Solana Torrance

Sewer Area Study

S/W Corner of Hawthorne Boulevard & Via Valmonte
Torrance, California 90505

April 20, 2017

Prepared For:

ReyLenn Properties LLC

Prepared By:

KHR ASSOCIATES
Consulting Engineers - Surveyors - Planners
20411 SW Birch Street - Suite 310
Newport Beach, California 92660
Tele: 949-756-6440
Fax: 949-756-6444

ATTESTATION

This Sewer Area Study has been prepared by, and under the direction of, the undersigned, a duly Registered Civil Engineer in the State of California. Except as noted, the undersigned attests to the technical information contained herein, and has judged to be acceptable the qualifications of any technical specialists providing engineering data for this report, upon which findings, conclusions, and recommendations are based.

James H. Kawamura, P.E. *Date: April 20, 2017*
Registered Civil Engineer No. C30560
Exp. 3/31/18

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Solana Torrance
Sewer Area Study
Torrance, California

April 20, 2017

Introduction

This Sewer Area Study for the "*Solana Torrance*" apartment project (hereinafter referred to as *Project*) was commissioned by the project proponent, **Reylenn Properties, LLC (Reylenn),** Solana Beach, California, and prepared by **KHR Associates**, Newport Beach, California. The purpose of the study was to identify and evaluate potential sewer capacity issues, infrastructure requirements, and system-wide constraints and impacts that may be associated with development of the subject project.

The study findings, conclusions, and recommendations presented in this report are independently derived by **KHR Associates**, and are not necessarily shared by **Reylenn**, the City of Torrance, or any other interested parties.

Project Site & Description

The proposed *Project* site contains 24.68 acres, of which 5.76 acres of disturbed land from a former quarry operation will be developed into a multifamily residential community. The balance of the site (18.92 acres) will be preserved as natural open space. The proposed residential community will consist of 248 multi-family dwelling units, 546 parking spaces including surface parking and multiple subterranean parking structures, a 5,000 square-foot community room/fitness center, and 96,385 square feet of landscaped areas. Access to and from the *Project* site is proposed through one driveway entrance on Hawthorne Boulevard (right-in/right-out only). One "exit-only" driveway with raised traffic movement barriers is proposed for Via Valmonte (right-out only).

Figure 1 illustrates the location of the *Project* site, relative to other districts that comprise the City of Torrance. Figure 2 provides an aerial view of the *Project* site and surrounding environs. Figure 3 illustrates the project architect's conceptual site plan for *Solana Torrance*.

