Appendix G. Water and Sewer Study Requirements Memo

Appendix

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TAIT
RISING TO THE CHALLENGE

701 N. Parkcenter Drive, Santa Ana, CA 92705

p:714/560/8200 www.tait.com

MEMORANDUM

DATE: May 28, 2019
TO: City of Newport Beach, Public Works Department
CC: Nexus Development
FROM: Jacob Vandervis, PE; Project Manager
Bart J. Mink, PE; Project Engineer
RE: Vivante Senior Assisted Living - Sewer Flow Monitoring and Calculations

Public Works Reviewer:

This memo is being submitted as an addendum to the previous memo regarding the City's requirement for a Sewer and Water Study dated October 31, 2018. The previous memo requested that Fuscoe's Sewer study be used as basis of design for the above mentioned project and that TAIT's revised sewer calculations be added to these studies as an addenda and that no further study be provided. Fuscoe's 2013 Sewer Capacity Study was based on similar project flows, a previously performed sewer flow study and theoretical anticipated flows from the Meridian Project which resulted in a depth/Diameter (d/D) of 0.55.

A meeting was held between TAIT, Nexus Development and the City, dated April 3, 2019. With a d/D of 0.55 from the older Fuscoe study, City staff requested that the manhole located at Jamboree and Santa Barbara be monitored for sewer flows. During the week of 5/14 to 5/22/2019 the manhole was monitored by Utility Systems Science & Software (US Cubed). See their monitoring information and data attached.

Using the monitored maximum (peak) flow rate (88.79 gpm, or 0.198 cfs) and the addition of the Vivante Project (0.107 cfs), TAIT calculated the pipe hydraulics to determine the proposed depth of sewer flows in the existing pipe at the Jamboree crossing (existing 8" pipe at 0.6%). A peak depth of 0.26 feet (see attached pipe hydraulic calcs) was calculated. Using this information, the d/D of the existing pipe calculates to 0.39, which is below the Newport Beach requirement of 0.50 d/D maximum.

Therefore, TAIT once again requests that Fuscoe's Sewer Study (with TAIT's monitored and proposed flow rates) be used as the basis of design, that TAIT's calculations be added to Fuscoe's report as an addenda, that no further study be provided, and finally, acknowledgement that the existing 8" sewer pipe crossing Jamboree at 0.6% slope **does not** require up-sizing per Fuscoe's report since the proposed d/D of 0.39 is less than the maximum of 0.50 d/D.

Please contact us if you have any comments or questions

Respectfully,

Jacob Vandervis, PE
COO/Project Manager

REGISTERED PROFESSIONAL ENGINEER
JACOB VANDERVIS
No. 046301
Exp. 12/31/20
CIVIL
STATE OF CALIFORNIA

Methods & Procedures & Equipment

Methods and Procedures

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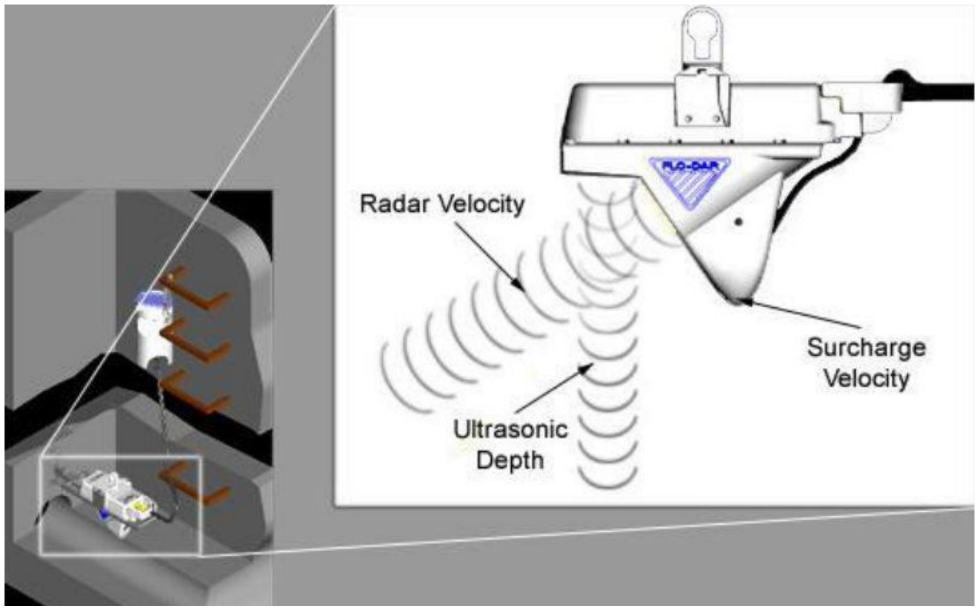
Equipment



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SPECIFICATIONS

- **Enclosure**
  - IP68 □ □terproo□r□tin□, Po□□□t□rene
- **Dimensions**
  - 160.5 W x 432.2 L x 297 D mm (6.32 x 16.66 x 11.7 in.),
  - □ it□ S□S, D = 387 mm (15.2 in.)
- **Weight**
  - 4.8 kg (10.5 lbs.)
- **Operating Temperature**
  - -10 to 50°C (14 to 122°F)
- **Storage Temperature**
  - -40 to 60°C (-40 to 140°F)
- **Power Requirements**
  - S□pp□ied by FL900 □o□ □o□□er, □□o- □o□□er, □r □□St□tion

- **Interconnecting Cable**
  - Di□□onne□t ava ilab e □t □ot□ □en□or □nd o□□er or □□o St□tion
  - Po□□□ret□□ne, 0.400 (±0.015) in. di□□eter; IP68
  - St□nd□rd □en□t□ 9 m (30 □t), max mum 305 m (1000 □t)
- **Cables – available in two styles:**
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- **Certification**
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  - Ind□□tr□ Ca nada Spe□. RSS210. v7: I□ □o.: 6149 □- □□OD□R24

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- **Method**
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- **Range**
  - 3.5 m (138 in.), o□erpre□□□re r□tin□ 2.5 x full sca □e

VEL OCITY M□□S□R□M□□T

- **Method**
  - R□d□r
- **Range**
  - 0.23 to 6.10 m/s (0.75 to 20 □t/ □)
- **Frequency Range**
  - 24.075 to 24.175 GH z, 15.2 mW (max.)
- **Accuracy**
  - ±0.5%; ±0.03 m/s (±0.1 □t/ □)

D□PT□ M□□S□R□M□□T

- **Method**
  - □tr□□oni□
- **Standard Operating Range from Flo-Dar® Housing to Liquid**
  - 0 to 152.4 cm (0 to 60 in.)
- **Optional Extended Level Operating Range from Transducer Face to Liquid**
  - 0 to 6.1 m (0 to 20 □t.) □it□ 43.18 cm (17 in.) de□d □□nd, te□per□t□re □o□pen□□ted.
- **Accuracy**
  - ±1%; ±0.25 cm (±0.1 in.)

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- **Method**
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- **Surcharge depth supplied by Flo-Dar® sensor.**

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Perfect Solution for Difficult Flow Conditions:

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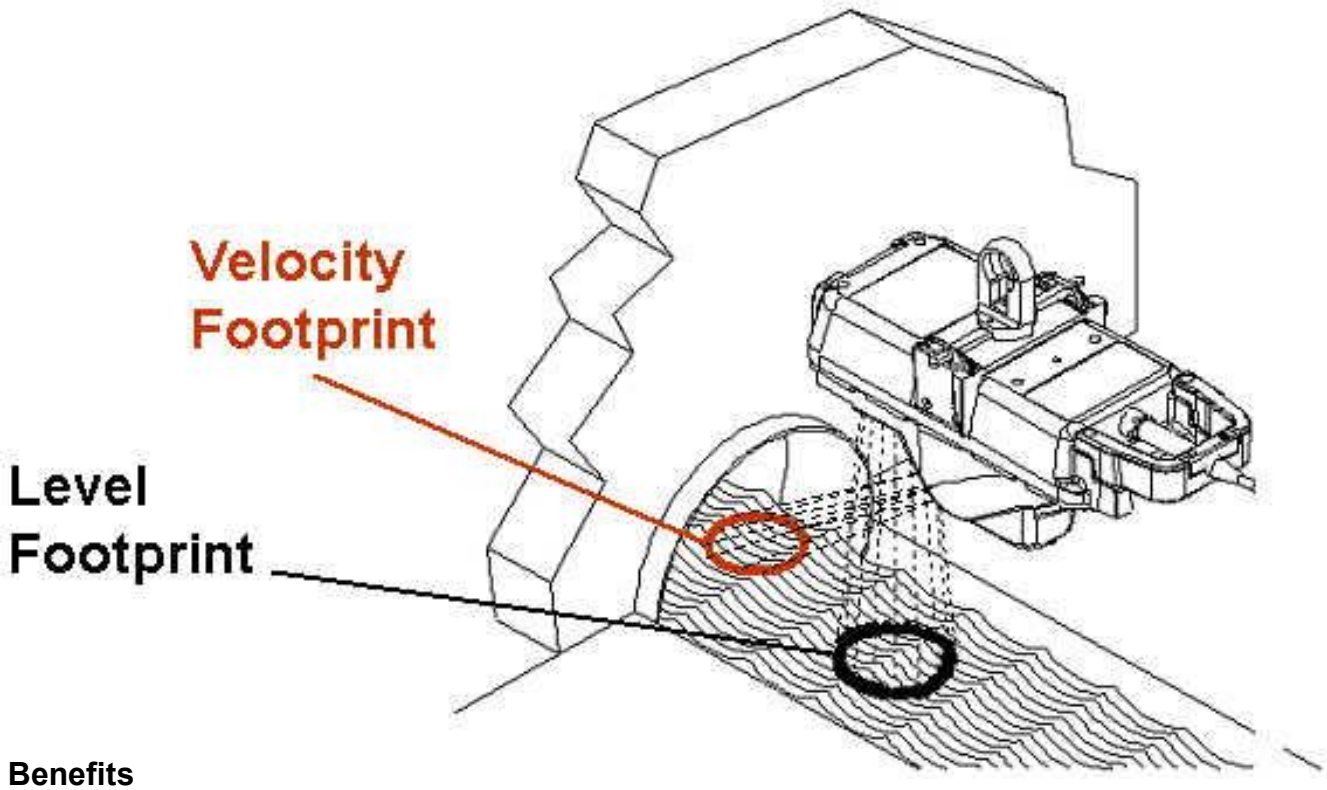

