

M:\work\Newport_RI\Mapa\CSD_PhaseII\Outfalls_11x17.mxd

FEBRUARY 2008



Legend
 ● Outfalls - Jim

DRAFT
OUTFALLS-REVIEW ONLY
NEWPORT, RHODE ISLAND



R.I. Analytical

Specialists in Environmental Services

Page 1 of 2

CERTIFICATE OF ANALYSIS

Earth Tech
Attn: Mr. James Thomas
250 Connell Highway
Newport, RI 02840

Date Received: 9/19/06
Date Reported: 9/22/06
P.O. #:
Work Order #: 0609-16952

DESCRIPTION: FIVE GROUNDWATER SAMPLES

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies and all NELAC requirements were met. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844, NY-11726

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:


Mike Hobin
Data Reporting

enc: Chain of Custody



R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Earth Tech
 Date Received: 9/19/06
 Work Order #: 0609-16952

Approved by: 
 Data Reporting

Sample # 001 SAMPLE DESCRIPTION: DO-113-01 SAMPLE TYPE: GRAB		<i>NARR RUC 40 STEPS</i>	SAMPLE DATE/TIME: 9/19/2006 @ 10:57			
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
FECAL COLIFORM (MPN)	>1600	2	MPN/100 ml	SM9221E 19 ed	9/19/06	SAS
Sample # 002 SAMPLE DESCRIPTION: DO-154-01 SAMPLE TYPE: GRAB		<i>LAWRENCE RUC</i>	SAMPLE DATE/TIME: 9/19/2006 @ 11:25			
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
FECAL COLIFORM (MPN)	500	2	MPN/100 ml	SM9221E 19 ed	9/19/06	SAS
Sample # 003 SAMPLE DESCRIPTION: DO-109-01 SAMPLE TYPE: GRAB		<i>WELL RUC PUMP STATION</i>	SAMPLE DATE/TIME: 9/19/2006 @ 12:05			
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
FECAL COLIFORM (MPN)	1600	2	MPN/100 ml	SM9221E 19 ed	9/19/06	SAS
Sample # 004 SAMPLE DESCRIPTION: DO-079-3 SAMPLE TYPE: GRAB		<i>MARRET SR</i>	SAMPLE DATE/TIME: 9/19/2006 @ 12:30			
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
FECAL COLIFORM (MPN)	<2	2	MPN/100 ml	SM9221E 19 ed	9/19/06	SAS
Sample # 005 SAMPLE DESCRIPTION: DO-079-2 SAMPLE TYPE: GRAB		<i>MARRET SR</i>	SAMPLE DATE/TIME: 9/19/2006 @ 12:30			
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
FECAL COLIFORM (MPN)	900	2	MPN/100 ml	SM9221E 19 ed	9/19/06	SAS

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Tel: 800-937-2580
Fax: 401-738-1970

131 Coolidge St, Bldg. 2
Hudson, MA 01749
Tel: 888-228-3334
Fax: 978-568-0078


Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type ^P	Preservation Code ^P	Matrix Code ^M	WMLR Pack	Rec'd Coliform
9-14-06	10:57 AM	DO-113-01	G	1 w/bw	wf	wf	✓	✓
9-14-06	11:25 AM	DO-154-01	G	1 w/bw	wf	wf	✓	✓
9-14-06	12:05 PM	DO-109-01	G	1 w/bw	wf	wf	✓	✓
9-14-06	12:30 PM	DO-079-3	G	1 w/bw	wf	wf	✓	✓
9-14-06	12:30 PM	DO-079-2	G	1 w/bw	wf	wf	✓	✓

Client Information

Company Name: Earth Tech
Address: 250 Connell Hwy
Providence RI 02848
City / State / Zip: Providence RI 02848
Telephone: 401 845 2000 Fax: 401 845 2087
Contact Person: James Thomas

Project Information

Project Name: _____
P.O. Number: _____
Report To: Jim Thomas
Sampled by: _____
Quote No: _____
Project Number: _____
Phone: _____
Email address: _____

Requisitioned by	Date	Time	Received By	Date	Time
	9/19/06	2:50 PM	<u>Sherry Blosser</u>	9/19/06	1:42 PM

Turn Around Time	Normal	EMAIL Report
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	5 Business days. Possible surcharge	
	Rush	(business days)

Circle if applicable:	GW-1,	GW-2,	GW-3,	S-1,	S-2,	S-3	MCP Data Enhancement QC Package?	Yes	No

e-mail results: _____

Lab Use Only
Sample Pick Up Only
<input checked="" type="checkbox"/> RIAL sampled: attach field hours
<input checked="" type="checkbox"/> Shipped on ice <u>15.0</u>
Workorder No <u>0609-16952</u>

9/15/06 .35

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: <u>DO-113-01</u>	Time: <u>10:51 AM</u>
Date: <u>9-19-06</u>	
<input type="checkbox"/> Low Water Table	<input type="checkbox"/> High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): _____
B. Approx Depth of Water (feet): _____
C. Approx Flow Velocity (feet/second): <u>30 gpm</u>

III. Visual Observations

A. Immediate Surrounding Land Use:	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Commercial
<input checked="" type="checkbox"/> Residential	<input type="checkbox"/> Municipal
<input type="checkbox"/> Open Space	<input type="checkbox"/> Unknown
<input type="checkbox"/> Other _____	
B. Odor:	C. Color:
<input checked="" type="checkbox"/> None	<input type="checkbox"/> None
<input type="checkbox"/> Sewage	<input type="checkbox"/> Red
<input type="checkbox"/> Rotten Eggs	<input type="checkbox"/> Yellow
<input type="checkbox"/> Oil/Gas	<input type="checkbox"/> Brown
<input type="checkbox"/> Laundry	<input type="checkbox"/> Green
<input type="checkbox"/> Other _____	<input type="checkbox"/> Grey
	<input type="checkbox"/> Other <u>clear</u>
D. Floatables:	E. Staining:
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> None
<input type="checkbox"/> Sewage/toilet paper	<input type="checkbox"/> Black
<input type="checkbox"/> Oil Sheen	<input type="checkbox"/> White
<input type="checkbox"/> Soap suds	<input type="checkbox"/> Brown
<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____
F. Clarity:	G. Vegetation/Algae Growth:
<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> None
<input type="checkbox"/> Cloudy	<input checked="" type="checkbox"/> Normal
<input type="checkbox"/> Opaque	<input type="checkbox"/> Excessive
	<input type="checkbox"/> Inhibited
H. Sedimentation:	I. Scouring:
<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: <u>20.2</u> °F	<input type="checkbox"/> °F	<input checked="" type="checkbox"/> °C	pH: <u>6.09</u>	<u>10:58 AM</u>
Conductivity: <u>1227</u>	<u>18.1</u> °C		<u>Cl₂ 0.29</u>	<u>10:59 AM</u>
Bacteria: _____				
Was a laboratory sample collected?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-154-01
 Date: 9-19-06

Time: 11:25 AM
 Low Water Table High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 6"
 B. Approx Depth of Water (feet): 1/4"
 C. Approx Flow Velocity (feet/second): 5 gpm

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input checked="" type="checkbox"/> Other <u>sewer</u>	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input checked="" type="checkbox"/> None <input type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: 21.3 °F °C pH: 6.75 Time: 11:36 AM
 Conductivity: 1214 18.5 uc Cl₂: 0.28 Time: 11:39
 Bacteria: _____
 Was a laboratory sample collected? Yes No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO 109-01

Date: 9-19-06

Time: 12:05 PM

Low Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 3'

B. Approx Depth of Water (feet): 2"

C. Approx Flow Velocity (feet/second): 30 gpm

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial

Commercial

Residential

Municipal

Open Space

Unknown

Other _____

B. Odor:

None

Sewage

Rotten Eggs

C. Color:

None

Red

Yellow

Brown

Oil/Gas

Laundry

Other seaweed

Green

Grey

Other _____

D. Floatables:

None

Sewage/toilet paper

E. Staining:

None

Black

Brown

Oil Sheen

Soap suds

Yellow

White

Other _____

Other _____

F. Clarity:

Clear

Cloudy

Opaque

G. Vegetation/Algae Growth:

None

Normal

Excessive

Inhibited

H. Sedimentation:

Yes

No

I. Scouring:

Yes

No

IV. Field Analysis

Water Temperature: 23.4 °F °C

pH: 6.40

Time: 12:13 PM

Conductivity: 70.0 18.7 µS/cm

Cl₂: 0.22

Time: 12:14 PM

Bacteria: _____

Was a laboratory sample collected?

Yes

No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-079-2
 Date: 9-19-06 Time: 12:30 PM
 Low Water Table High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 6"
 B. Approx Depth of Water (feet): 1/8"
 C. Approx Flow Velocity (feet/second): 2 gpm

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input type="checkbox"/> Other _____	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input type="checkbox"/> None <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: 24.0 °F °C
 Conductivity: 59.1 20.5 µS/cm
 Bacteria: _____
 pH: 6.69 time: 12:45 PM
 ORP: 0.21 time: 12:46 PM
 Was a laboratory sample collected? Yes No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-079-3

Date: 9-19-06

Time: 12-30

Low Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 6"

B. Approx Depth of Water (feet): 1/4"

C. Approx Flow Velocity (feet/second): 10 gpm

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial

Commercial

Residential

Municipal

Open Space

Unknown

Other _____

B. Odor:

None Sewage Rotten Eggs

Oil/Gas Laundry Other _____

C. Color:

None Red Yellow Brown

Green Grey Other _____

D. Floatables:

None Sewage/toilet paper

Oil Sheen Soap suds

Other _____

E. Staining:

None Black Brown

Yellow White

Other _____

F. Clarity:

Clear Cloudy Opaque

G. Vegetation/Algae Growth:

None Normal

Excessive Inhibited

H. Sedimentation:

Yes

No

I. Scouring:

Yes

No

IV. Field Analysis

Water Temperature: 23.6 °F °F °C

pH: 6.64 Time: 12:39

Conductivity: 11.82 20.0 °C

chl 0.43 Time: 12:40

Bacteria: _____

Was a laboratory sample collected? Yes No



CERTIFICATE OF ANALYSIS

Earth Tech
Attn: Ms. Jennifer Grimes
250 Connell Highway
Newport, RI 02840

Date Received: 4/27/06
Date Reported: 5/1/06
P.O. #:
Work Order #: 0604-07340

DESCRIPTION: FOUR GROUNDWATER SAMPLES

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies and all NELAC requirements were met. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844, NY-11726

If you have any questions regarding this work, or if we may be of further assistance, please contact us.