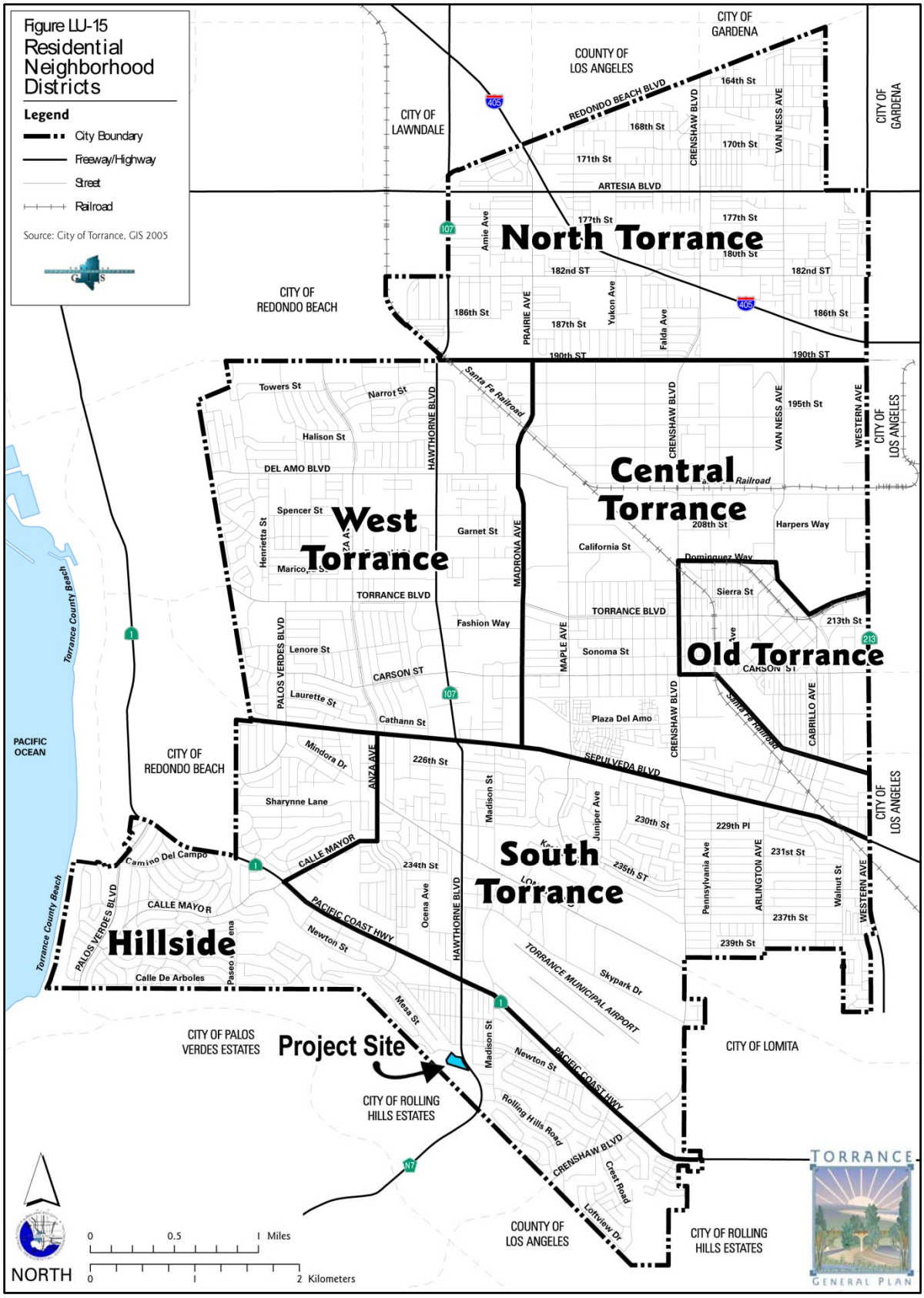

Figure 1 – Project Location Map

Figure 2 – Aerial View of Project Site

Figure 3 – *Solana Torrance* Site Plan

Existing Sewer System

The City of Torrance owns, operates, and maintains 95 percent of the sewer system in the City, and a few small areas outside the City limits. The remaining

five percent of the system is owned, operated, and maintained by the Los Angeles County Sanitation District (LACSD). All sewage generated in the City ultimately discharges into LACSD treatment and disposal facilities. Sewage from the project site ends up at LACSD's Reclamation Plant No. 1, in the City of Culver City, where both primary and secondary treatment is performed. Most of the City's sewer system consists of 8-inch vitrified clay pipe (VCP).

Since the subject site is vacant and undeveloped, there are no existing sewer laterals. The new sewer connections to the *Solana Torrance* development are proposed to be connected to the existing 8-inch VCP sewer main in Via Valmonte at an existing sewer manhole. The downstream route of this sewer main is as follows:

1) 8-inch Via Valmonte sewer main east to Hawthorne Boulevard;
2) 8-inch main in Hawthorne Boulevard north to Newton Street;
3) 8-inch main in Newton Street east to Park Street;
4) 8-inch main in Park Street north to east-west alley north of 244th Street;
5) 8-inch main in east-west alley west to north-south alley.
6) 8-inch main in to north-south alley north to 242nd Street;
7) 8-inch main in 242nd Street east to Hawthorne Boulevard;
8) 8-inch main in Hawthorne Boulevard north to Pacific Coast Highway.

The sewer manholes selected by the City for 14-day continuous flow monitoring were as follows (see Figures 4 and 5 for location).

MH No. 1 Newton Street, Sta. 30+46.94
MH No. 2 Park Street, Sta. 4+86.76
MH No. 3 Alley between Park Street and Hawthorne Boulevard, Sta. 4+51.2
MH No. 4 Hawthorne Boulevard at 242nd Street, Sta. 2+49.25

14-Day Flow Monitoring

As part of the City of Torrance's requirements for a "Sewer Capacity Study," 14 days of monitoring of sewage flow was prescribed in order to establish the existing flow capacity of the sewer main to which the proposed *Project* will be connected. Under sub-contract to **KHR Associates**, **National Plant Services, Inc.** (**NPS**), Long Beach, California placed sewage flow monitoring equipment in four sewer manhole locations described above. Sewer flow monitoring was independently conducted at the monitored sewer manholes between May 13th and May 27th, 2016, by **NPS**. A copy of the flow data by **NPS** are included in the Appendix section of this report. A summary of the results is provided in Table 1 below. It is important to note that the "Max. Q" flows at Manhole 3 was found to be

higher than Manhole 4. This could be attributable to a number of pre-existing conditions within the pipe segment between MH3 and MH4, including possible partial blockage, which a video camera could reveal.

Table 1 – Summary of Manhole Flows

MH No.	Max. Q (gpm)	Max. Q (cfs)	Min. Q (gpm)	Min. Q (cfs)	Ave. Q (gpm)	Ave. Q (cfs)
1	11.47	0.025	0.25	0.00055	2.69	0.006
2	25.06	0.055	1.63	0.00000	7.96	0.018
3	80.00	0.180	0.00	0.00000	25.11	0.056
4	50.04	0.110	7.51	0.01700	28.96	0.064

