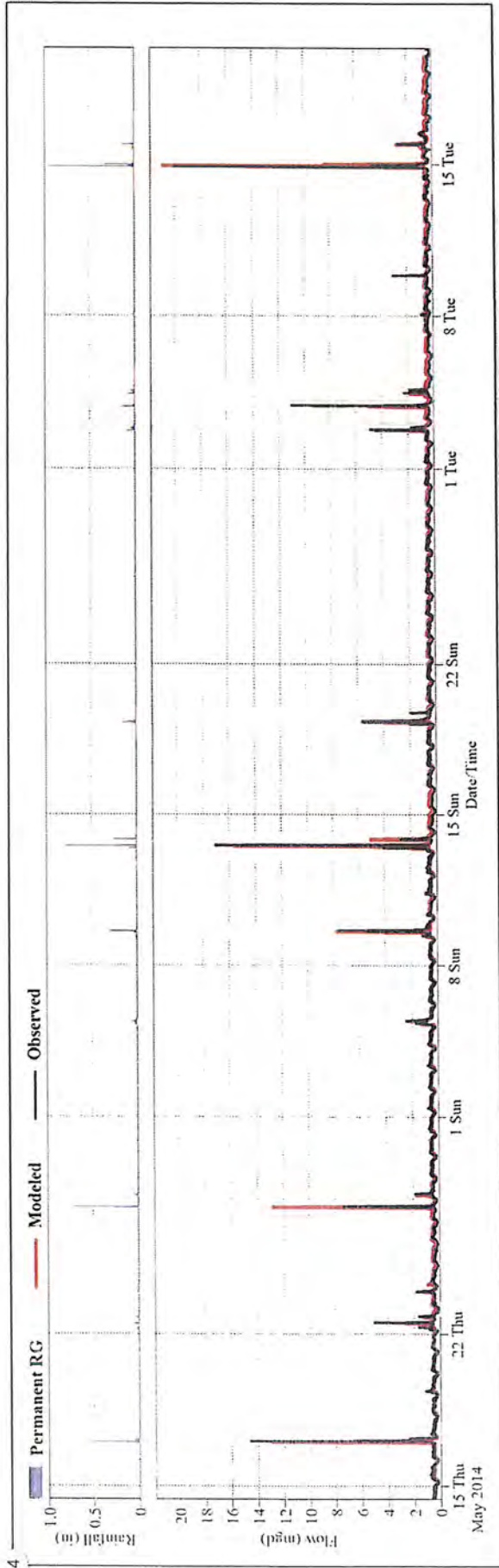
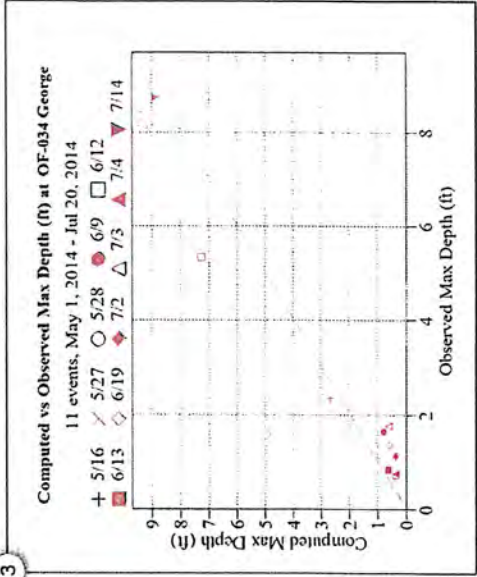
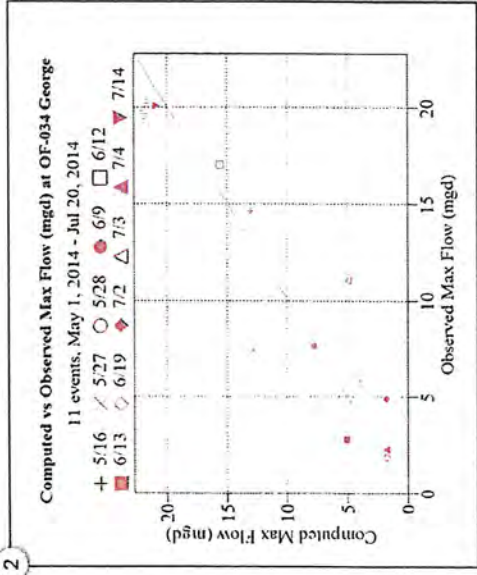
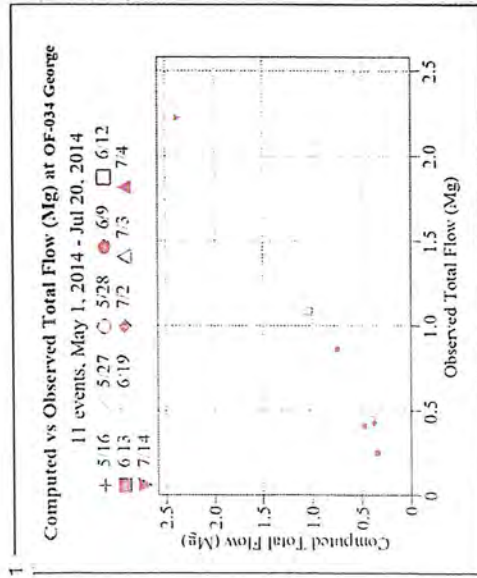