Approved by:

Mike Hobin
Data Reporting

enc: Chain of Custody


RECEIVED
MAY 1 2006
EARTH TECH
NEWPORT, RHODE ISLAND

RECEIVED
MAY 1 2006
EARTH TECH
NEWPORT, RHODE ISLAND



R.I. Analytical Laboratories, Inc.
CERTIFICATE OF ANALYSIS

Earth Tech
 Date Received: 4/27/06
 Work Order #: 0604-07340

Approved by: 
 Data Reporting

Sample # 001 SAMPLE DESCRIPTION: DO-144-01 SAMPLE TYPE: GRAB		<i>RIDGE RD BRADWINS</i>	SAMPLE DATE/TIME: 4/27/2006 @ 10:45				
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST	
FECAL COLIFORM (MPN)	7	2	MPN/100 ml	SM9221E 19 ed	4/27/06	CCP	
Sample # 002 SAMPLE DESCRIPTION: DO-177-01 SAMPLE TYPE: GRAB		<i>OCEAN AVE</i>	SAMPLE DATE/TIME: 4/27/2006 @ 10:20				
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST	
FECAL COLIFORM (MPN)	8	2	MPN/100 ml	SM9221E 19 ed	4/27/06	CCP	
Sample # 003 SAMPLE DESCRIPTION: DO-186-01 SAMPLE TYPE: GRAB		<i>166 OCEAN AVE ATLANTIC AVE</i>	SAMPLE DATE/TIME: 4/27/2006 @ 11:29				
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST	
FECAL COLIFORM (MPN)	<2	2	MPN/100 ml	SM9221E 19 ed	4/27/06	AS	
Sample # 004 SAMPLE DESCRIPTION: DO-190-01 SAMPLE TYPE: GRAB		<i>OCEAN AVE PRICES COVE</i>	SAMPLE DATE/TIME: 4/27/2006 @ 11:40				
PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST	
FECAL COLIFORM (MPN)	13	2	MPN/100 ml	SM9221E 19 ed	4/27/06	AS	

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Tel: 800-937-2580
Fax: 401-738-1970

131 Coolidge St, Bldg. 2
Hudson, MA 01749
Tel: 888-228-3334
Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type ^T	Preservation Code ^P	Matrix Code ^M	Notes
4/27/06	10:45A	DO-144-01	G	1 NP	610	V	✓ From Coliform (MPN)
↓	10:20A	DO-177-01	G	1 "	"	"	✓ Wholly PAK
↓	11:21A	DO-186-01	G	1 "	"	"	✓
↓	11:40	DO-190-01	G	1 "	"	"	✓

Client Information

Company Name: **EARTH TECH**

Address: **250 Cornell Hwy 02840**

City / State / Zip: **Newport RI 02840**

Telephone: **401-845 2000** Fax: **401-845 2014**

Contact Person: **JAMES THOMAS**


Project Information

Project Name: _____ Project Number: _____


P.O. Number: _____ Report To: _____ Fax: _____

Sampled by: _____ Email address: _____

Quote No: _____

Relinquished By: 

Date: **4/27/06** Time: **1:40pm**

Received By: 

Date: **4-27-06** Time: **1340**

Turn Around Time

Normal EMAIL Report

5 Business days. Possible surcharge

Rush _____ (business days)

Lab Use Only

Sample Pick Up Only

RIAL sampled; attach field hours

Shipped on ice

Workorder No: **00051340**

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

e-mail results:

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

Last Rainfall 4-24-06 .02

I. General Information

Outfall ID: <u>DD-144-01</u>	Time: <u>10:45 AM</u>
Date: <u>4/27/06</u>	
<input type="checkbox"/> Low Water Table	<input type="checkbox"/> High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet):	<u>6"</u>
B. Approx Depth of Water (feet):	<u>2"</u>
C. Approx Flow Velocity (feet/second):	_____

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input type="checkbox"/> Residential <input type="checkbox"/> Municipal <input checked="" type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input type="checkbox"/> Other _____	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input type="checkbox"/> None <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: <u>12</u> °F <input checked="" type="checkbox"/> °C	pH: <u>6.56</u>	Time: <u>10:55</u>
Conductivity: <u>292.7</u> <u>10.7</u> °C	Cl ₂ : <u>.78</u>	Time: <u>10:58</u>
Bacteria: _____		
Was a laboratory sample collected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

cast rainfall 4-24-06 .02

I. General Information

Outfall ID: <u>DD-177-01</u>	Time: <u>11:20</u>
Date: <u>4/27/06</u>	<input type="checkbox"/> High Water Table
<input type="checkbox"/> Low Water Table	

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet):	<u>1"</u>
B. Approx Depth of Water (feet):	<u>1/2"</u>
C. Approx Flow Velocity (feet/second):	_____

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input type="checkbox"/> Other _____	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input checked="" type="checkbox"/> None <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: <u>11.5</u> °F <input checked="" type="checkbox"/> °C	pH: <u>6.65</u>	Time: <u>10:21</u>
Conductivity: <u>513</u> <u>9.1</u> °C	Cl ₂ : <u>1.82</u>	Time: <u>11:28</u>
Bacteria: _____		
Was a laboratory sample collected? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

Last Rainfall 4-24-06 .02

I. General Information

Outfall ID: <u>DD-186-01</u>	Time: <u>11:29 AM</u>
Date: <u>4/27/06</u>	
<input type="checkbox"/> Low Water Table	<input type="checkbox"/> High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet):	<u>1"</u>
B. Approx Depth of Water (feet):	<u>1/2"</u>
C. Approx Flow Velocity (feet/second):	<u> </u>

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input type="checkbox"/> Other _____	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input type="checkbox"/> None <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input type="checkbox"/> No

IV. Field Analysis

Water Temperature: <u>10.3</u> °F <input checked="" type="checkbox"/> °C	pH: <u>6.54</u> Time: <u>11:33</u>
Conductivity: <u>456</u> Temp 12.4	chl: <u>.50</u> Time: <u>11:35</u>
Bacteria: <u>458</u> <u>12.3</u>	
Was a laboratory sample collected? <input type="checkbox"/> Yes <input type="checkbox"/> No	

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

cast rainfall 4-24-06 102

I. General Information

Outfall ID: <u>DO-190-01</u>	Time: <u>11:40 AM</u>
Date: <u>4/27/06</u>	
<input type="checkbox"/> Low Water Table	<input type="checkbox"/> High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet):	<u>3"</u>
B. Approx Depth of Water (feet):	<u>1/2"</u>
C. Approx Flow Velocity (feet/second):	<u> </u>

III. Visual Observations

A. Immediate Surrounding Land Use: <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Municipal <input type="checkbox"/> Open Space <input type="checkbox"/> Unknown <input type="checkbox"/> Other _____	
B. Odor: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage <input type="checkbox"/> Rotten Eggs <input type="checkbox"/> Oil/Gas <input type="checkbox"/> Laundry <input type="checkbox"/> Other _____	C. Color: <input checked="" type="checkbox"/> None <input type="checkbox"/> Red <input type="checkbox"/> Yellow <input type="checkbox"/> Brown <input type="checkbox"/> Green <input type="checkbox"/> Grey <input type="checkbox"/> Other _____
D. Floatables: <input checked="" type="checkbox"/> None <input type="checkbox"/> Sewage/toilet paper <input type="checkbox"/> Oil Sheen <input type="checkbox"/> Soap suds <input type="checkbox"/> Other _____	E. Staining: <input checked="" type="checkbox"/> None <input type="checkbox"/> Black <input type="checkbox"/> Brown <input type="checkbox"/> Yellow <input type="checkbox"/> White <input type="checkbox"/> Other _____
F. Clarity: <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque	G. Vegetation/Algae Growth: <input type="checkbox"/> None <input checked="" type="checkbox"/> Normal <input type="checkbox"/> Excessive <input type="checkbox"/> Inhibited
H. Sedimentation: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	I. Scouring: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

IV. Field Analysis

Water Temperature: <u>11.2</u> °F <input type="checkbox"/> °F <input checked="" type="checkbox"/> °C	pH: <u>6.44</u> Time: <u>11:45</u>
Conductivity: <u>194</u>	Chloride: <u>90</u> Time: <u>11:48</u>
Bacteria: _____	
Was a laboratory sample collected? <input type="checkbox"/> Yes <input type="checkbox"/> No	



CERTIFICATE OF ANALYSIS

Earth Tech
Attn: Ms. Jennifer Grimes
250 Connell Highway
Newport, RI 02840

Date Received: 8/24/07
Date Reported: 8/27/07
P.O. #:
Work Order #: 0708-14588

DESCRIPTION: FIVE WASTEWATER SAMPLES

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015
NH-253700 A & B, USDA S-41844

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Mike Hobin
Data Reporting

enc: Chain of Custody



R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Earth Tech

Date Received: 8/24/07

Work Order #: 0708-14588

Approved by: 

Data Reporting

Sample # 001

SAMPLE DESCRIPTION: DO-043-01

SAMPLE TYPE: GRAB

SAMPLE DATE/TIME: 8/24/2007 @ 10:19

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fecal Coliform (MPN)	500	2	MPN/100 ml	SM9221E 19 ed	8/24/07	KL

Sample # 002

SAMPLE DESCRIPTION: DO-079-1

SAMPLE TYPE: GRAB

SAMPLE DATE/TIME: 8/24/2007 @ 10:51

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fecal Coliform (MPN)	>16000	20	MPN/100 ml	SM9221E 19 ed	8/24/07	KL

Sample # 003

SAMPLE DESCRIPTION: DO-079-2

SAMPLE TYPE: GRAB

SAMPLE DATE/TIME: 8/24/2007 @ 10:52

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fecal Coliform (MPN)	>1600	2	MPN/100 ml	SM9221E 19 ed	8/24/07	KL

Increased detection limit due to limited sample volume.

Sample # 004

SAMPLE DESCRIPTION: DO-079-3

SAMPLE TYPE: GRAB

SAMPLE DATE/TIME: 8/24/2007 @ 10:53

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fecal Coliform (MPN)	50	2	MPN/100 ml	SM9221E 19 ed	8/24/07	KL

Sample # 005

SAMPLE DESCRIPTION: DO-092-01

SAMPLE TYPE: GRAB

SAMPLE DATE/TIME: 8/24/2007 @ 11:28

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Fecal Coliform (MPN)	>1600	2	MPN/100 ml	SM9221E 19 ed	8/24/07	KL

CHAIN OF CUSTODY RECORD

R.I. Analytical Laboratories, Inc.

41 Illinois Avenue
 Warwick, RI 02888
 Tel: 800-937-2580
 Fax: 401-738-1970

131 Coolidge St, Bldg. 2
 Hudson, MA 01749
 Tel: 888-228-3334
 Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type ^T	Preservation Code ^P	Matrix Code ^M	WATER ^R Bulk	TECA ^L Coliform
8-24-07	10:19 am	DO-043-01	G	1 WP GW			✓	✓
	10:51 am	DO-079-1	G	1 WP GW			✓	✓
	10:52 am	DO-079-2	G	1 WP GW			✓	✓
	10:53 am	DO-079-3	G	1 WP GW			✓	✓
	11:28 am	DO-092-01	G	1 WP GW			✓	✓

Client Information

Company Name: Earth TECH

Address: 250 Connell Hwy 02840

City / State / Zip: Newport RI 02840

Telephone: 401 845 2000 Fax:

Contact Person: James Thomas

Project Information

Project Name:

P.O. Number:

Report To:

Sampled by:

Quote No.:

Relinquished By	Date	Time	Received By	Date	Time
<i>[Signature]</i>	8/24/07	1404	<i>[Signature]</i>	8/24/07	1404
<i>[Signature]</i>	8/24/07	1521	<i>[Signature]</i>	8/24/07	1521

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

e-mail results: 1.2

Lab Use Only

Sample Pick Up Only

RIAL sampled; attach field hours

Shipped on ice

Workorder No: 0708-14588

Container Types: P=Poly, G=Glass, AG=Amber Glass, V=Val, SI=Sterile

Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, Sl=Sludge, A=Air, B=Bulk/Solid, O=

Preservation Codes: NP=None, N=HNO₃, H=HCl, S=H₂SO₄, SH=NaOH, SB=NaHSO₄, M=MeOH, T=Na₂S₂O₃, Z=ZnOAc, I=Ice

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-643-01

Date: 8-24-07

Time: 10:19 AM

High Water Table

Low Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 10"

B. Approx Depth of Water (feet): 2"

C. Approx Flow Velocity (feet/second): 1

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial Commercial Residential Municipal
 Open Space Unknown Other _____

B. Odor:

None Sewage Rotten Eggs
 Oil/Gas Laundry Other _____

C. Color:

None Red Yellow Brown
 Green Grey Other _____

D. Floatables:

None Sewage/toilet paper
 Oil Sheen Soap suds
 Other _____

E. Staining:

None Black Brown
 Yellow White
 Other _____

F. Clarity:

Clear Cloudy Opaque

G. Vegetation/Algae Growth:

None Normal
 Excessive Inhibited

H. Sedimentation:

Yes No

I. Scouring:

Yes No

IV. Field Analysis

Water Temperature: 22.7 °F °C

Conductivity: 1867 us/cm 20.7 $\mu\text{S/cm}$

pH: 6.33

Cl₂: 2.9 mg/l

Bacteria: _____

Was a laboratory sample collected? Yes No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-079-1

Date: 8-24-07

Time: 10:51 AM

Low Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 1 m

B. Approx Depth of Water (feet): 1.5 m

C. Approx Flow Velocity (feet/second): 5 gpm

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial

Commercial

Residential

Municipal

Open Space

Unknown

Other _____

B. Odor:

None

Sewage

Rotten Eggs

Oil/Gas

Laundry

Other _____

C. Color:

None

Red

Yellow

Brown

Green

Grey

Other _____

D. Floatables:

None

Sewage/toilet paper

Oil Sheen

Soap suds

Other _____

E. Staining:

None

Black

Brown

Yellow

White

Other _____

F. Clarity:

Clear

Cloudy

Opaque

G. Vegetation/Algae Growth:

None

Normal

Excessive

Inhibited

H. Sedimentation:

Yes

No

I. Scouring:

Yes

No

IV. Field Analysis

Water Temperature: 23.1 °F °C

Conductivity: ~~130~~ 876 $\mu\text{S/cm}$ 25.0 °C

Bacteria: _____

pH: 6.74

Cl₂ 1.38

Was a laboratory sample collected?

