

Appendix D

Data on System Conveyance Capacity Limitations

Reported Sanitary Sewer Overflow Tables

The following tables (D-1 through D-3), provided by the City of Newport's collection system operator, United Water, detail 86 SSOs documented by the City of Newport and reported to RIDEM. The SSO information was collected and documented by United Water between the beginning of 2003 and September 2012.

TABLE D-1

Chronological Index A4
Discharges from the Newport Collection System
Dry Weather since January 1, 2003

Location	Date of Event	Time of Event began/ended	Name and Location of Receiving Water(s)	Documentation / Sampling Results Attached	Origin	Conditions Under which Event Occurred	Estimated Gallons Released	Description of Efforts to Reduce, Eliminate, or Prevent Reoccurrence of Event	Date of Last Overflow Event in Same General Location
America's Cup and Thames Street	3/22/2003	4:05p.m. / 6:10p.m.	Newport Harbor	Spill Sheet	City of Newport	Grease Blockage	1,000 gals.	* See Below	-
Third Street at Rotary	6/14/2003	1:00p.m. / 2:00p.m.	Newport Harbor	Spill Sheet	City of Newport	Grease Blockage	1,000 gals.	* See Below	-
Memorial Boulevard	12/11/2005	10:40p.m.	Newport Harbor	Spill Sheet	Town of Middletown	Force Main Failure	-	Town Replaced	-
Goat Island Causeway	12/16/2005	8:40a.m. / 9:00a.m.	Newport Harbor	Spill Sheet	City of Newport	Rags and debris	500 gals.	Jetted and Flushed Line	-
Dyre Street	11/6/2007	9:05a.m. / 10:00a.m.	Newport Harbor	Spill Sheet	City of Newport	Blockage	75 gals.	Jetted and Flushed Line	-
Connell Highway	11/28/2007	1:20p.m. / 1:50p.m.	Newport Harbor	Spill Sheet / e-mail	City of Newport	Grease Blockage	75 gals.	* See Below	-
Washington Street CSO	1/3/2008	12:00p.m. / 4:00p.m.	Newport Harbor	e-mail / sample results	City of Newport	Force Main Failure	2,400 gals.	Repaired	-
Goat Island Connector	3/30/2008	10:00a.m. / 11:00a.m.	Newport Harbor	e-mail	City of Newport	Blockage	100-200 gals.	Jetted and Flushed Line	12/16/2005
West Howard Wharf	6/11/2008	10:00a.m. /	Newport Harbor	e-mail	Pier Restaurant	Private main break	25 gals.	Owner Repaired	-
Ruggles Avenue	6/24/2008	7:55a.m. / 8:30a.m.	Lily Pond	e-mail	City of Newport	Rags and debris	250 gals.	Jetted and Flushed Line	-
Bliss Mine Road	7/5/2008	10:30a.m. / 10:45a.m.	Eastons Pond moat	e-mail	City of Newport	Force main air relief rotted	25-50 gals.	Repaired	-
Long Wharf pump station	7/24/2008	2:15p.m.	Newport Harbor	e-mail	City of Newport	Gasket leak on bypass pump	150-200 gals.	Removed Temporary Pumps	-
Connell Highway	8/2/2008	3:14p.m.	Newport Harbor	e-mail	City of Newport	Grease blockage	100 gals.	* See Below	11/28/2007
Ridge Road	1/13/2009	12:15 p.m.	Narragansett Bay	e-mail	Ocean Cliff Resort	Cleanout Cap Leaking	100 Gals.	shut down pump station to repair	-
Maple Avenue	2/15/2009	11:00 a.m.	Newport Harbor	Spill Sheet	City of Newport	Blockage	100 gals.	Jetted and Flushed Line	-
Maple Avenue	4/1/2009	8:15 a.m.	Newport Harbor	e-mail	City of Newport	Grease Blockage	50 gals.	Jetted and Flushed Line	2/15/2009
Newport WPCF	4/21/2009			e-mail	City of Newport	Bypass pumping	5,000 gals.	% See Below	
America's Cup Avenue	6/2/2009	7:15a.m. / 8:20a.m.	Newport Harbor	e-mail	City of Newport	Bypass pumping	2500 gals.	# See Below	
Connell Highway	7/10/2009	8:00a.m. / 8:15a.m.	Newport Harbor	e-mail	City of Newport	Grease blockage	150 gals.	* See Below	7/24/2008
Navy Station	7/24/2009	7:30a.m.	Coasters Harbor	e-mail	Navy Base	Bypass pumping	100 gals.	# See Below	
Admiral Kalbfus Blvd.	9/15/2010	7:00a.m. / 7:20a.m.		Spill Sheet	City of Newport	Grease Blockage	100 gals.	Jetted and Flushed Line	-
Goat Island Connector	12/22/2010	9:00a.m. / 9:15 a.m.	Newport Harbor	Spill Sheet / e-mail	City of Newport	Grease Blockage	150 gals.	Jetted and Flushed Line	3/30/2008
Brenton Road #4	4/18/2011	11:00 a.m.	NA	Spill Sheet / e-mail	City of Newport	Adult Diapers	10-15 gals.	Jetted and Flushed Line	-
Connell Highway	11/1/2011	2:05p.m. / 2:20p.m.	Newport Harbor	e-mail	City of Newport	Grease blockage	50-75 gals.	Jetted and Flushed Line	7/10/2009
Goat Island Causeway	4/8/2012	11:50am/12:10p.m.	Newport Harbor	Spill Sheet / e-mail	City of Newport	Hydraulic overload of force main	50 gals.	SOP limiting pumping rate by operations staff	5/20/2008
Goat Island Causeway	10/17/2012	10:10am/12:30p.m.	Newport Harbor	Spill Sheet/ e-mail	City of Newport	Air vent corroded and leaking	36 gals.	Contractor inspected and repaired leak by installing a pipe saddle, new vent pipe, ball valve and new air release valve.	4/8/2012

* ALL GREASE BLOCKAGES ARE FOLLOWED UP BY THE IPP COORDINATOR. RESTAURANTS UPSTREAM ARE INSPECTED AND NOV'S ISSUED IF NEEDED.

+ All costs associated with these efforts were included in contract operating agreement

% Exceeded hydraulic capacity of plant during Long Wharf force main by-pass pumping

Bypass pipe failure related to Long Wharf force main

TABLE D-2

Chronological Index A5
Discharges from the Newport Collection System
Wet Weather since January 1, 2003

Location	Date of Event	Time of Event began/ended	Name of Nearest Receiving Water(s)	Documentation/ Sampling Results Attached	Origin	Conditions Under which Event Occurred	Estimated Gallons Released	Description of Efforts to Reduce, Eliminate, or Prevent Reoccurrence of Event	Date of Last Overflow Event in Same General Location
South Mayd and Butler Street	3/2/2003	4:30p.m. / 5:00p.m.	Newport Harbor	Spill Sheet	City of Newport	Heavy Rains	300 gals.	*** see below	-
Ruggles Avenue Pump Station	4/12/2003	5:00p.m. / 6:30p.m.	Lily Pond	Spill Sheet	City of Newport	Heavy Rains	400 gals.	Pump Failure	-
South Mayd and Butler Street	8/8/2003	8:00a.m.	Newport Harbor	e-mail	City of Newport	Heavy Rains	Unknown	*** see below	3/2/2003
South Mayd and Butler Street	8/15/2004	7:45a.m.	Newport Harbor	e-mail	City of Newport	Heavy Rains	Stopped on arrival	*** see below	8/8/2003
Homer Street and Garfield Street	10/15/2005	6:00a.m.	Newport Harbor	e-mail	City of Newport	Heavy Rains	Unknown	*** see below	-
Homer Street and Garfield Street	11/22/2005	8:30a.m. / 3:00p.m.	Newport Harbor	Spill Sheet	City of Newport	Heavy Rains	50,000 gals.	*** see below	10/15/2005
Homer Street and Garfield Street	3/2/2007	11:00a.m. / 11:40a.m.	Newport Harbor	Spill Sheet / e-mail	City of Newport	Heavy Rains	400 - 500 gals.	used vac-truck to reduce spill	11/22/2005
Homer Street and Garfield Street	4/6/2009	3:20p.m. / 7:10p.m.	Newport Harbor	Spill Sheet / e-mail	City of Newport	Heavy Rains	2500 gals.	*** see below	3/2/2007
Homer Street and Garfield Street	7/1/2009	1:10p.m.	Newport Harbor	e-mail	City of Newport	Heavy Rains	300 gals.	*** see below	4/6/2009
Ruggles Avenue	2/26/2010	2:10p.m. / 2:30p.m.	Lily Pond	e-mail / sample results	City of Newport	Heavy Rains	60 gals.	used vac-truck to reduce spill	-
Ruggles Avenue Pump Station	3/23/2010	10:45a.m. / 12:15p.m.	Lily Pond	e-mail	City of Newport	Heavy Rains	500 gals.	used vac-truck to reduce spill / ordered new pump	4/12/2003
Homer Street and Garfield Street	3/31/2010	10:00p.m. / 1:00a.m.	Newport Harbor	e-mail	City of Newport	Heavy Rains	200 gals.	*** see below	7/1/2009
Third St and Marsh St.	2/25/2011	11:00 a.m. / 12 noon	Newport Harbor	Spill Sheet / e-mail	City of Newport	Heavy Rains	100000 gals	Failed bar screen at WSCSO, repaired screen	-
Newport WPCF	8/28/2011	9:30 p.m. 9:33 p.m.	Coasters Harbor	Spill Sheet / e-mail	City of Newport	Hurricane Irene	1000	Generator tripped out momentarily	

*** The area of South Mayd / Butler and Homer / Garfield are located in the Prescott Hall neighborhood.

TABLE D-3

Chronological Index A6
Discharges from the Newport Collection System to Buildings or Land
Public or Private since January 1, 2003

Location	Date of Event	Time of Event began/ended	Area Affected	Documentation/ Sampling Results Attached	Conditions Under which Event Occurred	Estimated Gallons Released	Description of Efforts to Reduce, Eliminate, or Prevent Recurrence of Event	Date of Last Overflow Event in Same General Location
Friendship Street, Newport Hospital	1/27/2003	-	Parking Lot	-	Blockage	NA	Jetted Line	-
Goat Island Causeway	2/16/2003	8:45a.m.	Road	-	Blockage	50	Jetted Line	-
16 Coddington Wharf - #3	7/12/2003	-	Basement	-	Blockage	NA	Jetted Line	-
8 Bliss Road	7/23/2003	-	Basement	-	Blockage	NA	Jetted Line	-
182 Eustis Avenue	7/27/2003	-	Basement	-	Blockage	NA	Jetted Line	-
11 Andrew Street	8/17/2003	-	Basement	-	Charged Line, Basement Bathroom, Heavy Rain	NA	-	-
Maple Avenue Pump Station	8/26/2003	-	6" force main	-	Contractor broke 6" force main while installing new 8" gravity main	NA	Shut down station	-
139 Kay Street	1/17/2004	-	Basement	-	Blockage	NA	Jetted Line	-
21 Mount Vernon Street	1/27/2004	-	Basement	-	Blockage	NA	Jetted Line	-
33 Catherine Street	1/29/2004	-	Basement	-	Blockage	NA	Jetted Line	-
176 Eustis Avenue	2/13/2004	-	Basement	-	Blockage	NA	Jetted Line	-
136 Kay Street	3/3/2004	-	Basement	-	Blockage	NA	Jetted Line	1/17/2004
139 Kay Street	3/3/2004	-	Basement	-	Blockage	NA	Jetted Line	1/17/2004
81 Annendale Road	3/21/2004	-	Basement	-	Blockage	NA	Jetted Line	-
139 Kay Street	4/1/2004	-	Basement	-	Blockage	NA	Jetted Line	3/3/2004
58 Kingston Avenue	4/14/2004	-	Basement	-	Blockage	NA	Jetted Line	-
1 Stevenson Place	4/14/2004	-	Basement	-	Blockage	NA	Jetted Line	-
19 & 25 Broadway	6/14/2004	-	Basement	-	Blockage	NA	Jetted Line	-
4 Pleasant Street	12/12/2004	-	Basement	-	Blockage	NA	Jetted Line	-
50 & 70 & 105 Bliss Mine Road	1/26/2005	-	Basement	-	Pump Station Failure	NA	Reset Pumps	-
6 Sagamore Street	4/5/2005	-	Basement	-	Blockage	NA	Jetted Line	-
26 Clinton Avenue	3/20/2006	-	Basement	-	Blockage	NA	Jetted Line	-
412 Lincoln Avenue	3/20/2006	-	Basement	-	Blockage	NA	Jetted Line	-
33 Catherine Street	11/30/2006	-	Basement	-	Blockage	NA	Jetted Line	1/29/2004
Navy Base	4/17/2007	-	Land	-	Heavy Rains	NA	Newport WPCF outfall manhole cover, bolted down	-
4 Pleasant Street	6/4/2007	-	Basement	-	Blockage	NA	Jetted Line	12/12/2004
57 Toppa Boulevard	7/6/2007	-	Basement	-	Blockage	NA	Jetted Line	-
64 Halsey Street - Unit 5	12/21/2007	-	Basement	-	Blockage	NA	Jetted Line	-
Maple Avenue	1/27/2008	-	Road	-	Blockage	NA	Jetted Line	-
4 Brenton Road	8/15/2008	-	Road	-	Collapsed Main	NA	Replaced section of line	-