APPENDIX E
WET WEATHER CALIBRATION RESULTS
REGULATOR 034 STUDY AREA

**FLOW METER OF-034 GEORGE
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



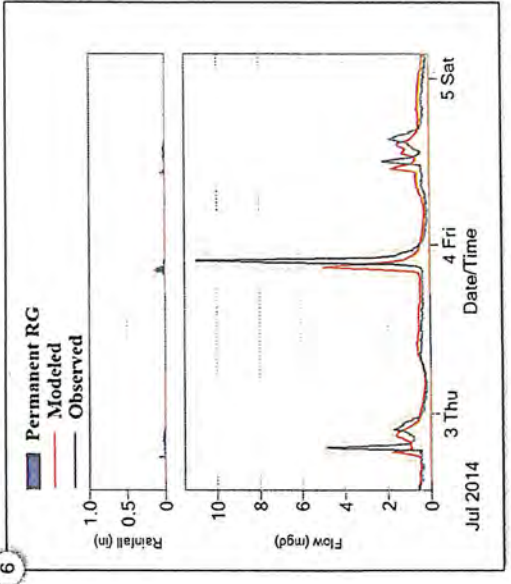
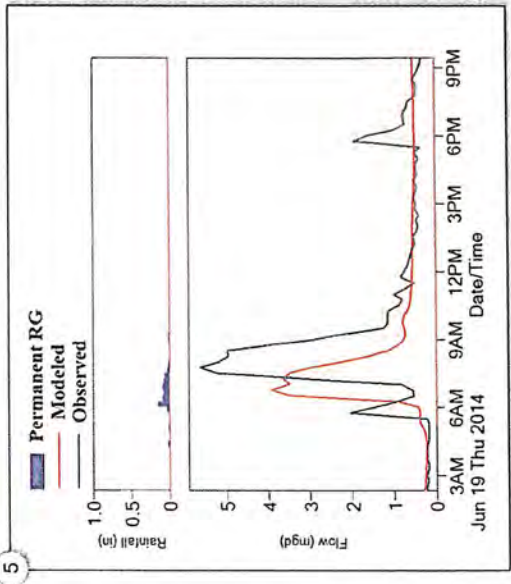
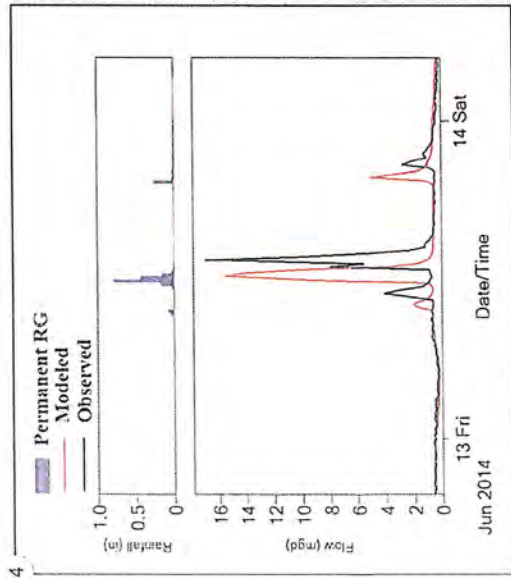
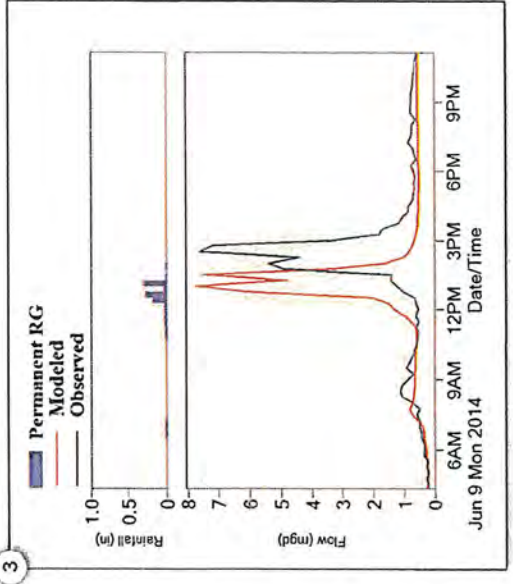
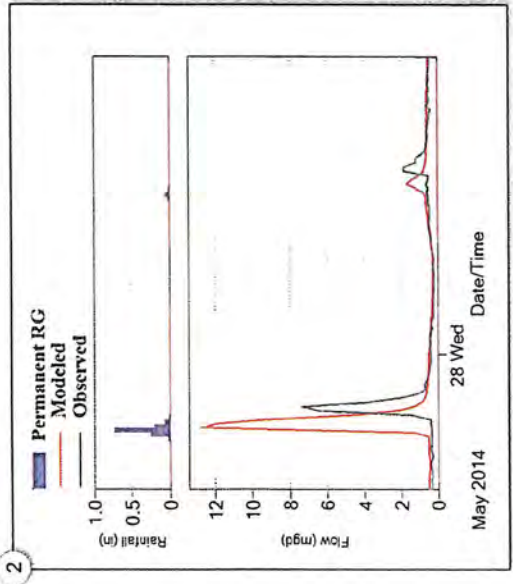
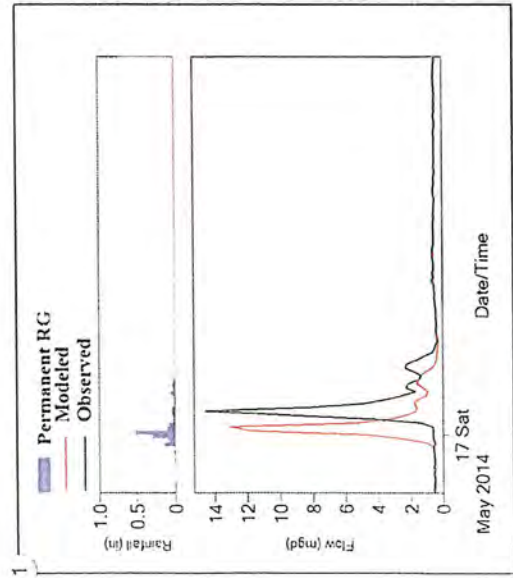
Model Calibration Results
Flow Meter: OF-034 George
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hycetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

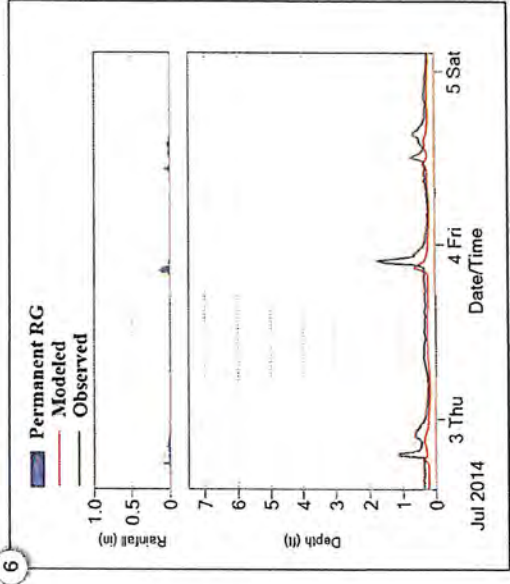
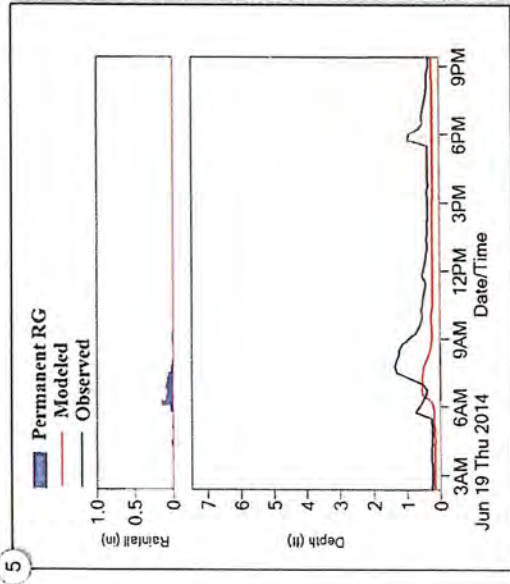
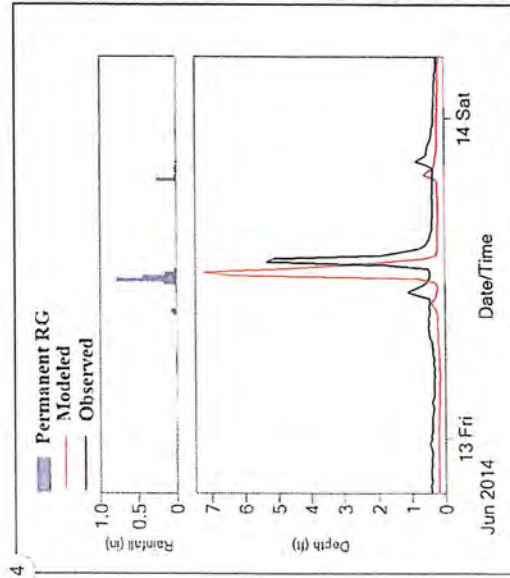
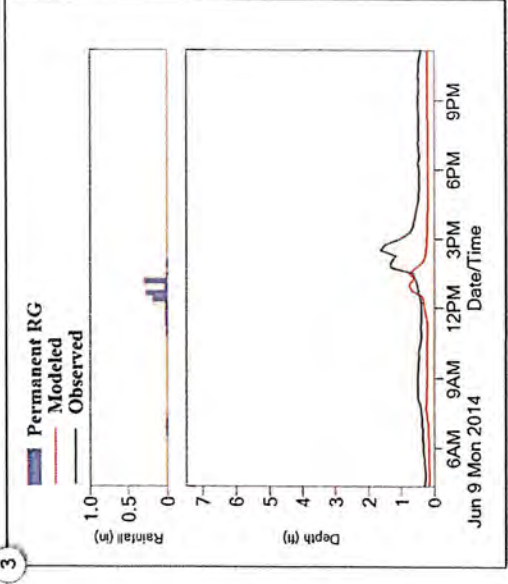
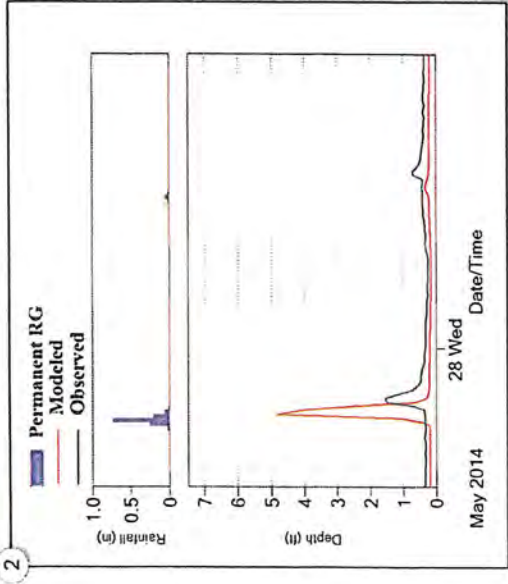
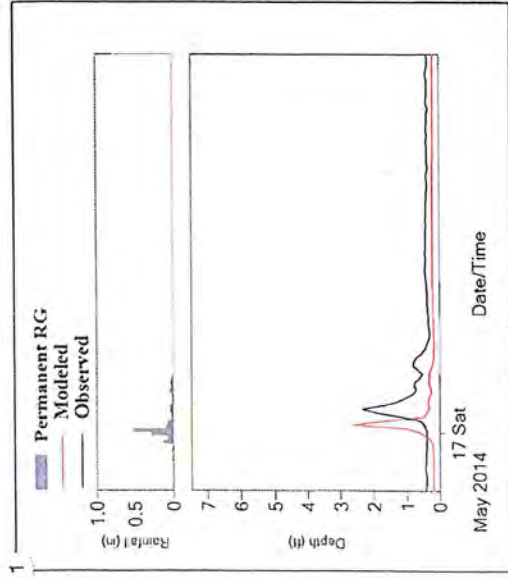
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:
 CH2MHILL



