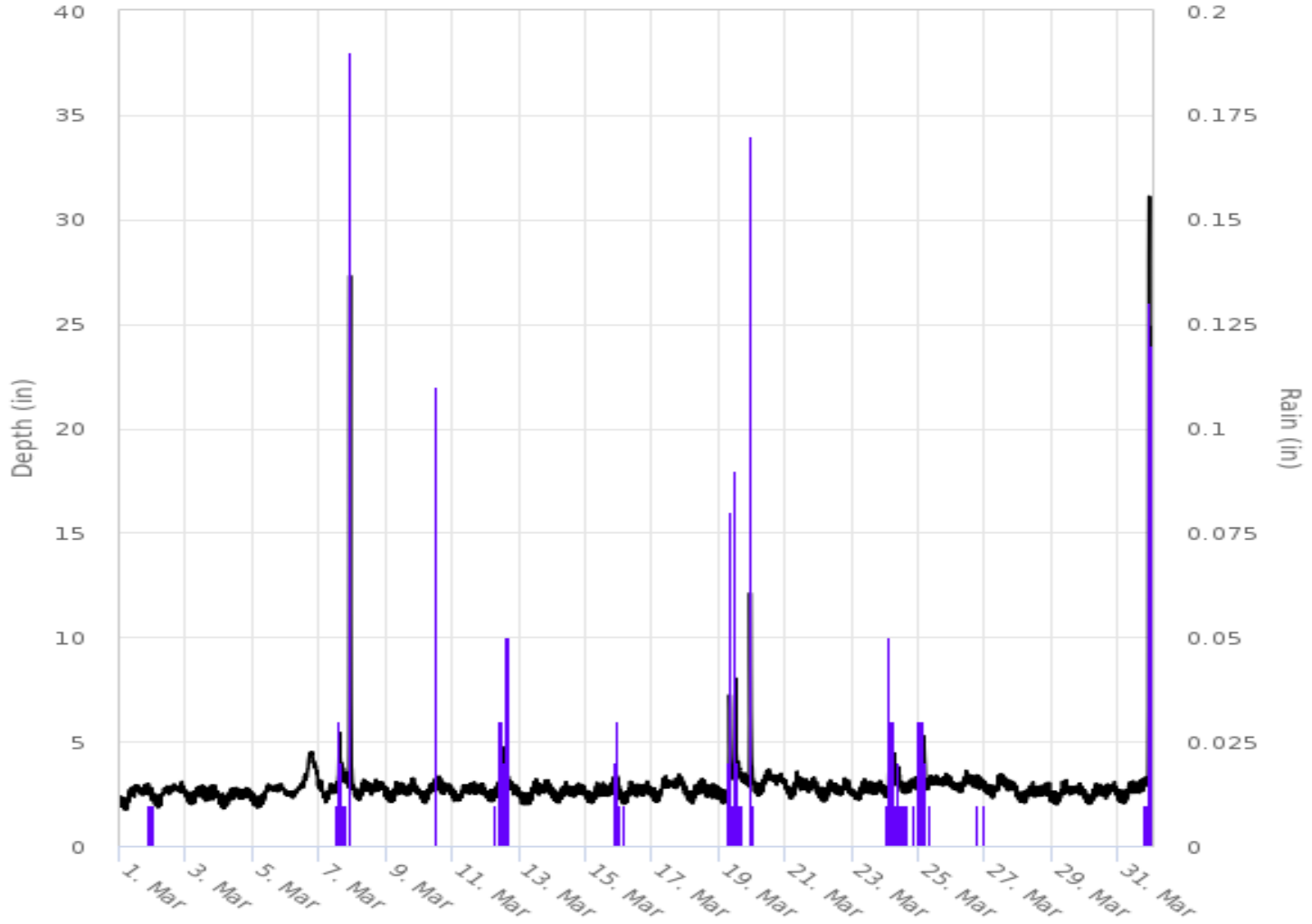
Ave_A_CSO

Flow Monitor
Ave_A_CSO

Pipe Height
21.00
in

Report Period
03/01/2022
To
03/31/2022

Legend
— DFINAL
— RAIN FINAL
— VFINAL



Daily Tabular Report

03/01/2022 00:00 - 03/31/2022 23:59

Ave_A_CSOPipe: Round (21 in H), Silt0.00 in

Date	DFINAL (in)					RAIN FINAL (in)
	Time	Min	Time	Max	Avg	Total
03/01/2022	04:50	1.69	20:15	3.48	2.48	0.06
03/02/2022	04:10	1.77	17:55	3.54	2.58	-
03/03/2022	03:20	1.86	07:25	3.54	2.46	-
03/04/2022	03:45	1.76	19:10	3.31	2.42	-
03/05/2022	04:40	1.74	16:30	3.61	2.54	-
03/06/2022	04:05	1.90	18:20	4.79	3.14	-
03/07/2022	03:45	1.99	21:45	29.19	3.62	0.53
03/08/2022	04:00	2.07	16:30	3.91	2.74	-
03/09/2022	02:15	2.02	18:30	3.63	2.62	-
03/10/2022	03:50	2.01	15:05	3.83	2.68	0.35
03/11/2022	05:20	2.00	12:45	3.55	2.61	-
03/12/2022	04:40	2.07	11:50	5.01	2.88	0.42
03/13/2022	01:40	1.84	21:20	3.61	2.60	-
03/14/2022	04:15	1.99	11:20	3.57	2.58	-
03/15/2022	03:05	1.99	20:05	3.85	2.61	0.15
03/16/2022	02:45	1.98	20:25	3.65	2.62	0.01
03/17/2022	02:45	1.95	19:10	3.83	2.83	-
03/18/2022	04:50	1.94	13:05	3.78	2.62	-
03/19/2022	03:40	1.97	22:20	13.85	3.60	0.81
03/20/2022	04:50	2.25	12:30	4.12	3.10	0.01
03/21/2022	04:30	2.17	08:25	3.81	2.83	-
03/22/2022	04:10	2.06	18:30	3.73	2.70	-
03/23/2022	02:50	2.07	09:50	3.70	2.66	-