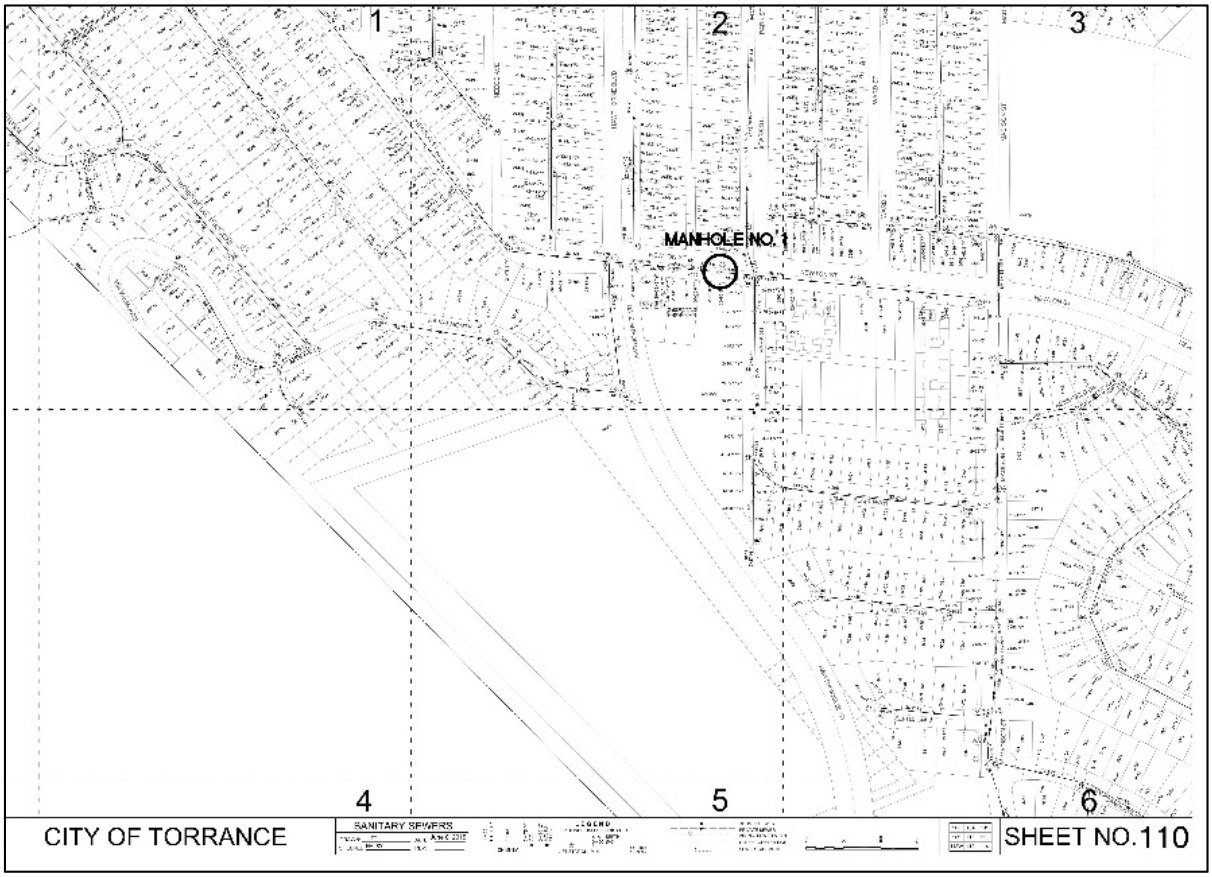

Figure 4 – *Manhole No. 1 Location*

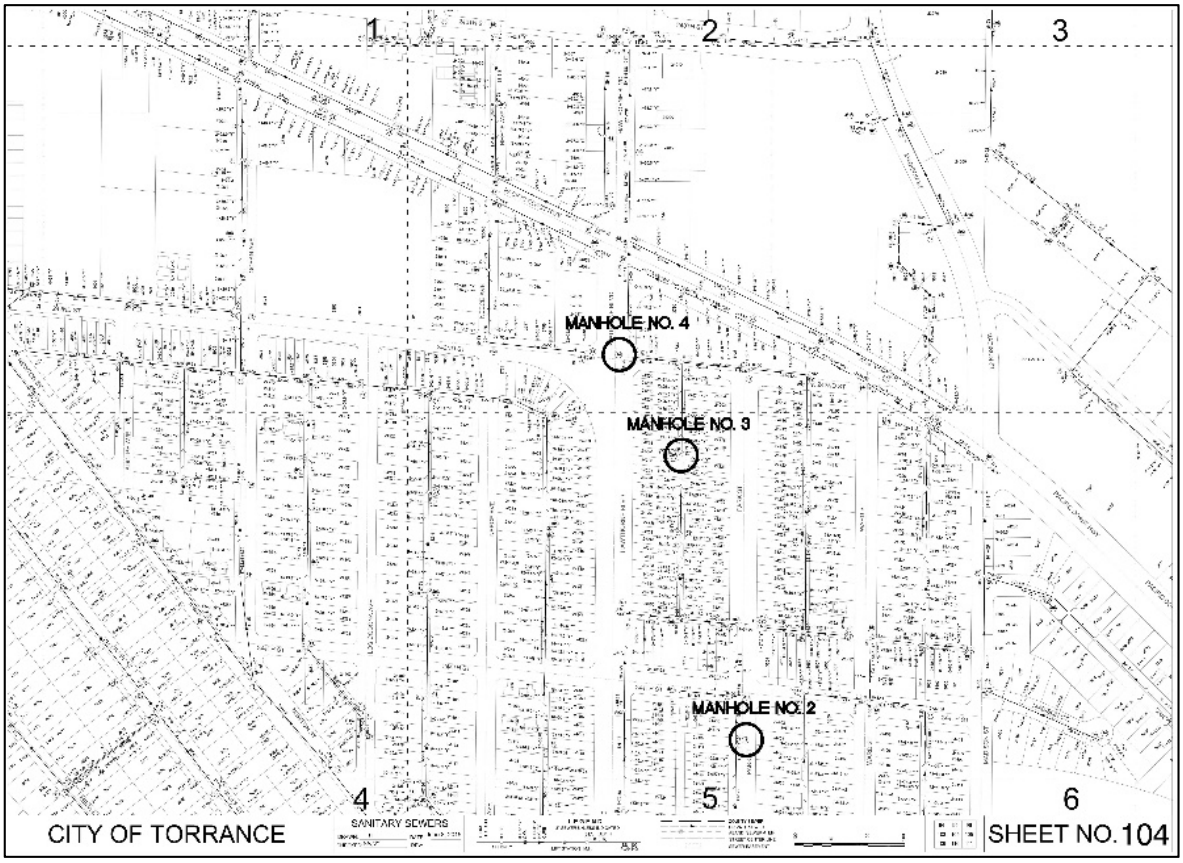

Figure 5 – *Manhole Nos. 2, 3 and 4 Locations*

Existing Sewer Capacity

To calculate the capacity (Q_{cap}), of the existing sewers, the following formula was used:

$$Q_{cap} = \left(\frac{K\prime}{n}\right) \times d^{8/3} \times (s^{0.5}) \quad ; \quad Q_p = (2.65) \times (Q_{ave})^{0.906}$$