Model Calibration Results
Flow Meter: OF-034 George
 Event Comparison: Flow

- Permanent Rain Gauge Events:
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

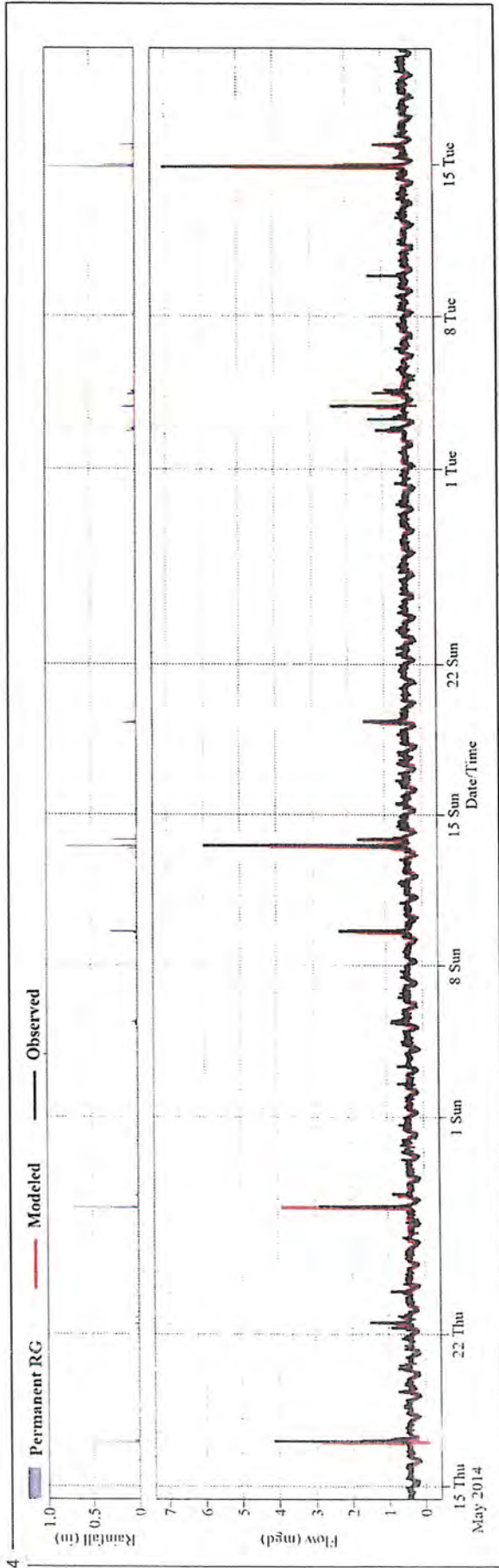
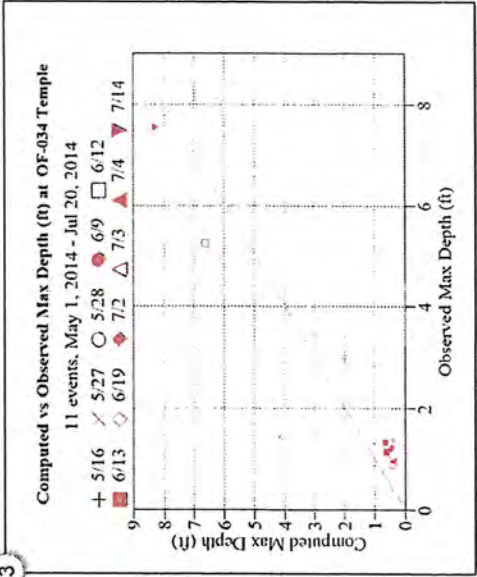
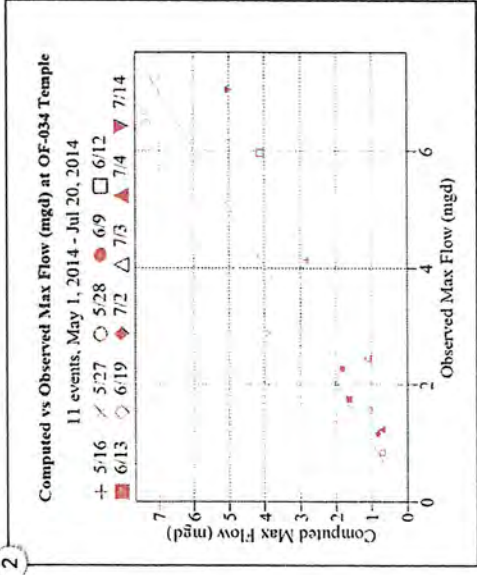
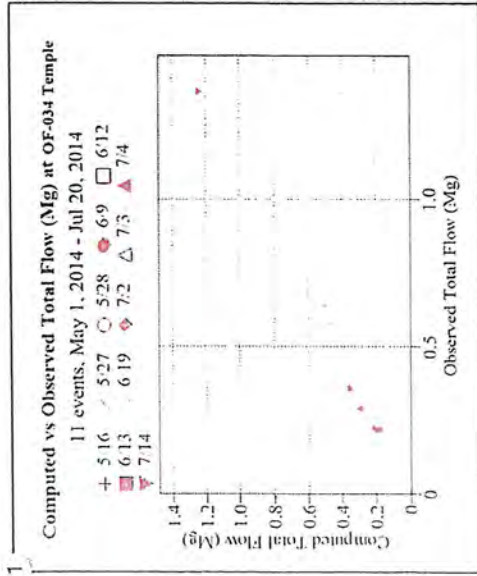


Model Calibration Results
Flow Meter: OF-034 George
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-034 TEMPLE
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