TABLE D-3

Chronological Index A6
Discharges from the Newport Collection System to Buildings or Land
Public or Private since January 1, 2003

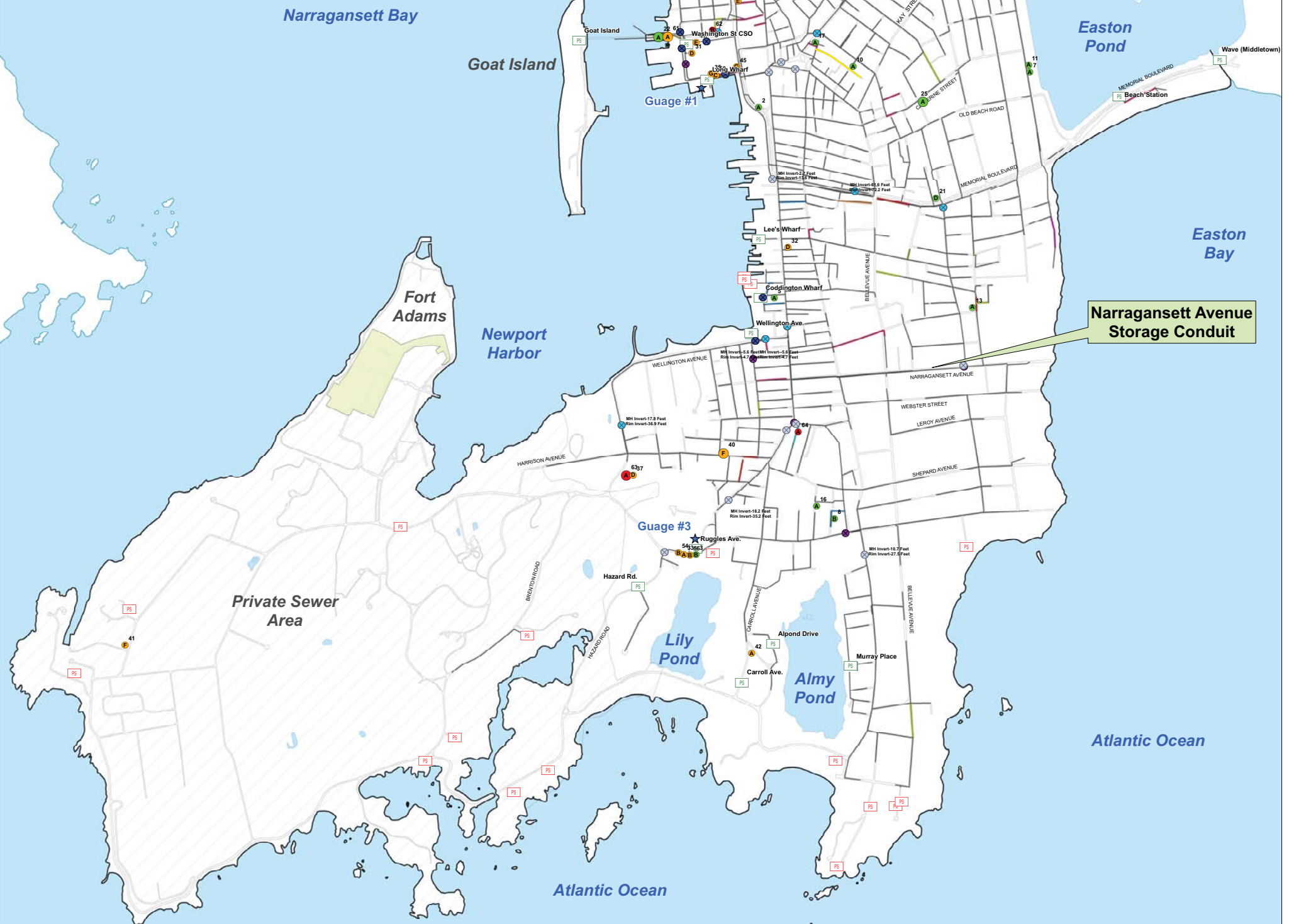
Location	Date of Event	Time of Event began/ended	Area Affected	Documentation/ Sampling Results Attached	Conditions Under which Event Occurred	Estimated Gallons Released	Description of Efforts to Reduce, Eliminate, or Prevent Recurrence of Event	Date of Last Overflow Event in Same General Location
57 Bliss Road	9/26/2008	-	Basement	-	Blockage	NA	Jetted Line	7/23/2003
59 Bliss Road	9/26/2008	-	Basement	-	Blockage	NA	Jetted Line	7/23/2003
Harrison Avenue	11/10/2008	8:30 a.m.	Road	-	force main vent leaking	25	Closed valve, Navy to repair	-
Harrison Avenue	12/18/2008	2:30 p.m.	Road	-	force main vent leaking	25	Closed valve, Navy to repair	11/10/2008
208 Carroll Avenue	2/5/2009	10:00 a.m.	Basement	-	Blockage	25	Jetted Line	-
Third Street	6/11/2009	9:38a.m. / 10:10p.m.	Lawn	-	Bayside apartments lateral, private	50	-	-
Washington Street	7/6/2009	10:00p.m.	Road	-	Bypass pumping / emptied CSO tanks to fast. Sewage bubbled from manhole	15	Shut down a pump	-
Dyre Street	8/30/2009	5:25p.m. / 5:55p.m.	Dirt Road	-	Bypass piping leaking	500	* Pumped to sewer manhole	-
Long Wharf Mall	9/13/2009	1:45p.m.	Sidewalk	-	Private pump station failure	50	Shut down station	-
Elm Street	11/10/2009	-	Road	-	emptied CSO tanks to fast, backed into 2 homes, sump pumps pumped onto street	200	Shut down a pump	-
Treatment Plant	11/20/2009	10:07 a.m.	headworks	-	PLC failure	500	Shut down a pump	-
Treatment Plant	12/3/2009	4:00 a.m.	headworks	-	Heavy Rains	1000	Clean grit from chambers due to bypass pumping	11/20/2009
Treatment Plant	1/2/2010	10:30 a.m.	headworks	-	Heavy Rains	50-100	Clean grit from line between grit chambers and primary clarifiers	12/3/2010
70 Ellery Road	3/19/2010	12:50 p.m.	basement / manhole in street	-	PLC failure	500	replaced PLC	-
4 Brenton Road	4/13/2010	9:43 a.m.	Road	-	Blockage	50	Jetted Line	8/15/2008
3 Leal Terrace	4/16/2010	5:00 p.m.	Basement	-	Blockage	1000	Jetted Line, notified neighbor of a massive root intrusion from their lateral.	-
94-98 Washington St,	6/14/2010	8:00 a.m.	Basements (3)	-	Blockage	500	Broken Main, repaired	-
4 Vaughan Ave.	8/2/2011	8:00 a.m.	Basement	-	Blockage	100	Root blockage.	-

* Long Wharf bypass piping leaked.

Sanitary Sewer Pipe SSO and Maintenance Program Maps and Summary Table

The following table (D-4) documents the sanitary sewer pipe maintenance program, which includes semi-annual, quarterly, monthly, bi-monthly and bi-weekly flushing or jetting of sewers. The information documented was provided by the City of Newport's collection system operator, United Water. The enclosed maps were created for the GIS map submittals (CD Item 14), showing the locations of reported SSOs and the sanitary sewer pipe maintenance program.