Yes

No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-078-2

Date: 8-24-07

Time: 10:52 AM

Low Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 1 1/2 in

B. Approx Depth of Water (feet): 1 in

C. Approx Flow Velocity (feet/second): 7 gpm

III. Visual Observations

A. Immediate Surrounding Land Use:

- Industrial
 Commercial
 Residential
 Municipal
 Open Space
 Unknown
 Other _____

B. Odor:

- None
 Sewage
 Rotten Eggs
 Oil/Gas
 Laundry
 Other _____

C. Color:

- None
 Red
 Yellow
 Brown
 Green
 Grey
 Other cloudy

D. Floatables:

- None
 Sewage/toilet paper
 Oil Sheen
 Soap suds
 Other _____

E. Staining:

- None
 Black
 Brown
 Yellow
 White
 Other _____

F. Clarity:

- Clear
 Cloudy
 Opaque

G. Vegetation/Algae Growth:

- None
 Normal
 Excessive
 Inhibited

H. Sedimentation:

- Yes
 No

I. Scouring:

- Yes
 No

IV. Field Analysis

Water Temperature: 23.3 °F °C

pH: 7.19

Conductivity: 2451 us/cm 170c

Cl₂ 2.43

Bacteria: _____

Was a laboratory sample collected?
 Yes
 No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: D0-079-3

Date: 8-24-07

Time: 10:53 am

Low Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 2 1/2 m

B. Approx Depth of Water (feet): 1 1/2 m

C. Approx Flow Velocity (feet/second): 10 mgd

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial

Commercial

Residential

Municipal

Open Space

Unknown

Other _____

B. Odor:

None

Sewage

Rotten Eggs

Oil/Gas

Laundry

Other _____

C. Color:

None

Red

Yellow

Brown

Green

Grey

Other _____

D. Floatables:

None

Sewage/toilet paper

Oil Sheen

Soap suds

Other _____

E. Staining:

None

Black

Brown

Yellow

White

Other _____

F. Clarity:

Clear

Cloudy

Opaque

G. Vegetation/Algae Growth:

None

Normal

Excessive

Inhibited

H. Sedimentation:

Yes

No

I. Scouring:

Yes

No

IV. Field Analysis

Water Temperature: 24.4 °F °F °C

pH: 7.04

Conductivity: 837 $\mu\text{S}/\text{cm}$ 15.7 °C

Cl₂ 1.41

Bacteria: _____

Was a laboratory sample collected?

Yes

No

DRY WEATHER FLOW SURVEY: ILLICIT DISCHARGES

I. General Information

Outfall ID: DO-092-01

Date: 8-24-06

Time: 11:28 AM

Low-Water Table

High Water Table

II. Illicit Discharge Flow Measurements

A. Width of Water Surface (feet): 30"

B. Approx Depth of Water (feet): 20"

C. Approx Flow Velocity (feet/second): 1 gpm

III. Visual Observations

A. Immediate Surrounding Land Use:

Industrial

Commercial

Residential

Municipal

Open Space

Unknown

Other _____

B. Odor:

None

Sewage

Rotten Eggs

Oil/Gas

Laundry

Other _____

C. Color:

None

Red

Yellow

Brown

Green

Grey

Other _____

D. Floatables:

None

Sewage/toilet paper

Oil Sheen

Soap suds

Other _____

E. Staining:

None

Black

Brown

Yellow

White

Other _____

F. Clarity:

Clear

Cloudy

Opaque

G. Vegetation/Algae Growth:

None

Normal

Excessive

Inhibited

H. Sedimentation:

Yes

No

I. Scouring:

Yes

No

IV. Field Analysis

Water Temperature: 22.2 °F °C

Conductivity: 19.14 mg/cm 20.5 °C

Bacteria: _____

pH: 6.77

dz 32

Was a laboratory sample collected? Yes No

**CITY OF NEWPORT
AD HOC COMMITTEE ON WASTEWATER
AND
STORMWATER SYSTEM IMPROVEMENTS**

**SEMI-ANNUAL REPORT
TO THE
CITY COUNCIL**

JUNE 2007

Introduction

The Ad Hoc Committee on Wastewater and Stormwater System Improvements (the "Committee") was appointed by the City Council in January 2007 with the following mission statement:

- To examine, analyze, and assess the adequacy of the wastewater and stormwater system infrastructure, pertaining to condition, capacity, system design, long and short term structural and operational requirements;
- To research means of correcting deficiencies in system operations and develop recommendations for implementation and financing;
- To develop public education programs and voluntary and compulsory corrective measures, to promote the public's effective and efficient use of the City's wastewater and stormwater system; and,
- To report findings and recommendations to the City Council for consideration and adoption.

The Committee is made up of seven members appointed by the Council. The current membership is as follows:

Raymond C. Smedberg, Chairman
Dave McLaughlin, Vice Chairman
Paul Watters, Secretary
Drew Carey, Member
Martin Casey, Member
Charles Taylor, Member
Roger Wells, Member

Regular meetings are held on the first Tuesday of the month. The Committee met a total of eleven times, including facilities tours and meetings with City staff, from its initial organizational meeting on January 23rd through June 2007.

Executive Summary

The Committee's initial focus is on issues related to Combined Sewage Overflow (CSO) problems, and system issues that impact the utility and viability of the City's beaches. The following summarizes the key issues addressed in the report:

Wastewater and Stormwater System

- The City recently proposed reorganization of certain City departments.

The Committee supports the proposed reorganization and separate department status as it relates to the Water Pollution Control operations.

- The 20-year operating agreement with Earth Tech is complex and comprehensive and has a current annual fee of some \$3.5-million.

It would be reasonable and prudent for the City to retain a qualified consultant to conduct periodic independent reviews of performance under the agreement.

- The wastewater treatment plant continues to experience non-compliance issues with respect to its RIPDES permit, subjecting the City to potential enforcement action and contributing to the passing of a moratorium on new sewer connections. Middletown also impacts these non-compliance issues in a material way.

The City should prioritize and expedite efforts to address non-compliance issues at the wastewater treatment plant to improve operations and resultant compliance, and eliminate the moratorium on new sewer connections.

- Stormwater runoff discharging into Easton Pond Moat from the western residential neighborhoods is a major contributor to water quality/beach closure issues at Easton's Beach. Middletown also impacts this situation as result of its Wave Avenue Pump Station and stormwater quality originating from its Esplanade watershed area.

See comments under the section on Easton's Beach below.

Wholesale Agreements for Wastewater Services

- The City provides sewer service to Middletown and Naval Station Newport under separate wholesale agreements. The agreement with Middletown was entered into in June 1985 and expired in July 2005, and is currently in renegotiation. The agreement with the Navy was entered into in July 1986 and continues in effect until terminated at the option of the Government with 180 days written notice. Flows from the Navy consistently remain below the contractual limit. Flows from Middletown vary significantly from normal average daily flows to high wet weather flows.

As part of any program to manage flows in Newport, Middletown should be required to reduce its flows in general and control its wet weather discharges to Newport.

- The City operates a regional wastewater system with Middletown being the major wholesale customer and having major impact on Newport's system. Current coordination and communication between the parties appear to be minimal at best, particularly at the management and planning levels.

The regional nature of the system should be reflected in its operation, management and planning, with formal and ongoing communication and coordination taking place, particularly at the management and planning levels. Some level of coordination between the City's Ad Hoc Committee and the Town's Roads and Utilities Committee might be an initial step.

- A section of the Newport Sewer Rate Evaluation Report dated November 2006 prepared by CDM deals with the matter of wholesale agreements and contains a number of recommendations. Also, the existing agreement with Middletown is in an abbreviated format and does not contain a number of provisions typically found in such agreements.

The findings and recommendations from the above CDM report should be taken into account in the Middletown agreement negotiations. Also, in its report the Committee recommends a number of provisions to be included in renewed agreement. The key provision recommended relates to incorporating specific capacity and wastewater strength limitations on the Town's usage of the City's system.

Combined Sewer Overflow (CSO) Program

- The Committee believes it is important to have a general understanding of the chronology of the City's CSO program to date including its current status in order to determine the future direction of the program.

Included in the report is a table listing the Chronology of the CSO measures taken.

- There are numerous documents and reports associated with the City's currently ongoing CSO program and development of the "phased approach" to implementation of the overall program. These have been produced over some period of time which makes it difficult to understand and track progress against goals and plans.

The City should generate and maintain a high level strategy/scope document outlining the phase approach to the CSO program and tracking progress against goals and plans.

- No system of check/balance exists to ensure improper sewer connections (roof leaders, sump pumps, yard drains, etc.) are corrected and this issue appears to be lingering in its implementation.

Council should support staffing and/or contracted services to expedite completion of improper connection correction. Also, Council should take on a strong leadership role in the correction of improper connection corrections via examples set by City departments, schools, etc. and use this work to raise public awareness and understanding of how these connections impact the CSO issue.

- The City's current CSO program has been in progress for some 6 years and while a number of efforts have been undertaken including reports, studies and field investigations there is no comprehensive Long Term CSO Control Plan Report documenting the projected ultimate program including costs and rate impact.

The City should adjust the phased approach schedule and expedite development of the comprehensive Long Term CSO Control Plan Report to provide the requisite planning tool to determine the course of the program as it proceeds. Key to this is expediting development of the system hydraulic model.

- Managing system peak flows is key to addressing CSO events and wastewater treatment plant permit compliance.

The City should expedite implementation of the CSO control measure of maximizing wet weather flow to the treatment plant to reduce CSO volumes, enhance treatment of wet weather flows, and improve permit compliance and eliminate the moratorium on new sewer connections. In conjunction with this the following flow control measures should be expedited:

- Increase coordination with Middletown with emphasis on reducing their flows to Newport;
- Disconnect catch basins in Newport's stormwater system identified as tied into the sanitary sewers; and,
- Step up implementation and enforcement of disconnection of improper connections.

Water Quality and Swimming Beach Closures

- Newport Harbor water quality is likely impaired by CSO and stormwater discharge yet remains an important swimming area for local residents.

Begin water testing at Van Zandt Pier, Fort Adams and Newport Harbor.

- Easton's Beach closures are related to bacterial contamination from at least four sources – Easton's Pond Moat, Esplanade outfall pipes, Wave Avenue Pump Station, and DOT outfall.

Develop collaborative approach to address contamination with Town of Middletown.