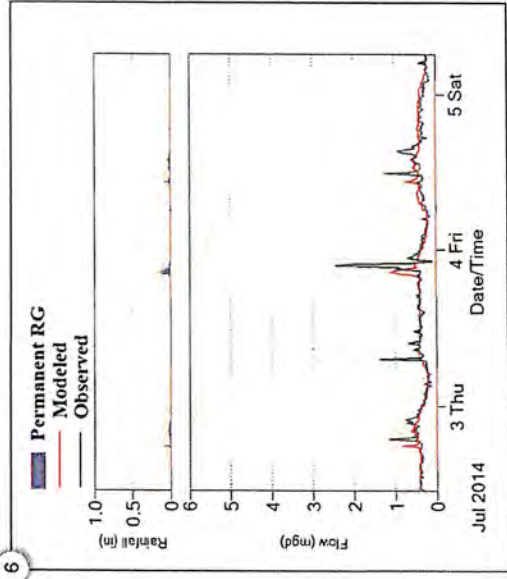
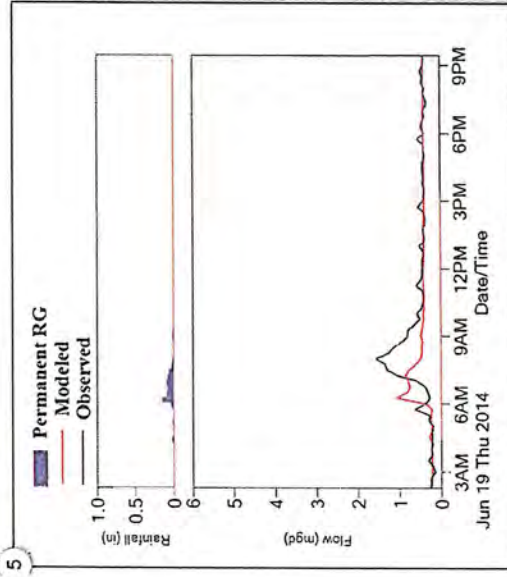
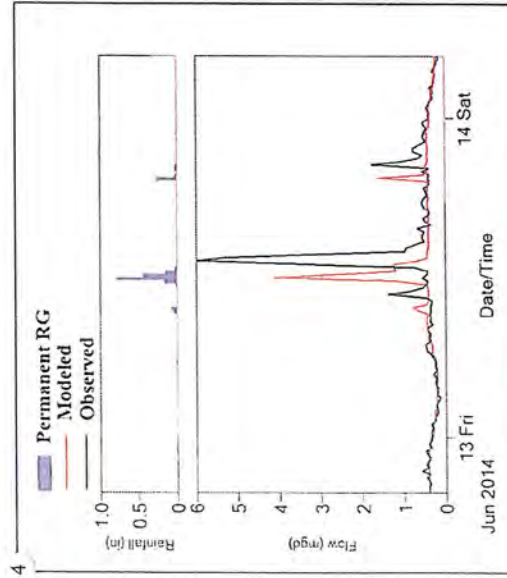
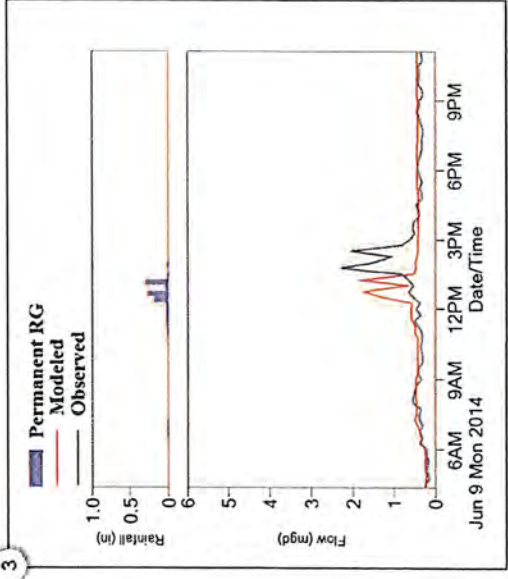
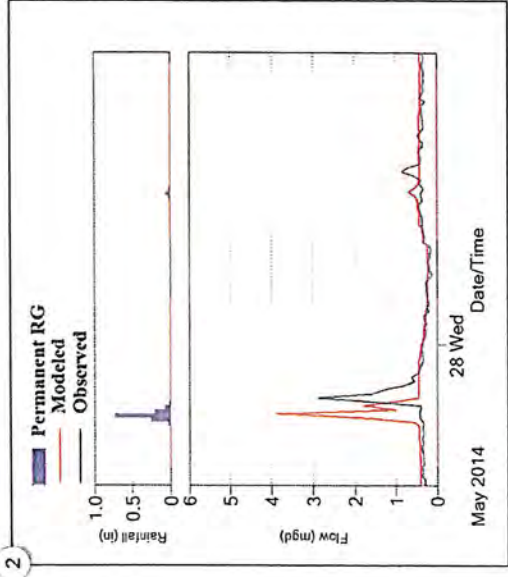
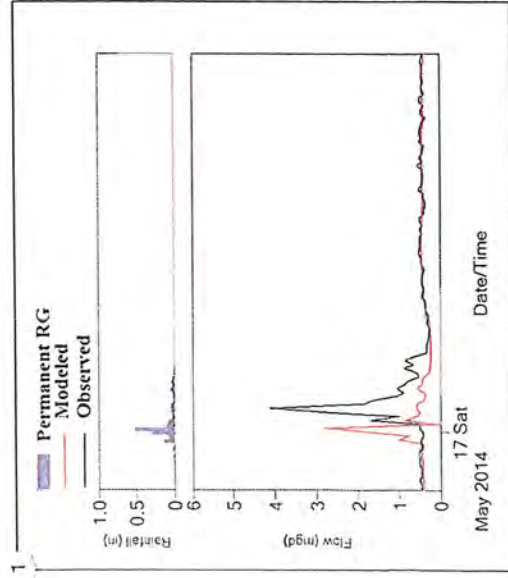
Model Calibration Results
Flow Meter: OF-034 Temple
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hystograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

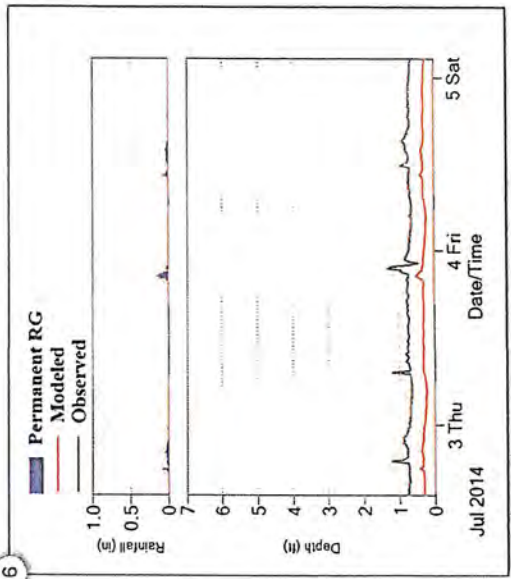
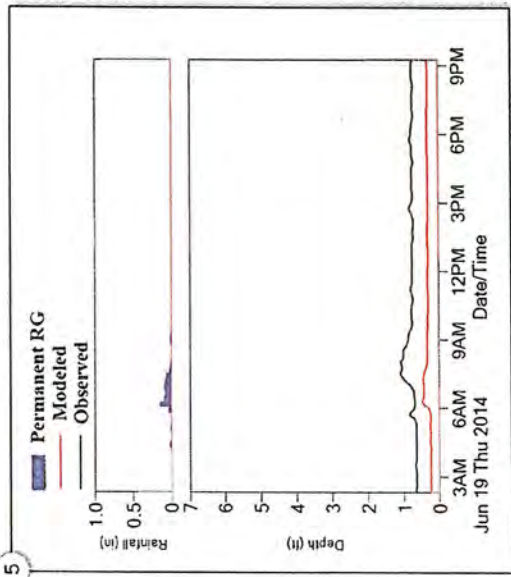
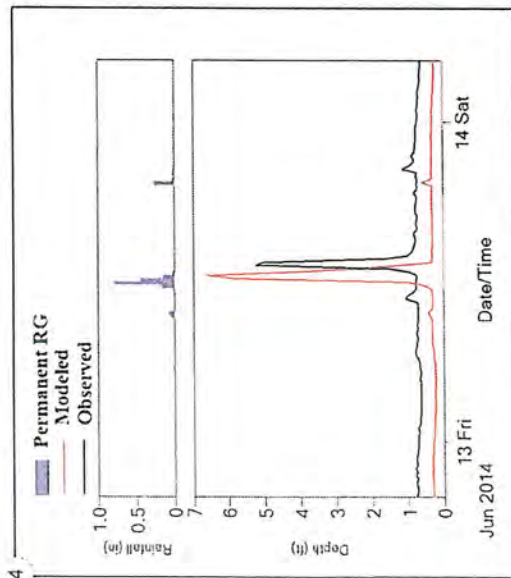
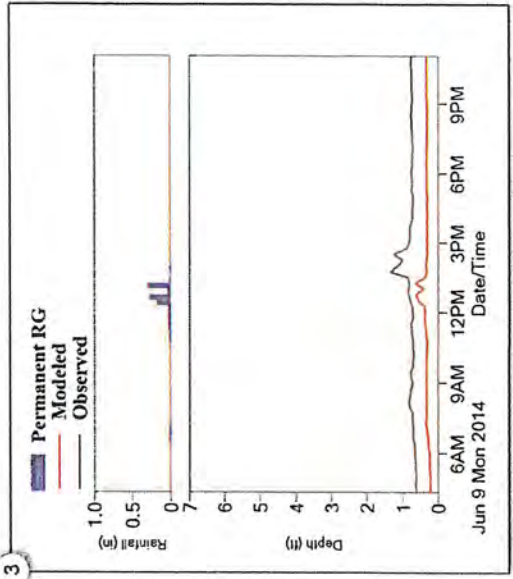
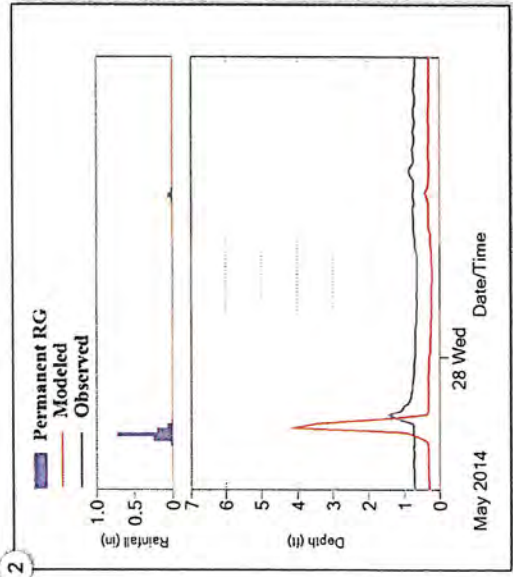
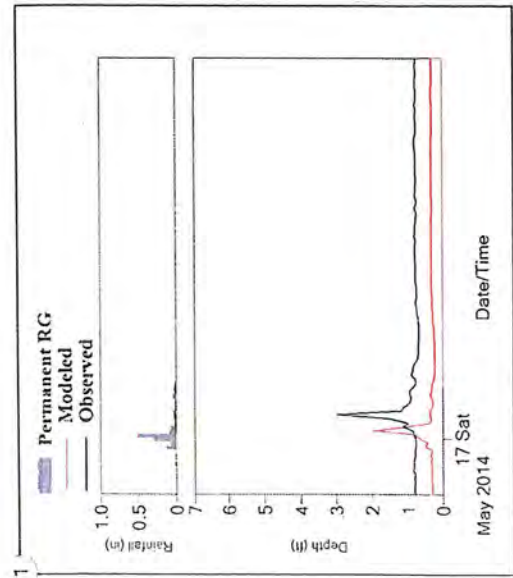
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:
 CH2MHILL