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$$Q = V \times A, \text{ Where } Q = \text{Flow, } V = \text{Average Velocity and } A = \text{Area}$$

Accurate Flow Measurements

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US³ Company Information

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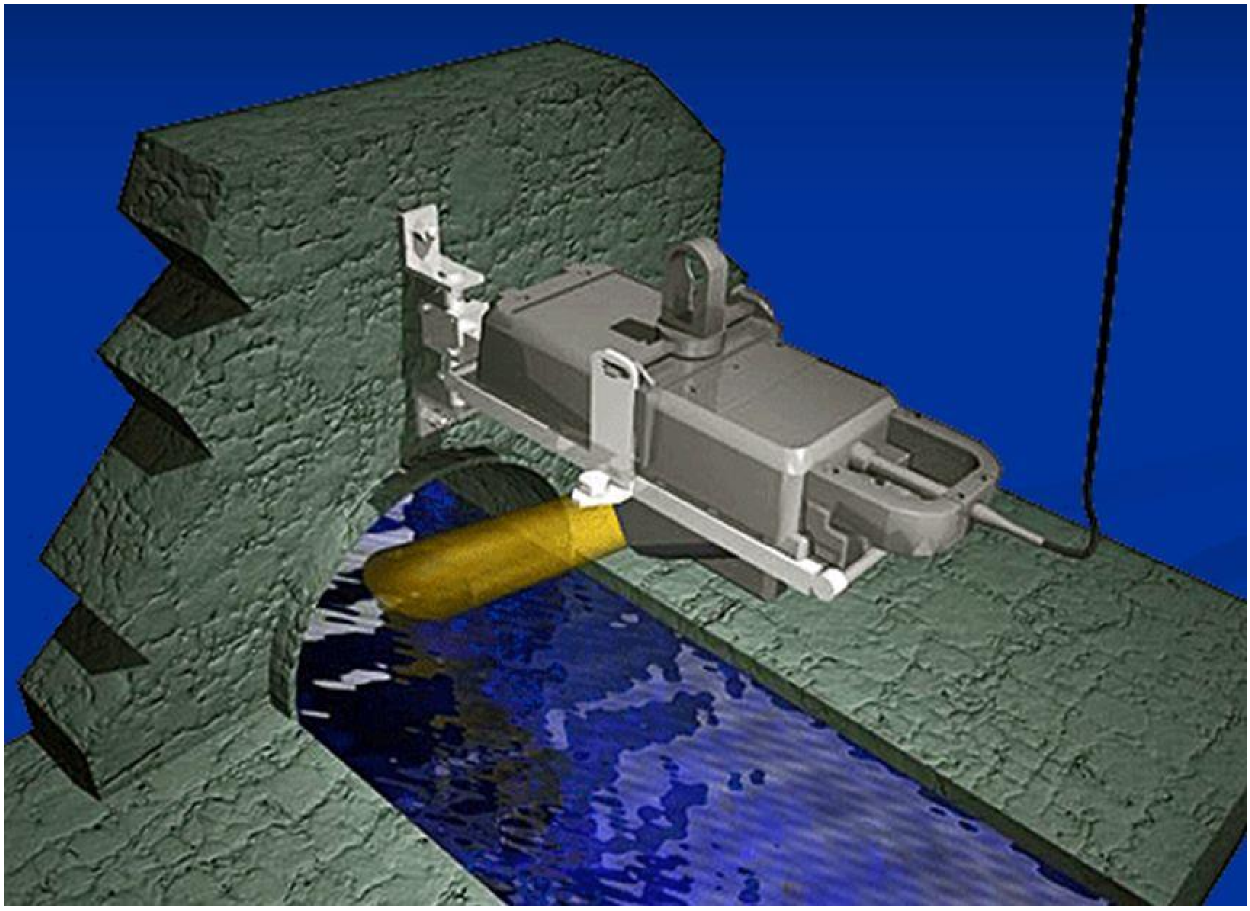

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Name, Title, Address and Telephone numbers of persons to contact concerning this report.

Darlene Szczublewski, PE
Senior Civil Engineer
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Tom Williams
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Site Report 5/23/2019

Confidential Proprietary Information

Tait & Associates

2019.05 Jamboree Rd MH

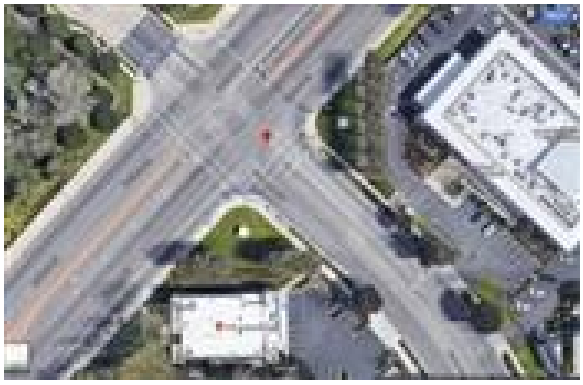
MH at ~1470 Jamboree Rd
Newport Beach, CA 92660
MH # J-01

Access:
MH in NB left-turn lane of Santa Barbara Dr, north of address

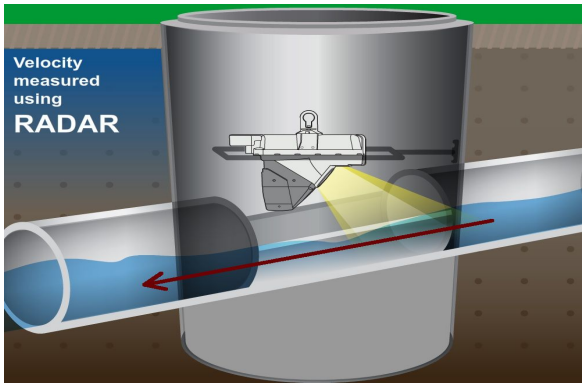
System Type:
Sanitary [X] Storm [ ]

Install Date: 5/14/2019

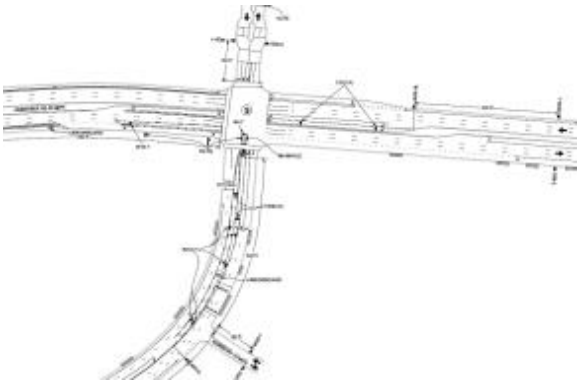
Map



Technology



Traffic Plan



Flow Meter			
Meter Depth: 77"			
MH Coordinates: 33.623208, -117.881205			
Moderate open channel hydraulics with some turbulence due to inflow from lateral.			
Avg Velocity	Avg Measured Level		Multiplier
2.75 fps	1.33"		1.0
Gas			
O2	H2S	CO	LEL
20.9	0	0	0
Notes			
Two inlets from NE & SE; monitored downstream line to get total flow.			
Traffic Safety			
Coordinated w/City for TC; used arrowboards, cones & signs per approved traffic control plan.			
Land Use			
Residential	Commercial	Industrial	Trunk
	X		

Manhole Depth	91"
Monitored Pipe Size	8"
Inner Pipe Size (In/Out)	8"/8"
Pipe Shape	Round
Pipe Condition	Good
Manhole Material	Concrete
Silt	0"
Velocity Profile Data	*
Velocity Profile Taken	0.4 2-D
Sensor Offset	13.98"
Sensor Dist. to Crown	5.98"
Sensor Direction	Do□nstream
Flow Heading	North