- Short term solutions will not prevent beach closures this summer.

Support cleanup and disposal of drift seaweed from beach and efforts of Park and Recreation to anticipate closures.

- Long term solutions to beach closures will require substantial capital investment.

Explore feasibility of stormwater utility administered jointly with Middletown to fund capital investment required for stormwater discharge treatment.

- Long term solutions to beach closures require a comprehensive stormwater management plan.

Build upon Phase II Stormwater Management Plan to include new findings and proposed solutions.

- Long term solutions could require re-engineering of public water supply and flood control system.

Convene meeting with State and Federal agencies and Congressional offices to explore requirements for realigning watershed to optimize safety of public water supply, flood control and quality of stormwater discharge.

Public Education and Participation

- The public expectation of a clean harbor will require cooperation of residents and businesses of Newport and Middletown to reduce introduction of stormwater into sanitary sewers as part of the CSO control program.

Develop public education program to explain the relationship between rainwater entering the sanitary sewers and the challenge of eliminating CSOs.

- City has begun a “Green Initiative”

Inspect City structures (schools, City Hall) for conformance with CSO control program and provide leadership on “Reduce and Reuse Water”

Introduction

Much of the Committee's initial efforts are on information gathering and familiarization with the City's wastewater and stormwater system and myriad associated issues. In accordance with the Resolution passed by the City Council creating the Committee, the Committee's initial focus is on "issues related to Combined Sewer Overflow (CSO) problems, and system issues that impact the utility and viability of the City's beaches." The following summarizes the major observations and recommendations resulting from the Committee's initial efforts and focus. We address five specific areas:

- I. Wastewater and Stormwater System Overview
- II. Wholesale Agreements for Wastewater Services
- III. Combined Sewer Overflow (CSO) System
- IV. Water Quality and Swimming Beach Closures
- V. Public Education and Participation

I. Wastewater and Stormwater System Overview

The City operates a regional wastewater system providing service on a retail basis to approximately 8,800 customers in Newport, and on a wholesale basis to the Town of Middletown and the Naval Station Newport through existing long term agreements. The system consists of 75 miles of sanitary sewers, 9 pumping stations, the Wellington Avenue and Washington Street Combined Sewer Overflow (CSO) treatment facilities, and a 10.7-million-gallons-per-day (MGD) activated sludge secondary treatment plant.

The City operates the wastewater system under a Rhode Island Pollution Discharge Elimination System (RIPDES) permit and the treated wastewater must meet both State and Federal regulations prior to its discharge to the East Passage of Narragansett Bay. Current outstanding enforcement actions are:

- 1999 Consent Order regarding the CSO control program; and
- December 2006 Notice of Deficiency regarding fecal coliform violations at the wastewater treatment plant.

Both Enforcement actions were issued by the Rhode Island Department of Environmental Management (RIDEM). Efforts by the City in conjunction with Earth Tech to respond to RIDEM and meet the requirements of these actions are ongoing.

The City also operates a stormwater system providing service to Newport only. The system consists of 45 miles of storm sewers, some 2,400 catch basins, and 54 stormwater outfalls discharging to receiving waters.

The City recently completed its Phase II Stormwater Management Plan as required by Federal and State regulations. That plan sets forth the City's program for the management and operation of its stormwater system, including monitoring and reporting performance against requirements. The key issues associated with the stormwater system are;

- the Easton Pond moat; and
- Easton Beach water quality/beach closures.

It must be noted that the Easton Pond moat and Easton Beach water quality/beach closures issues are separate from the CSO control issue and require their own distinct set of solutions.

The wastewater and stormwater system is operated by Earth Tech under a long term agreement with the City.

Section I Initial findings and recommendations are as follows:

- *Finding:* The City Manager recently proposed reorganization of certain City departments. Included was a proposal to separate the Water Pollution Control and Water Fund operations from Public Works and give them separate department status.

Recommendation:

1. The Committee supports the proposed reorganization and separate department status as it relates to the Water Pollution Control operations.
 - Given the myriad issues facing the wastewater industry in general, and the City of Newport and the region in particular, this is a logical step toward giving proper focus to such important environmental issues and enhancing short and long term strategic planning.
- *Finding:* The 20-year operating agreement with Earth Tech is complex and comprehensive and has a current annual fee of some \$3.5-million, which represents half of the Water Pollution Control annual operating expenditures.

Recommendation:

2. It would be reasonable and prudent for the City to retain a qualified engineering consultant on an ongoing basis to conduct periodic independent reviews of performance under the agreement with Earth Tech to verify and document compliance with requirements.
 - A number of municipalities who operate and manage their utility systems via contract operations routinely perform such reviews.
- *Finding:* Although significant capital and operating improvements have been made to the wastewater treatment plant in recent years as result of the operating agreement with Earth Tech, the facility continues to experience non-compliance issues with respect to its RIPDES permit, particularly regarding flow and fecal coliform limits. Such non-compliance subjects the City to potential enforcement action and contributed to the passing of a moratorium on new sewer hookups. In addition to high wet weather flows in Newport's system, high wet weather flows from Middletown materially impact these non-compliance issues.

Recommendation:

3. Prioritize and expedite efforts to address non-compliance issues at the wastewater treatment facility to improve operations and resultant compliance, and eliminate the moratorium on new sewer connections.
4. In addition to current efforts underway to address flow and fecal coliform compliance issues the City should expedite evaluation of alternatives for maximizing wet weather flow to the treatment plant, and design and implementation of the selected alternative including securing necessary permit modifications from RIDEM.
 - In conjunction with these efforts the City needs to coordinate closely with Middletown to mitigate its impact on Newport's system and contribute toward resolving these non-compliance issues.

- *Finding:* The Committee was advised by the City that the Easton's Beach water quality/beach closure is the priority matter to be addressed. The preliminary Fuss & O'Neill report provided to the City indicated stormwater runoff discharging into Easton's Pond moat from the western residential neighborhoods is a major contributor of bacteria to Easton's Beach. Middletown also impacts this situation in a material way as result of its Wave Avenue Pump Station and stormwater quality originating from its Esplanade watershed area. Short term solutions (control access to moat and pond, clear and maintain the moat and channel, wildlife management, etc.) are not likely to materially improve water quality this summer.

Recommendation:

5. The City needs to coordinate closely with Middletown to mitigate its impact on this situation and assist in developing long term solutions.
6. Consider the feasibility of developing a stormwater utility to support the long term improvement of the water quality and flood control capacity of the system.
7. Build upon the Phase II Stormwater Management Plan to include recent findings regarding the moat and incorporate proposed solutions.
8. Ongoing efforts to develop long term solutions to these problems should consider the entire watershed including the public water supply and storm systems in order to develop an assessment of all alternatives identified in the Fuss & O'Neil report.

II. Wholesale Agreements for Wastewater Services

The City provides sewer service to the Town of Middletown and Naval Station Newport under separate wholesale agreements for receiving and treating wastewater delivered to the City's system. The agreement with Middletown was entered into in June 1985 and expired on July 1, 2005. The City has indicated that it has been in the process of negotiating a renewed agreement with the Town for some time. The agreement with the Navy was entered into in July 1986 and continues in effect until terminated at the option of the Government with 180 days written notice. Information indicates flows received from the Navy consistently remain below the contractual limit. However, flows received from Middletown vary significantly with weather and there is a significant amount of inflow and infiltration (I/I) entering their system. The existing agreement with Middletown references a 2005 average daily flow limit of 2.1-million-gallons-per-day; however, there is no provision for peak flow limits. Middletown does exceed its allowable flow based on the daily flow limit, which is the only flow limit called out in the agreement. Peak wet weather flows from the Town reach as much as 3 to 4 times the average daily flow.

The Town of Middletown (Wave Avenue Pumping Station) has been determined to have significant impact on Newport's system in general, and on CSO events and permit compliance at the treatment plant in particular.

Section II Initial findings and recommendations are as follows:

- *Finding:* The City operates a regional wastewater system with Middletown being the major wholesale customer and having major impact on Newport's system. Current coordination and communication between the parties appears to be minimal at best, particularly at the management and planning levels.

Recommendation:

1. City of Newport/Town of Middletown wastewater services communications and coordination improvements
 - The regional nature of the system should be reflected in its operation, management and planning.
 - Formal and ongoing communication and coordination should be taking place at the operational level and, more importantly, at the management and planning levels.
 - An initial step toward this goal might be some level of ongoing coordination between the City's Ad Hoc Committee and the Town's Roads and Utilities Committee.

- *Finding:* Section 5 of the Newport Sewer Rate Evaluation Report dated November 2006 prepared by CDM deals with the matter of Wholesale Agreements.

Recommendation:

2. The findings and recommendations from the above CDM Report should be taken into account in the Middletown agreement renewal negotiations.

- *Finding:* In Phase 1 Part 1 and Part 2 CSO Control Plan Reports prepared by Earth Tech the impact of flows from Middletown on Newport's system was clearly noted. And it was stated that as part of any program to manage flows in Newport the Town should be required to reduce its flows in general and to control its wet weather discharges to Newport.

Recommendation:

3. As recommended in the Earth Tech Control Plan Reports dry and wet weather flow limitations should be imposed on Middletown by the City in conjunction with the agreement renewal negotiations to provide incentive for the Town to reduce their flows to Newport.

- *Finding:* The existing agreement with Middletown is in an abbreviated format and does not contain a number of provisions typically found in such agreements.

Recommendation:

4. Include the following key provisions in the pending agreement with Town of Middletown:
 - There should be a "Definitions and Interpretations" section to set forth the meanings of the key terms referenced in the agreement.
 - The City's wastewater collection and treatment facilities used to receive, convey, and treat the Town's wastewater should be defined in the agreement and clearly delineated on a map of the City's wastewater system appended to the agreement.
 - Specific "Capacity and Wastewater Strength Limitations" on the Town's usage of the City's system should be established. Wastewater capacity limitations should include Average Daily Flow, Maximum Daily Flow and Peak Hourly Flow; and strength limitations should include BOD (Biochemical Oxygen Demand), TSS (Total Suspended Solids) and FOG (Fat Oil and Grease).
 - Meters for measuring wastewater flow from the Town should be inspected and calibrated semi-annually and metering equipment with additional data logging

and reporting capabilities, particularly with respect to flow variations and peak flow rates, provided.

- “Ancillary Expenses” should not be fixed as provided for in the current agreement. These costs should be determined based on actual allocable expenses incurred and in the same manner as Overall Operation and Maintenance Cost.
- Any obligation on the part of the City to provide additional treatment and conveyance capacity for the Town, in addition to conditions imposed in the current agreement, should be made subject to receipt of timely notification of need from the Town.