Model Calibration Results
Flow Meter: OF-034 Temple
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

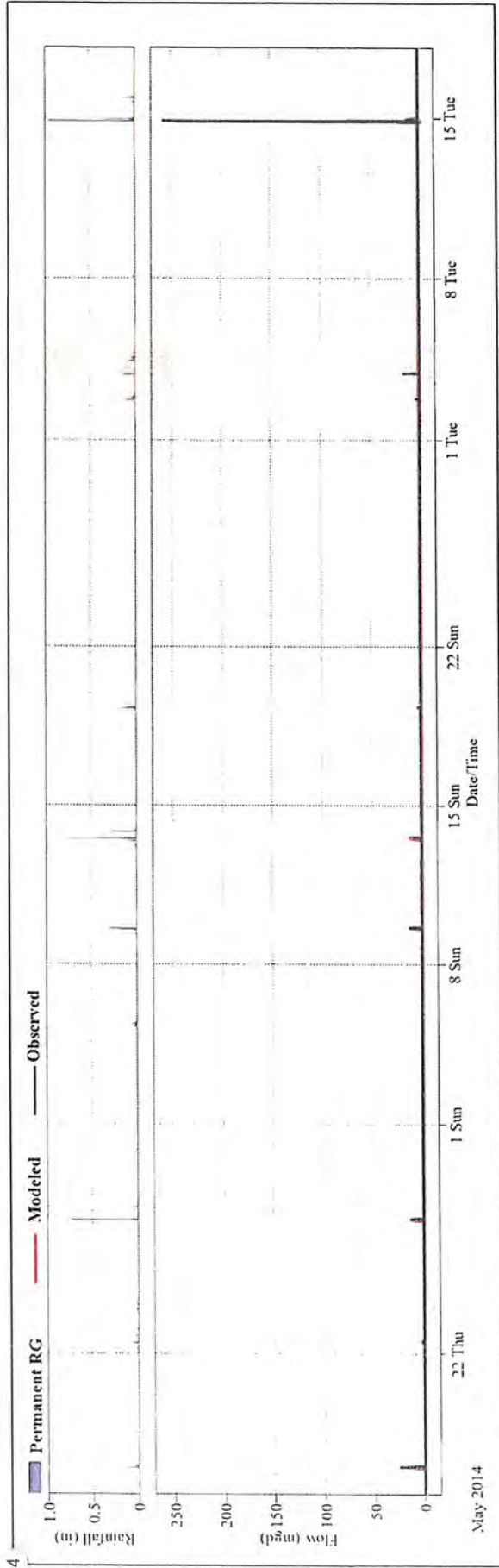
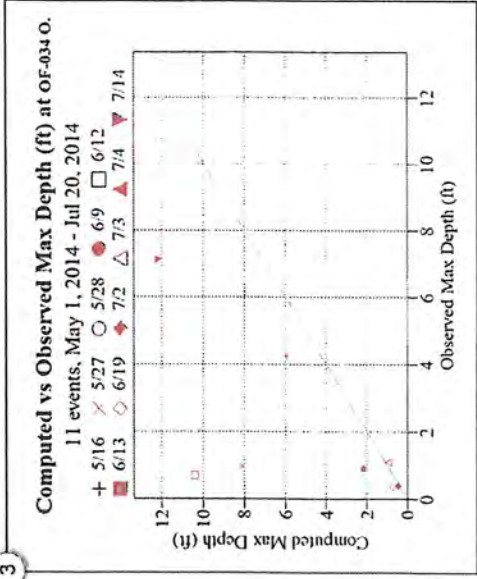
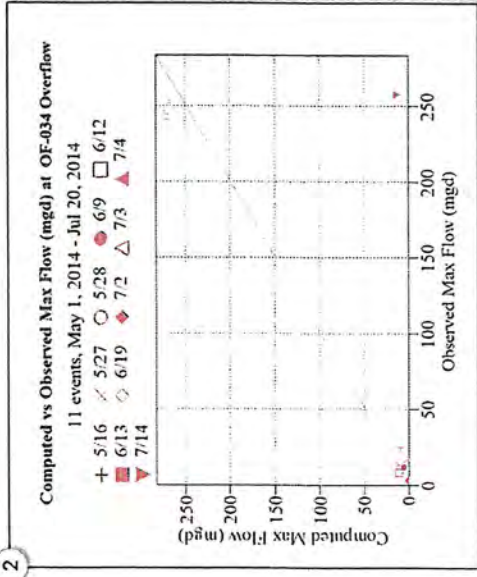
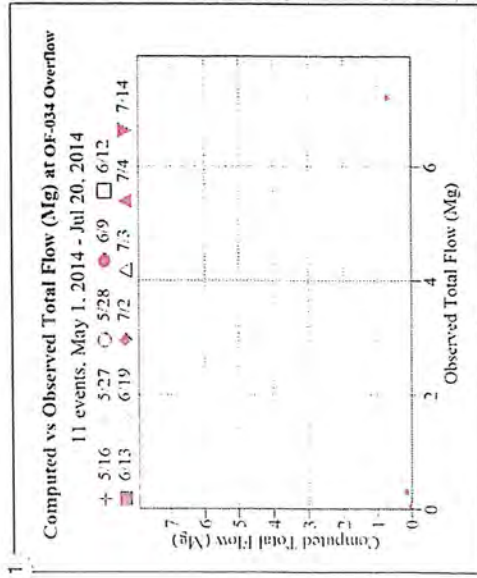


Model Calibration Results
Flow Meter: OF-034 Temple
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-034 OVERFLOW
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