Meter Site Document

2019.05 Jamboree Rd MH

MH at ~1470 Jamboree Rd

Newport Beach, CA 92660

Site

Manhole Before Install

Installation Process

Installed

Monitored Pipe Size

Downstream

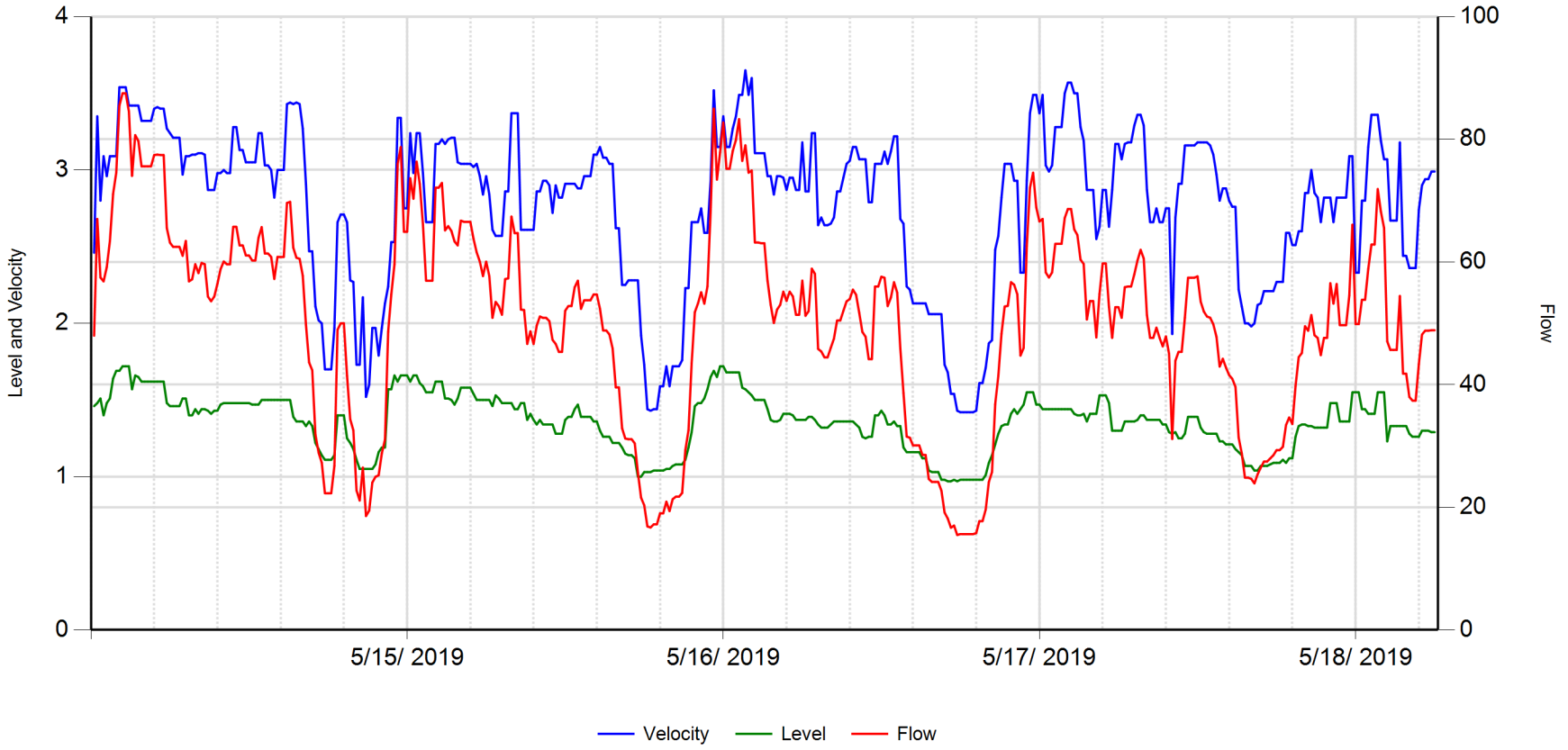
Utility Systems Science and Software

Report Date: 05/22/2019
Customer: Tait & Associates
Group: Newport Beach
Site: 2019.05 Jamboree Rd MH

Statistics for 2019.05 Jamboree Rd MH: 5/14/2019 thru 5/22/2019

	Flow (GPM)			Flow (MGD)			Velocity (FPS)			Level (inches)				
Date	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Avg**	**Max**	**Min**	**Total Gal**	**Rain**
5/14/19	64.70	87.50	43.62	0.09	0.13	0.06	3.15	3.54	2.46	1.50	1.72	1.33	93,174	—
5/15/19	51.14	78.75	18.58	0.07	0.11	0.03	2.72	3.37	1.52	1.40	1.66	1.05	73,643	—
5/16/19	48.39	85.01	16.71	0.07	0.12	0.02	2.70	3.65	1.43	1.34	1.72	1.00	69,688	—
5/17/19	46.19	74.56	15.49	0.07	0.11	0.02	2.70	3.57	1.42	1.29	1.55	0.97	66,513	—
5/18/19	47.05	71.89	23.90	0.07	0.10	0.03	2.78	3.45	1.98	1.30	1.55	1.04	67,757	—
5/19/19	48.79	76.71	23.92	0.07	0.11	0.03	2.85	3.62	1.89	1.31	1.57	1.08	70,263	—
Week:	**51.05**	**87.50**	**15.49**	**0.07**	**0.13**	**0.02**	**2.82**	**3.65**	**1.42**	**1.36**	**1.72**	**0.97**	**441,038**	**—**
5/20/19	48.12	73.14	15.66	0.07	0.11	0.02	2.73	3.42	1.39	1.33	1.58	1.00	69,295	—
5/21/19	48.54	88.79	13.73	0.07	0.13	0.02	2.70	3.72	1.19	1.33	1.71	0.98	69,890	—
5/22/19	27.51	48.37	18.21	0.04	0.07	0.03	2.12	2.54	1.52	1.09	1.46	1.00	39,613	—
Week:	**41.39**	**88.79**	**13.73**	**0.06**	**0.13**	**0.02**	**2.51**	**3.72**	**1.19**	**1.25**	**1.71**	**0.98**	**178,798**	**—**
Totals:	**47.83**	**88.79**	**13.73**	**0.07**	**0.13**	**0.02**	**2.72**	**3.72**	**1.19**	**1.32**	**1.72**	**0.97**	**619,836**	**—**

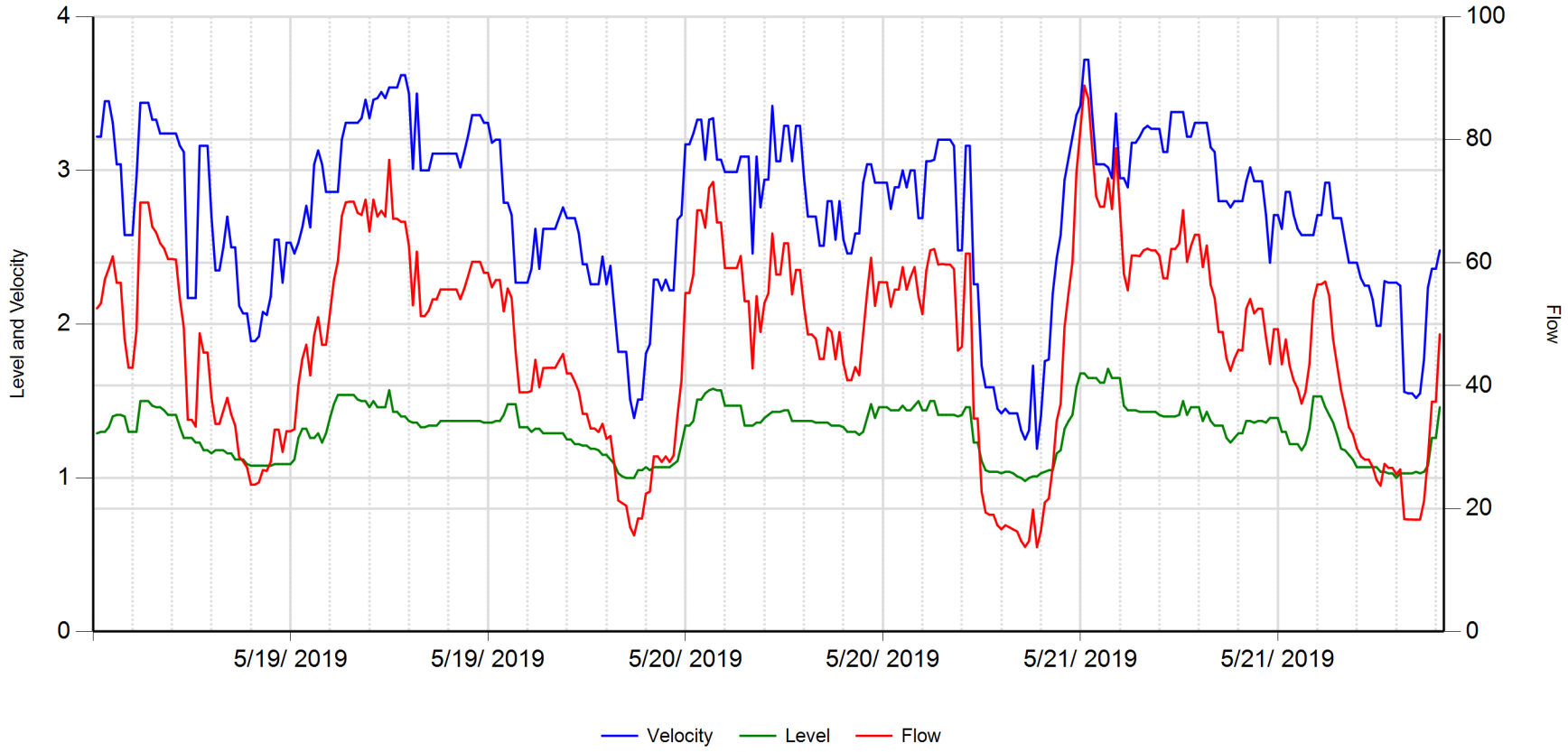
2019.05 Jamboree Rd MH



	Velocity (fps)	Level (in)	Flow (gpm)		
Average	2.772	1.358	50.459	**RainFall**	Inches
Maximum	3.650	1.720	87.501		
Minimum	1.420	0.970	15.489		