III. Combined Sewer Overflow (CSO) Program

The City of Newport operates a combined sewer system, which means sewers in certain areas of the City carry both stormwater and sanitary sewage. During wet weather periods the sewers can become over capacitated with stormwater and, to protect from flooding and property damage, excess flow is relieved through overflow pipes, which discharge directly to receiving waters. In addition to some storm drains that are still connected to the sanitary sewers, excess wet weather flow comes from such sources as yard drains, sump pumps and basement drains, roof leaders and downspouts (this flow is called “inflow”), and groundwater which enters the sewers through open joints, cracks, deteriorated manholes, or other structural defects (collectively called “infiltration”). The City has undertaken a number of measures over several decades to control combined sewer overflows (CSO). The Committee believes it is important to have a general understanding of the chronology of the City’s CSO program to date including its current status in order to determine the future direction of the program. The following table provides a general chronology of the City’s CSO program:

Chronology of CSO Control Measures Taken

Date	Description of CSO Control Measure Taken
1950s	Long Wharf Pump Station was constructed and placed on-line to direct additional wastewater flow to the treatment plant
1970s	The City carried out a sewer separation program throughout sections of the City to install separate storm sewers and remove storm drain connections from the sanitary sewers
1978	The Wellington Avenue Pump Station and Micro-Strainer Facility were placed on-line with 1.5 MGD of sanitary flow capacity and 25 MGD of micro-strainer treatment and chlorination of CSOs. Over subsequent years the micro-strainer treatment system proved unreliable and ineffective and was removed from service sometime in the 1990s, while the sanitary flow pumping and CSO disinfection operations continue

1986	Report on Combined Sewer Abatement Alternatives prepared by Metcalf & Eddy Engineers included the following major findings: The City had separate collection and drainage networks; inflow and infiltration were significant contributors to CSOs; large portion of CSO flow attributed to buildings within the drainage area with roof leaders and yard drains tied into the collection system; and, removal of this inflow and infiltration was not cost effective at this time. The study resulted in a recommendation to design and construct the Washington Street CSO Treatment Facility
1991	The Washington Street CSO Treatment Facility was placed on-line with a capacity to treat (screening, grit removal & disinfection) up to a maximum of 43 MGD
1997/1998	RIDEM issues renewed RIPDES permit to the City w/ subsequent modifications including requirement to conduct studies of the Wellington Avenue & Washington Street CSO Treatment Facilities to assess their performance & recommend improvements. Permitted CSO outfalls are located at the Long Wharf/America's Cup Diversions Structure, Washington Street CSO Facility, and Wellington Avenue CSO Facility.
1999	City enters into Consent Agreement w/ RIDEM regarding development of a long term CSO control plan including submittal of 3 Technical Memorandums prepared by Malcolm Pirnie Engineers which would provide a basis for the scope of work for preparation of the City's long term CSO control program.
2001	City enters into long term design/build/operate agreement w/ Earth Tech to provide capital improvements & operation of the wastewater & stormwater system.
2001-2004	RIDEM & City discuss the approach for development of the CSO Control Program & agree on a phased approach for development as well as implementation of the Program.
2003/2004	Completed capital improvements to Wellington Avenue CSO Facility & Narragansett Avenue storage conduit, & upgrade of Long Wharf Pump Station & improvements to Washington Avenue CSO Facility.
2004	RIDEM approves Request For Proposals for engineering services which provides for a phased approach for development of the City's Long Term CSO Control Program; RIDEM approves bid award & City Council awards contract to Earth Tech for development of the City's CSO Control Program.
2005	Phase I of the program initially addresses the Wellington Avenue CSO Facility & service area since it was prioritized in the approved plan. Phase I Part 1 (data collection, field inspections, flow metering, and recommended follow up actions/improvements) completed & approved by RIDEM including authorization to proceed w/ work associated w/ Phase I Part 2.

2006	RIDEM approves Phase I Part 2 scope & Earth Tech authorized to proceed w/ further sewer inspections, flow monitoring, hydraulic model evaluation for the sanitary sewer system; and, further field inspections, flow monitoring, house inspections, smoke & dye testing in the prioritized service area (Wellington Avenue catchment area).
2006	City Council approves Phase I Part 3 work associated w/ design work to separate catch basins found under the Phase 1 Part 2 work to be connected to the sanitary sewer.
2007	Phase 1 Part 2 report completed & submitted to RIDEM for review.
2007	Phase 1 Part 3 construction documents & bidding completed w/ construction anticipated for the fall.

Section III Initial findings and recommendations are as follows:

- *Finding:* There are numerous documents and reports associated with the City’s currently ongoing CSO program. The long term “phased approach” adopted for the program and the fact that these documents have been produced over the period from approximately 1999 and continuing through present make it difficult to understand and track progress against goals and plans. There is neither a “living document” updating the track of the CSO reduction/elimination phased approach nor public visibility to agreements made with RIDEM regarding the approved/agreed track of the phased CSO elimination approach.

Recommendations:

1. Ensure that key goals and engineering/investigation components for the phased approach to CSO reduction/control are defined and that the contractual agreements with Earth Tech adequately address same.
2. City of Newport should generate and maintain a high level strategy/scope document outlining the phased approach to CSO reduction/elimination and tracking progress against goals and plans.

- *Finding:* No system of check/balance exists to ensure that improper sewer connections (roof leaders, sump pumps, yard drains, etc.) are corrected. The city does not appear to be staffed to ensure that this important work gets done, and this issue is lingering.

Recommendations:

3. Council should support staffing and/or contract services to support execution and completion of improper connection correction
4. Council should take a strong leadership role on improper connection correction by authorizing the appropriate City departments, agencies, authorities, etc. to immediately and publicly correct city owned improper connections (schools, etc.). Council could use this work to raise awareness and increase public understanding of how such connections impact the CSO issue.

- *Finding:* The City’s current CSO program has been in progress for approximately six years and while a number of reports, studies, field investigations, etc. have been completed there is still no comprehensive Long Term CSO Control Plan Report to fully

document what the ultimate program is projected to be including associated costs and impact on future rates.

Recommendation:

5. The City should adjust the phased approach schedule and expedite development of the comprehensive Long Term CSO Control Plan Report in order to have the necessary planning tools to determine the course of the program as it proceeds. Key to this is expediting the system hydraulic model for utilization as a planning and design tool.

- *Finding:* Managing system peak flows is key to addressing CSO events and permit compliance at the wastewater treatment plant.

Recommendation:

6. The City should expedite implementation of the CSO control measure of maximizing wet weather flow to the treatment plant in order to reduce CSO volumes, enhance treatment of wet weather flows, and improve permit compliance and eliminate the moratorium. In conjunction with this the City should also expedite the following flow management measures:

- Increased coordination with Middletown with emphasis on the Town reducing their flows to Newport;
- Disconnect the 28 catch basins in Newport's system identified as being connected to the sanitary sewers; and,
- Expedite implementation and enforcement of the disconnection of improper connections.

IV. Water Quality and Swimming Beach Closures

Beach closures have occurred in Newport Harbor and along the open ocean at Easton's Beach. The conditions leading to beach closures and water quality impairment at these two locations are quite different and may be difficult for the public to distinguish.

King Park, Fort Adams and Newport Harbor

- *Finding:* Fort Adams State Park is tested 12 times per month by the Rhode Island Department of Health (RIDOH). Over the past 5 years there has been more than one beach closure event per swimming season. Here is a sample of the data from the RIDOH website: 2002-4; 2003-2; 2004-5; 2005-2; 2006-4; 2007-0.
- *Finding:* King Park Swim Area was tested 8 times per month by the Rhode Island Department of Health (RIDOH). Over the past 5 years there has been more than one beach closure event per swimming season: 2002- N/A; 2003-4 (16 days per City of Newport); 2004-4; 2005-Closed; 2006-Closed; 2007-Closed (information from RIDOH Website).

Anecdotal information indicates swimming activity is still taking place at some level at the King Park Swim Area. In 2003 King Park Swim Area was designed as an EPA "Flagship Beach" as a result of combined water quality issues at King Park Swim Area and Fort Adams. The combined closures represented 11% of the total state closures since

1998. In 2004 the lifeguard's primary task was to warn people not to swim at King Park Swim Area. Due to city budget issues the beach was closed indefinitely. Recent discussion with EPA (May 2007) indicates that the status for King Park Swim Area has been changed however the beach remains closed.

- *Finding:* Newport Harbor is not a recognized beach location or water testing location by the Rhode Island Department of Health and water quality measurements are not available. Anecdotal information indicates swimming activity regularly takes place at Van Zandt Pier and most likely other locations in the harbor.

Potential sources

- *Finding:* The main cause of *Enterococci* Bacteria at Fort Adams State Park, Kings Park Swim Area and Newport Harbor is assumed to be Combined Sewage Overflow (CSO) events; however, additional water testing is needed to evaluate this as well as other possible causes such as stormwater discharges. It is probable that in the past decades that improper handling of waste discharge within the boating community may have had a significant impact on the water quality. However, regulations have addressed this issue and it is presumed to be a small factor in comparison to multi-million gallon CSO events that occur dozens of times per year and stormwater discharges.

Recommendation:

1. City of Newport needs to eliminate CSO events into Newport Harbor to the extent feasible and evaluate the impact of stormwater discharges on receiving water quality. The City needs to begin an *Enterococci* water testing program at Van Zandt Pier and other locations in Newport Harbor, and at control locations within Narragansett Bay adjacent to the harbor to provide a baseline for water quality conditions in the harbor.

Easton's Beach

- *Finding:* Water quality impairment of Easton's Beach from enteric bacteria has led to frequent beach closures for public health risk. The contamination of the beach is primarily due to stormwater discharge from the stream flowing under the Memorial Boulevard Bridge, stormwater outfalls on the Esplanade and secondarily from direct runoff from beach parking lots. Beach closures are related to discharge of bacteria from stormwater systems and overflow from the Wave Avenue Sanitary Sewer pump station. These discharges occur most frequently during and after rain storms. Studies conducted of each source have concluded that human sources of bacteria are confined to the sewage overflows from the Wave Avenue Sanitary Sewer pump station and these only occur during the largest storm events (> 2" rain in 12 hours). Bacteria from wildlife and pets persist in stormwater systems and drainage areas and discharge onto the beach during and after rain storms. No short term solutions have been identified and trial efforts to collect more information will be conducted this summer. Long term solutions will require substantial capital (>\$5 million) and a collaborative engagement of the City of Newport and the Town of Middletown including cost sharing, joint planning and management, and long term operation and maintenance agreements.

- *Finding:* Easton's Beach is tested 8 times per month by the Rhode Island Department of Health (RIDOH). Additional testing is performed by the City of Newport conditional on local rainfall events. Over the past 5 years there has been more than one beach closure event per swimming season: 2002-1; 2003-3; 2004-16; 2005-11; 2006-23; 2007-1 (RIDOH Website).
- *Finding:* Non-Summer month water testing performed by Clean Ocean Access (October 10th 2006 to May 25th 2007) indicated that 33% of the days sampled during this time period had *Enterococci* bacteria levels greater than the state acceptable limit. Although bacteria levels were greatest during or immediately following rain events, several occurrences of high pollution levels 2-4 days after a rain event, as well as high pollution levels without rain events were recorded during this time period.

Water Quality and Easton's Beach Closures: The problem.

- *Finding:* Four primary systems have been identified as sources of enteric bacteria (Enterococci) discharge to the Easton's Beach receiving waters. Sanitary Sewer Overflows (SSOs) from the Wave Avenue Pump Station; stormwater discharge from outfalls along the Esplanade in Middletown; stormwater discharge from the "DOT" outfall north of the Memorial Blvd. Bridge; and, stormwater discharge from the moat surrounding the public water supply of Easton's Pond. An additional source is direct runoff from beach parking areas which become contaminated by food and bird and animal droppings. All of these sources are affected by rainstorms and the water quality on the beach is invariably impaired after rain events. However, all of these sources appear to contain certain levels of enteric bacteria during dry weather and at times can produce beach closures without rain events. In order to ensure minimization of beach closures from water quality impairment, the City of Newport must coordinate efforts with the Town of Middletown as three of the four sources are in the Town.
1. The Wave Avenue Pump Station receives sewage from Middletown residences and businesses and pumps the wastewater under pressure into a "force main" that conveys the wastewater to the Newport sewer system, via the Thames Street interceptor sewer, for processing at the Newport Wastewater Treatment Plant. The force main was replaced this winter under orders from RIDEM. When rainwater enters the sanitary sewage system (through downspouts, yard drains, sump pumps, leaking pipes and manholes) the volume can increase beyond the capacity of the pump station to deliver the wastewater to the interceptor. When the capacity is exceeded, SSOs occur directly to the stream north of the DOT outfall and the Memorial Blvd. Bridge. Middletown is under order from the RIDEM to make further upgrades to the pump station and has an ongoing program to reduce stormwater inflow and infiltration into the system. However, high flows and resultant discharges continue to occur during heavy storms despite these efforts to date.
 2. Two stormwater outfalls are located along the Esplanade and drain the watersheds of Easton's Point. These outfalls have been sampled as part of the COA fall and winter water quality program and consistently had elevated levels of enteric bacteria (particularly the northern outfall nearest the beach). Middletown has investigated the source of the bacteria and concluded that there is no evidence of human sources and no obvious single source, however, impact from wildlife activity is suspect. Middletown has contracted with Woods Hole Group to investigate the feasibility of extending these

outfalls into Easton's Bay some distance offshore to mix with ocean water and minimize beach closures.