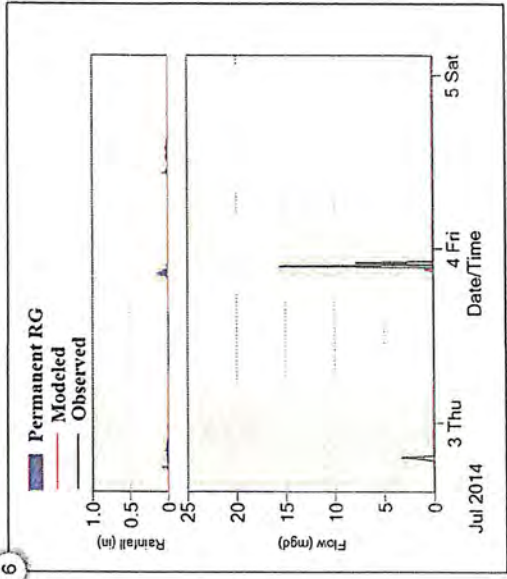
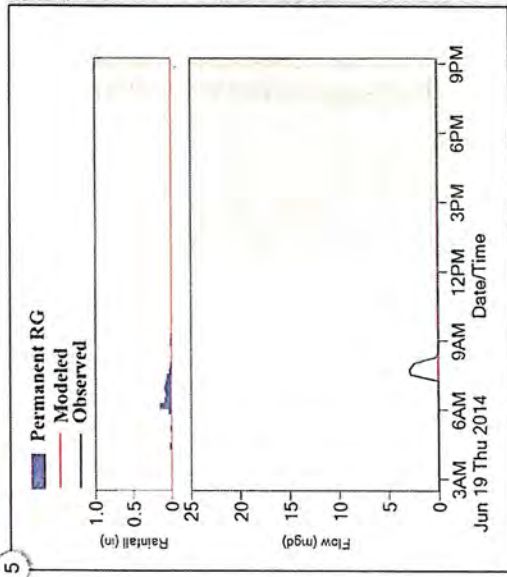
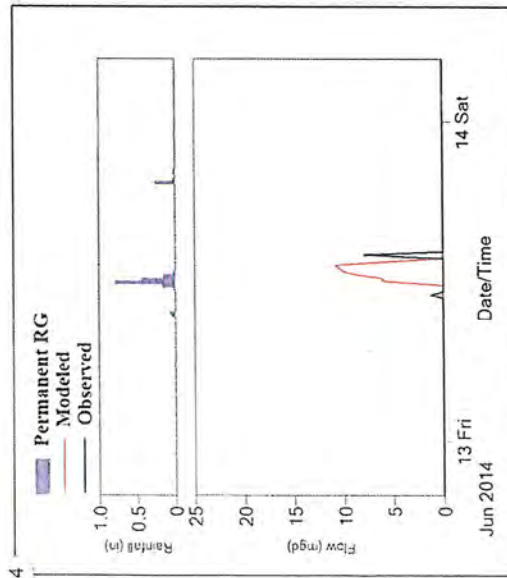
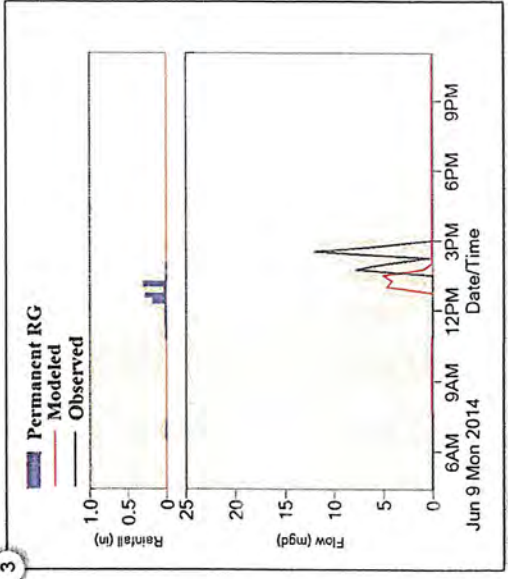
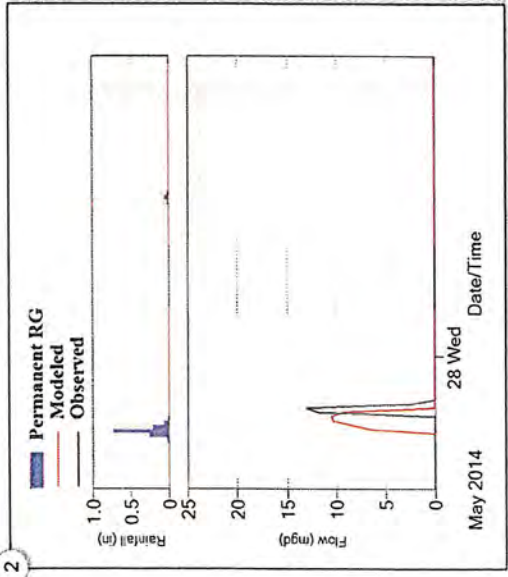
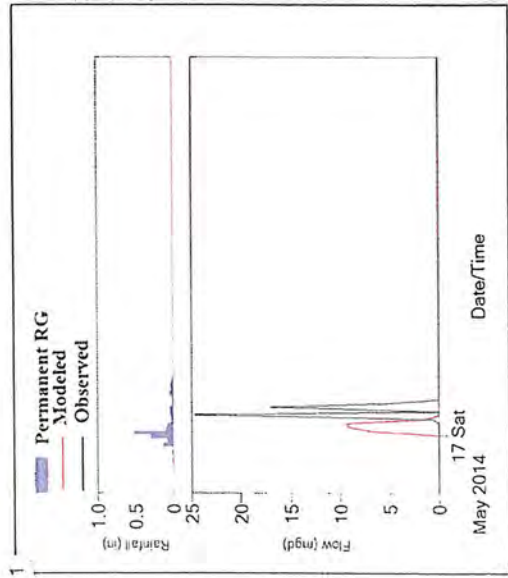
Model Calibration Results
Flow Meter: OF-034 Overflow
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

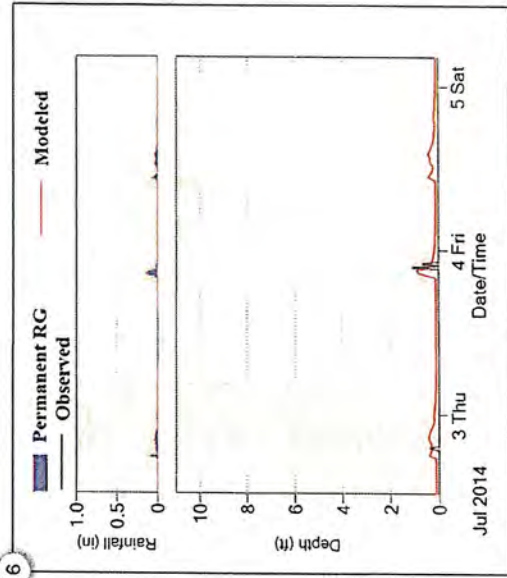
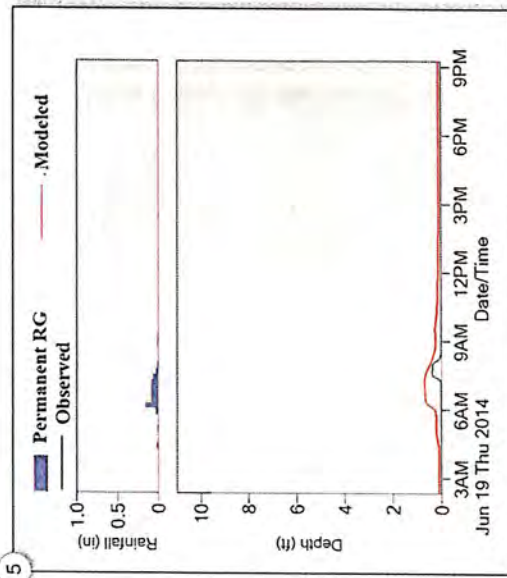
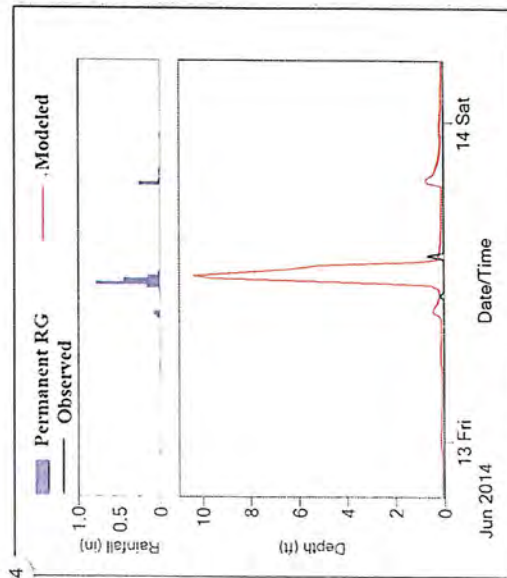
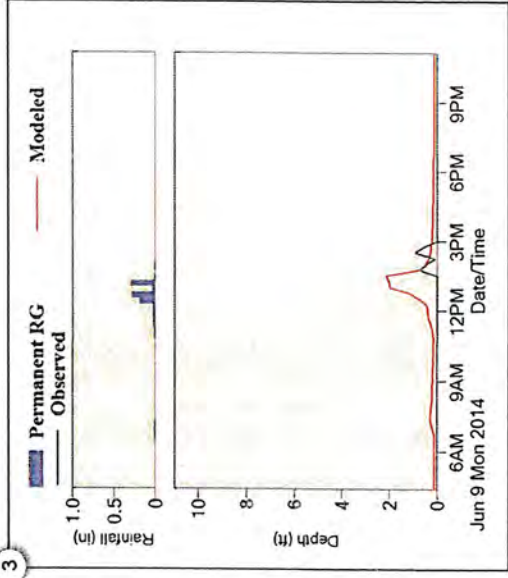
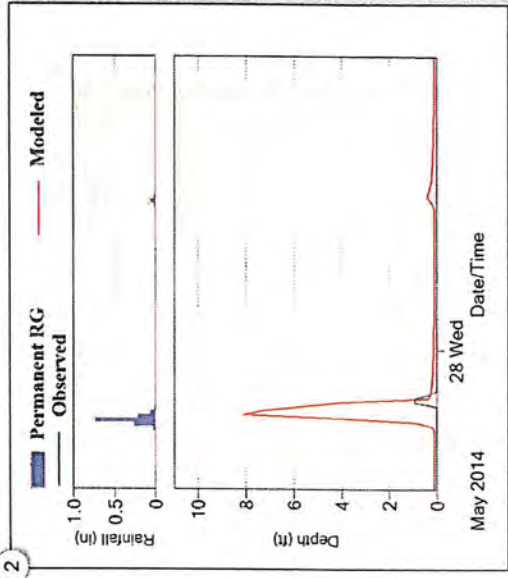
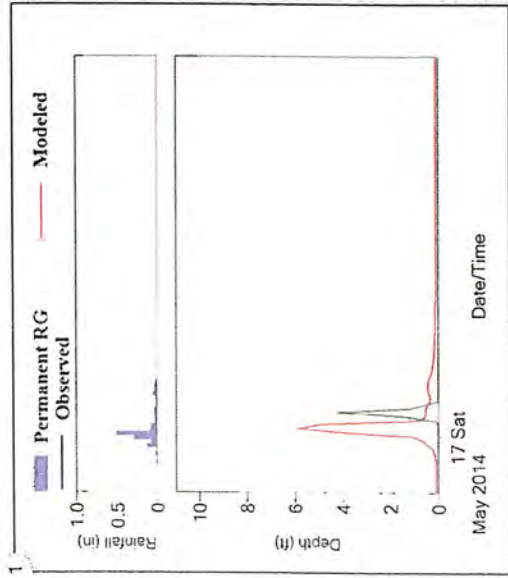
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:
 CH2NHILL