Where,

Q_{cap} = Half full pipe flow in cubic feet per second (CFS) or millions of gallons per day (MGD), with 1 CFS = 0.646 MGD

K' = Conveyance factor, 0.232 for pipes flowing half full (D/d = 0.5)

n = Manning's roughness coefficient = usually around 0.013 for vitrified clay pipe

s = Pipe slope in decimal fraction

d = Inner diameter of pipe in feet (ft)

D = Flow depth (ft)

Since K'=0.232 is for pipes flowing half full (D/d = 0.5), showing that the existing plus proposed peak flows are less than Q_{cap} is equivalent to showing that the sewers would flow less than half full (D/d < 0.5). Upstream sewers for each of the four manholes are analyzed below for half full conditions, based on slope (s) and roughness coefficient (n) provided by the City of Torrance

Manhole No. 1

n = 0.013
s = 0.01151
d = 8" = 0.67 ft

$Q_{cap} = \left(\frac{K\prime}{n}\right) \times d^{8/3} \times (s^{0.5})$ = 0.649 cfs

Manhole No. 2

n = 0.013
s = 0.03449
d = 8" = 0.67 ft

$Q_{cap} = \left(\frac{K\prime}{n}\right) \times d^{8/3} \times (s^{0.5})$ = 1.124 cfs

Manhole No. 3

n = 0.013
s = 0.02057
d = 8" = 0.67 ft

$Q_{cap} = \left(\frac{K\prime}{n}\right) \times d^{8/3} \times (s^{0.5})$ = 0.868 cfs

Manhole No. 4

n = 0.013
s = 0.00507
d = 8" = 0.67 ft

$Q_{cap} = \left(\frac{K\prime}{n}\right) \times d^{8/3} \times (s^{0.5})$ = 0.431 cfs

Proposed Project Sewage Generation

For the proposed *Project*, average and peak sewage generation was calculated using typical flow factors for apartments.[1] The results are shown in Table 2.

[1] "Sewer System Hydraulic Analysis for Apartments

Table 2 – Sewage Generation for the Project

Unit Type	Total Units*	Flow Factor (gpd/unit)	Average Daily Flow (gpd)	Average Daily Flow (cfs)
One Bedroom Multi-Family	135	195	26,325	0.041
Two Bedroom Multi-Family	113	195	22,035	0.034
Leasing Office/ Community Center	1+1	200	400	0.001
Totals			48760	0.076

Average daily flow was converted to peak daily flow using the formula:

$Qp = (Qave \times 2.65)^{0.906} = (0.076 \times 2.65)^{0.906} = 0.234$ cfs

Existing Plus Proposed Sewage Flow

In order to obtain the total proposed sewage flow for each manhole, the maximum measured existing sewage flows as shown on Table 1 were added to the peak proposed sewage flow of (0.234 cfs). The resulting existing and proposed sewage flows are shown in Table 3.

Table 3 – Existing and Proposed Sewer Flows

MH No.	Existing Max Q (cfs)	Proposed Peak Q(cfs)	Total Peak Q (cfs)
1	0.025	0.234	0.259
2	0.055	0.234	0.289
3	0.180	0.234	0.414
4	0.110	0.234	0.344

Table 4 provides a comparison of proposed peak flows for each manhole to the capacities given in an earlier section.

Table 4 – Comparison of Proposed Peak Sewer Flows to Sewer Capacities

MH No.	Total Peak Q (cfs)	Qcap (cfs)
1	0.259	0.649
2	0.289	1.124
3	0.414	0.868
4	0.344	0.431

As indicated, the existing sewers have more than adequate capacity to handle the additional peak flows from the proposed *Project*.

Findings & Conclusions

Based on the information and calculations presented herein, the following findings are made:

1) As mandated by the City of Torrance, 14-day flow monitoring was conducted for the 8-inch sewer mains in, Newton Street, Park Street, the alley between Park Street and Hawthorne Boulevard, and Hawthorne Boulevard at 242nd Street to establish the existing flow capacity of the sewer main to which the proposed *Project* will be connected.

2) Based on City Standard Plan No. 500, the design peak flow rate is limited by the D/d ratio equal to 0.50.

3) The existing plus proposed peak sewage flows, will run at a peak depth less than D/d = 0.5.

Based on the above study findings, it is concluded that:

1. The existing sewer mains upstream from the four monitored manholes downstream from the *Project* site have sufficient capacity to handle the projected peak sewer flow from the *Solana Torrance* project. Therefore, the *Solana Torrance* apartment project, consisting of 248 multi-family residential units, will not adversely impact the existing sewer system downstream of the project site.

Appendix Section

TORRANCE - MH1
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/08/16			Monday 05/09/16			Tuesday 05/10/16			Wednesday 05/11/16			Thursday 05/12/16			Friday 05/13/16			Saturday 05/14/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:																					1945.16
Max:																			0.40	1.67	7.39
Min:																			0.12	1.01	0.99
Avg:																			0.21	1.26	2.70
PM																					
Total:																		2667.30			2224.56
Max:																0.41	1.70	7.67	0.38	1.56	6.24
Min:																0.09	0.88	0.60	0.12	1.01	0.99
Avg:																0.26	1.39	3.70	0.23	1.33	3.09
Daily																					
Total:																					4169.71
Max:																			0.40	1.67	7.39
Min:																			0.12	1.01	0.99
Avg:																			0.22	1.29	2.90
Weekly																					
Total:																					
Max:																					
Min:																					
Avg:																					