3. The "DOT" outfall has contributed significant volumes of stormwater to the stream and has been measured with elevated concentrations of bacteria as well as surfactants typically associated with sanitary sewage. RIDEM suspects that there may be illegal connections to this stormwater system and is investigating.
4. The "moat" is an emergency spillway for the public water supply reservoirs that also receives stormwater from at least ten outfalls that drain the neighborhoods surrounding the pond. The moat also receives water from groundwater discharge and possibly leaks through the earthen dam. As a result the moat has some level of flow year-round even during dry weather periods and has insufficient hydraulic capacity to handle a 2 year storm event (3.4" in 24 hours), which is the size storm at which street and some house flooding occurs. Enteric bacteria in the moat appear to come primarily from wildlife (birds, raccoons, rodents) and pets and may well survive in the sediments to form a reservoir of bacteria sufficient to contaminate the beach during increased discharge after storms. There is no evidence of human sources of enteric bacteria directly to the moat (although SSOs to the stream could create some cross-contamination in the unlikely event that flow is reversed by tides). In its current condition, the moat is inadequate to provide either reliable flood control or stormwater management.

Water Quality and Easton's Beach Closures: Potential solutions.

- *Finding:* Stormwater management practices generally promote treatment of stormwater as close to the sources as possible. For routine urban watersheds (those without detectable contamination other than bacteria) these practices are designed to slow the flow of stormwater over the land surface and infiltrate as much as possible into the groundwater. In the watersheds around Easton's Pond, the presence of paved surfaces (streets, parking lots, playgrounds), high groundwater and clayey soils makes effective infiltration on a large scale difficult. Measures can be promoted for businesses and homeowners to detain stormwater (rain gardens, sand filters, pervious asphalt, paving blocks or grids) and some public areas could be used to increase retention of stormwater within the watershed (parks, medians). Analysis by Fuss & O'Neill concluded that these measures would not be enough to prevent flooding or adequately treat the stormwater. Stormwater can be treated through the use of detention ponds and stormwater wetlands but these techniques require large surface areas within the watershed.
- *Finding:* Direct treatment of stormwater just prior to the discharge point is usually considered a last resort, but under the circumstances may be a feasible alternative for the stream discharge onto the beach. Three of the four primary sources converge just before the stream passes under the Memorial Blvd. Bridge. Direct treatment could include chlorination, filtration or ultra-violet radiation.

Short term solutions

- *Finding:* **No effective short term (for this beach season) solutions have been identified.** Measures could be taken to minimize wildlife and pet access to the moat, the moat bottom could be cleaned and lined with gravel, cisterns could be cleaned but these measures are not likely to prevent all beach closures. With four identified potential sources of contamination, all sources need to be addressed in a comprehensive manner to

prevent future beach closures. Beach managers are taking precautionary actions to minimize seaweed in the swimming areas, restricting access to the stream and preemptively closing the beach during and just after rainstorms.

- *Finding:* Trial use of ultra-violet treatment has been proposed and will be very useful for collecting data on turbidity and effectiveness of this treatment under summer conditions.

Long term solutions

Long term solutions are related to the future of the infrastructure within the watershed of the pond and beach including the earthen dam and public water supply reservoir. The study by Fuss & O'Neill indicated that the earthen dam and spillways are in poor shape and will need reconstruction and in some areas may need to be relocated. The flood control properties of the moat are inadequate and a better hydraulic solution needs to be developed for conveying stormwater and flood water away from roads and homes.

If testing of an ultraviolet treatment system indicates that it can be scaled up to successfully treat stormwater discharge, the area near the bridge will need to be reconstructed to accommodate installation of an efficient system. If the test indicates that some pre-treatment is necessary, then further modification of the moat and possibly reservoir will be required to allow settlement of sediments from the stormwater.

The best long term solutions could be a combination of watershed management, stormwater wetland construction, detention pond construction and a small-scale UV treatment facility that incorporated all stormwater and SSO discharge in the area. This approach could require redesigning the public water supply structure to permit more efficient conveyance of stormwater, conversion of some of the storage area to detention ponds and stormwater wetlands, and collaboration with the Town of Middletown to engage in a comprehensive set of solutions for all watersheds discharging to the Bay. A major advantage of this approach is that conversion of some of the City owned land to stormwater wetlands and flood control could include habitat restoration and make portions of the project available for federal and state support of wetland protection and habitat restoration. This approach would also likely be supported by state resource agencies as it would be consistent with coastal land use policies.

Recommendations:

1. City of Newport and Town of Middletown need to work together on a permanent solution for clean water at Easton's Beach and Atlantic Beach.
 - Identifying, evaluating and implementing alternatives such as a discharge pipe for the Esplanade sources and UV treatment for the Moat are compromised without the full partnership of the City and Town in addressing this issue. The Town of Middletown should take all necessary measures to eliminate SSO events.
2. Establish a regional stormwater utility for the watersheds draining to coastal areas used for swimming, surfing, recreational boating and public water supply. Link efforts to protect the public water supply and provide flood control with stormwater management plans.
3. Develop a comprehensive regional stormwater management plan for both communities that includes watershed protection, infiltration and detention where appropriate.
4. Develop ordinances, planning and zoning guidelines, and incentives for businesses and residences to retain, reuse and recycle stormwater.

5. Promote Low Impact Renovation/Redevelopment and create model stormwater management practices for historic urban areas.
6. Convene a meeting with state and federal agencies and congressional staff to explore the feasibility and funding opportunities for alternatives for such a regional stormwater management plan.

V. Public Education and Participation

The objective is to develop public education programs and voluntary and compulsory corrective measures, to promote the public's awareness of the City's wastewater and stormwater issues and the effective and efficient use of the wastewater and stormwater system.

- *Finding:* The public demands clean waters and the end of discharge of partially treated and untreated wastewater into local receiving waters that impacts beaches and the harbor. In spite of many efforts made over the years to improve the City's wastewater and stormwater system to improve treatment and reduce CSO events and sanitary sewer overflows, the public perception is that the City is not doing enough to prevent such discharges and expects to see improvements in the short term. A voter initiated sewer moratorium was recently passed, a new force main sewer line installed on Memorial Boulevard, and an ADHOC Committee on Wastewater and Stormwater Improvements was formed. To a degree the public perception is that those events should have solved the problem of continued beach closures.

Recommendations:

1. The City should develop a comprehensive public education program aimed at increasing awareness and understanding of the City's wastewater and stormwater issues and past, present and future efforts to address them. Such a program should be carried out through available local media such as the City's website, newspaper, radio, and public forums, and public information brochures and house to house mailings.
2. An active water conservation program, or re-emphasis of any existing such program, is suggested that would encourage the use of water saving devices such as low flow toilets and shower heads, especially in hotels, B and B's and commercial buildings. In conjunction with this any appropriate revisions to existing building and plumbing codes necessary for requiring installation of low flow devices in all new or renovated dwelling units should be incorporated as soon as possible.
3. Communication and enforcement of the program to eliminate roof leaders, downspouts, yard drains and sump pumps throughout the City that are connected to the sanitary sewer system should be stepped-up as needed to expedite the reduction of the amount of storm water entering the sanitary sewer system.

- *Finding:* The City recently announced its "Green City" initiative.

Recommendation:

1. The City should incorporate wastewater and stormwater issues in its "Green City" program with the objective to raise awareness that excess water use and stormwater discharge impact the health of our local receiving waters and place a substantial strain on the City's finances to address. Use concept of "Reduce and Reuse Water".

2. Link the tourism drivers of beach, mansions, sailing and historic Newport to a plan for site development and landscaping that captures and reuses water as much as possible to sustain the quality of the local environment for those who live here as well as those who visit. Promote the innovation alongside the reverence for historical properties.
3. Work with civic groups and non-profits (Newport in Bloom, Newport Historical Society, Newport Restoration Foundation, Preservation Society, Salve Regina University) to develop and promote a Liveable Newport that eliminates harmful discharge of nutrients, waste and bacteria to coastal waters.
4. Develop links with Naval Station Newport to promote Low Impact Development in construction of naval facilities.
5. Work with Newport Schools and Salve Regina University to carry out student projects aimed at reduced water use and good stormwater management practices.

**CITY OF NEWPORT
AD HOC COMMITTEE ON WASTEWATER
AND
STORMWATER SYSTEM IMPROVEMENTS**

SEMI-ANNUAL REPORT

DECEMBER 12, 2007

The Honorable Mayor and Members
of the City Council

Please find enclosed the City of Newport Ad Hoc Committee on Wastewater and Stormwater System Improvements Semi-Annual Report dated December 2007.

In accordance with the Resolution passed by the City Council creating the Committee, the Committee's focus continues to be on "issues related to Combined Sewage Overflow (CSO) problems, and system issues that impact the utility and viability of the City's beaches." Additionally, Resolution No. 2007-131 passed at the October 10, 2007 meeting of the Council calls for the Committee to study the current regional wastewater system and alternatives for organization and operation, including restricting service to the City of Newport.

Committee members stand ready to respond to questions or provide additional information relating to the Report as required.

Respectfully,

**AD HOC COMMITTEE ON WASTEWATER AND
STORMWATER SYSTEM IMPROVEMENTS**

Enclosure

**CITY OF NEWPORT
AD HOC COMMITTEE ON WASTEWATER
AND
STORMWATER SYSTEM IMPROVEMENTS**

**SEMI-ANNUAL REPORT
TO THE
CITY COUNCIL**

DECEMBER 2007

Introduction

The Ad Hoc Committee on Wastewater and Stormwater System Improvements (the "Committee") was appointed by the City Council in January 2007 with the following mission statement:

- To examine, analyze, and assess the adequacy of the wastewater and stormwater system infrastructure, pertaining to condition, capacity, system design, long and short term structural and operational requirements;
- To research means of correcting deficiencies in system operations and develop recommendations for implementation and financing;
- To develop public education programs and voluntary and compulsory corrective measures, to promote the public's effective and efficient use of the City's wastewater and stormwater system; and,
- To report findings and recommendations to the City Council for consideration and adoption.

The Committee is made up of seven members appointed by the Council. The current membership is as follows:

Raymond C. Smedberg, Chairman
Dave McLaughlin, Vice Chairman
Paul Watters, Secretary
Drew Carey, Member
Martin Casey, Member
Charles Taylor, Member
Roger Wells, Member

Regular meetings are held on the first Tuesday of the month.

In accordance with the Resolution passed by the City Council creating the Committee, the Committee's focus continues to be on "issues related to Combined Sewage Overflow (CSO) problems, and system issues that impact the utility and viability of the City's beaches." Additionally, Resolution No. 2007-131 passed at the October 10, 2007 meeting of the Council calls for the Committee to study the current regional wastewater system and alternatives for organization and operation, including restricting service to the City of Newport. The following summarizes results of the Committee's activities for the reporting period. We address three specific areas:

- I. June Semi-Annual Report Follow-up with City Administration
- II. Council Request for Education Program
- III. Council Resolution No. 2007-131 Study of City's Wastewater System

I. June Semi-Annual Report Follow-up with City Administration

Meeting Minutes Summary

The City Manager, Director and Deputy Director of Utilities, and representatives from Earth Tech met with the Ad Hoc Committee, the purpose of which was originally understood to be to review the June Semi-Annual Report. The meeting originally evolved from the presentation of the 2007 mid-year report, although reviewing the report was not the focus on the meeting. Instead the City focused on two specific topics – the Agreement with Middletown, and the progress and schedule for the overall CSO program – and requested the assistance of the Committee with respect to the Middletown matter. The results of the meeting are that the Ad Hoc Committee will put as priorities for 2008 to provide input to the City of Newport for their sewage contract negotiations with the Town of Middletown, and to seek opportunity to educate and raise the public awareness with respect to the complex issues facing the regional wastewater system in order that citizens of Aquidneck Island can understand that finding solutions involves the understanding, cooperation and participation of the residents and officials from all communities that use the system.