Model Calibration Results
Flow Meter: OF-034 Overflow
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

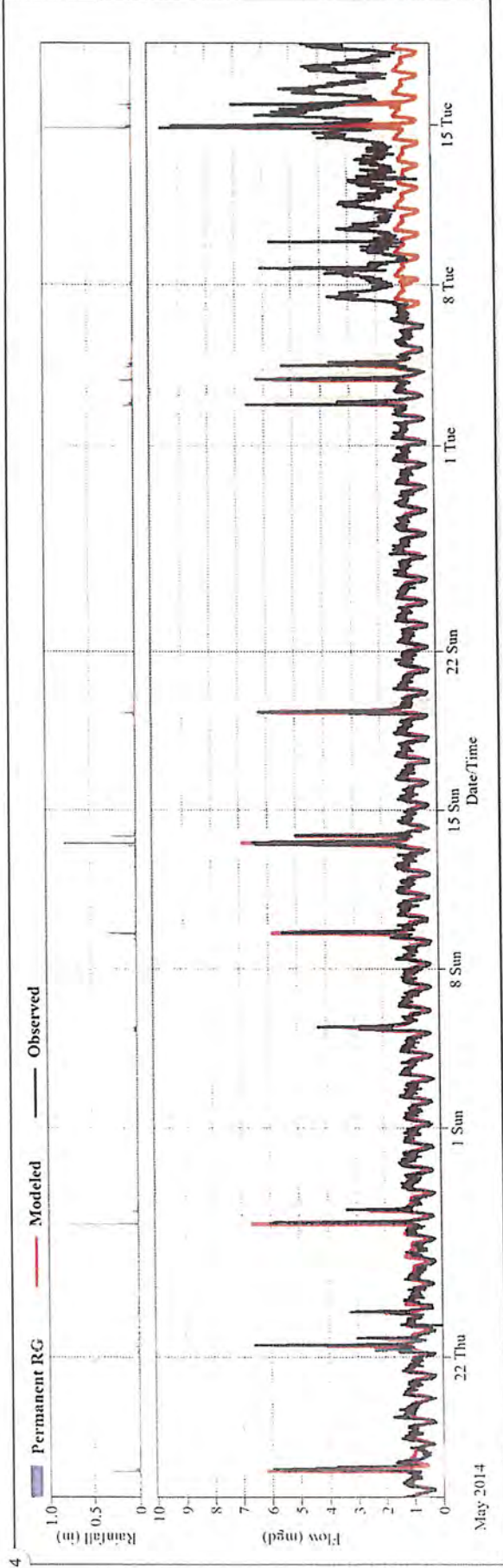
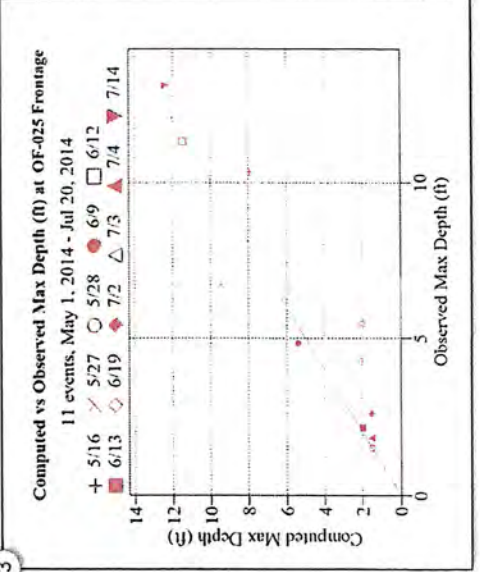
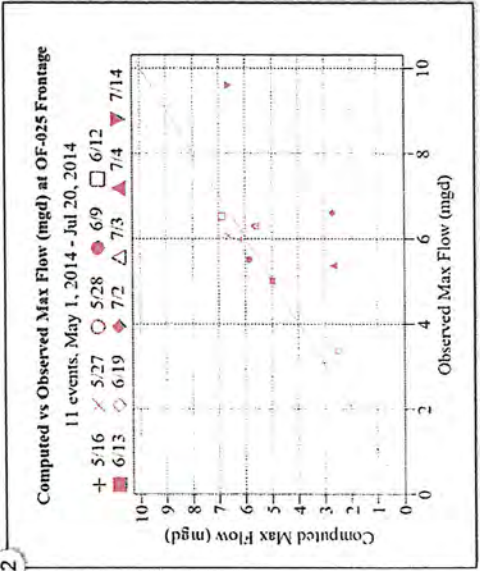
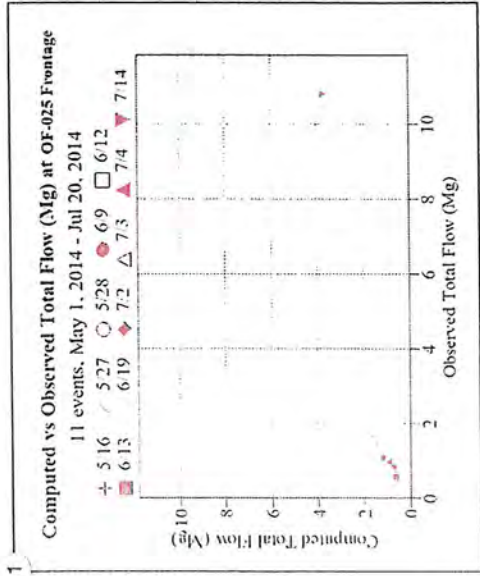


Model Calibration Results
Flow Meter: OF-034 Overflow
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- ① May 16, 2014 (1.61 in.)
 - ② May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - ③ June 9, 2014 (1.02 in.)
 - ④ June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - ⑤ June 19, 2014 (0.74 in.)
 - ⑥ July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-025 FRONTAGE
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