MileID	Location	Cause of SSO	Resolution of SSO	Date of Last SSO	Number of Occurrences
1	Friendship Street, Newport Hospital	Blockage	Jetted and/or Flushed Line	1/27/2003	1
2	America's Cup and Thames Street	Blockage	Followed up by the IPP coordinator. Restaurants upstream inspected and issued NOV's if needed.	3/22/2003	1
3	Ruggles Avenue Pump Station	Wet Weather	Reset or shut down pumps	4/12/2003	1
4	Third Street at Rotary 16 Coddington Wharf	Blockage	Followed up by the IPP coordinator. Restaurants upstream inspected and issued NOV's if needed.	6/14/2003	1
5	8 Bliss Road	Blockage	Jetted and/or Flushed Line	7/12/2003	1
6	182 Eulis Avenue	Blockage	Jetted and/or Flushed Line	7/23/2003	1
7	11 Andrew Street	Wet Weather	NA	7/27/2003	1
8	Maple Avenue Pump Station	Broken or Collapsed Pipe/FM	Reset or shut down pumps	8/17/2003	1
9	21 Mount Vernon Street	Blockage	Jetted and/or Flushed Line	8/26/2003	1
10	176 Eulis Avenue	Blockage	Jetted and/or Flushed Line	1/27/2004	1
11	136 Kay Street	Blockage	Jetted and/or Flushed Line	2/13/2004	1
12	81 Arminside Road	Blockage	Jetted and/or Flushed Line	3/3/2004	1
13	139 Kay Street	Blockage	Jetted and/or Flushed Line	3/21/2004	1
14	1 Stevenson Place	Blockage	Jetted and/or Flushed Line	4/1/2004	1
15	58 Kingston Avenue	Blockage	Jetted and/or Flushed Line	4/14/2004	1
16	19 & 23 Broadway Street	Blockage	Jetted and/or Flushed Line	4/14/2004	1
17	South May and Butler Street	Wet Weather	NA	6/24/2004	1
18	50 & 70 & 105 Bliss Mine Road	Pump Station or RTC Failure	Reset or shut down pumps	8/15/2004	3
19	6 Sigourney Street	Blockage	Jetted and/or Flushed Line	1/26/2005	1
20	Memorial Boulevard	Broken or Collapsed Pipe/FM	Replaced or Repaired Pipe/FM	4/5/2005	1
21	Goat Island Causeway	Blockage	Jetted and/or Flushed Line	12/11/2005	2
22	26 Clinton Avenue	Blockage	Jetted and/or Flushed Line	3/20/2006	1
23	412 Lincoln Avenue	Blockage	Jetted and/or Flushed Line	3/20/2006	1
24	33 Catherine Street	Blockage	Jetted and/or Flushed Line	11/30/2006	2
25	Navy Station	Wet Weather	Cleaning or repair at WPCP or CSO Facility	4/17/2007	1
26	4 Pleasant Street	Blockage	Jetted and/or Flushed Line	6/4/2007	2
27	57 Topps Boulevard	Blockage	Jetted and/or Flushed Line	7/6/2007	1
28	Dyre Street	Blockage	Jetted and/or Flushed Line	11/6/2007	1
29	64 Halsey Street - Unit 5	Blockage	Jetted and/or Flushed Line	12/21/2007	1
30	Washington Street CSO	Broken or Collapsed Pipe/FM	Replaced or Repaired Pipe/FM	1/3/2008	1
31	West Howard Wharf	Broken or Collapsed Pipe/FM	Replaced or Repaired Pipe/FM	6/11/2008	1
32	Ruggles Avenue	Blockage	Jetted and/or Flushed Line	6/24/2008	1
33	Bliss Mine Road	Broken or Collapsed Pipe/FM	Replaced or Repaired Pipe/FM	7/5/2008	1
34	Long Wharf pump station	Bypass pumping	Replaced or Repaired Pipe/FM	7/24/2008	1
35	Connell Highway	Blockage	Followed up by the IPP coordinator. Restaurants upstream inspected and issued NOV's if needed.	8/2/2008	2
36	4 Brenton Road	Broken or Collapsed Pipe/FM	Replaced or Repaired Pipe/FM	8/15/2008	1
37	57 Bliss Road	Blockage	Jetted and/or Flushed Line	9/26/2008	1
38	59 Bliss Road	Blockage	Jetted and/or Flushed Line	9/26/2008	1
39	Harrison Avenue	Pipe Leaking	Replaced or Repaired Pipe/FM	12/16/2008	2
40	Ridge Road	Pipe Leaking	Replaced or Repaired Pipe/FM	1/13/2009	1
41	208 Carroll Avenue	Blockage	Jetted and/or Flushed Line	2/5/2009	1
42	Maple Avenue	Blockage	Jetted and/or Flushed Line	4/1/2009	3
43	Newport WPCP	Bypass pumping	NA	4/21/2009	1
44	America's Cup Avenue	Bypass pumping	NA	6/2/2009	1
45	Third Street	Blockage	NA	6/11/2009	1
46	Washington Street CSO	CSO Facility Operation	Reset or shut down pumps	7/8/2009	1
47	Navy Station	Bypass pumping	NA	7/24/2009	1
48	Dyre Street	Pipe Leaking	NA	8/30/2009	1
49	Long Wharf Mall	Pump Station or RTC Failure	Reset or shut down pumps	9/13/2009	1
50	Elm Street	CSO Facility Operation	Reset or shut down pumps	11/10/2009	1
51	Newport WPCP	Pump Station or RTC Failure	Reset or shut down pumps	11/20/2009	1
52	Newport WPCP	Wet Weather	Facility	1/20/2010	2
53	Ruggles Avenue Pump Station	Wet Weather	NA	2/25/2010	1
54	70 Ebery Road	Pump Station or RTC Failure	Replaced PLC	3/19/2010	1
55	Ruggles Avenue Pump Station	Wet Weather	NA	3/23/2010	1
56	Homer Street and Garfield Street	Wet Weather	NA	3/31/2010	6
57	3 Lead Terrace	Blockage	Jetted and/or Flushed Line	4/16/2010	1
58	94-98 Washington St.	Blockage	Replaced or Repaired Pipe/FM	6/14/2010	1
59	Admiral Kahlbas Blvd.	Blockage	Jetted and/or Flushed Line	9/15/2010	1
60	Goat Island Connector	Blockage	Jetted and/or Flushed Line	12/23/2010	2
61	Third St and Marsh St.	Wet Weather	Cleaning or repair at WPCP or CSO Facility	2/25/2011	1
62	4 Brenton Road	Blockage	Jetted and/or Flushed Line	4/16/2011	2
63	4 Vaughan Ave.	Blockage	Replaced or Repaired Pipe/FM	8/2/2011	1
64	Newport WPCP	Wet Weather	NA	8/26/2011	1
65	Connell Highway	Blockage	Jetted and/or Flushed Line	11/1/2011	1



Prepared January 2012

Locations of SSOs are Approximate
Flow Meter Locations Coincide with Groundwater Meter Locations

Legend

Overflow Cause
 A - Blockage
 B - Wet Weather
 C - Pump Station or RTC Failure
 D - Broken or Collapsed Pipe/FM
 E - CSO Facility Operation
 F - Pipe Leaking
 G - Bypass Pumping

SSO Occurrence and Date
 1 SSO, 2003-2004
 1 SSO, 2007-2010
 1 SSOs, 2011
 2 SSOs, 2003-2006
 2 SSOs, 2007-2010
 2 SSOs, 2007-2010
 2 SSOs, 2011

Regularly Cleaned Pipes
 Cleaning Type, Schedule
 Flush, Semi-Annually
 Flush, Quarterly
 Flush, Bi-Monthly
 Flush, Bi-weekly
 Flush, Monthly
 Flush, Quarterly
 Sanitary Gravity Main
 United Water Recently Repaired Pipes

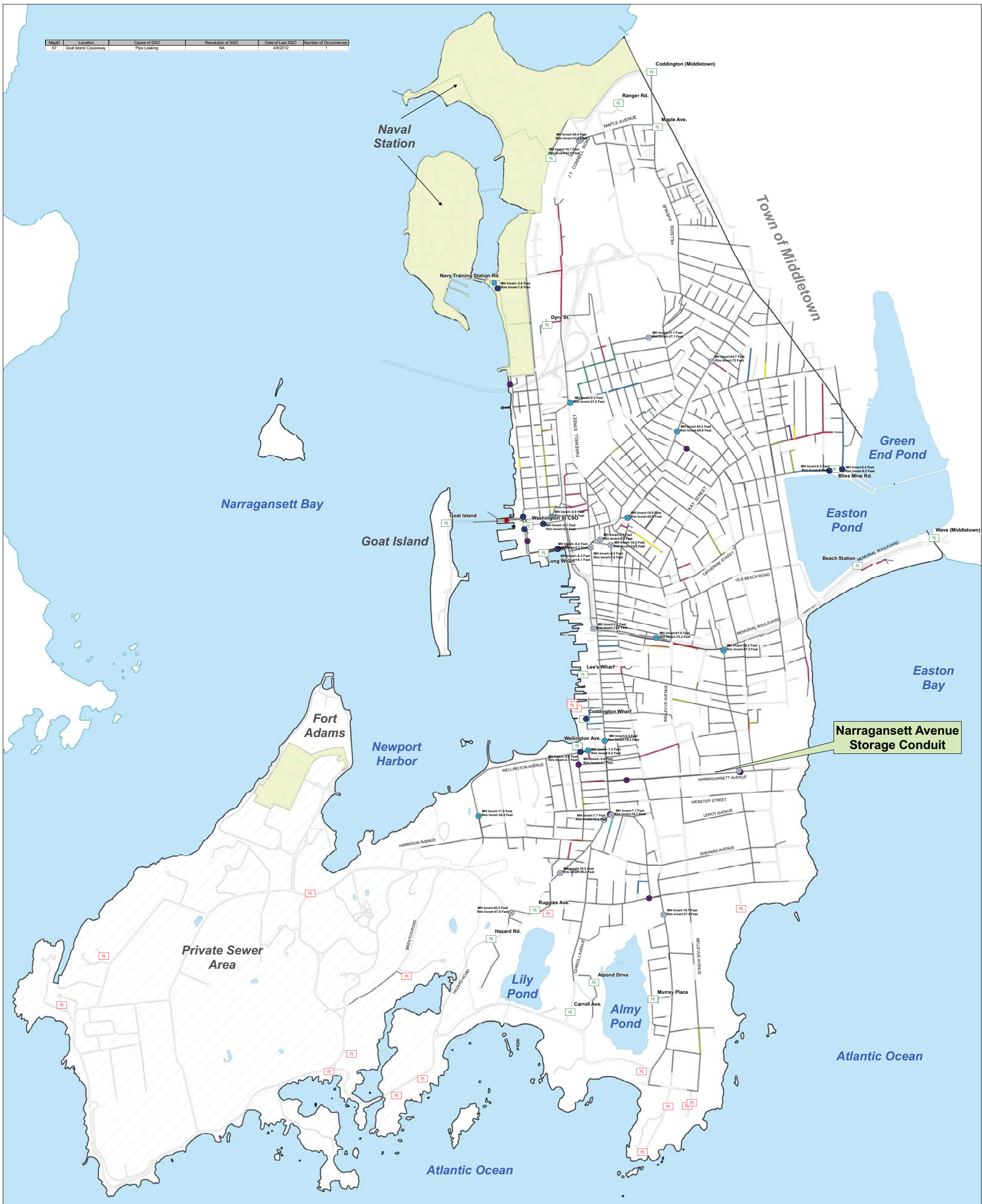
Groundwater Depth Above Invert
 0 Feet
 0.01-4 Feet
 >4 Feet
 Flow Monitoring Meters
 Private Pump Station
 Public Pump Station

Other Symbols
 Navy Property
 Paved Roads
 Private Sewer Area
 Waterbodies
 Newport Boundary
 Rain Gauge

Scale: 1" = 680'

0 4,000 Feet

MapID	Location	Cause of SSO	Resolution of SSO	Date of Last SSO	Number of Occurrences
67	Goat Island Causeway	Pipe Leaking	NA	4/8/2012	1



Prepared July 2012

Locations of SSOs are Approximate
Flow Meter Locations Correlate with Groundwater Meter Locations

This map contains data from historical plans provided by the City of Newport, field observations and data collection, and recent aerial mapping and is subject to revision as more detailed information becomes available.

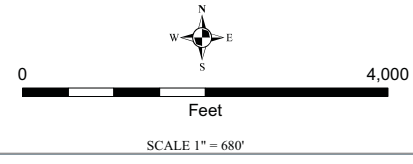
- Legend**
- Overflow Cause**
- A - Blockage
 - B - Wet Weather
 - C - Pump Station or RTC Failure
 - D - Broken or Collapsed Pipe/FM
 - E - CSO Facility Operation
 - F - Pipe Leaking
 - G - Bypass Pumping

- SSO Occurrence and Date**
- 1 SSO, 2012
- Regularly Cleaned Pipes**
- Flush, Semi-Annually
 - Flush, Quarterly
 - Flush, Bi-Monthly
 - Flush, Bi-Monthly
 - Flush, Monthly
 - Flush, Quarterly
 - Sanitary Gravity Main
 - United Water Recently Repaired Pipes

- Cleaning Type, Schedule**
- Jet, Quarterly
 - Jet, Semi-Annually
 - Jet, Bi-Monthly
 - Jet, Monthly
 - Jet, Quarterly
 - Sanitary Gravity Main
 - United Water Recently Repaired Pipes

- Groundwater Depth Above Invert**
- 0 Feet
 - 0.1-4 Feet
 - >4 Feet
- Flow Monitoring Meters**
- Private Pump Station
 - Public Pump Station

- Navy Property
- Paved Roads
- Private Sewer Area
- Waterbodies
- Newport Boundary
- ★ Rain Gauge