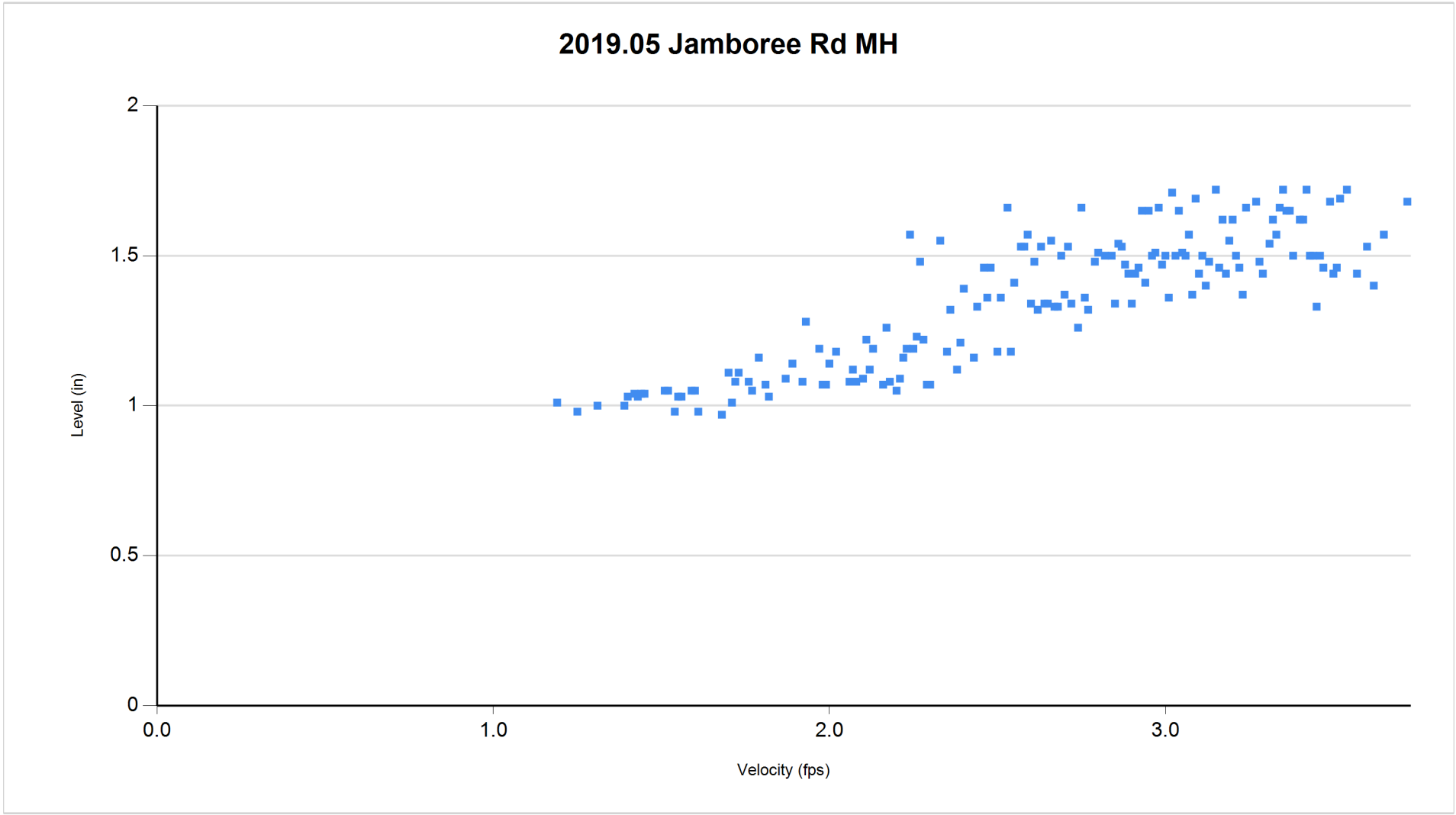
5/22/2019

2019.05 Jamboree Rd MH



	Velocity (fps)	Level (in)	Flow (gpm)		
Average	2.736	1.311	47.440	**RainFall**	Inches
Maximum	3.720	1.710	88.793		
Minimum	1.190	0.980	13.733		

5/22/2019



5/14/2019 thru 5/22/2019

5/22/2019 1:33:56 PM

Utility Systems Science and Software

Report Date: 05/22/2019
Customer: US3
Group: Newport Beach
Site: 2019.05 Jamboree Rd MH

Data for 2019.05 Jamboree Rd MH: 5/14/2019 thru 5/22/2019

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)	
2019/05/14 06:59	1.46	47.98	2.46	
2019/05/14 07:14	1.48	67.02	3.35	
2019/05/14 07:29	1.51	57.47	2.80	
2019/05/14 07:44	1.40	56.84	3.09	
2019/05/14 07:59	1.48	59.17	2.96	
2019/05/14 08:14	1.51	63.43	3.09	
2019/05/14 08:29	1.64	71.07	3.09	
2019/05/14 08:44	1.69	74.54	3.09	
2019/05/14 08:59	1.69	85.49	3.54	
2019/05/14 09:14	1.72	87.50	3.54	
2019/05/14 09:29	1.72	87.50	3.54	
2019/05/14 09:44	1.72	84.56	3.42	
2019/05/14 09:59	1.57	74.04	3.42	
2019/05/14 10:14	1.66	80.69	3.42	
2019/05/14 10:29	1.65	79.73	3.42	
2019/05/14 10:44	1.62	75.60	3.32	
2019/05/14 10:59	1.62	75.60	3.32	
2019/05/14 11:14	1.62	75.60	3.32	
2019/05/14 11:29	1.62	75.60	3.32	
2019/05/14 11:44	1.62	77.44	3.40	
2019/05/14 11:59	1.62	77.51	3.41	
2019/05/14 12:14	1.62	77.44	3.40	
2019/05/14 12:29	1.62	77.44	3.40	
2019/05/14 12:44	1.48	65.52	3.27	
2019/05/14 12:59	1.46	63.14	3.24	
2019/05/14 13:14	1.46	62.46	3.21	
2019/05/14 13:29	1.46	62.46	3.21	
2019/05/14 13:44	1.46	62.46	3.21	
2019/05/14 13:59	1.51	61.02	2.97	
2019/05/14 14:14	1.51	63.43	3.09	
2019/05/14 14:29	1.40	56.84	3.09	
2019/05/14 14:44	1.40	57.17	3.10	
2019/05/14 14:59	1.44	59.64	3.10	
2019/05/14 15:14	1.41	58.19	3.11	
2019/05/14 15:29	1.44	59.84	3.11	
2019/05/14 15:44	1.44	59.64	3.10	
2019/05/14 15:59	1.43	54.36	2.87	
2019/05/14 16:14	1.41	53.60	2.87	
2019/05/14 16:29	1.43	54.36	2.87	

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/14 16:44	1.43	56.44	2.98
2019/05/14 16:59	1.47	58.83	2.98
2019/05/14 17:14	1.48	60.08	3.00
2019/05/14 17:29	1.48	59.63	2.98
2019/05/14 17:44	1.48	59.63	2.98
2019/05/14 17:59	1.48	65.74	3.28
2019/05/14 18:14	1.48	65.74	3.28
2019/05/14 18:29	1.48	62.71	3.13
2019/05/14 18:44	1.48	62.71	3.13
2019/05/14 18:59	1.48	61.06	3.05
2019/05/14 19:14	1.48	61.06	3.05
2019/05/14 19:29	1.47	60.24	3.05
2019/05/14 19:44	1.47	60.24	3.05
2019/05/14 19:59	1.47	63.95	3.24
2019/05/14 20:14	1.50	65.69	3.24
2019/05/14 20:29	1.50	61.39	3.03
2019/05/14 20:44	1.50	61.39	3.03
2019/05/14 20:59	1.50	60.83	3.00
2019/05/14 21:14	1.50	57.24	2.82
2019/05/14 21:29	1.50	60.83	3.00
2019/05/14 21:44	1.50	60.83	3.00
2019/05/14 21:59	1.50	60.83	3.00
2019/05/14 22:14	1.50	69.62	3.43
2019/05/14 22:29	1.50	69.81	3.44
2019/05/14 22:44	1.39	62.32	3.43
2019/05/14 22:59	1.36	60.69	3.44
2019/05/14 23:14	1.36	60.52	3.43
2019/05/14 23:29	1.36	57.75	3.27
2019/05/14 23:44	1.33	49.79	2.91
2019/05/14 23:59	1.36	43.62	2.47
2019/05/15 00:14	1.33	42.34	2.47
2019/05/15 00:29	1.22	31.82	2.11
2019/05/15 00:44	1.18	28.95	2.02
2019/05/15 00:59	1.14	27.28	2.00
2019/05/15 01:14	1.11	22.29	1.70
2019/05/15 01:29	1.11	22.29	1.70
2019/05/15 01:44	1.11	22.29	1.70
2019/05/15 01:59	1.14	26.77	1.97
2019/05/15 02:14	1.40	48.97	2.66
2019/05/15 02:29	1.40	50.01	2.71
2019/05/15 02:44	1.40	50.01	2.71
2019/05/15 02:59	1.25	41.44	2.66
2019/05/15 03:14	1.22	34.36	2.28
2019/05/15 03:29	1.18	32.56	2.27
2019/05/15 03:44	1.11	22.75	1.73

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/15 03:59	1.05	21.11	1.73
2019/05/15 04:14	1.05	26.49	2.17
2019/05/15 04:29	1.05	18.58	1.52
2019/05/15 04:44	1.05	19.46	1.60
2019/05/15 04:59	1.05	24.05	1.97
2019/05/15 05:14	1.08	24.98	1.97
2019/05/15 05:29	1.16	25.22	1.79
2019/05/15 05:44	1.19	28.80	1.97
2019/05/15 05:59	1.19	31.05	2.13
2019/05/15 06:14	1.57	48.60	2.24
2019/05/15 06:29	1.57	54.71	2.53
2019/05/15 06:44	1.66	59.63	2.53
2019/05/15 06:59	1.62	75.94	3.34
2019/05/15 07:14	1.66	78.75	3.34
2019/05/15 07:29	1.66	64.92	2.75
2019/05/15 07:44	1.66	64.92	2.75
2019/05/15 07:59	1.62	73.65	3.24
2019/05/15 08:14	1.66	70.32	2.98
2019/05/15 08:29	1.66	76.37	3.24
2019/05/15 08:44	1.61	72.75	3.24
2019/05/15 08:59	1.59	66.16	2.98
2019/05/15 09:14	1.55	56.95	2.66
2019/05/15 09:29	1.55	56.95	2.66
2019/05/15 09:44	1.55	56.95	2.66
2019/05/15 09:59	1.62	72.12	3.17
2019/05/15 10:14	1.62	72.12	3.17
2019/05/15 10:29	1.62	72.89	3.20
2019/05/15 10:44	1.51	65.16	3.17
2019/05/15 10:59	1.51	65.85	3.20
2019/05/15 11:14	1.50	65.07	3.21
2019/05/15 11:29	1.47	63.35	3.21
2019/05/15 11:44	1.51	62.71	3.05
2019/05/15 11:59	1.58	66.75	3.04
2019/05/15 12:14	1.58	66.55	3.04
2019/05/15 12:29	1.58	66.55	3.04
2019/05/15 12:44	1.58	66.55	3.04
2019/05/15 12:59	1.54	63.79	3.02
2019/05/15 13:14	1.50	61.57	3.04
2019/05/15 13:29	1.50	60.06	2.96
2019/05/15 13:44	1.50	57.71	2.84
2019/05/15 13:59	1.50	60.06	2.96
2019/05/15 14:14	1.50	57.71	2.84
2019/05/15 14:29	1.46	50.89	2.61
2019/05/15 14:44	1.53	53.49	2.57
2019/05/15 14:59	1.51	52.80	2.57