TORRANCE - MH1
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/15/16			Monday 05/16/16			Tuesday 05/17/16			Wednesday 05/18/16			Thursday 05/19/16			Friday 05/20/16			Saturday 05/21/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			1295.80			1561.97			1154.16			1319.60			1757.47			1368.40			1802.47
Max:	0.30	1.50	4.20	0.29	1.52	4.55	0.36	1.56	5.90	0.33	1.49	5.09	0.33	1.57	5.45	0.34	1.43	4.81	0.37	1.57	6.19
Min:	0.09	0.91	0.64	0.11	0.93	0.86	0.05	0.75	0.25	0.09	0.93	0.66	0.11	0.92	0.84	0.09	0.93	0.67	0.09	0.92	0.68
Avg:	0.17	1.13	1.80	0.19	1.19	2.17	0.15	1.04	1.60	0.17	1.13	1.83	0.21	1.22	2.44	0.18	1.12	1.90	0.21	1.22	2.50
PM																					
Total:			2177.28			3391.27			2357.85			2191.14			2315.64			2185.69			2267.85
Max:	0.35	1.64	6.04	0.55	1.81	11.47	0.42	1.61	7.32	0.36	1.57	5.85	0.33	1.68	6.17	0.38	1.56	6.15	0.34	1.67	5.47
Min:	0.14	1.12	1.43	0.20	1.28	2.67	0.13	1.01	1.10	0.16	1.09	1.70	0.13	1.04	1.23	0.15	1.12	1.58	0.14	1.03	1.43
Avg:	0.23	1.32	3.02	0.30	1.49	4.71	0.25	1.33	3.27	0.24	1.32	3.04	0.24	1.33	3.22	0.23	1.32	3.04	0.24	1.34	3.15
Daily																					
Total:			3473.08			4953.25			3512.01			3510.74			4073.11			3554.09			4070.32
Max:	0.35	1.64	6.04	0.55	1.81	11.47	0.42	1.61	7.32	0.36	1.57	5.85	0.33	1.57	6.17	0.38	1.56	6.15	0.37	1.67	6.19
Min:	0.09	0.91	0.64	0.11	0.93	0.86	0.05	0.75	0.25	0.09	0.93	0.66	0.11	0.92	0.84	0.09	0.93	0.67	0.09	0.92	0.68
Avg:	0.20	1.22	2.41	0.25	1.34	3.44	0.20	1.18	2.44	0.20	1.22	2.44	0.23	1.27	2.83	0.21	1.22	2.47	0.22	1.28	2.83

Weekly			
Total:			2,714.66e1
Max:	0.55	1.81	11.47
Min:	0.05	0.75	0.25
Avg:	0.22	1.25	2.69

TORRANCE - MH1
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/22/16			Monday 05/23/16			Tuesday 05/24/16			Wednesday 05/25/16			Thursday 05/26/16			Friday 05/27/16			Saturday 05/28/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			1312.22			1477.08			1325.28			1421.10			1355.73			519.70			
Max:	0.32	1.44	4.53	0.28	1.39	3.58	0.34	1.45	4.73	0.26	1.51	3.72	0.47	1.54	5.67	0.17	2.16	3.03			
Min:	0.10	0.96	0.80	0.12	0.93	0.98	0.09	0.93	0.65	0.09	0.92	0.68	0.08	0.54	0.23	0.00	1.11	0.00			
Avg:	0.18	1.13	1.82	0.19	1.18	2.05	0.17	1.13	1.84	0.18	1.18	1.97	0.19	1.06	1.88	0.06	1.52	0.94			
PM																					
Total:			2120.91			3547.78			2115.51			3658.87			1907.79						
Max:	0.32	1.64	5.18	0.49	1.84	10.55	0.35	1.55	5.72	0.57	1.94	13.24	0.51	2.18	9.86						
Min:	0.14	1.15	1.45	0.18	1.24	2.19	0.14	1.12	1.33	0.19	1.26	2.30	0.05	0.64	0.40						
Avg:	0.23	1.32	2.95	0.30	1.51	4.93	0.23	1.32	2.94	0.31	1.52	5.08	0.17	1.38	2.65						
Daily																					
Total:			3433.13			5024.86			3440.79			5079.96			3263.52			519.70			
Max:	0.32	1.64	5.18	0.49	1.84	10.55	0.35	1.55	5.72	0.57	1.94	13.24	0.47	1.54	9.86	0.17	2.16	3.03			
Min:	0.10	0.96	0.80	0.12	0.93	0.98	0.09	0.93	0.65	0.09	0.92	0.68	0.05	0.54	0.23	0.00	1.11	0.00			
Avg:	0.20	1.23	2.38	0.25	1.34	3.49	0.20	1.22	2.39	0.25	1.35	3.53	0.18	1.22	2.27	0.06	1.52	0.94			

Weekly			
Total:			2,076.20e1
Max:	0.57	2.18	13.24
Min:	0.00	0.54	0.00
Avg:	0.20	1.29	2.68

TORRANCE - MH2
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/08/16			Monday 05/09/16			Tuesday 05/10/16			Wednesday 05/11/16			Thursday 05/12/16			Friday 05/13/16			Saturday 05/14/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:																					5355.84
Max:																			1.98	1.47	14.66
Min:																			0.85	0.65	3.51
Avg:																			1.17	0.91	7.93
PM																					
Total:																		6800.34			6574.43
Max:																3.12	1.51	22.68	1.55	1.38	21.12
Min:																0.22	0.51	2.16	0.57	0.67	4.09
Avg:																1.08	1.04	9.44	1.09	1.01	9.13
Daily																					
Total:																					1193.03e1
Max:																			1.98	1.47	21.12
Min:																			0.57	0.65	3.51
Avg:																			1.12	0.96	8.55
Weekly																					
Total:																					
Max:																					
Min:																					
Avg:																					