SANITARY SEWER PIPE SSO AND MAINTENANCE PROGRAM NEWPORT, RHODE ISLAND



TABLE D-4
Sanitary Sewer Pipe Maintenance Program
Data Provided by United Water

On	From	To	Catchment	US MH ID	DS MH ID	Pipe ID	Diameter	Cleaning Type	Schedule	Comments
3rd Street	Walnut Street	Willow Street	13	SMH-057-2	SMH-057-25 ⁹	SP-057-752	10"	Flush	Quarterly	Jan, Apr, July, Oct
3rd Street	Willow Street	Poplar Street	13	SMH-057-25 ⁹	SMH-065-18	SP-057-807	10"	Flush	Quarterly	Jan, Apr, July, Oct
3rd Street	Bridge Street	Marsh Street	10	SMH-065-20	SMH-065-44	SP-065-364	8"	Flush	Quarterly	Jan, Apr, July, Oct
3rd Street	Cherry Street	Katzman Place	13	SMH-057-4	SMH-057-7	SP-057-1077	10"	Flush	Quarterly	Jan, Apr, July, Oct
3rd Street	Katzman Place	Walnut Street	13	SMH-057-7	SMH-057-2	SP-057-998	10"	Flush	Quarterly	Jan, Apr, July, Oct
3rd Street	Battery Street	Sunshine Court	13	SMH-050-65	SMH-050-68	SP-050-395	8"	Flush	Quarterly	Jan, Apr, July, Oct
Admiral Kalbfus Road	NA	JT Connell Highway	8	SMH-025-72	SMH-025-73	SP-025-5	10"	Jet	Quarterly	Mar, June, Sept, Dec
Admiral Kalbfus Road	NA	NA	8	SMH-031-2	SMH-025-72	SP-025-1	10"	Jet	Quarterly	Mar, June, Sept, Dec
Almy Street	County Street	NA	12	SMH-040-11	SMH-047-10	SP-040-612	8"	Flush	Semi-Annually	July, Dec
Almy Street	NA	Bliss Road	12	SMH-047-10	SMH-047-5	SP-047-799	8"	Flush	Semi-Annually	July, Dec
America's Cup Avenue	Braman Street	Poplar Street	10	SMH-057-18	SMH-065-13	SP-057-1382	10"	Flush	Monthly	1st week of month
Andrew Street	NA	NA	3	SMH-140-50	SMH-140-44	SP-140-660	8"	Flush	Semi-Annually	July, Dec
Andrew Street	NA	George St	3	SMH-140-44	SMH-140-53.1	SP-140-724	8"	Flush	Semi-Annually	July, Dec
Ann Street	NA	Thames Street	6	SMH-087-11	SMH-087-5	SP-087-418	12"	Flush	Semi-Annually	July, Dec
Ann Street	Spring Street	NA	6	SMH-087-12	SMH-087-11	SP-087-148	12"	Flush	Semi-Annually	July, Dec
Annandale Road	NA	Parker Avenue	1	NA	SMH-102-6	SP-102-975	8"	Jet	Quarterly	Mar, June, Sept, Dec
Annandale Road	NA	NA	1	SMH-095-58.1	SMH-095-58	SP-095-501	8"	Flush	Quarterly	Mar, June, Sept, Dec
Annandale Terrace	NA	Annandale Rd	1	SMH-102-14	NA	SP-102-650	8"	Flush	Quarterly	Mar, June, Sept, Dec
Ayrault Street	Catherine Street	Greenough Place	11	SMH-073-13	SMH-073-20	SP-073-870	18"	Flush	Quarterly	Mar, June, Sept, Dec
Bellevue Avenue	NA	Rovensky Avenue	2	SMH-185-37	SMH-176-23	SP-176-728	12"	Flush	Quarterly	Mar, June, Sept, Dec
Bellevue Avenue	Lakeview Avenue	NA	2	SMH-185-30	SMH-185-37	SP-185-369	12"	Flush	Quarterly	Mar, June, Sept, Dec
Berkley Avenue	Bellevue Avenue	NA	1	SMH-101-22	SMH-101-26	SP-101-427	10"	Flush	Quarterly	Mar, June, Sept, Dec
Bliss Mine Road	Barbara Street	Kay Street	12	SMH-054-52	SMH-054-40	SP-054-399	8"	Flush	Semi-Annually	July, Dec
Bliss Mine Road	Kay Street	Friendship Drive	12	SMH-054-40	SMH-061-9	SP-054-1180	8"	Flush	Semi-Annually	July, Dec
Bliss Mine Road	Friendship Drive	Ellery Road	12	SMH-061-9	NA	SP-054-477	8"	Flush	Semi-Annually	July, Dec
Boss Court	NA	Wellington Avenue	4	SMH-109-23	SMH-109-28	SP-109-1	8"	Flush	Monthly	1st week of month
Braman Street	Madison Court	Avenue	10	SMH-057-20	SMH-057-18	SP-057-1365	10"	Flush	Monthly	1st week of month
Brandt Street	Evarts Street	Van Zandt Aveune	10	SMH-050-42	SMH-050-74	SP-044-1	18"	Jet	Semi-Annually	
Bridge Street	Cross Street	NA	10	SMH-065-25	SMH-065-9	SP-065-1445	8"	Flush	Monthly	1st week of month
Bridge Street	NA	Stoddard Court	10	SMH-065-9	NA	SP-065-1432	8"	Flush	Monthly	1st week of month
Bridge Street	Stoddard Court	Avenue	10	NA	SMH-065-13	SP-065-1417	8"	Flush	Monthly	1st week of month
Bridge Street	Goat Island Connector	NA	10	NA	NA	SP-065-1556	12"	Flush	Quarterly	Jan, Apr, July, Oct
Bridge Street	NA	3rd Street	10	NA	SMH-065-19	SP-065-1289	24"	Flush	Quarterly	Jan, Apr, July, Oct
Brooks Avenue	NA	Broadway	11	SMH-047-14	SMH-046-22	SP-046-852	8"	Flush	Monthly	4th week of month
Brown and Howard Wharf	NA	Thames Street	6	NA	SMH-093-36	SP-093-1339	8"	Flush	Monthly	1st week of month
Butler Street	Southmayd Street	Evarts Street	10	SMH-044-32	SMH-044-41	SP-044-680	18"	Jet	Semi-Annually	
Carroll Avenue	NA	Jeffrey Road	3	NA	SMH-163-71	NA	8"	Flush	Quarterly	Mar, June, Sept, Dec
Catherine Street	NA	Brinley Street	11	SMH-081-1	SMH-081-1.1	SP-081-493b	6"	Flush	Monthly	3rd week of month
Coddington Wharf	NA	Kirwins 5th Ward	6	SMH-099-71	SMH-099-80	SP-099-204	8"	Flush	Semi-Annually	July, Dec
Cotton Court	NA	Thames Street	6	NA	SMH-079-59	NA	8"	Flush	Monthly	1st week of month
Cozzens Court	NA	Thames Street	10	SMH-065-30	SMH-065-8	SP-065-406	8"	Flush	Monthly	1st week of month
Daniel Street	Boulevard	NA	12	SMH-061-5	SMH-061-6	SP-061-556	8"	Flush	Quarterly	Feb, May, Aug, Nov
Daniel Street	NA	Ellery Road	12	SMH-061-6	SMH-061-7	SP-061-331	8"	Flush	Quarterly	Feb, May, Aug, Nov
Dixon Street	NA	Spring Street	6	SMH-110-37.1	SMH-110-37	SP-110-1163	8"	Flush	Monthly	1st week of month
Dixon Street	Bellevue Avenue	NA	6	SMH-111-56	SMH-110-37.1	SP-110-776	8"	Flush	Monthly	1st week of month
Ellery Road	Bliss Mine Road	NA	12	NA	NA	SP-061-1	24"	Flush	Semi-Annually	July, Dec
Ellery Road	NA	NA	12	NA	SMH-061-21.1	SP-061-630	24"	Flush	Semi-Annually	July, Dec
Ellery Road	NA	Kay Boulevard	12	SMH-061-21.1	SMH-061-10	SP-061-332	24"	Flush	Semi-Annually	July, Dec
Ellery Road	Kay Boulevard	NA	12	SMH-061-10	SMH-061-2.1	SP-061-315	24"	Flush	Semi-Annually	July, Dec
Ellery Road	NA	NA	12	SMH-061-2.1	SMH-061-11	SP-061-631	24"	Flush	Semi-Annually	July, Dec
Ellery Road	NA	Daniel Street	12	SMH-061-11	SMH-061-7	SP-061-632	24"	Flush	Semi-Annually	July, Dec
Elm Street	Cross Street	Avenue	10	SMH-065-6	SMH-065-16	SP-065-1456	8"	Flush	Monthly	1st week of month