03/24/2022	00:00	2.29	03:15	6.14	3.05	0.62
03/25/2022	06:15	2.60	03:30	5.49	3.24	0.27
03/26/2022	03:45	2.33	09:45	3.95	3.01	0.03
03/27/2022	23:40	2.20	11:40	4.08	2.81	-
03/28/2022	04:25	1.95	10:20	3.59	2.50	-
03/29/2022	03:40	1.90	10:35	3.63	2.57	-
03/30/2022	02:30	1.91	07:45	3.56	2.54	-
03/31/2022	04:00	1.95	21:55	39.70	3.87	0.68

03/01/2022 00:00 - 03/31/2022 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				3.94
Average	2.81			

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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022**, along with observed minimum and maximum data, are provided in the following table.

Two (2) overflows were observed in the March monitoring period.

Observed Flow Conditions		
Item	DFINAL (in)	VFINAL (ft/s)
Average	5.07	2.40
Minimum	3.30	0.69
Maximum	44.31	3.13
Min Time	03/22/2022 5:15:00 AM	03/31/2022 10:30:00 PM
Max Time	03/31/2022 11:10:00 PM	03/25/2022 4:15:00 AM

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 **Tuesday, 01 March 2022 to Thursday, 31 March 2022** is provided in the following table:

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

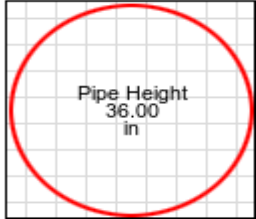
GFLD_CSO	Total	Duration	Start	Stop	Rain
W1	1,097	0:20:00	3/7/22 22:20	3/7/22 22:40	0.23
W2	5,062	1:00:00	3/31/22 22:35	3/31/22 23:35	0.68