TORRANCE - MH2
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/15/16			Monday 05/16/16			Tuesday 05/17/16			Wednesday 05/18/16			Thursday 05/19/16			Friday 05/20/16			Saturday 05/21/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			4602.97			5274.60			4868.77			4583.94			5810.51			5092.45			4792.16
Max:	1.58	1.21	10.44	1.97	1.26	21.38	1.90	1.30	18.84	1.44	1.27	12.83	1.97	1.34	25.06	2.04	1.15	17.50	1.41	1.33	12.81
Min:	0.79	0.50	2.32	0.50	0.55	2.67	0.73	0.47	2.22	0.84	0.52	2.40	0.39	0.51	2.03	0.86	0.56	3.13	0.87	0.57	3.07
Avg:	1.14	0.78	6.39	1.10	0.86	7.33	1.13	0.75	6.76	1.14	0.80	6.50	1.14	0.89	8.07	1.26	0.77	7.07	1.12	0.87	7.10
PM																					
Total:			6101.21			5910.36			7525.81			6153.13			6515.89			5948.17			5945.03
Max:	1.53	1.37	14.68	1.63	1.65	19.79	1.73	1.35	19.91	1.70	1.21	17.36	1.69	1.32	21.34	1.37	1.39	16.18	1.54	1.37	16.75
Min:	0.49	0.72	2.63	0.27	0.72	1.98	0.35	0.70	2.70	0.70	0.68	4.11	0.20	0.66	1.63	0.79	0.67	4.21	0.45	0.67	3.27
Avg:	1.05	0.99	8.47	0.89	1.11	8.57	1.22	1.01	10.45	1.10	0.96	8.55	1.17	0.97	9.05	1.10	0.98	8.62	1.03	1.01	8.43
Daily																					
Total:			1070.42e1			1118.50e1			1239.46e1			1073.71e1			1232.64e1			1104.06e1			1073.72e1
Max:	1.58	1.37	14.68	1.97	1.65	21.38	1.90	1.35	19.91	1.70	1.27	17.36	1.97	1.34	25.06	2.04	1.39	17.50	1.54	1.37	16.75
Min:	0.49	0.50	2.32	0.27	0.55	1.98	0.35	0.47	2.22	0.70	0.52	2.40	0.20	0.51	1.63	0.79	0.56	3.13	0.45	0.57	3.07
Avg:	1.10	0.88	7.43	1.00	0.99	7.93	1.18	0.88	8.61	1.12	0.88	7.53	1.15	0.93	8.56	1.18	0.87	7.83	1.07	0.94	7.78

Weekly			
Total:			7,912.50e1
Max:	2.04	1.65	25.06
Min:	0.20	0.47	1.63
Avg:	1.11	0.91	7.96

TORRANCE - MH2
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/22/16			Monday 05/23/16			Tuesday 05/24/16			Wednesday 05/25/16			Thursday 05/26/16			Friday 05/27/16			Saturday 05/28/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			4654.43			4565.56			4632.02			4871.03			4302.56			6186.39			
Max:	1.70	1.25	12.58	1.61	1.21	13.81	1.80	1.21	14.44	1.58	1.31	13.29	1.37	1.63	11.90	2.03	1.61	28.46			
Min:	0.87	0.57	3.48	-0.91	0.56	-7.54	0.79	0.57	3.23	0.91	0.52	2.69	0.85	0.61	3.14	0.00	0.85	0.00			
Avg:	1.12	0.80	6.46	1.04	0.83	6.34	1.14	0.78	6.43	1.15	0.82	6.91	1.13	0.97	7.35	1.00	1.18	10.58			
PM																					
Total:			6162.44			8187.07			6385.31			7245.65			9566.87						
Max:	1.58	1.37	17.90	1.73	1.62	21.58	1.65	1.20	15.24	1.52	1.68	18.25	2.32	1.93	28.30						
Min:	0.05	0.70	0.30	0.58	0.85	4.61	0.86	0.77	6.17	0.52	0.79	5.75	0.66	0.80	4.80						
Avg:	1.03	0.99	8.56	1.08	1.16	11.37	1.12	0.98	8.87	1.03	1.18	10.73	1.16	1.21	13.29						
Daily																					
Total:			1081.69e1			1275.26e1			1101.73e1			1211.67e1			1386.94e1			6186.39			
Max:	1.70	1.37	17.90	1.73	1.62	21.58	1.80	1.21	15.24	1.58	1.68	18.25	1.37	1.63	28.30	2.03	1.61	28.46			
Min:	0.05	0.57	0.30	-0.91	0.56	-7.54	0.79	0.57	3.23	0.52	0.52	2.69	0.66	0.61	3.14	0.00	0.85	0.00			
Avg:	1.07	0.89	7.51	1.06	1.00	8.86	1.13	0.88	7.65	1.09	1.00	8.78	1.15	1.09	10.63	1.00	1.18	10.58			

Weekly			
Total:			6,675.93e1
Max:	2.32	1.93	28.46
Min:	-0.91	0.52	-7.54
Avg:	1.09	0.99	8.80

TORRANCE - MH3
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/08/16			Monday 05/09/16			Tuesday 05/10/16			Wednesday 05/11/16			Thursday 05/12/16			Friday 05/13/16			Saturday 05/14/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:																					9425.11
Max:																			3.16	1.58	45.27
Min:																			0.28	0.65	1.77
Avg:																			1.42	1.06	13.09
PM																					
Total:																					2016.33e1
Max:																			2.81	2.08	61.23
Min:																			1.71	0.75	8.82
Avg:																			2.40	1.23	28.00
Daily																					
Total:																					2958.84e1
Max:																			3.16	2.08	61.23
Min:																			0.28	0.65	1.77
Avg:																			1.91	1.15	20.55
Weekly																					
Total:																					
Max:																					
Min:																					
Avg:																					