TABLE D-4
Sanitary Sewer Pipe Maintenance Program
Data Provided by United Water

On	From	To	Catchment	US MH ID	DS MH ID	Pipe ID	Diameter	Cleaning Type	Schedule	Comments
Everts Street	Butler Street	Brandt Street	10	SMH-044-41	SMH-044-42	SP-044-796	18"	Jet	Semi-Annually	
Filmore Street	Tomkins Court	Brinley Street	11	SMH-073-25	SMH-081-99	SP-073-763	8"	Flush	Monthly	4th week of month
Freebody	NA	Bowery Street	1	SMH-094-49	SMH-094-48	SP-094-1	8"	Jet	Monthly	
Garfield Street	NA	Halsey Street	10	SMH-038-27	SMH-038-26	SP-038-944	8"	Flush	Monthly	2nd week of month
Gilroy Street	Harrison Ave	Palmer Street	7	NA	SMH-128-71	SP-128-1	10"	Jet	Quarterly	Jan, Apr, July, Oct
Goat Island Connector	NA	Washington Street	10	SMH-064-14	SMH-064-22	SP-064-336	12"	Jet	Monthly	
Goodwin Street	Thames Street	NA	6	SMH-100-8	SMH-099-77	SP-099-425	8"	Flush	Semi-Annually	July, Dec
Goodwin Street	NA	Kirwins 5th Ward	6	SMH-099-77	SMH-099-76	SP-099-501	8"	Flush	Semi-Annually	July, Dec
Greenlaugh Boulevard	NA	Daniel Street	12	SMH-061-4	SMH-061-5	SP-061-629	8"	Flush	Quarterly	Feb, May, Aug, Nov
Halsey Street	Garfield Street	Southmayd Street	10	SMH-038-28	SMH-045-56	SP-038-897	10"	Flush	Monthly	2nd week of month
Harrison Avenue	Gilroy Street	Marchant Street	7	SMH-128-92	SMH-128-81	SP-128-438	10"	Jet	Quarterly	Jan, Apr, July, Oct
Homer Street	NA	Southmayd Street	10	SMH-038-34	SMH-045-54	SP-038-1	18"	Jet	Semi-Annually	
Homer Street	Garfield Street	NA	10	SMH-038-26	SMH-038-34	SP-038-463	18"	Jet	Semi-Annually	
JT Connell Highway	NA	NA	8	SMH-019-30	SMH-019-31	SP-019-1	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-019-31	SMH-019-32	SP-019-5	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-019-32	SMH-019-29	SP-019-18	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-019-29	SMH-025-69	SP-019-169	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-025-69	SMH-025-70	SP-025-379	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-025-70	SMH-025-68	SP-025-190	10"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-025-68	SMH-025-74	SP-025-116	6"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-025-74	SMH-025-71	SP-025-51	12"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	Admiral Kalbfus Rd	8	SMH-025-71	SMH-025-73	SP-025-113	12"	Flush	Monthly	2nd week of month
JT Connell Highway	Admiral Kalbfus Road	NA	8	SMH-025-73	SMH-031-5	SP-025-14	14"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-031-5	SMH-031-4	SP-031-111	14"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-031-4	SMH-031-3	SP-031-18	14"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-031-3	SMH-037-10	SP-031-152	12"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-037-10	SMH-037-11	SP-037-161	12"	Flush	Monthly	2nd week of month
JT Connell Highway	NA	NA	8	SMH-037-11	SMH-037-12	SP-037-462	14"	Flush	Monthly	2nd week of month
Kay Boulevard	NA	NA	12	SMH-048-30	SMH-054-35	SP-048-271	8"	Flush	Monthly	3rd week of month
Kay Boulevard	NA	NA	12	SMH-054-35	SMH-054-41	SP-054-551	8"	Flush	Monthly	3rd week of month
Kay Boulevard	NA	Kay Street	12	SMH-054-41	SMH-054-39	SP-054-149	8"	Flush	Monthly	3rd week of month
Kay Street	Eustis Avenue	Holten Avenue	12	SMH-060-20	SMH-060-21	SP-060-1349	8"	Jet	Monthly	
Kay Street	NA	Kay Boulevard	12	SMH-054-42	SMH-054-39	SP-054-136	8"	Flush	Monthly	3rd week of month
Kay Street	Kay Boulevard	Marion Street	12	SMH-054-39	SMH-054-36	SP-054-955	8"	Flush	Monthly	3rd week of month
Kay Street	Marion Street	Keeher Avenue	12	SMH-054-36	SMH-054-38	SP-054-908	8"	Flush	Monthly	3rd week of month
Kay Street	Keeher Avenue	Toppa Boulevard	12	SMH-054-38	SMH-054-54	SP-054-859	8"	Flush	Monthly	3rd week of month
Kay Street	Toppa Boulevard	NA	12	SMH-054-54	SMH-054-55	SP-054-751	8"	Flush	Monthly	3rd week of month
Kay Street	NA	Holten Avenue	12	SMH-054-55	SMH-054-56	SP-054-1111	8"	Flush	Monthly	3rd week of month
Kay Street	NA	Holten Avenue	12	SMH-060-21	SMH-054-56	SP-053-1455	8"	Flush	Monthly	3rd week of month
Kempens Street	Holten Avenue	NA	12	NA	SMH-054-49	SP-054-1145	6"	Flush	Monthly	3rd week of month
Long Wharf	NA	NA	10	SMH-071-10	SMH-071-5	SP-071-700a	8"	Flush	Monthly	4th week of month
Long Wharf	NA	NA	10	SMH-071-3	SMH-071-10	SP-071-700	8"	Flush	Monthly	4th week of month
Long Wharf	Avenue	NA	10	SMH-071-85	SMH-071-3	SP-071-917a	8"	Flush	Monthly	4th week of month
Maple Avenue	NA	NA	8	SMH-010-54	SMH-010-6 ^a	SP-010-38	8"	Jet	Quarterly	Feb, May, Aug, Nov
Maple Avenue	NA	NA	8	SMH-010-41	SMH-010-5	SP-010-5	8"	Jet	Quarterly	Feb, May, Aug, Nov
Marchant Street	Lucas Avenue	Potter Street	4	SMH-117-106	SMH-117-103	SP-117-1060	12"	Flush	Quarterly	Mar, June, Sept, Dec
Marchant Street	Connection Street	Lucas Avenue	4	SMH-117-107	SMH-117-106	SP-117-1019	12"	Flush	Quarterly	Mar, June, Sept, Dec
Marsh Street	Goat Island Connector	3rd Street	10	SMH-065-43.1	SMH-065-44	SP-065-1239	30"	Flush	Quarterly	Jan, Apr, July, Oct
Memorial Boulevard	Hayden Court	Bellevue Avenue	1	SMH-088-60	SMH-088-57	SP-088-1488	12"	Jet	Quarterly	Jan, Apr, July, Oct
Memorial Boulevard	Hayden Court	Bellevue Avenue	1	SMH-088-60	SMH-088-57	SP-088-1487	8"	Jet	Quarterly	Jan, Apr, July, Oct
Memorial Boulevard	NA	NA	12	SMH-076-42a	SMH-076-40	SP-076-4	6"	Flush	Monthly	3rd week of month
Memorial Boulevard	NA	NA	12	SMH-076-40	SMH-076-41	SP-076-413	6"	Flush	Monthly	3rd week of month

TABLE D-4
Sanitary Sewer Pipe Maintenance Program
Data Provided by United Water

On	From	To	Catchment	US MH ID	DS MH ID	Pipe ID	Diameter	Cleaning Type	Schedule	Comments
Memorial Boulevard	NA	NA	12	SMH-076-41	SMH-076-42	NA	6"	Flush	Monthly	3rd week of month
Memorial Boulevard	NA	NA	12	SMH-076-42	SMH-084-24	SP-076-39	6"	Flush	Monthly	3rd week of month
NA	Kempson Street	Kay Street	12	SMH-054-49	SMH-054-55	SP-054-1179	6"	Jet	Bi-Monthly	
NA	Seaview Avenue	NA	12	SMH-096-070	SMH-096-73	SP-096-17	8"	Jet	Quarterly	Feb, May, Aug, Nov
NA	NA	NA	12	SMH-096-073	SMH-096-72	SP-096-206	8"	Jet	Quarterly	Feb, May, Aug, Nov
NA	NA	NA	10	NA	SMH-071-102	NA	8"	Flush	Monthly	4th week of month
NA	NA	America's Cup Ave	10	SMH-071-102	SMH-071-106	NA	8"	Flush	Monthly	4th week of month
NA	Waite's Wharf	Coddington Wharf	6	SMH-099-82	SMH-099-81	SP-099-827	12"	Flush	Semi-Annually	July, Dec
NA	Dodge Court	Hall Avenue	11	SMH-051-77.1	NA	SP-051-1	8"	Flush	Quarterly	Jan, Apr, July, Oct
NA	NA	Spring Street	6	SMH-093-43	SMH-093-28	SP-093-1318	6"	Flush	Monthly	4th week of month
Narragansett Avenue	Thames Street	NA	4	SMH-118-110	SMH-117-85	SP-117-1275	8"	Flush	Monthly	1st week of month
Narragansett Avenue	NA	Marchant Street	4	SMH-117-85	SMH-117-100	SP-117-1408	8"	Flush	Monthly	1st week of month
Sharon Court	NA	Thames Street	4	SMH-109-4 ^a	NA	NA	8"	Jet	Quarterly	Mar, June, Sept, Dec
Sherman Street	NA	Spring Street	11	SMH-072-5	SMH-072-6	SP-072-1242	NA	Flush	Monthly	4th week of month
Southmayd Street	Homer Street	Halsey Street	10	SMH-045-54	SMH-045-56	SP-045-251	18"	Jet	Semi-Annually	
Southmayd Street	Halsey Street	Prescott Hall Road	10	SMH-045-56	SMH-044-31	SP-044-947	18"	Jet	Semi-Annually	
Southmayd Street	Prescott Hall Road	Butler Street	10	SMH-044-31	SMH-044-32	SP-044-541	18"	Jet	Semi-Annually	
Spring Street	Dennison Street	Young Street	6	SMH-093-28	SMH-093-31.1	SP-093-877	12"	Flush	Monthly	4th week of month
Spring Street	NA	Moffitt Place	11	SMH-066-5	SMH-072-8	SP-066-1483	8"	Flush	Bi-weekly	
Spring Street	Moffitt Place	Stone Street	11	SMH-072-8	SMH-072-52	SP-072-1371	NA	Flush	Monthly	4th week of month
Spring Street	Stone Street	Sherman Street	11	SMH-072-52	SMH-072-6	SP-072-1267	NA	Flush	Monthly	4th week of month
Stone Street	Spring Street	Broadway	11	SMH-072-52	SMH-072-11	SP-072-31	18"	Flush	Monthly	4th week of month
Sunshine Court	Gladding Court	3rd Street	13	SMH-050-67	SMH-050-68	SP-050-282	8"	Flush	Bi-Monthly	4th week of month
Van Zandt Avenue	Volksburg Place	Prescott Hall Road	10	SMH-045-6	SMH-045-7	SP-045-1256	12"	Flush	Semi-Annually	Jan, June
Van Zandt Avenue	NA	Halsey Street	10	SMH-045-5	SMH-045-4	SP-045-542	12"	Flush	Semi-Annually	Jan, June
Van Zandt Avenue	Tilley Avenue	Halsey Street	10	SMH-045-3	SMH-045-4	SP-045-615	12"	Flush	Semi-Annually	Jan, June
Van Zandt Avenue	Congdon Avenue	Tilley Avenue	10	SMH-045-2	SMH-045-3	SP-045-742	12"	Flush	Semi-Annually	Jan, June
Van Zandt Avenue	Hall Avenue	Congdon Avenue	10	SMH-045-1	SMH-045-2	SP-045-948	12"	Flush	Semi-Annually	Jan, June
Van Zandt Avenue	Albro Street	Hall Avenue	10	SMH-045-65	SMH-045-1	SP-045-851	12"	Flush	Semi-Annually	Jan, June
Vaughan Avenue	NA	Morton Avenue	3	SMH-129-95	NA	SP-118-778	8"	Flush	Bi-weekly	1st week of month
Waite's Wharf	NA	NA	6	SMH-099-82.1	SMH-099-82	SP-099-879a	12"	Flush	Semi-Annually	July, Dec
Walnut Street	NA	NA	13	NA	NA	NA	8"	Flush	Quarterly	Jan, Apr, July, Oct
Warner Street	NA	Kingston Avenue	11	SMH-058-27	SMH-058-24	SP-058-479	8"	Flush	Quarterly	Feb, May, Aug, Nov
William Street	Bellevue Avenue	NA	6	SMH-088-62	SMH-087-8	SP-087-923	8"	Flush	Bi-Monthly	3rd week of month
William Street	NA	King Street	6	SMH-087-8	SMH-087-45	SP-087-1051	8"	Flush	Bi-Monthly	3rd week of month
William Street	King Street	Thomas Street	6	SMH-087-45	SMH-087-43	SP-087-1051b	8"	Flush	Bi-Monthly	3rd week of month

Notes:
a) GIS data not complete at this location, ID used is approximate.

Sanitary and Combined Sewer System Condition Map

The following map is the Sanitary and Combined Sewer System Condition Map submitted on July 30, 2012 (as part of CD Item 14). The map shows the progress of the CCTV inspections along with the SCREAM™ scores.

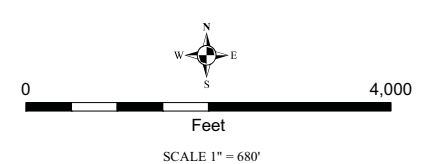


Prepared July 2012

Notes:
 1. CCTV Data from 2003 through March 9, 2012
 2. Recent Capital Improvement Projects have been completed by the City within the prior 10 years.

This map contains data from historical plans provided by the City of Newport, field observations and data collection, and recent aerial mapping and is subject to revision as more detailed information becomes available.

- | | | |
|--|--|----------------------|
| Legend | Identified Future Rehabilitation Projects | CSO Facility |
| Gravity Main Condition Assessment Score | Gravity Main | WPCP |
| — No CCTV Data Currently Available | Catch Basin | Navy Property |
| Based on CCTV Data | Recent Capital Improvement Projects | Waterbodies |
| <50 (Low Priority) | Gravity Main | Paved Roads |
| 50-90 (Moderate Priority) | Force Main | Private Sewered Area |
| >= 90 (High Priority) | Manhole | Newport Boundary |
| Abandoned | Ongoing Capital Improvement Projects | |
| | Sanitary Sewer Improvements | |



SANITARY AND COMBINED SEWER SYSTEM CONDITION NEWPORT, RHODE ISLAND

CH2MHILL

NEWPORT
RHODE ISLAND
1639

Summary of Conveyance Capacity Analysis

The following document is a summary of the conveyance capacity analysis performed in fall 2011 using the 2010 hydraulic and hydrologic model to address Consent Decree Item #63. The document contains details (including plan and profile views) of the five areas identified through the analysis of the collection system with recurring SSOs and/or some characteristics of capacity limitations.