	Gals.	Hrs.	Rain
Total	6,159	1:20:00	0.91

Hydrograph Report

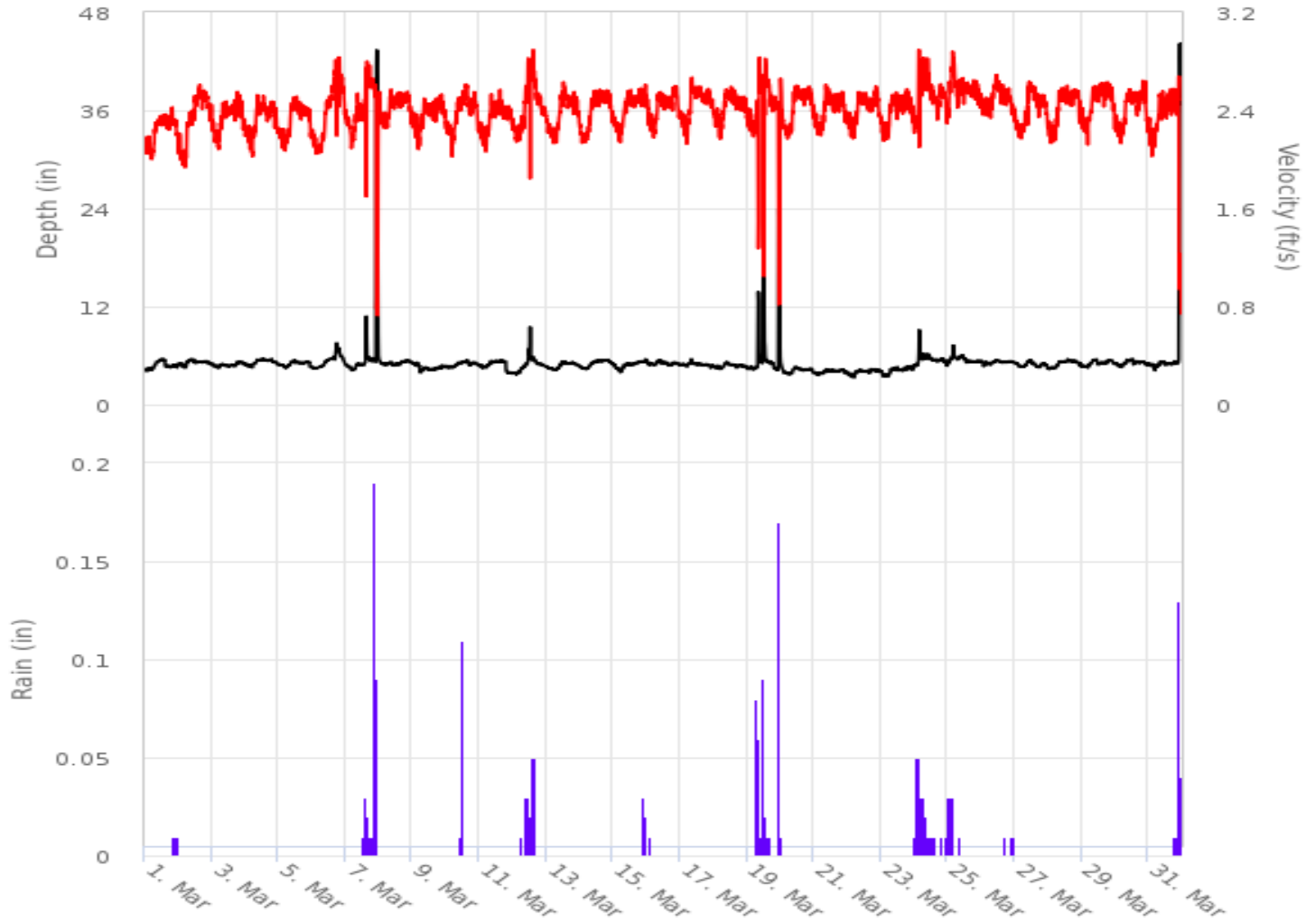
Greenfield_M1

Flow Monitor
Greenfield_M1



Report Period
03/01/2022
To
03/31/2022

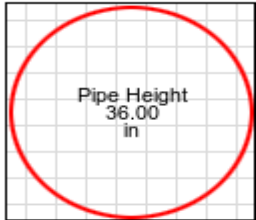
Legend
— DFINAL
— RAIN FINAL
— VFINAL



Scattergraph Report

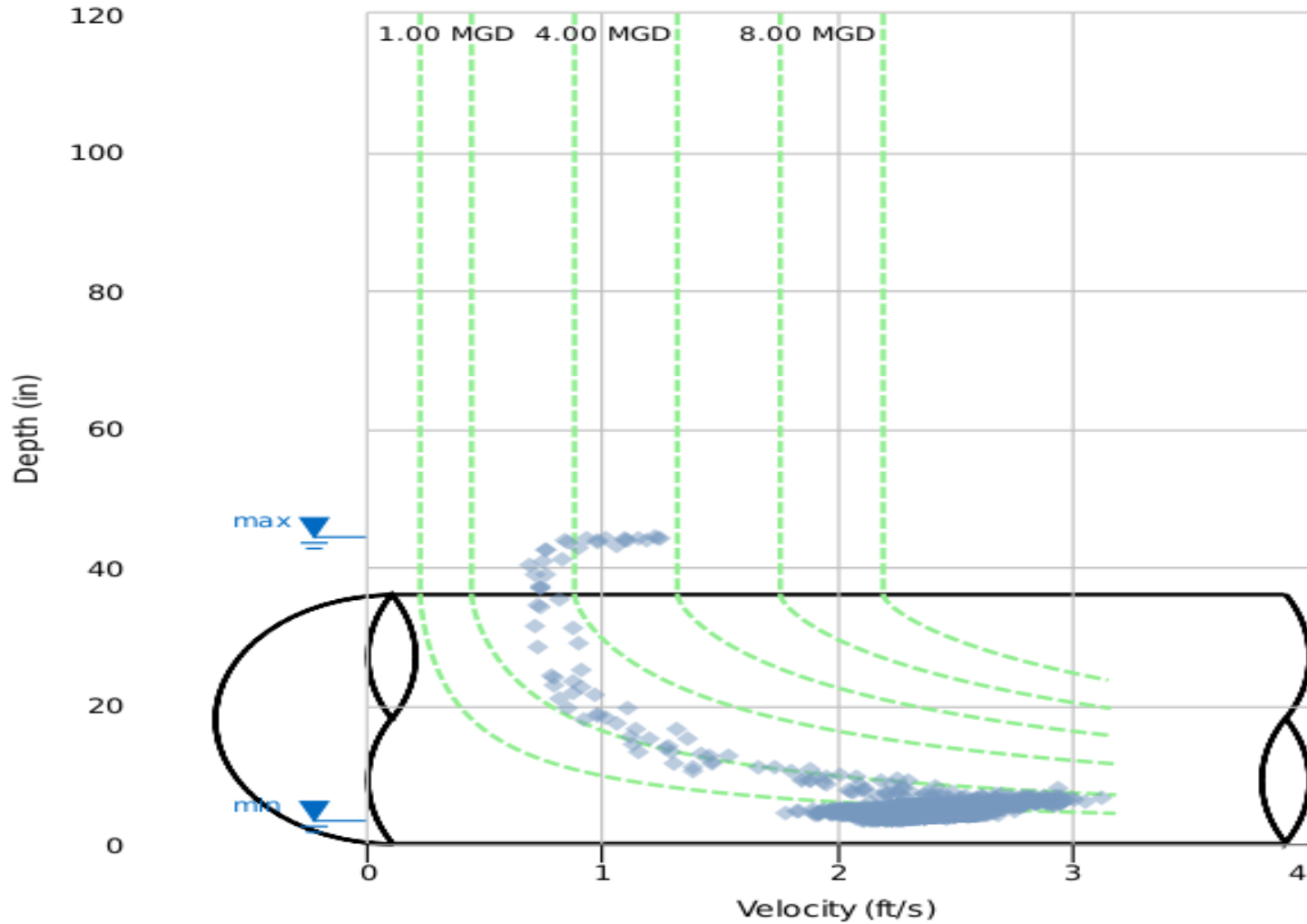
Greenfield_M1

Flow Monitor
Greenfield_M1



Report Period
03/01/2022
To
03/31/2022

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



Daily Tabular Report

03/01/2022 00:00 - 03/31/2022 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	Total
03/01/2022	02:20	4.11	13:30	5.59	4.79	05:00	1.91	19:45	2.45	2.23	0.06
03/02/2022	05:05	4.48	09:20	5.64	5.12	03:40	1.84	15:10	2.65	2.33	-
03/03/2022	05:05	4.43	18:50	5.32	4.86	05:05	2.07	16:15	2.65	2.34	-
03/04/2022	05:00	4.49	13:05	5.67	5.19	05:20	1.98	12:10	2.58	2.32	-
03/05/2022	05:00	4.40	11:50	5.48	4.99	05:00	2.04	11:05	2.56	2.32	-
03/06/2022	03:15	4.43	17:50	7.99	5.35	06:50	2.01	19:20	2.95	2.38	-