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/15 15:14	1.48	51.41	2.57
2019/05/15 15:29	1.48	57.21	2.86
2019/05/15 15:44	1.48	57.34	2.86
2019/05/15 15:59	1.48	67.42	3.37
2019/05/15 16:14	1.44	64.71	3.37
2019/05/15 16:29	1.44	64.71	3.37
2019/05/15 16:44	1.48	52.23	2.61
2019/05/15 16:59	1.48	52.17	2.61
2019/05/15 17:14	1.37	46.64	2.61
2019/05/15 17:29	1.41	48.70	2.61
2019/05/15 17:44	1.37	46.64	2.61
2019/05/15 17:59	1.34	49.64	2.86
2019/05/15 18:14	1.37	51.12	2.86
2019/05/15 18:29	1.34	50.88	2.93
2019/05/15 18:44	1.34	50.88	2.93
2019/05/15 18:59	1.34	50.35	2.90
2019/05/15 19:14	1.34	47.30	2.72
2019/05/15 19:29	1.28	46.64	2.90
2019/05/15 19:44	1.28	45.34	2.82
2019/05/15 19:59	1.28	45.34	2.82
2019/05/15 20:14	1.37	52.05	2.91
2019/05/15 20:29	1.39	52.81	2.91
2019/05/15 20:44	1.39	52.81	2.91
2019/05/15 20:59	1.44	55.89	2.91
2019/05/15 21:14	1.47	56.96	2.88
2019/05/15 21:29	1.39	52.37	2.88
2019/05/15 21:44	1.39	53.75	2.96
2019/05/15 21:59	1.39	53.75	2.96
2019/05/15 22:14	1.39	53.75	2.96
2019/05/15 22:29	1.36	54.71	3.10
2019/05/15 22:44	1.36	54.71	3.10
2019/05/15 22:59	1.30	52.37	3.15
2019/05/15 23:14	1.26	48.83	3.08
2019/05/15 23:29	1.26	48.83	3.08
2019/05/15 23:44	1.26	48.18	3.04
2019/05/15 23:59	1.22	45.89	3.04
2019/05/16 00:14	1.22	39.56	2.62
2019/05/16 00:29	1.22	39.56	2.62
2019/05/16 00:44	1.19	32.87	2.25
2019/05/16 00:59	1.15	31.22	2.25
2019/05/16 01:14	1.14	31.11	2.28
2019/05/16 01:29	1.14	31.11	2.28
2019/05/16 01:44	1.12	30.44	2.28
2019/05/16 01:59	1.00	25.63	2.28
2019/05/16 02:14	1.00	21.57	1.92

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/16 02:29	1.03	20.32	1.73
2019/05/16 02:44	1.03	16.89	1.44
2019/05/16 02:59	1.03	16.71	1.43
2019/05/16 03:14	1.04	17.22	1.44
2019/05/16 03:29	1.04	17.22	1.44
2019/05/16 03:44	1.04	19.01	1.59
2019/05/16 03:59	1.04	19.01	1.59
2019/05/16 04:14	1.05	20.93	1.72
2019/05/16 04:29	1.05	19.38	1.59
2019/05/16 04:44	1.07	21.33	1.72
2019/05/16 04:59	1.08	21.74	1.72
2019/05/16 05:14	1.08	21.74	1.72
2019/05/16 05:29	1.08	22.33	1.76
2019/05/16 05:44	1.11	29.31	2.23
2019/05/16 05:59	1.19	32.56	2.23
2019/05/16 06:14	1.29	43.49	2.66
2019/05/16 06:29	1.46	51.82	2.66
2019/05/16 06:44	1.48	53.24	2.66
2019/05/16 06:59	1.48	55.07	2.75
2019/05/16 07:14	1.51	53.20	2.59
2019/05/16 07:29	1.57	56.03	2.59
2019/05/16 07:44	1.65	68.24	2.93
2019/05/16 07:59	1.69	85.01	3.52
2019/05/16 08:14	1.65	73.43	3.15
2019/05/16 08:29	1.72	77.88	3.15
2019/05/16 08:44	1.72	82.75	3.35
2019/05/16 08:59	1.68	75.20	3.15
2019/05/16 09:14	1.68	75.20	3.15
2019/05/16 09:29	1.68	78.12	3.27
2019/05/16 09:44	1.68	79.90	3.35
2019/05/16 09:59	1.68	83.29	3.49
2019/05/16 10:14	1.58	76.48	3.49
2019/05/16 10:29	1.57	79.02	3.65
2019/05/16 10:44	1.55	74.56	3.49
2019/05/16 10:59	1.53	74.92	3.60
2019/05/16 11:14	1.50	63.18	3.11
2019/05/16 11:29	1.50	63.18	3.11
2019/05/16 11:44	1.50	63.06	3.11
2019/05/16 11:59	1.50	63.06	3.11
2019/05/16 12:14	1.44	56.91	2.96
2019/05/16 12:29	1.37	53.01	2.96
2019/05/16 12:44	1.36	50.06	2.84
2019/05/16 12:59	1.36	52.24	2.96
2019/05/16 13:14	1.37	53.01	2.96
2019/05/16 13:29	1.41	55.17	2.95

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/16 13:44	1.41	53.66	2.87
2019/05/16 13:59	1.41	55.17	2.95
2019/05/16 14:14	1.40	54.39	2.95
2019/05/16 14:29	1.37	51.40	2.87
2019/05/16 14:44	1.37	51.40	2.87
2019/05/16 14:59	1.37	56.97	3.18
2019/05/16 15:14	1.37	51.23	2.86
2019/05/16 15:29	1.39	51.98	2.86
2019/05/16 15:44	1.39	58.91	3.24
2019/05/16 15:59	1.37	58.06	3.24
2019/05/16 16:14	1.34	45.82	2.64
2019/05/16 16:29	1.32	45.41	2.69
2019/05/16 16:44	1.32	44.46	2.64
2019/05/16 16:59	1.32	44.46	2.64
2019/05/16 17:14	1.34	46.00	2.65
2019/05/16 17:29	1.36	47.50	2.69
2019/05/16 17:44	1.36	50.46	2.86
2019/05/16 17:59	1.36	50.46	2.86
2019/05/16 18:14	1.36	52.05	2.95
2019/05/16 18:29	1.36	53.58	3.04
2019/05/16 18:44	1.36	53.96	3.06
2019/05/16 18:59	1.36	55.49	3.15
2019/05/16 19:14	1.34	54.68	3.15
2019/05/16 19:29	1.32	51.71	3.07
2019/05/16 19:44	1.26	48.59	3.07
2019/05/16 19:59	1.25	47.82	3.07
2019/05/16 20:14	1.26	44.17	2.79
2019/05/16 20:29	1.26	44.17	2.79
2019/05/16 20:44	1.40	55.99	3.04
2019/05/16 20:59	1.40	55.99	3.04
2019/05/16 21:14	1.43	57.60	3.04
2019/05/16 21:29	1.40	57.43	3.12
2019/05/16 21:44	1.34	52.82	3.04
2019/05/16 21:59	1.34	54.17	3.12
2019/05/16 22:14	1.36	56.70	3.22
2019/05/16 22:29	1.33	55.04	3.22
2019/05/16 22:44	1.33	45.92	2.68
2019/05/16 22:59	1.19	38.64	2.65
2019/05/16 23:14	1.16	31.53	2.24
2019/05/16 23:29	1.16	31.36	2.22
2019/05/16 23:44	1.16	30.09	2.13
2019/05/16 23:59	1.16	30.09	2.13
2019/05/17 00:14	1.16	30.09	2.13
2019/05/17 00:29	1.12	28.54	2.13
2019/05/17 00:44	1.12	28.54	2.13

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/17 00:59	1.04	24.61	2.06
2019/05/17 01:14	1.03	24.14	2.06
2019/05/17 01:29	1.03	24.14	2.06
2019/05/17 01:44	1.03	24.14	2.06
2019/05/17 01:59	0.98	22.72	2.06
2019/05/17 02:14	0.98	19.15	1.73
2019/05/17 02:29	0.97	18.18	1.68
2019/05/17 02:44	0.97	16.68	1.54
2019/05/17 02:59	0.98	17.03	1.54
2019/05/17 03:14	0.97	15.49	1.43
2019/05/17 03:29	0.98	15.65	1.42
2019/05/17 03:44	0.98	15.63	1.42
2019/05/17 03:59	0.98	15.63	1.42
2019/05/17 04:14	0.98	15.63	1.42
2019/05/17 04:29	0.98	15.63	1.42
2019/05/17 04:44	0.98	15.80	1.43
2019/05/17 04:59	0.98	17.75	1.61
2019/05/17 05:14	0.98	17.75	1.61
2019/05/17 05:29	1.01	19.63	1.71
2019/05/17 05:44	1.09	24.15	1.87
2019/05/17 05:59	1.14	25.75	1.89
2019/05/17 06:14	1.21	36.80	2.48
2019/05/17 06:29	1.28	41.43	2.57
2019/05/17 06:44	1.33	48.30	2.82
2019/05/17 06:59	1.34	52.74	3.04
2019/05/17 07:14	1.34	52.85	3.04
2019/05/17 07:29	1.41	56.71	3.04
2019/05/17 07:44	1.44	56.30	2.93
2019/05/17 07:59	1.41	54.74	2.93
2019/05/17 08:14	1.44	44.74	2.33
2019/05/17 08:29	1.47	45.99	2.33
2019/05/17 08:44	1.55	62.63	2.93
2019/05/17 08:59	1.55	72.09	3.37
2019/05/17 09:14	1.55	74.56	3.49
2019/05/17 09:29	1.47	68.89	3.49
2019/05/17 09:44	1.47	66.60	3.37
2019/05/17 09:59	1.44	67.03	3.49
2019/05/17 10:14	1.44	58.29	3.03
2019/05/17 10:29	1.44	57.47	2.99
2019/05/17 10:44	1.44	58.29	3.03
2019/05/17 10:59	1.44	62.95	3.28
2019/05/17 11:14	1.44	62.95	3.28
2019/05/17 11:29	1.44	62.95	3.28
2019/05/17 11:44	1.44	67.17	3.50
2019/05/17 11:59	1.44	68.64	3.57