Summary of Conveyance Capacity Analysis

Results

This is a summary of the conveyance capacity analysis performed in fall 2011 using the 2010 hydraulic and hydrologic model to address Consent Decree Item #63.

Individual Design Storm Events

Figure D-1 maps simulated color-coded SSO locations associated with minimum simulated storm that results in simulated SSOs. Detailed description of results and observations for the seven individual design storm simulations is provided below.

3-Month, 1-Hour Storm

No simulated CSOs occurred for this event at either CSO facility.

3-Month, 2-Hour Storm

Simulated surcharging occurs at node SMH-025-74 near J.T. Connell Highway and Admiral Kalbfus Road as a consequence of the limited capacity of the downstream pipe, which makes the HGL exceed the ground surface causing an SSO. The hydraulic grade line (HGL), or piezometric head, is shown in blue while the green line depicts the ground surface elevation.

3-Month, 6-Hour Storm

Simulated surcharging again occurs at SMH-025-74 as well as SMH-025-71 near J.T. Connell Highway and Admiral Kalbfus Road due to limited capacity downstream of node SMH-037-10, as shown in Figure D-2. This can be attributed to the inability of the downstream pipe to convey flows coming from two pipes; the one running south on Cornell St. and the second coming from the east. The combined flows from these pipes exceed the capacity of the pipe SP-037-462.

6-Months, 6-Hour Storm

Similar results as described in the 3-month, 6-hour storm.

1-Year, 6-Hour Storm

Similar results as described in the 3-month, 6-hour storm.

1-Year, 24-Hour Storm

For the 1-year, 24-hour storm there was additional simulated surcharging associated with this storm at SMH-116-83 and SMH-116-84 near the intersection of Halidon Avenue and Halidon Terrace. Another pipe segment where node flooding is simulated is located on Thames Street between Poplar Street and Marlborough Street and drains into the Long Wharf Pump Station (LWPS) as shown Figure D-3. Observe in Figure D-2 that flooding at node J136 occurs primarily as a consequence of the node being shallow with a depth of less than 3 ft. Flow backups may also result from the limited capacity of the LWPS as suggested by the relatively high HGL at the downstream node SMH-071-88. The surcharge observed at nodes J155 and J158 may be additionally impacted by J155 being direct runoff input node in the model and J158 is an upstream node in the model. Surcharging was also identified at nodes along the pipe branch draining to the Dyre Street PS at nodes SMH-025-74 as well as SMH-025-71, similar to the case described above for previous storms.

5-Year, 24-Hour Storm

Figure D-3 shows were simulated surcharging occurs on Garfield, South Mayd, Butler and Evarts Streets induced primarily by pipe slope reduction and shallow manholes, but was also influenced by downstream conditions. Chronic historical SSOs have been identified in this area. Shallow nodes in this area are SMH-038-26, SMH-038-25, and SMH-044-32 as shown in the vertical profile in Figure D-3B. Simulated surcharging also occurred along Marchant Street, McCormick Road and near the upstream end of the Narragansett Storage Conduit. The

surcharging on Marchant Street is between Eastnor Road and Wellington Avenue induced primarily by flat pipe slope, pipe slope reduction and decrease in pipe size at manhole SMH-117-107 at Connection Street. The surcharging on McCormick Road is largely due to a pipe size reduction at manhole SMH-152-44 and shallow manholes (SMH-152-37 and SMH-152-38). Shallow manholes upstream of the Narragansett Storage Conduit (NGSC) induce the surcharging there, approximately at the time the NGSC gate closes. The surcharging appears to be a result of Real-time Control settings.

Continuous Simulation of Sequential Events

Figure D-5 maps simulated color-coded SSO locations associated with minimum simulated storm that results in simulated SSOs. For the most part, simulated surcharging occurrences associated with individual storms are also present for the continuous sequence of storms. For example, Figures D-6 and D-7 show results for the sequential storm events along McCormick Road and Marchant Street, respectively, where surcharging occurs for larger storm events. However, simulated surcharges did not occur in Catchment 10 along Garfield, South Mayd, Butler and Evarts Streets, which showed surcharging during the individual run of the 5-year, 24-hour event. This result may indicate that the pipe capacity in this location is most significantly impacted by larger, longer duration, high-intensity events which may not only impact local capacity, but downstream capacity as well.

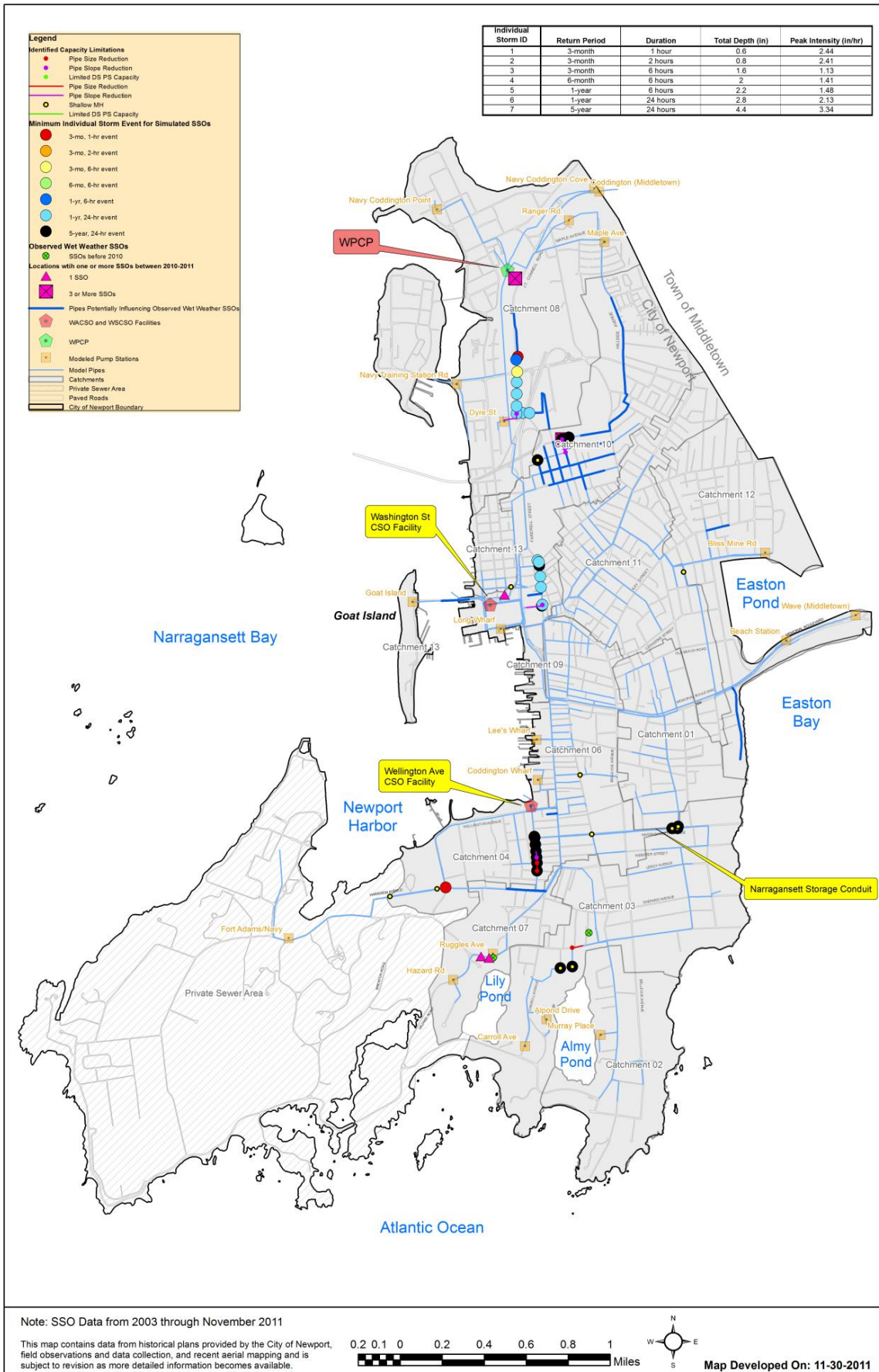


Figure D-1. Capacity Analysis Modeling Results for Individual Storm Events in the City of Newport, RI.

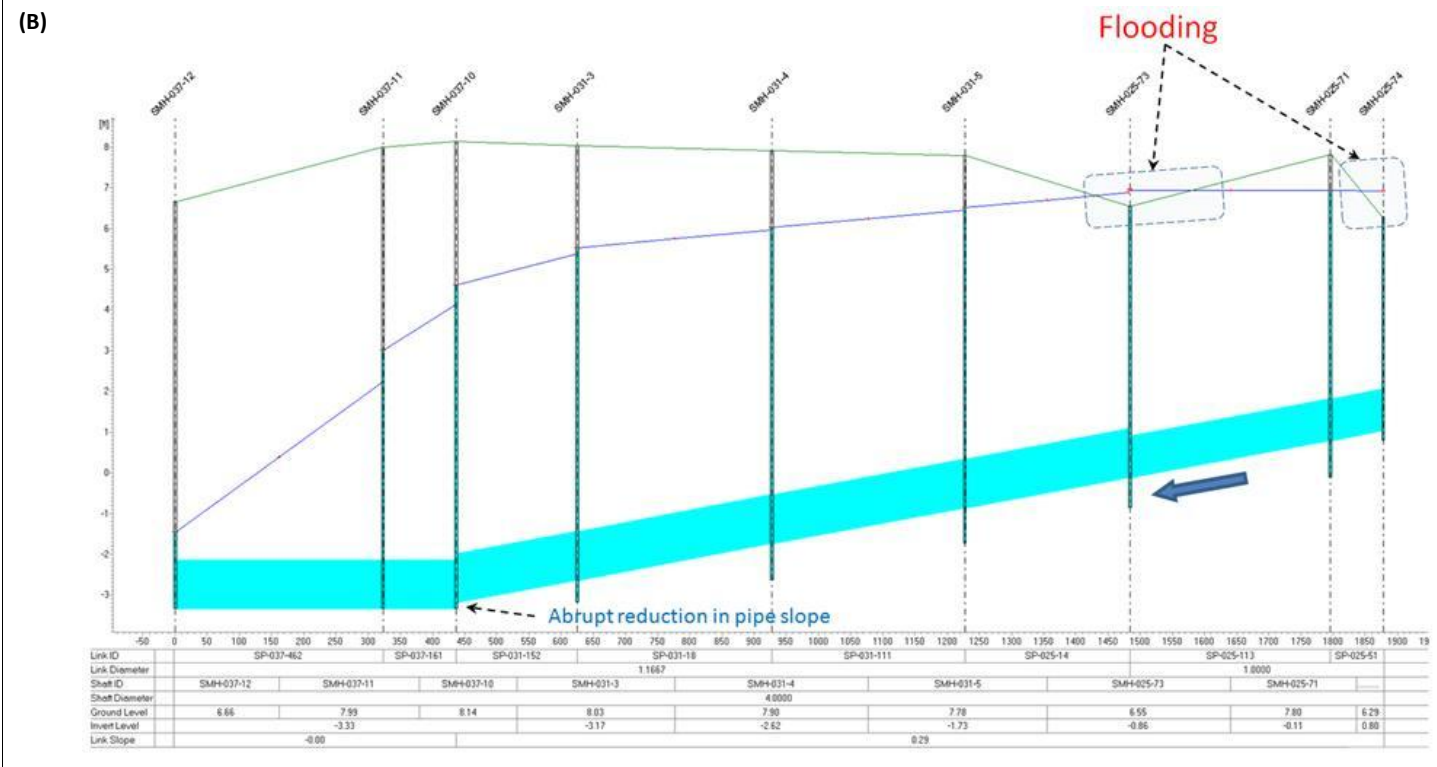


Figure D-2. Simulated SSO location occurred during the 3 months and 6 hours storm (A) plan view, and (B) vertical profile, along a pipe draining to the Dyer Street PS in Catchment 08.