Meeting Minutes Details

The City Manager discussed at some length the existing contract with the Town of the Middletown, including the history of the contract, attempts to negotiate a new contract, and the current status and outlook for achieving a viable contract. Additionally, discussion of the impact of Middletown on Newport's system provided a logical integration point into a detailed review of the history, current activities and progress, and future plans and schedules for the long term CSO control plan. The City provided a table summarizing the major activities, progress and schedules associated with the CSO program, which responded to some degree to the Committee's call for a "tracking document" to aid in the understanding of the complex program. The Committee noted that the CSO program has a number phases, with each phase having numerous parts,

which adds to the difficulty of understanding and monitoring the overall program. The outcome of this discussion was that Newport continues to take proactive measures to address its CSO issue; however, due to the nature of the issue these efforts do not necessarily provide the certainty of expected outcome. And, the lack of coordinated effort with the Town of Middletown increases the uncertainty of the final outcome. It was noted that from RIDEM's and EPA's regulatory point of view, Newport holds the RIPDES Permit and is the sole responsible agency for the regional treatment facility. As a result, if the Newport wastewater facility violates the conditions of its permit the only community that will be subject to potential enforcement action is Newport, even though the Town of Middletown and Navy (indirectly Portsmouth) might be contributing in a quantitative way to the problem. The importance of open communication and close coordination with respect to the operation, planning and management of the regional system was noted.

Action Items

The Ad Hoc Committee will provide input to the City of Newport for their sewage contract negotiations with the Town of Middletown. And, the Ad Hoc Committee will seek opportunity to educate and inform the general population with the goal of providing a simple understanding of a rather complex system in order that citizens of both communities can better understand the wastewater issues that face our island, and that finding solutions inevitably requires that we all work together and make the correct decisions to achieve the best solution for all.

II. Council Request for Education Program

The Council requested that the Ad Hoc Committee explore approaches to provide public outreach and education about stormwater and wastewater issues in the City. Specifically, the Council indicated that it would be helpful to provide information that would encourage citizens to do their part in reducing stormwater inflow to the wastewater system through compliance with Public Works efforts to disconnect roof leaders, yard drains and sump pumps from the sanitary sewer. The Ad Hoc Committee convened a meeting on November 6 and invited Lorraine Joubert, Director of the URI Nonpoint Education for Municipal Officials Cooperative Extension Program. Ms. Joubert reviewed activities of other towns and cities with stormwater protection, residential pollution reduction and private disconnects.

Ms. Joubert emphasized that for a program to be successful you must go beyond education and include incentives and enforcement in order to change behavior. She described several examples of excellent education programs that failed to have long term success. She recommended that Newport identify a hook such as the water quality of the beaches and harbor and the importance of tourism in the local economy to explain the importance of reducing stormwater inflow. Engage local businesses, Chamber of Commerce and investigate incentives, funding and support for the program. Consider developing onsite demonstration projects that can be publicized. Look for problem sites

for disconnects (Historic Hill, low areas, high density); demonstrate alternatives and publicize case studies. She recommended that we look at a program conducted by Cambridge, MA to resolve similar problems. She also suggested that we contact Chicopee, MA for information on developing stormwater utilities.

III. Council Resolution No. 2007-131 Study of City's Wastewater System

Resolution No. 2007-131 calls for the Committee to "examine the current organization, management and operation of the regional wastewater utility, analyzing the various options for providing safe, reliable and efficient service to the City of Newport and its wastewater system customers." And, "said analysis shall consider the redesign and reduction in scope of the wastewater system infrastructure and management to restrict services to the City of Newport." The scope of the wastewater system is key to the overall examination of the regional wastewater utility. Accordingly, the Committee's initial focus is on the issue of restricting service to the City of Newport (the "separation" issue). Furthermore, due to the nature and function of Naval Station Newport and its relatively limited impact on the regional wastewater system the analysis focuses on Newport and Middletown.

In looking into the separation issue the Committee relied principally on discussions with the Rhode Island Department of Environmental Management (RIDEM), along with information contained in articles on the subject that appeared in the October 11 and October 20-21 editions of the Newport Daily News. Following are three critical questions relative to separation that were the focus of the analysis, along with the findings:

Question: What is the feasibility of separating the regional wastewater system as proposed from both an engineering and regulatory viewpoint?

Finding: From an engineering viewpoint it would be relatively straight forward for Newport to separate its infrastructure and system from the regional system. However, the options for Middletown to effect such separation would involve a major undertaking. And, the options are limited due to significant pumping requirements and ability to locate an outfall (discharge) pipe from any new treatment plant.

The most likely alternative for treating its wastewater would be for the town to build its own treatment plant, the cost of which has been estimated to be on the order of \$30-\$40 million. Finding a suitable site for such a plant would be extremely difficult due principally to requirements associated with the location of the discharge pipe and the quality of the waters receiving that discharge, and protection of those receiving waters. As result of ground contours and elevations the overall majority of Middletown's wastewater flows by gravity to the southeastern section of the town (Wave Avenue). Typically, this would be the optimum location to site such a plant. However, this is a highly sensitive area with respect to receiving water quality and beach activities. The RIDEM has indicated that based on existing water quality classifications of coastal

waters the only area a Middletown plant could discharge into would be the area from Coddington Cove in Middletown to Fort Adams State Park in Newport. Newport's plant discharges into this same area. Furthermore, this would essentially require Middletown to reverse flow in its wastewater system away from its current terminus in the southeastern section to the western section of town. Thus, for Middletown to effect such separation would involve a difficult, costly and lengthy undertaking.

From a regulatory viewpoint such a separation of Middletown from the regional system is conceptually possible; however, the associated permitting and approval processes would be extremely difficult. RIDEM indicated that such a separation would most likely be found to be an unreasonable concept from both an engineering and economic viewpoint. Typically, such a proposed plan would have to clear such regulatory hurdles as demonstrating environmental benefit, have a compelling purpose, or have no reasonably feasible alternative (RIDEM has indicated such alternative exists – the current regional arrangement). Accordingly, it is highly unlikely such a plan for separation of Middletown from the regional system would receive regulatory approval.

Question: Assuming separation was feasible, what state/federal funding might be available for the municipalities to effect such separation?

Finding: RIDEM indicated that any funding available for a project such as that necessary to effect separation of Middletown from the regional system would come from the State Revolving Fund (SRF). Generally, allocation of these funds is on a priority basis depending on the relative benefit a project has toward furthering water pollution abatement. RIDEM indicated that such a separation project would have questionable benefit toward furthering water pollution abatement, and it is highly unlikely any party involved in such a separation project would be eligible for SRF funds. Furthermore, such a proposed separation would have to have some basis in wastewater system Facilities Plans for Newport and Middletown as required and approved by RIDEM to be eligible for SRF funds. RIDEM indicated it probably could not approve such plans. It is highly unlikely there would be any state/federal funding available for the municipalities to effect such separation. It should be noted that bonus points are given to regional wastewater projects in determining eligibility and allocation of available SRF funds.

Question: Are there requirements, conditions or provisions in the federal or state grant/loan agreements associated with funding the construction of the existing regional plant, which was designed to treat wastewater from Newport, Middletown and the Navy, that would require the facility to continue to treat wastewater from those sources?

Finding: RIDEM indicated they had not looked into this issue in any depth. However, they were under the general understanding that Newport would have an obligation to operate the plant as a regional facility in accordance with its original design concept through the term of the useful life of the funded project. RIDEM further indicated the Environmental Protection Agency (EPA) assigns a useful life of 20-years to

improvement projects to such a facility from their date of initiation of operations. RIDEM did provide some information on the grants associated with construction of the secondary treatment improvements, indicating their date of initiation of operations to be August 1991. Accordingly, Newport could be obligated to continue accepting and treating wastewater from Middletown and the Navy for a 20-year period ending August 2011. If deemed necessary, further research of this issue should be conducted with RIDEM and EPA.

Recommendation: Based on the above findings it is the Committee's recommendation that there be no further consideration given to "the redesign and reduction in scope of the wastewater system infrastructure and management to restrict services to the City of Newport." This recommendation is further reinforced by the recognized benefits from synergism, consolidation of operations and operating efficiencies typically realized by utilities who operate on a regional basis versus those who do not. Accordingly, it is the Committee's further recommendation that efforts and resources be directed to "examining the current organization, management and operation of the regional wastewater utility, analyzing the various options for providing safe, reliable and efficient service to the City of Newport and its wastewater system customers."

City of Newport Planning Board Public Hearing
The Following Proposed Amendment to the
***Subdivision Regulations of Newport, 1995 Revision*, is to be heard at the**
Monday, September 17, 2007 Planning Board Meeting; 7 p.m. EDT
Newport City Hall

43 Broadway
Council Chambers, Second Floor

Text Can Be Reviewed at City of Newport Planning Department Main Office
between the hours of 8:30 a.m. and 4:30 p.m. EDT, 845-5451

Stormwater Control Ordinance

ADD:

Section I - General Provisions

P. Construction and/or Improvement Guarantees

7. Notwithstanding other improvement guarantees, a performance bond, in the form of a certified check, bond, letter of credit, or other acceptable form of surety satisfactory to the Finance Director may be required of the applicant for the proposed drainage system (whether or not it constitutes a public improvement) prior to initiating construction. The amount of the performance bond will be approved by the Utilities Department and be sufficient to cover 100% of the cost of the drainage system.

Section II -Design Standards.

O. Control of Storm Water Runoff

Unmitigated storm water from areas altered by development may pose public health and safety threats. Potential contaminants in storm water runoff may include suspended solids, nitrogen, phosphorus, hydrocarbons, heavy metals, pathogenic organisms (bacteria and viruses), and road salts. In order to protect the health, safety, and general welfare of the residents of Newport, as well as to protect, sustain, and enhance the surface and ground water resources of Newport, drainage and stormwater management practices shall be utilized as directed herein to reduce the impact of these pollutants and to control the flooding impact of storm water runoff.

Storm water management and erosion control measures shall apply to Minor Subdivisions exceeding 20,000 square feet in lot area, and all Major Subdivisions.

A. General Standards

1. Reduce impervious surface to the greatest extent practicable and retain as much natural undisturbed vegetation as possible.
2. Maintain natural drainage patterns wherever possible.
3. Incorporate natural elements into the drainage design (e.g. grass swales, catch basins, etc.)
4. Storm drains, catch basins, and related facilities shall be designed to adequately drain all low points along streets, prevent additional water from flowing onto adjacent properties, and intercept storm water runoff along streets..
5. The drainage system shall be designed to accommodate storm water such that post-construction conditions do not result in an increase in peak runoff rate or volume from extant preconstruction conditions.
6. Lot shall be graded consistent with drainage in the immediate area and in such a manner that development of the subject lot will not result in detrimental drainage to another lot or adjacent parcels.

All maintenance plans, stormwater design plans, and performance criteria shall conform to Rhode Island stormwater design and installation standards. To the maximum extent possible stormwater design shall utilize modern nonstructural low impact design practices and techniques.