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/17 12:14	1.44	68.64	3.57
2019/05/17 12:29	1.41	65.32	3.50
2019/05/17 12:44	1.40	64.40	3.50
2019/05/17 12:59	1.40	60.38	3.28
2019/05/17 13:14	1.41	59.67	3.19
2019/05/17 13:29	1.36	50.62	2.87
2019/05/17 13:44	1.41	53.63	2.87
2019/05/17 13:59	1.41	53.63	2.87
2019/05/17 14:14	1.41	47.70	2.55
2019/05/17 14:29	1.53	54.80	2.63
2019/05/17 14:44	1.53	59.76	2.87
2019/05/17 14:59	1.53	59.76	2.87
2019/05/17 15:14	1.48	52.66	2.63
2019/05/17 15:29	1.30	47.63	2.87
2019/05/17 15:44	1.30	52.63	3.17
2019/05/17 15:59	1.30	52.63	3.17
2019/05/17 16:14	1.30	50.90	3.07
2019/05/17 16:29	1.36	55.90	3.17
2019/05/17 16:44	1.36	56.00	3.18
2019/05/17 16:59	1.36	56.00	3.18
2019/05/17 17:14	1.36	57.97	3.29
2019/05/17 17:29	1.37	60.22	3.36
2019/05/17 17:44	1.40	61.98	3.36
2019/05/17 17:59	1.40	60.55	3.29
2019/05/17 18:14	1.37	51.31	2.87
2019/05/17 18:29	1.37	47.63	2.66
2019/05/17 18:44	1.37	47.63	2.66
2019/05/17 18:59	1.37	49.29	2.75
2019/05/17 19:14	1.37	47.63	2.66
2019/05/17 19:29	1.34	46.24	2.66
2019/05/17 19:44	1.34	47.86	2.75
2019/05/17 19:59	1.29	45.03	2.75
2019/05/17 20:14	1.28	31.14	1.93
2019/05/17 20:29	1.29	43.91	2.69
2019/05/17 20:44	1.25	45.34	2.91
2019/05/17 20:59	1.25	45.34	2.91
2019/05/17 21:14	1.28	50.91	3.16
2019/05/17 21:29	1.39	57.44	3.16
2019/05/17 21:44	1.39	57.44	3.16
2019/05/17 21:59	1.39	57.44	3.16
2019/05/17 22:14	1.39	57.66	3.18
2019/05/17 22:29	1.32	53.54	3.18
2019/05/17 22:44	1.29	51.92	3.18
2019/05/17 22:59	1.28	51.11	3.18
2019/05/17 23:14	1.28	50.91	3.16

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/17 23:29	1.28	49.83	3.10
2019/05/17 23:44	1.28	47.80	2.97
2019/05/17 23:59	1.23	42.95	2.80
2019/05/18 00:14	1.23	44.22	2.88
2019/05/18 00:29	1.21	42.78	2.88
2019/05/18 00:44	1.21	41.56	2.80
2019/05/18 00:59	1.21	40.95	2.76
2019/05/18 01:14	1.18	39.65	2.76
2019/05/18 01:29	1.16	31.38	2.22
2019/05/18 01:44	1.14	28.78	2.11
2019/05/18 01:59	1.07	24.84	2.00
2019/05/18 02:14	1.07	24.84	2.00
2019/05/18 02:29	1.07	24.65	1.98
2019/05/18 02:44	1.04	23.90	2.00
2019/05/18 02:59	1.04	25.38	2.12
2019/05/18 03:14	1.07	26.47	2.13
2019/05/18 03:29	1.07	27.45	2.21
2019/05/18 03:44	1.07	27.45	2.21
2019/05/18 03:59	1.08	27.98	2.21
2019/05/18 04:14	1.09	28.50	2.21
2019/05/18 04:29	1.09	29.33	2.27
2019/05/18 04:44	1.09	29.33	2.27
2019/05/18 04:59	1.11	29.87	2.27
2019/05/18 05:14	1.09	33.42	2.59
2019/05/18 05:29	1.12	34.66	2.59
2019/05/18 05:44	1.12	33.58	2.51
2019/05/18 05:59	1.26	39.77	2.51
2019/05/18 06:14	1.33	44.48	2.60
2019/05/18 06:29	1.34	45.16	2.60
2019/05/18 06:44	1.34	49.53	2.85
2019/05/18 06:59	1.33	48.79	2.85
2019/05/18 07:14	1.33	51.35	3.00
2019/05/18 07:29	1.32	48.06	2.85
2019/05/18 07:44	1.32	47.62	2.82
2019/05/18 07:59	1.32	44.82	2.66
2019/05/18 08:14	1.32	47.62	2.82
2019/05/18 08:29	1.32	47.62	2.82
2019/05/18 08:44	1.48	56.54	2.82
2019/05/18 08:59	1.48	53.21	2.66
2019/05/18 09:14	1.48	56.42	2.82
2019/05/18 09:29	1.36	49.71	2.82
2019/05/18 09:44	1.36	49.71	2.82
2019/05/18 09:59	1.36	49.71	2.82
2019/05/18 10:14	1.36	54.52	3.09
2019/05/18 10:29	1.55	66.08	3.09

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/18 10:44	1.55	49.87	2.33
2019/05/18 10:59	1.55	49.87	2.33
2019/05/18 11:14	1.44	53.83	2.80
2019/05/18 11:29	1.44	53.83	2.80
2019/05/18 11:44	1.41	58.85	3.15
2019/05/18 11:59	1.41	62.84	3.36
2019/05/18 12:14	1.41	62.84	3.36
2019/05/18 12:29	1.55	71.89	3.36
2019/05/18 12:44	1.55	68.20	3.19
2019/05/18 12:59	1.55	65.56	3.07
2019/05/18 13:14	1.23	47.05	3.07
2019/05/18 13:29	1.33	45.66	2.67
2019/05/18 13:44	1.33	45.66	2.67
2019/05/18 13:59	1.33	45.66	2.67
2019/05/18 14:14	1.33	54.46	3.18
2019/05/18 14:29	1.33	41.79	2.44
2019/05/18 14:44	1.33	41.79	2.44
2019/05/18 14:59	1.28	38.00	2.36
2019/05/18 15:14	1.26	37.40	2.36
2019/05/18 15:29	1.26	37.40	2.36
2019/05/18 15:44	1.26	43.35	2.74
2019/05/18 15:59	1.30	48.17	2.90
2019/05/18 16:14	1.30	48.80	2.94
2019/05/18 16:29	1.30	48.80	2.94
2019/05/18 16:44	1.29	48.87	2.99
2019/05/18 16:59	1.29	48.87	2.99
2019/05/18 17:14	1.29	52.57	3.22
2019/05/18 17:29	1.30	53.39	3.22
2019/05/18 17:44	1.30	57.29	3.45
2019/05/18 17:59	1.33	59.06	3.45
2019/05/18 18:14	1.40	61.03	3.31
2019/05/18 18:29	1.41	56.74	3.04
2019/05/18 18:44	1.41	56.74	3.04
2019/05/18 18:59	1.40	47.62	2.58
2019/05/18 19:14	1.30	42.92	2.58
2019/05/18 19:29	1.30	42.92	2.58
2019/05/18 19:44	1.30	48.93	2.95
2019/05/18 19:59	1.50	69.78	3.44
2019/05/18 20:14	1.50	69.78	3.44
2019/05/18 20:29	1.50	69.78	3.44
2019/05/18 20:44	1.47	65.85	3.33
2019/05/18 20:59	1.46	64.90	3.33
2019/05/18 21:14	1.46	63.17	3.24
2019/05/18 21:29	1.44	62.31	3.24
2019/05/18 21:44	1.41	60.59	3.24

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/18 21:59	1.41	60.59	3.24
2019/05/18 22:14	1.41	60.50	3.24
2019/05/18 22:29	1.33	54.10	3.16
2019/05/18 22:44	1.26	49.41	3.12
2019/05/18 22:59	1.26	34.45	2.17
2019/05/18 23:14	1.26	34.45	2.17
2019/05/18 23:29	1.23	33.36	2.17
2019/05/18 23:44	1.23	48.52	3.16
2019/05/18 23:59	1.18	45.39	3.16
2019/05/19 00:14	1.18	45.39	3.16
2019/05/19 00:29	1.16	38.03	2.70
2019/05/19 00:44	1.18	33.79	2.35
2019/05/19 00:59	1.18	33.79	2.35
2019/05/19 01:14	1.18	35.93	2.50
2019/05/19 01:29	1.16	38.03	2.70
2019/05/19 01:44	1.16	35.32	2.50
2019/05/19 01:59	1.12	33.50	2.50
2019/05/19 02:14	1.12	28.41	2.12
2019/05/19 02:29	1.12	27.70	2.07
2019/05/19 02:44	1.09	26.71	2.07
2019/05/19 02:59	1.08	23.92	1.89
2019/05/19 03:14	1.08	23.92	1.89
2019/05/19 03:29	1.08	24.27	1.92
2019/05/19 03:44	1.08	26.28	2.08
2019/05/19 03:59	1.08	26.14	2.06
2019/05/19 04:14	1.08	27.61	2.18
2019/05/19 04:29	1.09	32.85	2.55
2019/05/19 04:44	1.09	32.85	2.55
2019/05/19 04:59	1.09	29.23	2.27
2019/05/19 05:14	1.09	32.59	2.53
2019/05/19 05:29	1.09	32.59	2.53
2019/05/19 05:44	1.12	32.93	2.46
2019/05/19 05:59	1.26	40.03	2.53
2019/05/19 06:14	1.32	44.36	2.63
2019/05/19 06:29	1.32	46.67	2.77
2019/05/19 06:44	1.26	41.68	2.63
2019/05/19 06:59	1.26	48.18	3.04
2019/05/19 07:14	1.29	51.14	3.13
2019/05/19 07:29	1.23	46.65	3.04
2019/05/19 07:44	1.29	46.68	2.86
2019/05/19 07:59	1.39	51.84	2.86
2019/05/19 08:14	1.48	57.15	2.86
2019/05/19 08:29	1.54	60.25	2.86
2019/05/19 08:44	1.54	67.59	3.20
2019/05/19 08:59	1.54	69.81	3.31