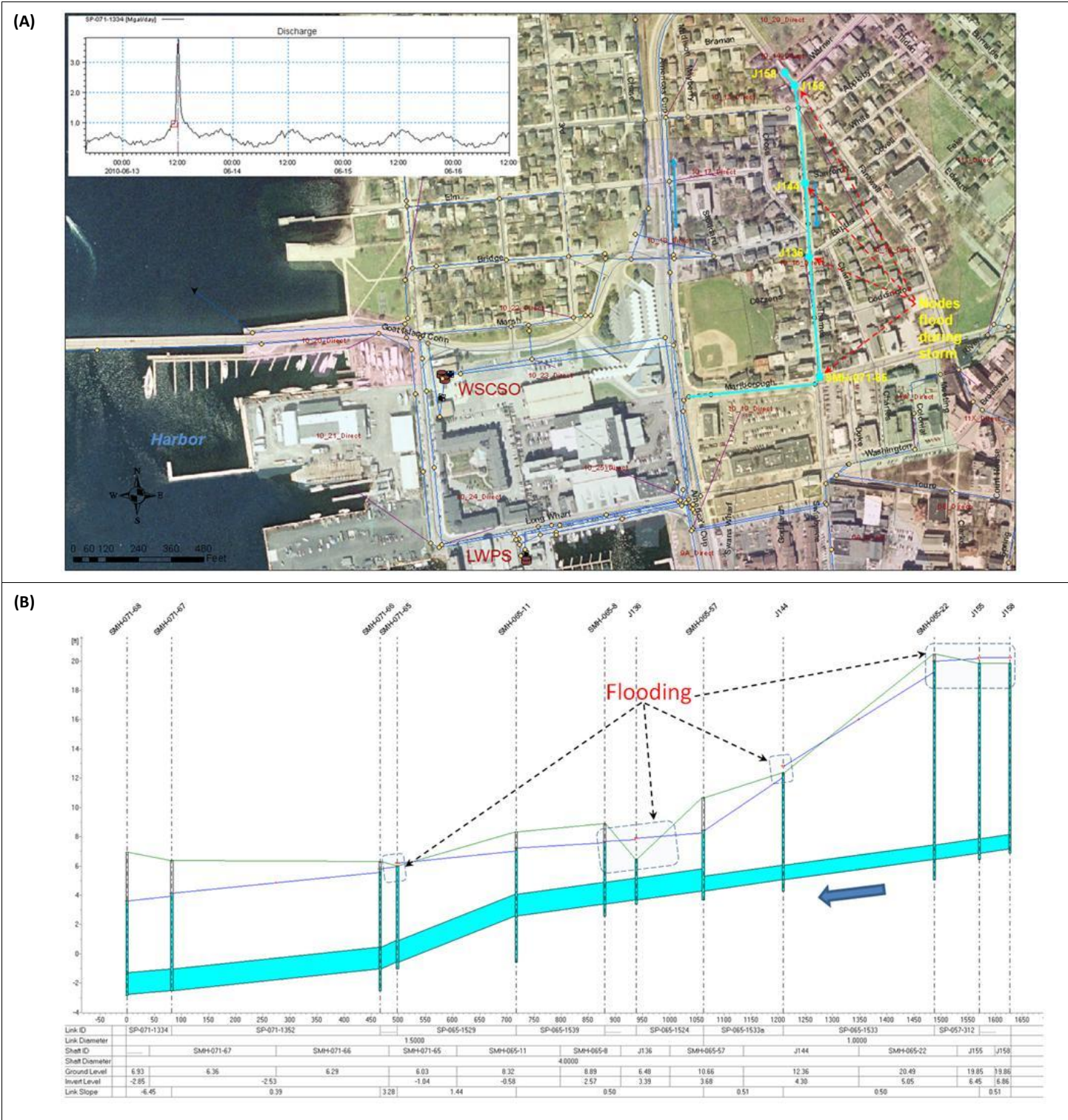


Figure D-3. Simulated SSOs during the 1 year and 24 hours storm (a) plan view, and (b) vertical profile, along a pipe draining to LWPS Catchment 10.

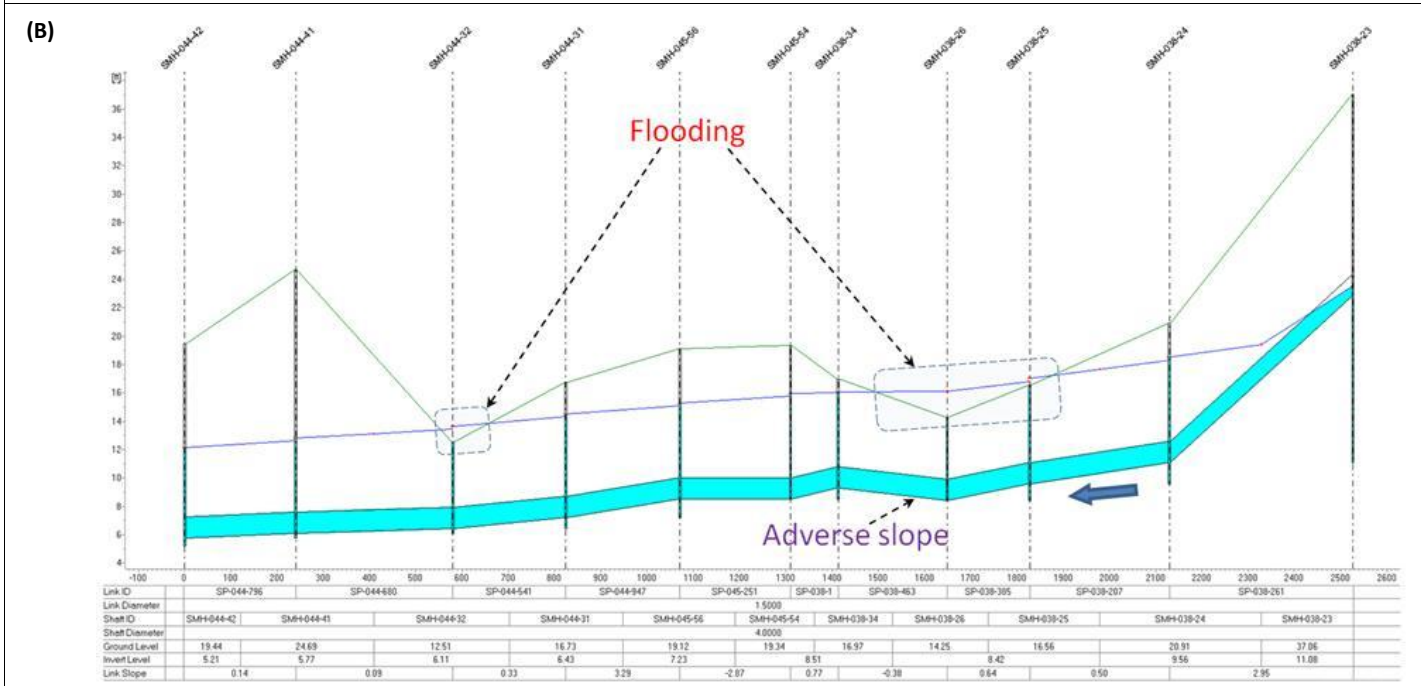
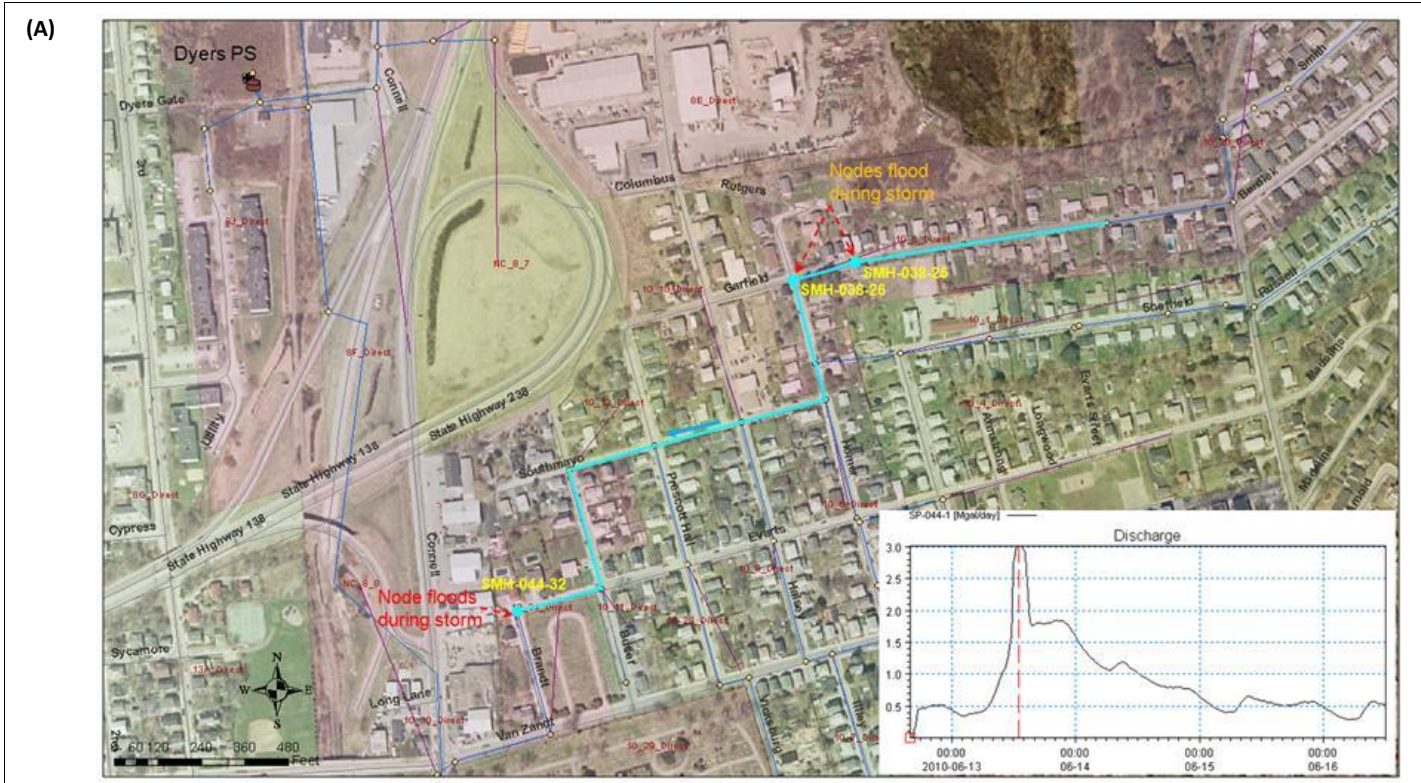


Figure D-4. Simulated SSOs during the 5 years and 24 hours storm (a) plan view, and (b) vertical profile in Catchment 10.