Section IV - Administration

A. The Administrative Officer

1. Administrative Officer. Also known as the City Review Agent. The Director of Planning, Zoning, and Development, or designee, shall serve as the Administrative Officer for the purposes of these Subdivision Regulations....

2. The Administrative Officer's responsibilities shall include:
 - e. Transmitting all applications to the Planning Board, Utilities Department, and any other City officials as is necessary for proper review;

POST CONSTRUCTION STORMWATER MANAGEMENT ZONING ORDINANCE

17.96.030 Performance Standards-Erosion Control

In order to minimize adverse impacts resulting from soil erosion created by land disturbance activities, any major or minor subdivision, land development project, or other development occurring within the City of Newport involving an area, or areas, of disturbance totaling 10,000 sq ft or more must obtain approval of a Storm Water Management Plan prior to development.

Development Standards

17.100.400 - Erosion Control

17.100.410 Applicability.

(A) This ordinance shall apply to any major or minor subdivision, land development project, or other development occurring within the City of Newport involving an area or areas of disturbance which total 10,000 square feet or more. No person shall engage in such development activities without receiving approval of a Stormwater Management Plan for the development.

(B) Compatibility with other ordinance requirements. Permits and approvals issued pursuant to this ordinance shall not relieve the applicant of the responsibility to comply with or to secure other required permits or approvals for activities regulated by any other applicable code, rule, act, statute or ordinance. This ordinance shall not preclude the inclusion in such other permit of more stringent requirements concerning regulation of stormwater and erosion. Where a conflict exists between a provision within this ordinance and that of the RIDEM (Rhode Island Department of Environmental Management) Phase II NPDES regulations, as amended, the RIDEM requirements shall govern.

(C) All mitigation strategies, stormwater design, and performance criteria shall conform to Rhode Island stormwater design and installation standards as established in RIGL §45-61.2-2. Implementation. To the maximum extent possible stormwater design shall utilize modern nonstructural low impact design practices and techniques.

17.100.420 Administration.

The Public Works Director shall administer, implement, and enforce the provisions of this ordinance. Any powers granted or duties imposed upon the Public Works Director may be delegated by the Director of Public Works to persons or entities acting in the interest of or in the employ of the City of Newport. Such person, or entity, will be considered the Agent of the Public Works Director.

17.100.430 Technical Standards.

All applicants must develop and submit a proposed Storm Water Management Plan which must address storm water management for the development which meets all the requirements of this ordinance. All such storm water management shall be consistent with the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. The stormwater management plan must include a description of proposed best management practices (BMPs), detailed site plans, and a written narrative, that when implemented, provides protection of receiving waters by reducing pollutant loadings and other negative impacts associated with changes in land use as described below.

(A) Performance Standards. Storm Water Management Plans must incorporate best management practices for water quality control, which in combination are demonstrated to reduce the average annual total suspended solids in post development runoff by eighty percent (80%). Development in drinking water supply watersheds or watersheds where impaired waters as defined by the State's 303(d) list exist may be held to higher standards.

(B) Disallowed Storm Water Best Management Practices. The placement of structural BMPs and other storm water structures within a floodplain shall be avoided. If there is no alternative, the applicant must show what effects, if any, the tail waters created by the floodplain will have on the outflow and effective storage capacity of the detention facility.

(C) Facilitation of Maintenance. Facilities that require maintenance shall be designed to minimize the need for regular maintenance, facilitate required maintenance, and ensure accessibility of components that require maintenance. At a minimum, all Storm Water Management Plans must incorporate structural BMPs with appropriate maintenance design in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended.

17.100.440 Maintenance Requirements for Best Management Practices.

(A) Routine Maintenance and Repair Procedures. Preventative maintenance procedures are required to maintain the intended operation and safe condition of the structural BMPs by greatly reducing the occurrence of problems and malfunctions. To be effective, preventative maintenance shall be performed on a regular basis and include such routine procedures as training of staff, periodic inspections, grass cutting elimination of mosquito breeding habitats, and pond maintenance. Disposal of sediment and debris must occur on a regular basis (unless otherwise specified within an approved plan), at suitable disposal sites or recycling sites and comply with applicable local, state and federal regulations.

Corrective maintenance procedures are required to correct a problem or malfunction at a storm water management facility and to restore the facility's intended operation and safe condition. Based upon the severity of the problem, corrective maintenance must be performed on an as-needed or emergency basis and include such procedures as structural repairs, removal of debris, sediment and trash removal which threaten discharge capacity, erosion repair, snow and ice removal, fence repair, mosquito extermination, and restoration of vegetated and nonvegetated linings.

(B) General Maintenance Standards for Storm Water Best Management Practices.

Maintenance design and maintenance procedures for all structural BMPs shall be in accordance *Rhode Island Stormwater Design and Installation Standards Manual*, as amended; or the *Rhode Island Soil Erosion and Sediment Control Handbook*, as amended. Storm Water Management Plans shall demonstrate appropriate maintenance design and procedures for each proposed best management practice.

A maintenance schedule for each type of structural BMP must be included in the Storm Water Management Plan. These schedules shall list the frequency and type of maintenance operations necessary along with the legally responsible party's name, address, and telephone number. If the storm water drainage system is to be deeded to the local municipality the applicant must obtain a letter from the municipality acknowledging maintenance responsibility and intent of ownership.

17.100.450 Storm Water Management Plans.

(A) Narrative Description. As part of the Storm Water Management Plan, the applicant shall include a discussion of the protection of environmental resource functions and values. The following outline is provided as guidance for preparing a narrative description for the Storm Water Management Plan. Depending on the size and scope of the proposed project, the amount of information required by the permitting agency may vary, therefore, it is advised to consult the appropriate permitting agency for specific requirements.

(1) Site description – general topography, soil types, current vegetative composition and relative abundance, existing infrastructure, and/or adjacent properties, identification of major resources (e.g., wetlands, groundwater, surface waters, etc.), name of receiving water(s), potential water quality and/or hydrologic impacts on resources.

(2) Site input data – watershed characteristics, area of all impervious surfaces, total area of site, annual mean rainfall, runoff coefficients, curve numbers for various land uses, peak discharge rates.

(3) Land use planning and source control plan.

(4) Best Management Practices – identify the type of BMP(s) employed both during and post construction and justification for selection, including any deviation from the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended, and the potential effect on pollutant removal efficiency.

(5) Technical feasibility – of BMPs including sizing, location, hydraulic and environmental impacts. Alternatives, which were considered but determined not to be feasible, should also be discussed.

(6) Maintenance schedule – of BMPs to be used, both during and post construction including frequency of inspection and maintenance.

(B) Calculations. The following information must also be included with the application, where applicable.

(1) The area of each subwatershed as identified on final site plans.

(2) The area of impervious surfaces (including all roads, driveways, rooftops, sidewalks, etc.) for each subwatershed as identified in the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended.

(3) Weighted curve numbers, (CN) as determined by the SCS TR-55 method, for each subwatershed as identified in the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended.

(4) Invert elevations for all applicable structural BMPs. In addition, the elevations for permanent and/or flood pool stages, including peak discharge rates for each stage, within all stormwater basins are required.

(5) The total volume capacity for structural BMPs (e.g., infiltration basin, detention basins, wet ponds, etc.). Volumes must be segregated into permanent and flood pool stage volumes where applicable. Furthermore, the volumes of all sediment storage (basins, forebays, etc.) areas must also be shown.

(6) The water quality volume must also be calculated for each subwatershed. All relevant variables such as curve numbers and time of concentration, along with the supporting computations and worksheets must be included.

17.100.460 Maintenance Agreements.

Maintenance agreements shall provide written, contractual documentation, which demonstrates compliance with this ordinance and legal arrangements for the upkeep of the structural BMPs assure their functionality and safety in accordance with this ordinance.

Maintenance agreements, which describe all maintenance schedules and requirements, must be developed for each structural BMP unless the facility is dedicated to and accepted by the City of Newport.

(A) Recognition of Municipal Inspection Requirements. Maintenance agreements shall include a reasonable and regular schedule for the City of Newport to conduct on-site inspection of the functionality and safety of the structural BMPs. Inspection schedules shall be based on the complexity and frequency of maintenance needs and shall be subject to the approval of City of Newport. At a minimum, maintenance frequency should be in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual*, as amended.

(B) Record Keeping for Maintenance Activities. Maintenance agreements shall include provisions for maintenance record keeping. All activities conducted in accordance with a maintenance agreement must be recorded in a work order and inspection log. Timely updates of the log shall be the responsibility of the structural BMP's owner or other responsible party pursuant to this ordinance. Review of the maintenance and inspection log shall be completed by the City of Newport to determine the effectiveness of operation, maintenance and safety activities. Reviews shall occur as part of each on-site inspection. Additional reviews may be made as deemed appropriate by the City of Newport.

(C) Responsibility for Maintenance to Assure Functionality and Safety. Appropriate maintenance to assure functionality and safety of the structural BMPs shall be the responsibility the property owner or may be assumed by another party via a written contractual arrangement in accordance with this ordinance. If the City must perform corrective maintenance or make emergency repairs to any structural BMP, the City may collect liquidated damages from the property owner.

(D) Alterations to Maintenance Agreements. Any alterations in maintenance responsibility or alterations to maintenance agreements must be reviewed and approved by the Building Official. If portions of the land serviced by a structural BMP are to be sold, written contractual arrangements shall be made to pass all responsibility of the maintenance agreement to the purchaser and shall be subject to review and approval of the Building Official. All alterations to maintenance agreements shall be recorded in accordance with this ordinance.

(E) Recordation of Maintenance Agreements. All maintenance agreements and alterations to maintenance agreements shall be recorded in the land evidence records of the City of Newport. Copies of all maintenance agreements and alterations to maintenance agreements shall be included in Storm Water Management Plans. Recordation of maintenance agreements in accordance with this ordinance shall be the responsibility of the owner.

17.100.470 Application Fees.

The City shall collect a fee of fifty (50) dollars from applicants requesting approval of a soil erosion and sediment control plan for the purposes of administering this ordinance. For projects where there is a land disturbance greater than 10,000 square feet, the applicant shall pay an additional fifty (50) dollars for each additional 10,000 square feet of impacted land area. General Fee Schedule 2.120.010

17.100.480 Enforcement.

(A) Notification of Violation. Whenever there is a failure to comply with the provisions of this ordinance, the City of Newport shall have the right to notify the applicant/owner that he or she has five (5) calendar days from the receipt of the notice to temporarily correct the violations and thirty (30) calendar days from receipt of notice to permanently correct the violations.

In the event that a structural BMP becomes a danger to public safety or public health, or in need of maintenance or has not been maintained in accordance with the Maintenance Agreement, the City of Newport shall so notify the responsible person in writing by certified mail. Upon receipt of that notice, the responsible person shall have fourteen (14) calendar days to complete maintenance and repair of the structural BMP in a manner that is approved by the municipality. If the responsible person fails or refuses to perform such maintenance and repair, the municipality may immediately proceed to do so and enforce penalties and/or liens as described herein.

(B) Penalties and Liens. Should the applicant/owner fail to take the corrective actions, the City of Newport shall then have the right to take the available appropriate remedies it deems necessary to correct the violations including fining the owner pursuant to 2.48.130 of the Code of Ordinances of the City of Newport and to assert a lien on the subject property in an amount equal to the costs of remedial actions. The lien shall be enforced in the manner provided or authorized by law for the enforcement of common law liens on personal property. The lien shall be recorded in the land evidence records of the City of Newport, and shall incur legal interest from the date of recording. The imposition of any penalty shall not exempt the offender from compliance with the provisions of this ordinance, including assessment of a lien on the property.

Whenever a structural BMP is not implemented, operated, and/or maintained in accordance with the Stormwater Management Plan which has been approved in accordance with this ordinance. Any penalty invoked shall be in accordance with 2.48.130 of the Code of Ordinances of the City of Newport.