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)	
2019/05/19 09:14	1.54	69.91	3.31	
2019/05/19 09:29	1.54	69.91	3.31	
2019/05/19 09:44	1.51	68.11	3.31	
2019/05/19 09:59	1.50	67.77	3.34	
2019/05/19 10:14	1.50	70.24	3.46	
2019/05/19 10:29	1.46	65.07	3.34	
2019/05/19 10:44	1.50	70.24	3.46	
2019/05/19 10:59	1.46	67.51	3.47	
2019/05/19 11:14	1.46	68.43	3.51	
2019/05/19 11:29	1.46	67.51	3.47	
2019/05/19 11:44	1.57	76.71	3.54	
2019/05/19 11:59	1.43	67.14	3.54	
2019/05/19 12:14	1.43	67.14	3.54	
2019/05/19 12:29	1.40	66.65	3.62	
2019/05/19 12:44	1.40	66.65	3.62	
2019/05/19 12:59	1.37	62.70	3.50	
2019/05/19 13:14	1.36	53.07	3.01	
2019/05/19 13:29	1.36	61.79	3.50	
2019/05/19 13:44	1.33	51.33	3.00	
2019/05/19 13:59	1.33	51.33	3.00	
2019/05/19 14:14	1.34	52.21	3.00	
2019/05/19 14:29	1.34	54.04	3.11	
2019/05/19 14:44	1.34	54.04	3.11	
2019/05/19 14:59	1.37	55.66	3.11	
2019/05/19 15:14	1.37	55.66	3.11	
2019/05/19 15:29	1.37	55.66	3.11	
2019/05/19 15:44	1.37	55.66	3.11	
2019/05/19 15:59	1.37	55.66	3.11	
2019/05/19 16:14	1.37	54.07	3.02	
2019/05/19 16:29	1.37	55.79	3.12	
2019/05/19 16:44	1.37	57.90	3.23	
2019/05/19 16:59	1.37	60.14	3.36	
2019/05/19 17:14	1.37	60.14	3.36	
2019/05/19 17:29	1.37	60.14	3.36	
2019/05/19 17:44	1.36	58.34	3.31	
2019/05/19 17:59	1.36	58.34	3.31	
2019/05/19 18:14	1.36	56.00	3.18	
2019/05/19 18:29	1.37	57.19	3.20	
2019/05/19 18:44	1.37	57.19	3.20	
2019/05/19 18:59	1.41	52.09	2.79	
2019/05/19 19:14	1.48	55.81	2.79	
2019/05/19 19:29	1.48	54.28	2.71	
2019/05/19 19:44	1.48	45.51	2.27	
2019/05/19 19:59	1.33	38.92	2.27	
2019/05/19 20:14	1.33	38.92	2.27	

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/19 20:29	1.33	38.92	2.27
2019/05/19 20:44	1.30	39.15	2.36
2019/05/19 20:59	1.32	44.20	2.62
2019/05/19 21:14	1.32	39.75	2.36
2019/05/19 21:29	1.29	42.86	2.62
2019/05/19 21:44	1.29	42.89	2.62
2019/05/19 21:59	1.29	42.89	2.62
2019/05/19 22:14	1.29	42.89	2.62
2019/05/19 22:29	1.29	44.03	2.69
2019/05/19 22:44	1.29	45.16	2.76
2019/05/19 22:59	1.25	41.99	2.69
2019/05/19 23:14	1.25	41.99	2.69
2019/05/19 23:29	1.22	40.64	2.69
2019/05/19 23:44	1.22	39.05	2.59
2019/05/19 23:59	1.21	35.42	2.39
2019/05/20 00:14	1.21	35.42	2.39
2019/05/20 00:29	1.19	33.03	2.26
2019/05/20 00:44	1.19	33.03	2.26
2019/05/20 00:59	1.18	32.47	2.26
2019/05/20 01:14	1.15	33.80	2.44
2019/05/20 01:29	1.15	31.37	2.26
2019/05/20 01:44	1.12	31.82	2.38
2019/05/20 01:59	1.09	27.08	2.10
2019/05/20 02:14	1.03	21.33	1.82
2019/05/20 02:29	1.01	20.91	1.82
2019/05/20 02:44	1.00	20.49	1.82
2019/05/20 02:59	1.00	17.00	1.51
2019/05/20 03:14	1.00	15.66	1.39
2019/05/20 03:29	1.05	18.40	1.51
2019/05/20 03:44	1.05	18.40	1.51
2019/05/20 03:59	1.07	22.47	1.81
2019/05/20 04:14	1.05	22.77	1.87
2019/05/20 04:29	1.07	28.50	2.29
2019/05/20 04:44	1.07	28.50	2.29
2019/05/20 04:59	1.07	27.61	2.22
2019/05/20 05:14	1.07	28.50	2.29
2019/05/20 05:29	1.07	27.61	2.22
2019/05/20 05:44	1.09	28.66	2.22
2019/05/20 05:59	1.11	35.24	2.68
2019/05/20 06:14	1.22	40.87	2.71
2019/05/20 06:29	1.34	55.07	3.17
2019/05/20 06:44	1.34	55.07	3.17
2019/05/20 06:59	1.37	58.06	3.24
2019/05/20 07:14	1.51	68.51	3.33
2019/05/20 07:29	1.51	68.51	3.33

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/20 07:44	1.55	65.69	3.07
2019/05/20 07:59	1.57	72.15	3.33
2019/05/20 08:14	1.58	73.14	3.34
2019/05/20 08:29	1.57	66.54	3.07
2019/05/20 08:44	1.57	66.54	3.07
2019/05/20 08:59	1.47	59.13	2.99
2019/05/20 09:14	1.47	59.13	2.99
2019/05/20 09:29	1.47	59.13	2.99
2019/05/20 09:44	1.47	59.13	2.99
2019/05/20 09:59	1.47	61.09	3.09
2019/05/20 10:14	1.34	53.75	3.09
2019/05/20 10:29	1.34	53.75	3.09
2019/05/20 10:44	1.34	42.82	2.46
2019/05/20 10:59	1.36	54.55	3.09
2019/05/20 11:14	1.36	48.74	2.76
2019/05/20 11:29	1.39	53.45	2.94
2019/05/20 11:44	1.41	55.00	2.94
2019/05/20 11:59	1.43	64.74	3.42
2019/05/20 12:14	1.43	58.06	3.06
2019/05/20 12:29	1.43	58.06	3.06
2019/05/20 12:44	1.44	63.16	3.29
2019/05/20 12:59	1.44	63.16	3.29
2019/05/20 13:14	1.37	54.84	3.06
2019/05/20 13:29	1.37	58.82	3.29
2019/05/20 13:44	1.37	58.82	3.29
2019/05/20 13:59	1.37	53.01	2.96
2019/05/20 14:14	1.37	48.34	2.70
2019/05/20 14:29	1.37	48.34	2.70
2019/05/20 14:44	1.36	47.63	2.70
2019/05/20 14:59	1.36	44.35	2.51
2019/05/20 15:14	1.36	44.35	2.51
2019/05/20 15:29	1.36	49.44	2.80
2019/05/20 15:44	1.34	48.71	2.80
2019/05/20 15:59	1.34	44.31	2.55
2019/05/20 16:14	1.34	48.71	2.80
2019/05/20 16:29	1.33	43.65	2.55
2019/05/20 16:44	1.30	40.90	2.46
2019/05/20 16:59	1.30	40.90	2.46
2019/05/20 17:14	1.30	43.02	2.59
2019/05/20 17:29	1.28	41.70	2.59
2019/05/20 17:44	1.30	48.45	2.92
2019/05/20 17:59	1.39	55.14	3.04
2019/05/20 18:14	1.48	60.79	3.04
2019/05/20 18:29	1.39	52.98	2.92
2019/05/20 18:44	1.46	56.84	2.92