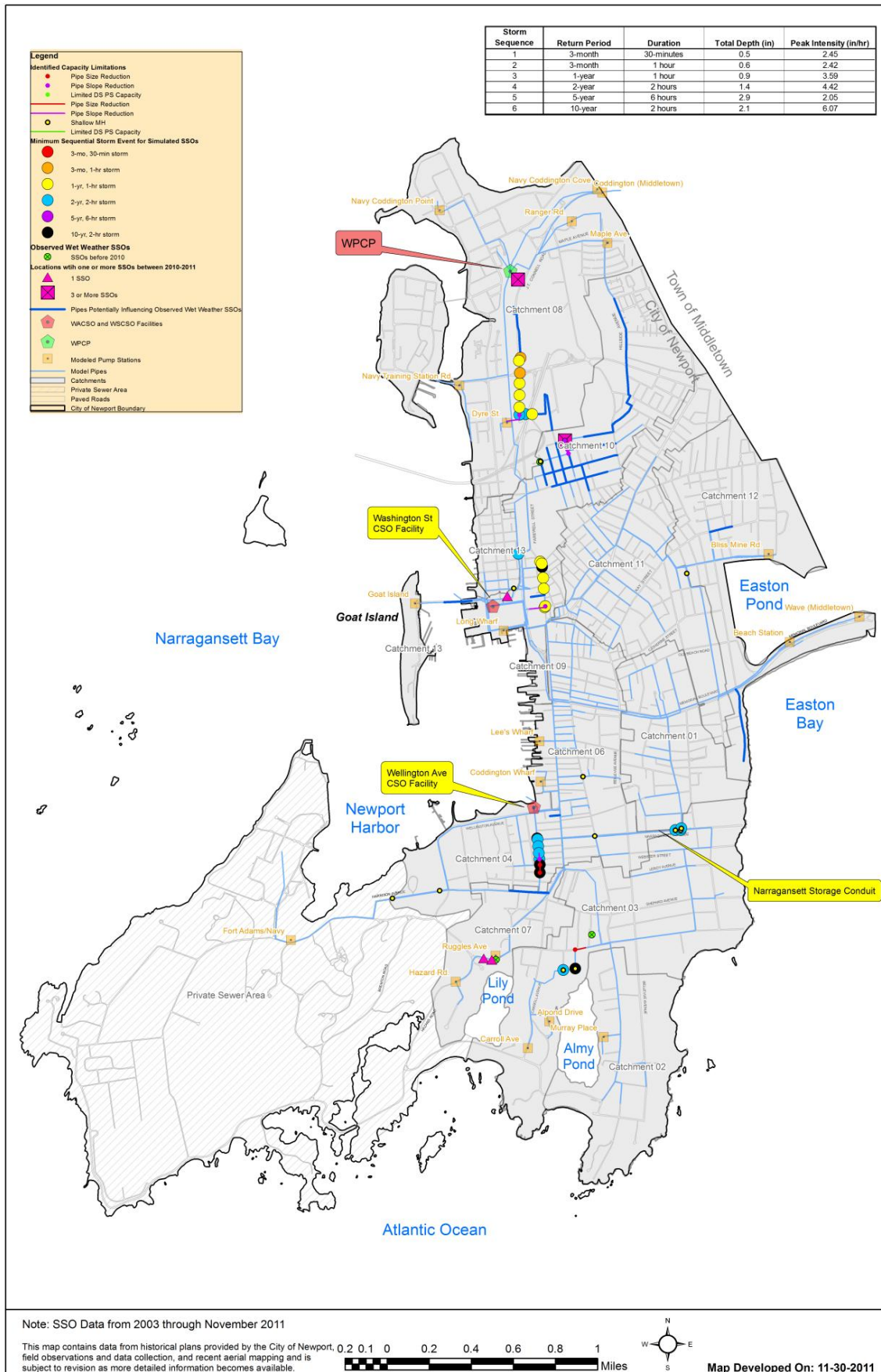


Figure D-5. Capacity Analysis Modeling Results for Sequential Storm Events in the City of Newport, RI.

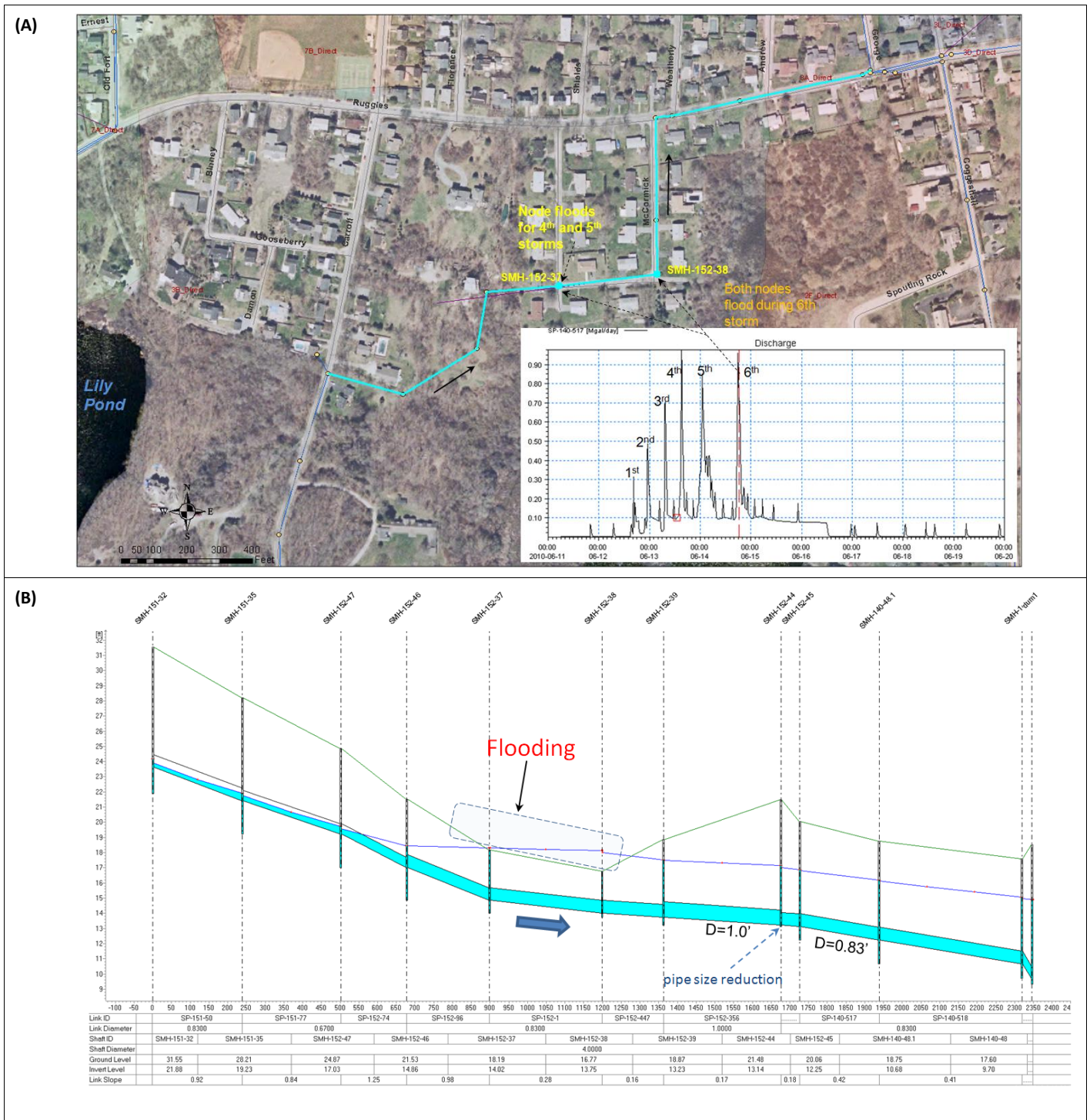


Figure D-6. Simulated SSOs during the continuous sequence of storms (a) plan view, and (b) vertical profile, ON McCormick Road in Catchment 03.

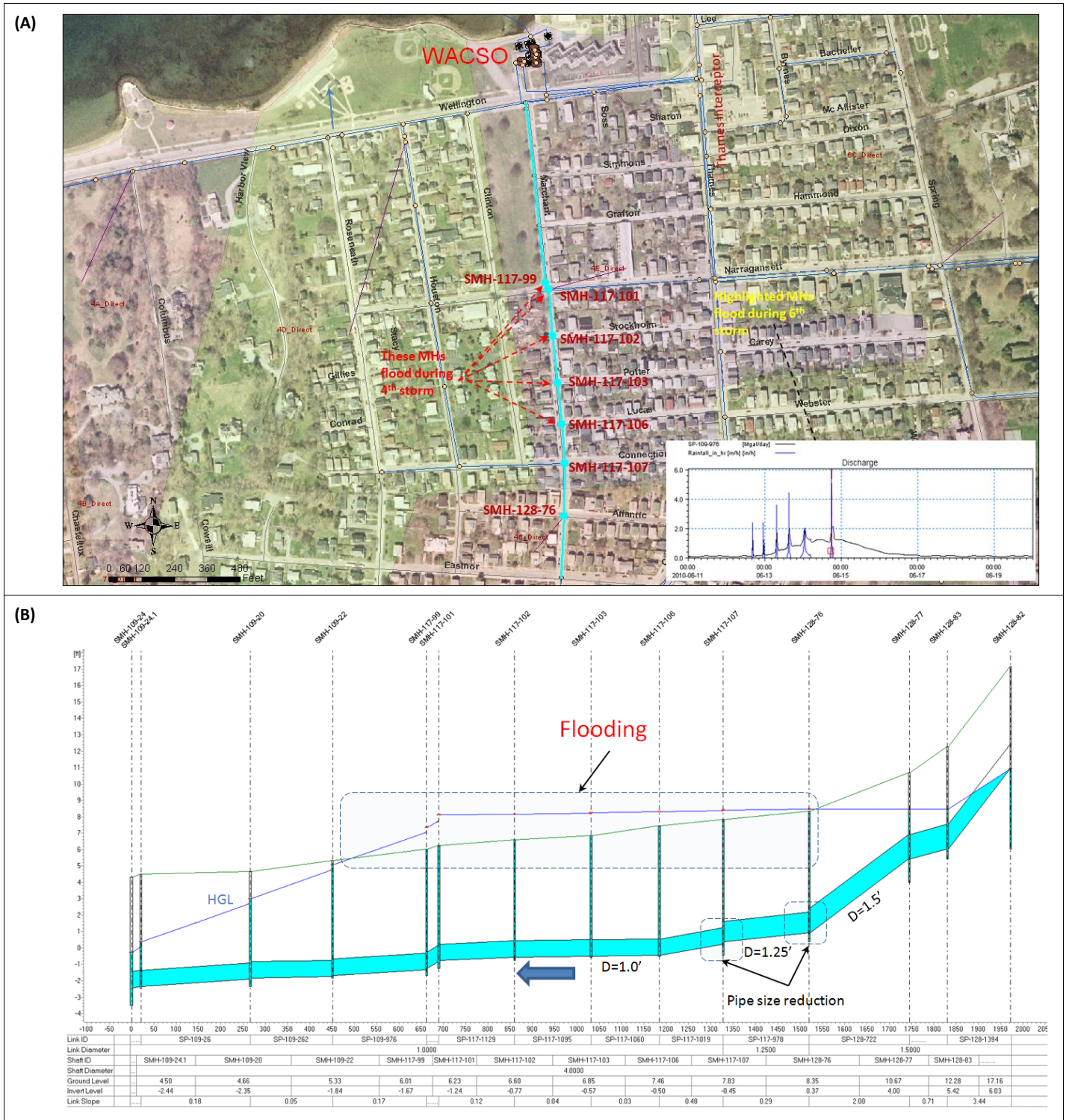


Figure D-7. Simulated SSOs during the continuous sequence of storms (a) plan view, and (b) vertical profile, on marchant Street in Catchment 02.