TORRANCE - MH3
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/15/16			Monday 05/16/16			Tuesday 05/17/16			Wednesday 05/18/16			Thursday 05/19/16			Friday 05/20/16			Saturday 05/21/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			1217.46e1			1666.82e1			1327.43e1			1122.38e1			1441.27e1			1905.44e1			1255.80e1
Max:	2.82	2.10	51.40	3.17	2.08	80.35	3.27	1.90	65.03	3.18	1.60	53.06	3.28	2.12	75.31	3.22	2.01	73.23	3.15	1.89	62.26
Min:	0.09	0.87	0.78	0.48	0.95	3.60	0.08	0.80	0.65	0.08	0.39	0.41	0.08	0.82	0.61	0.00	1.03	0.00	0.09	0.84	0.86
Avg:	1.30	1.31	16.91	1.62	1.31	23.15	1.47	1.22	18.44	1.59	0.99	15.59	1.40	1.26	20.02	1.81	1.33	26.46	1.41	1.21	17.44
PM																					
Total:			2294.92e1			1978.76e1			2341.01e1			2061.04e1			2400.53e1			2002.21e1			2293.08e1
Max:	2.87	1.89	57.89	2.82	1.81	53.67	2.94	1.80	58.29	2.86	2.15	53.76	2.98	1.92	64.29	2.71	1.76	49.48	2.83	1.92	59.59
Min:	1.96	0.94	17.06	1.70	0.86	11.75	1.56	0.95	12.29	1.58	0.77	13.11	0.00	0.91	0.00	0.00	0.91	0.00	1.86	1.08	20.31
Avg:	2.45	1.33	31.87	2.24	1.27	27.48	2.53	1.32	32.51	2.39	1.26	28.63	2.44	1.36	33.34	2.22	1.29	27.81	2.40	1.36	31.85
Daily																					
Total:			3512.38e1			3645.57e1			3668.44e1			3183.42e1			3841.80e1			3907.65e1			3548.88e1
Max:	2.87	2.10	57.89	3.17	2.08	80.35	3.27	1.90	65.03	3.18	2.15	53.76	3.28	2.12	75.31	3.22	2.01	73.23	3.15	1.92	62.26
Min:	0.09	0.87	0.78	0.48	0.86	3.60	0.08	0.80	0.65	0.08	0.39	0.41	0.00	0.82	0.00	0.00	0.91	0.00	0.09	0.84	0.86
Avg:	1.87	1.32	24.39	1.93	1.29	25.32	2.00	1.27	25.48	1.99	1.13	22.11	1.92	1.31	26.68	2.02	1.31	27.14	1.90	1.28	24.64

Weekly			
Total:			2,530.81e2
Max:	3.28	2.15	80.35
Min:	0.00	0.39	0.00
Avg:	1.95	1.27	25.11

TORRANCE - MH3
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/22/16			Monday 05/23/16			Tuesday 05/24/16			Wednesday 05/25/16			Thursday 05/26/16			Friday 05/27/16			Saturday 05/28/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			1182.16e1			1141.89e1			1469.48e1			1882.18e1			1310.30e1			8038.64			
Max:	3.27	1.80	58.65	3.26	1.44	47.49	3.10	1.91	54.89	3.34	1.84	65.08	3.40	1.71	57.28	3.04	1.57	50.76			
Min:	0.27	0.76	2.27	0.06	0.78	0.51	0.07	0.84	0.64	0.83	1.03	7.66	0.07	0.90	0.83	0.06	0.78	0.55			
Avg:	1.42	1.20	16.42	1.50	1.10	15.86	1.43	1.32	20.41	1.90	1.30	26.14	1.44	1.24	18.20	1.16	1.14	14.10			
PM																					
Total:			1794.79e1			2027.29e1			2465.73e1			2144.26e1			2319.43e1						
Max:	2.79	1.49	42.64	2.92	1.94	67.87	3.24	1.71	60.73	2.84	1.66	49.57	2.81	1.71	53.65						
Min:	1.46	0.76	10.15	1.23	0.83	7.60	1.93	1.03	17.81	1.36	0.91	9.55	1.66	1.09	15.54						
Avg:	2.44	1.14	24.93	2.38	1.23	28.16	2.62	1.33	34.25	2.38	1.28	29.78	2.45	1.34	32.21						
Daily																					
Total:			2976.95e1			3169.19e1			3935.21e1			4026.44e1			3629.73e1			8038.64			
Max:	3.27	1.80	58.65	3.26	1.94	67.87	3.24	1.91	60.73	3.34	1.84	65.08	3.40	1.71	57.28	3.04	1.57	50.76			
Min:	0.27	0.76	2.27	0.06	0.78	0.51	0.07	0.84	0.64	0.83	0.91	7.66	0.07	0.90	0.83	0.06	0.78	0.55			
Avg:	1.93	1.17	20.67	1.94	1.17	22.01	2.02	1.32	27.33	2.14	1.29	27.96	1.94	1.29	25.21	1.16	1.14	14.10			

Weekly			
Total:			1,854.14e2
Max:	3.40	1.94	67.87
Min:	0.06	0.76	0.51
Avg:	1.93	1.24	23.86

TORRANCE - MH4
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/08/16			Monday 05/09/16			Tuesday 05/10/16			Wednesday 05/11/16			Thursday 05/12/16			Friday 05/13/16			Saturday 05/14/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:																					1800.14e1
Max:																			1.45	2.71	50.63
Min:																			0.55	1.53	10.39
Avg:																			0.91	2.04	25.00
PM																					
Total:																					2579.72e1
Max:																			1.36	2.57	43.62
Min:																			0.70	2.29	21.71
Avg:																			1.10	2.41	35.83
Daily																					
Total:																					4379.86e1
Max:																			1.45	2.71	50.63
Min:																			0.55	1.53	10.39
Avg:																			1.01	2.22	30.42
Weekly																					
Total:																					
Max:																					
Min:																					
Avg:																					