03/07/2022	04:50	4.16	22:30	44.03	6.90	22:50	0.71	22:00	3.06	2.32	0.53
03/08/2022	10:40	4.76	00:00	5.75	5.09	03:50	2.20	14:40	2.59	2.43	-
03/09/2022	05:30	3.88	03:25	5.18	4.51	05:05	2.06	21:05	2.61	2.37	-
03/10/2022	05:00	4.36	15:05	5.49	4.94	04:40	1.78	12:35	2.68	2.38	0.35
03/11/2022	23:50	3.75	15:15	5.51	4.82	05:00	2.04	15:05	2.65	2.34	-
03/12/2022	02:50	3.70	12:40	10.36	4.88	12:40	1.38	12:10	3.01	2.43	0.42
03/13/2022	06:00	4.22	11:35	5.30	4.77	07:30	1.98	12:30	2.69	2.38	-
03/14/2022	04:25	4.35	20:25	5.62	5.01	01:55	2.00	11:15	2.63	2.39	-
03/15/2022	05:20	3.81	23:40	5.59	4.87	04:40	2.06	11:05	2.68	2.41	0.15
03/16/2022	15:35	4.67	09:40	5.57	5.05	05:25	2.08	20:40	2.71	2.43	0.01
03/17/2022	22:20	4.44	08:25	5.64	4.91	05:00	2.02	08:45	2.72	2.46	-
03/18/2022	05:05	4.30	09:50	5.28	4.74	05:30	2.12	12:50	2.62	2.43	-
03/19/2022	21:40	4.17	23:05	24.22	6.06	23:05	0.78	12:55	2.99	2.33	0.81
03/20/2022	06:15	3.70	00:10	6.11	4.24	08:15	2.13	00:20	2.70	2.43	0.01