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/20 18:59	1.46	56.81	2.92
2019/05/20 19:14	1.46	56.81	2.92
2019/05/20 19:29	1.44	52.84	2.75
2019/05/20 19:44	1.44	55.62	2.89
2019/05/20 19:59	1.44	55.62	2.89
2019/05/20 20:14	1.47	59.28	3.00
2019/05/20 20:29	1.44	55.62	2.89
2019/05/20 20:44	1.44	57.67	3.00
2019/05/20 20:59	1.47	59.28	3.00
2019/05/20 21:14	1.50	54.52	2.69
2019/05/20 21:29	1.44	51.63	2.69
2019/05/20 21:44	1.44	58.73	3.06
2019/05/20 21:59	1.50	62.01	3.06
2019/05/20 22:14	1.50	62.22	3.07
2019/05/20 22:29	1.41	59.70	3.20
2019/05/20 22:44	1.41	59.79	3.20
2019/05/20 22:59	1.41	59.70	3.20
2019/05/20 23:14	1.41	59.70	3.20
2019/05/20 23:29	1.41	58.96	3.16
2019/05/20 23:44	1.40	45.71	2.48
2019/05/20 23:59	1.41	46.36	2.48
2019/05/21 00:14	1.46	61.48	3.16
2019/05/21 00:29	1.46	61.48	3.16
2019/05/21 00:44	1.23	34.67	2.26
2019/05/21 00:59	1.23	34.67	2.26
2019/05/21 01:14	1.11	22.75	1.73
2019/05/21 01:29	1.05	19.38	1.59
2019/05/21 01:44	1.04	19.01	1.59
2019/05/21 01:59	1.04	19.01	1.59
2019/05/21 02:14	1.04	17.30	1.45
2019/05/21 02:29	1.03	16.66	1.42
2019/05/21 02:44	1.04	17.30	1.45
2019/05/21 02:59	1.04	16.99	1.42
2019/05/21 03:14	1.03	16.62	1.42
2019/05/21 03:29	1.01	16.29	1.42
2019/05/21 03:44	1.00	14.75	1.31
2019/05/21 03:59	0.98	13.79	1.25
2019/05/21 04:14	1.00	14.75	1.31
2019/05/21 04:29	1.01	19.84	1.73
2019/05/21 04:44	1.01	13.73	1.19
2019/05/21 04:59	1.03	16.39	1.40
2019/05/21 05:14	1.04	21.02	1.76
2019/05/21 05:29	1.05	21.63	1.77
2019/05/21 05:44	1.05	26.77	2.20
2019/05/21 05:59	1.16	34.28	2.43

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/21 06:14	1.18	37.03	2.58
2019/05/21 06:29	1.32	49.63	2.94
2019/05/21 06:44	1.37	55.06	3.08
2019/05/21 06:59	1.41	60.16	3.22
2019/05/21 07:14	1.59	74.63	3.36
2019/05/21 07:29	1.68	81.62	3.42
2019/05/21 07:44	1.68	88.79	3.72
2019/05/21 07:59	1.65	86.70	3.72
2019/05/21 08:14	1.65	78.38	3.36
2019/05/21 08:29	1.65	70.80	3.04
2019/05/21 08:44	1.62	69.10	3.04
2019/05/21 08:59	1.62	69.10	3.04
2019/05/21 09:14	1.71	73.74	3.02
2019/05/21 09:29	1.65	68.74	2.95
2019/05/21 09:44	1.65	78.59	3.37
2019/05/21 09:59	1.65	68.74	2.95
2019/05/21 10:14	1.47	58.22	2.95
2019/05/21 10:29	1.44	55.50	2.89
2019/05/21 10:44	1.44	61.16	3.18
2019/05/21 10:59	1.44	61.16	3.18
2019/05/21 11:14	1.43	61.07	3.22
2019/05/21 11:29	1.43	61.99	3.27
2019/05/21 11:44	1.43	62.28	3.29
2019/05/21 11:59	1.43	61.99	3.27
2019/05/21 12:14	1.43	61.99	3.27
2019/05/21 12:29	1.41	61.13	3.27
2019/05/21 12:44	1.40	57.46	3.12
2019/05/21 12:59	1.40	57.46	3.12
2019/05/21 13:14	1.40	62.23	3.38
2019/05/21 13:29	1.40	62.23	3.38
2019/05/21 13:44	1.41	63.12	3.38
2019/05/21 13:59	1.50	68.54	3.38
2019/05/21 14:14	1.41	60.13	3.22
2019/05/21 14:29	1.46	62.70	3.22
2019/05/21 14:44	1.46	64.54	3.31
2019/05/21 14:59	1.46	64.54	3.31
2019/05/21 15:14	1.37	59.29	3.31
2019/05/21 15:29	1.43	62.78	3.31
2019/05/21 15:44	1.37	56.37	3.15
2019/05/21 15:59	1.34	54.25	3.12
2019/05/21 16:14	1.34	48.74	2.80
2019/05/21 16:29	1.34	48.74	2.80
2019/05/21 16:44	1.26	44.41	2.80
2019/05/21 16:59	1.23	42.42	2.76
2019/05/21 17:14	1.26	44.41	2.80

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/21 17:29	1.29	45.83	2.80
2019/05/21 17:44	1.29	45.71	2.80
2019/05/21 17:59	1.37	52.52	2.93
2019/05/21 18:14	1.37	54.10	3.02
2019/05/21 18:29	1.36	51.75	2.93
2019/05/21 18:44	1.37	52.52	2.93
2019/05/21 18:59	1.37	52.52	2.93
2019/05/21 19:14	1.36	47.77	2.71
2019/05/21 19:29	1.39	43.53	2.40
2019/05/21 19:44	1.39	49.18	2.71
2019/05/21 19:59	1.39	49.18	2.71
2019/05/21 20:14	1.30	43.48	2.62
2019/05/21 20:29	1.30	47.51	2.86
2019/05/21 20:44	1.22	43.18	2.86
2019/05/21 20:59	1.22	40.87	2.71
2019/05/21 21:14	1.22	39.51	2.62
2019/05/21 21:29	1.18	37.07	2.58
2019/05/21 21:44	1.22	38.99	2.58
2019/05/21 21:59	1.32	43.56	2.58
2019/05/21 22:14	1.53	53.81	2.58
2019/05/21 22:29	1.53	56.48	2.71
2019/05/21 22:44	1.53	56.48	2.71
2019/05/21 22:59	1.46	56.93	2.92
2019/05/21 23:14	1.41	54.60	2.92
2019/05/21 23:29	1.36	47.47	2.69
2019/05/21 23:44	1.28	43.33	2.69
2019/05/21 23:59	1.19	39.29	2.69
2019/05/22 00:14	1.18	36.39	2.54
2019/05/22 00:29	1.15	33.27	2.40
2019/05/22 00:44	1.12	32.11	2.40
2019/05/22 00:59	1.07	29.82	2.40
2019/05/22 01:14	1.07	28.53	2.30
2019/05/22 01:29	1.07	27.99	2.25
2019/05/22 01:44	1.07	27.99	2.25
2019/05/22 01:59	1.07	26.79	2.16
2019/05/22 02:14	1.07	24.67	1.99
2019/05/22 02:29	1.04	23.74	1.99
2019/05/22 02:44	1.04	27.28	2.28
2019/05/22 02:59	1.03	26.64	2.27
2019/05/22 03:14	1.03	26.64	2.27
2019/05/22 03:29	1.00	25.59	2.27
2019/05/22 03:44	1.03	26.39	2.25
2019/05/22 03:59	1.03	18.30	1.56
2019/05/22 04:14	1.03	18.23	1.55
2019/05/22 04:29	1.03	18.23	1.55

TimeStamp	Level (in)	Flow (gpm)	Velocity (fps)
2019/05/22 04:44	1.04	18.21	1.52
2019/05/22 04:59	1.03	18.23	1.55
2019/05/22 05:14	1.04	21.22	1.77
2019/05/22 05:29	1.08	28.30	2.24
2019/05/22 05:44	1.26	37.40	2.36
2019/05/22 05:59	1.26	37.40	2.36
2019/05/22 06:14	1.46	48.37	2.48

DATA CHECK	Level	Flow	Velocity
15 Minute Average	1.34	49.12	2.76
Minimum	0.97	13.73	1.19
Maximum	1.72	88.79	3.72

Vivante Senior Assisted Living

5/28/2019

Proposed Sewer Flow Generation Calculations

Project will include a Greywater Reuse system for the building flush valves.

Per MEP, Greywater system reduces total building usage to: 66.67% of total flow.

Residential Flow Generation

Number of Units	Avg Flow (gpd/du)	Peaking Factor	Peak Flow (gpd/du)	Total Peak Flow (gpd)	Total Peak Flow (cfs)
99	285	3.65	1,040	102,960	**0.159**
				Greywater Reduction	**0.106**

Note: Generation Factors Per City of Newport Beach Design Criteria (See Appendix)

Amenities Flow Generation

Amenity	Unit	Avg Flow (gpd/unit)	Peaking Factor	Peak Flow (gpd)	Peak Flow (cfs)
Fitness Center	1,908 sf	200 /1,000 sf	2.5	954	0.001
Pool/Jacuzzi	4,163 sf	650 /1,000 sf	2.5	6,765	0.010
Restaurant	150 seat	30 /seat	2.5	11,250	0.017
				Subtotal	**0.029**

Note: Avg Daily Flow Per City of LA

Existing Sewer Flow Generation (Credit)

Museum/Commercial

Amenity	Size (sf)	Sewer Generation Rate (gpd/unit/1000 sf)	Existing Wastwater Generation Rate (mgpd)	Peaking Factor	Existing Wastewater Generation Rate (cfs)
Museum	86,962	30 /1,000 sf	0.003	2.5	0.010
Museum Offices	39,634	120 /1,000 sf	0.005	2.5	0.018
				Credit Subtotal	**-0.028**

Note: Avg Daily Flow Per City of LA

TOTAL PROJECT FLOWRATE	**0.107**	
Peak Flow from US Cubed Monitoring dated 5/14/19 thru 5/22/19	**88.79**	gpm
	0.198	cfs
TOTAL FLOW to SANTA BARBARA/JAMBOREE	**0.305**	**cfs**
Depth of Flow in Ex. 8" Pipe at 0.6% (see attached)	0.26	ft
depth/Dia = d/D	**0.39**	

Channel Report

<Name>

Circular

Diameter (ft)	= 0.67
Invert Elev (ft)	= 100.00
Slope (%)	= 0.60
N-Value	= 0.013

Calculations

Compute by:	Known Q
Known Q (cfs)	= 0.31

Highlighted

Depth (ft)	= 0.26
Q (cfs)	= 0.305
Area (sqft)	= 0.13
Velocity (ft/s)	= 2.39
Wetted Perim (ft)	= 0.90
Crit Depth, Yc (ft)	= 0.26
Top Width (ft)	= 0.65
EGL (ft)	= 0.35