TORRANCE - MH4
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/15/16			Monday 05/16/16			Tuesday 05/17/16			Wednesday 05/18/16			Thursday 05/19/16			Friday 05/20/16			Saturday 05/21/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			2030.52e1			1986.50e1			1834.06e1			1803.31e1			1958.91e1			2090.57e1			1819.81e1
Max:	1.42	2.53	47.52	1.33	2.66	46.44	1.36	2.42	41.99	1.36	2.41	41.62	1.39	2.55	48.14	1.69	2.34	50.04	1.36	2.29	40.81
Min:	0.66	1.64	12.09	0.58	1.53	11.51	0.66	1.69	12.32	0.66	1.67	12.11	0.56	1.69	12.14	0.66	1.70	12.53	0.74	1.77	14.98
Avg:	1.04	2.09	28.20	1.01	2.08	27.59	0.99	2.02	25.47	0.99	2.01	25.05	1.03	2.05	27.21	1.12	2.04	29.04	1.01	2.00	25.28
PM																					
Total:			2625.15e1			1500.28e1			2284.20e1			2376.97e1			2396.66e1			2352.46e1			2131.14e1
Max:	1.50	2.48	48.04	1.56	2.64	48.88	1.43	2.43	43.06	1.36	2.42	41.02	1.59	2.42	48.00	1.43	2.29	39.80	1.25	2.27	36.02
Min:	0.90	1.89	25.10	1.01	0.89	7.51	0.80	1.90	20.78	1.10	1.97	26.09	0.81	1.91	20.83	0.84	2.04	21.11	0.87	2.06	25.76
Avg:	1.26	2.23	36.46	1.24	1.50	20.84	1.15	2.17	31.72	1.20	2.16	33.01	1.25	2.12	33.29	1.19	2.16	32.67	1.08	2.16	29.60
Daily																					
Total:			4655.67e1			3486.78e1			4118.26e1			4180.28e1			4355.57e1			4443.04e1			3950.95e1
Max:	1.50	2.53	48.04	1.56	2.66	48.88	1.43	2.43	43.06	1.36	2.42	41.62	1.39	2.55	48.14	1.69	2.34	50.04	1.36	2.29	40.81
Min:	0.66	1.64	12.09	0.58	0.89	7.51	0.66	1.69	12.32	0.66	1.67	12.11	0.56	1.69	12.14	0.66	1.70	12.53	0.74	1.77	14.98
Avg:	1.15	2.16	32.33	1.12	1.79	24.21	1.07	2.10	28.60	1.09	2.08	29.03	1.14	2.09	30.25	1.15	2.10	30.85	1.04	2.08	27.44

Weekly			
Total:			2,919.05e2
Max:	1.69	2.66	50.04
Min:	0.56	0.89	7.51
Avg:	1.11	2.06	28.96

TORRANCE - MH4
Summary Report

Velocity Feet Per Second
Level Inches
Flow Gallons Per Minute

	Sunday 05/22/16			Monday 05/23/16			Tuesday 05/24/16			Wednesday 05/25/16			Thursday 05/26/16			Friday 05/27/16			Saturday 05/28/16		
	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo	vel	lev	flo
AM																					
Total:			1962.53e1			1889.38e1			1797.81e1			1904.72e1			1710.14e1			1259.27e1			
Max:	1.37	2.48	43.02	1.51	2.27	44.71	1.48	2.16	39.74	1.41	2.16	37.86	1.59	2.23	45.81	1.45	2.16	39.79			
Min:	0.74	1.77	14.98	0.46	1.86	12.98	0.70	1.79	14.36	0.78	1.77	15.72	0.52	1.79	13.76	0.00	1.77	10.68			
Avg:	1.04	2.06	27.26	1.03	2.04	26.24	1.03	1.97	24.97	1.10	1.96	26.45	0.97	1.97	23.75	0.88	1.92	21.53			
PM																					
Total:			2217.66e1			2161.28e1			2211.19e1			2104.54e1			2198.21e1						
Max:	1.52	2.27	45.00	1.39	2.18	38.68	1.55	2.16	41.62	1.48	2.13	39.17	1.42	2.16	38.13						
Min:	0.74	1.98	20.85	0.90	1.95	21.09	0.86	1.95	21.28	0.84	1.95	21.28	0.96	1.95	23.03						
Avg:	1.14	2.14	30.80	1.14	2.09	30.02	1.21	2.05	30.71	1.14	2.06	29.23	1.19	2.07	30.53						
Daily																					
Total:			4180.19e1			4050.66e1			4009.00e1			4009.26e1			3908.35e1			1259.27e1			
Max:	1.52	2.48	45.00	1.51	2.27	44.71	1.55	2.16	41.62	1.48	2.16	39.17	1.59	2.23	45.81	1.45	2.16	39.79			
Min:	0.74	1.77	14.98	0.46	1.86	12.98	0.70	1.79	14.36	0.78	1.77	15.72	0.52	1.79	13.76	0.00	1.77	10.68			
Avg:	1.09	2.10	29.03	1.09	2.06	28.13	1.12	2.01	27.84	1.12	2.01	27.84	1.08	2.02	27.14	0.88	1.92	21.53			

Weekly			
Total:			2,141.67e2
Max:	1.59	2.48	45.81
Min:	0.00	1.77	10.68
Avg:	1.08	2.03	27.51