03/21/2022	03:20	3.56	09:00	4.35	4.03	05:25	2.17	10:35	2.69	2.41	-
03/22/2022	05:15	3.30	16:50	4.38	4.01	02:40	2.11	20:40	2.63	2.42	-
03/23/2022	04:50	3.45	23:50	4.86	4.15	04:50	2.10	16:20	2.63	2.40	-
03/24/2022	00:20	4.55	03:55	9.81	5.56	03:55	2.01	03:35	2.95	2.53	0.62
03/25/2022	00:00	4.84	04:25	8.06	5.51	07:25	2.22	04:15	3.13	2.58	0.27
03/26/2022	01:55	4.37	11:25	5.49	5.17	06:05	2.25	11:30	2.78	2.49	0.03
03/27/2022	23:55	4.40	11:40	5.53	4.90	03:10	2.09	10:50	2.68	2.41	-
03/28/2022	01:20	4.30	14:30	5.57	5.01	02:15	2.05	14:10	2.65	2.42	-
03/29/2022	04:55	4.43	10:40	5.62	5.08	04:55	2.08	10:35	2.69	2.47	-
03/30/2022	04:50	4.54	13:15	5.60	5.10	04:35	2.11	20:25	2.76	2.42	-
03/31/2022	05:05	4.16	23:10	44.31	7.54	22:30	0.69	22:10	2.79	2.28	0.68

03/01/2022 00:00 - 03/31/2022 23:59

	DFINAL (in)	VFINAL (ft/s)	RAIN FINAL (in)
Total			3.94
Average	5.07	2.40	

RG1

Site Commentary

DATA UPTIME

Data uptime observed during **Tuesday, 01 March 2022 to Thursday, 31 March 2022** is provided in the following table:

Percent Uptime	
Rainfall (in)	100

Hydrograph Report

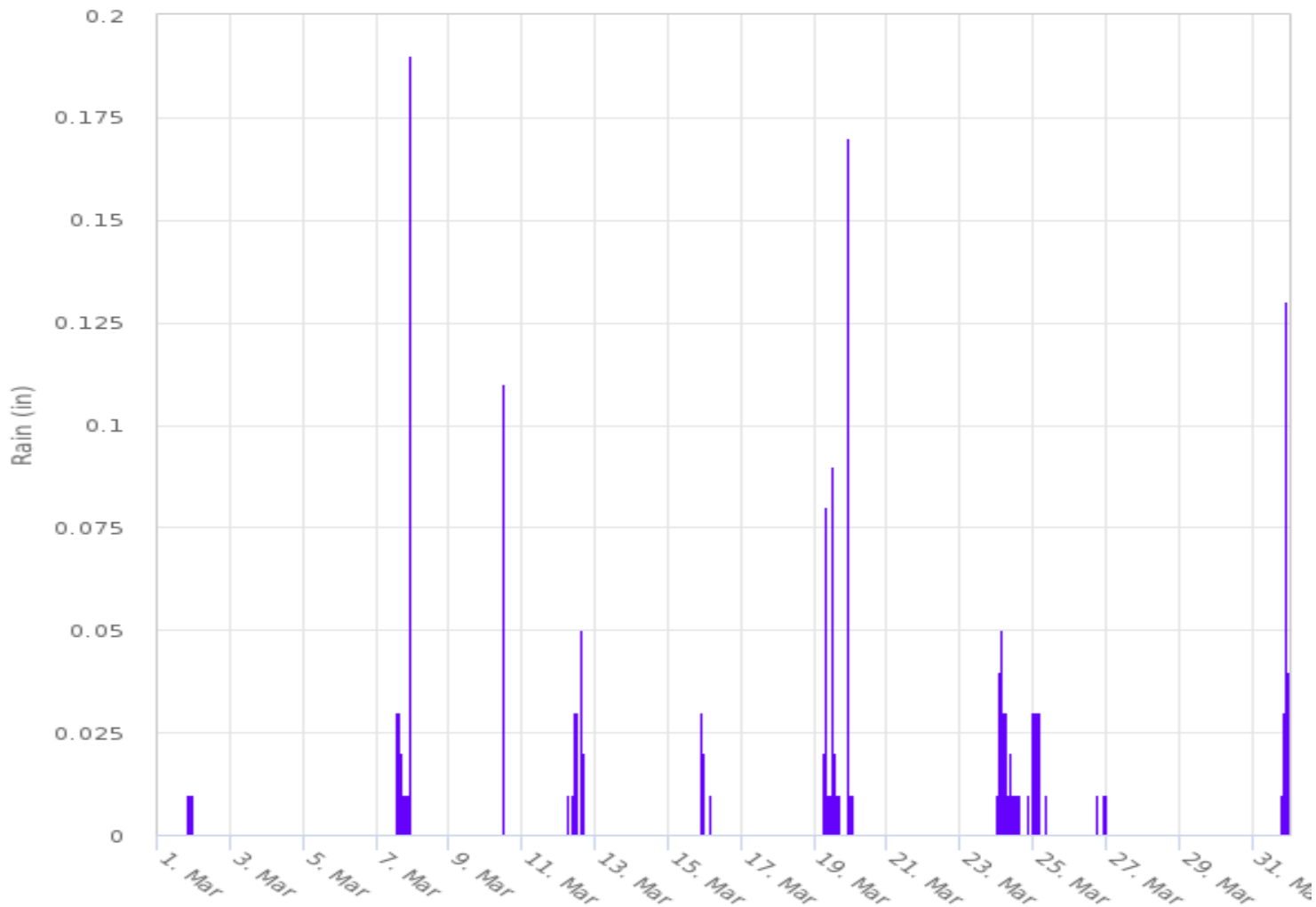
RG1

Rain Gauge
RG1



Report Period
03/01/2022
To
03/31/2022

Legend
— DFINAL
— RAIN FINAL
— VFINAL



Daily Tabular Report

03/01/2022 00:00 - 03/31/2022 23:59

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

	RAIN FINAL (in)
Date	Total
03/01/2022	0.06
03/02/2022	-
03/03/2022	-
03/04/2022	-
03/05/2022	-
03/06/2022	-
03/07/2022	0.53
03/08/2022	-
03/09/2022	-
03/10/2022	0.35
03/11/2022	-
03/12/2022	0.42
03/13/2022	-
03/14/2022	-
03/15/2022	0.15
03/16/2022	0.01
03/17/2022	-
03/18/2022	-
03/19/2022	0.81
03/20/2022	0.01
03/21/2022	-
03/22/2022	-
03/23/2022	-
03/24/2022	0.62
03/25/2022	0.27
03/26/2022	0.03
03/27/2022	-
03/28/2022	-
03/29/2022	-
03/30/2022	-
03/31/2022	0.68

03/01/2022 00:00 - 03/31/2022 23:59

	DFINAL (in)	VFINAL (ft/s)		RAIN FINAL (in)
Total				3.94
Average				