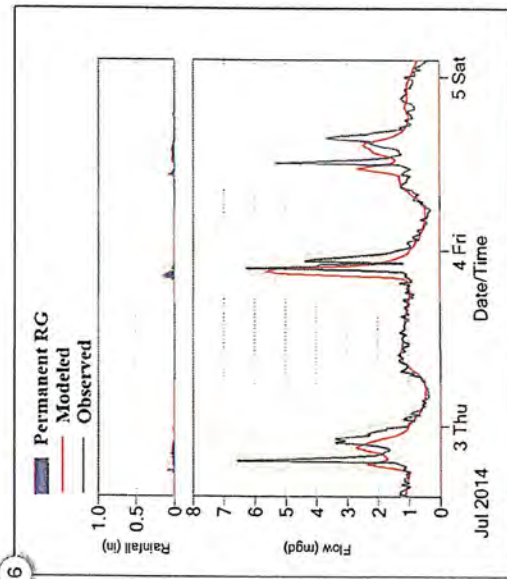
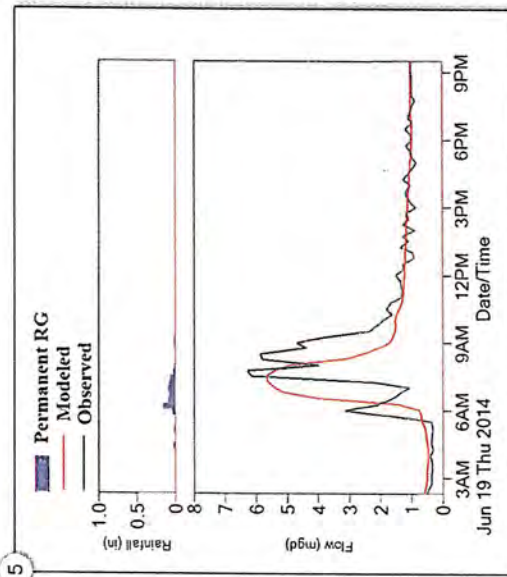
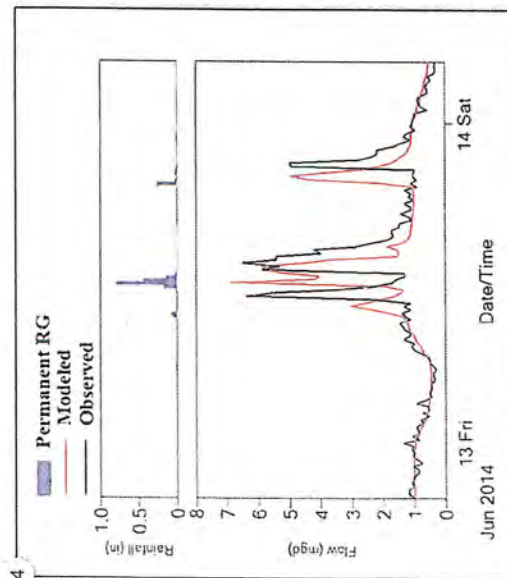
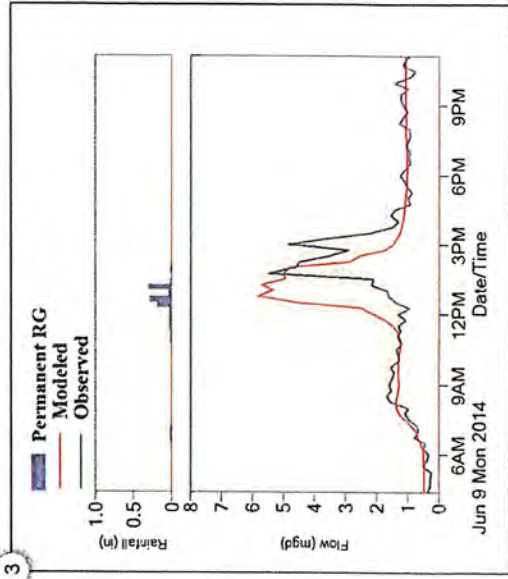
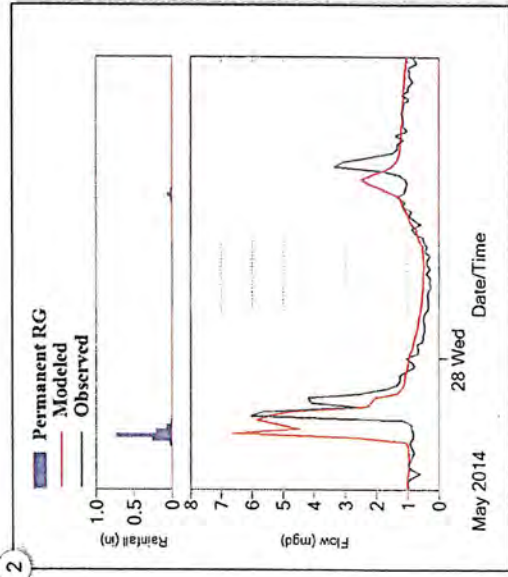
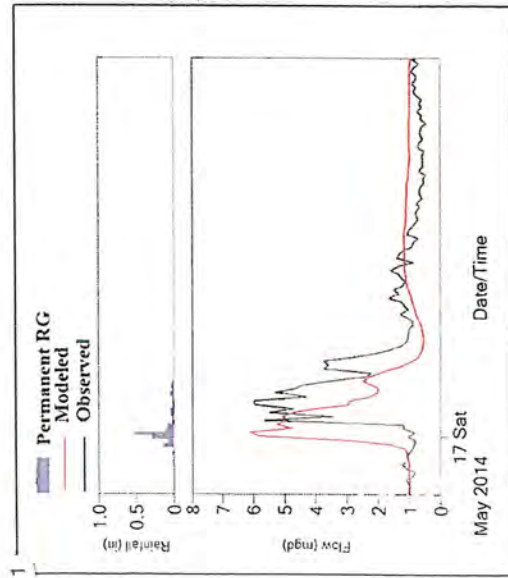
Model Calibration Results
Flow Meter: OF-25 Frontage
Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

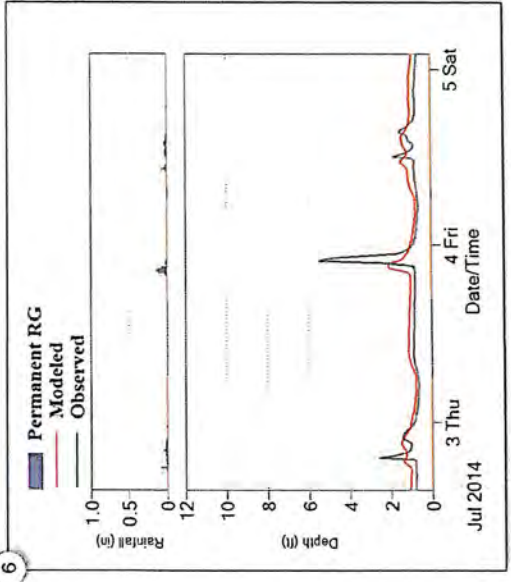
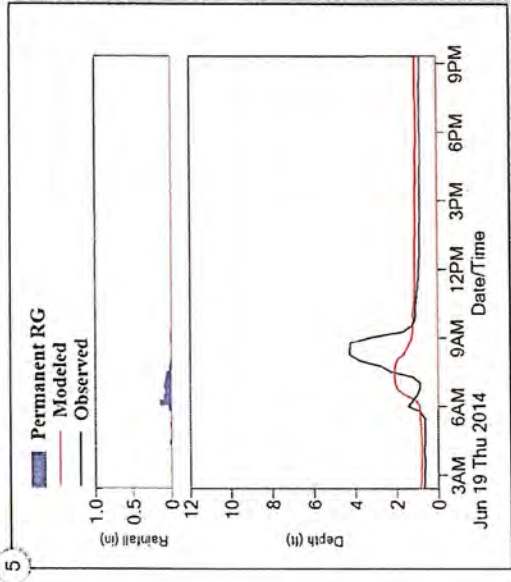
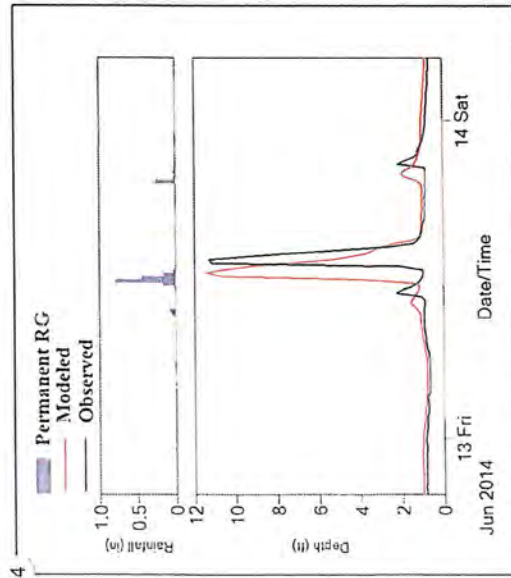
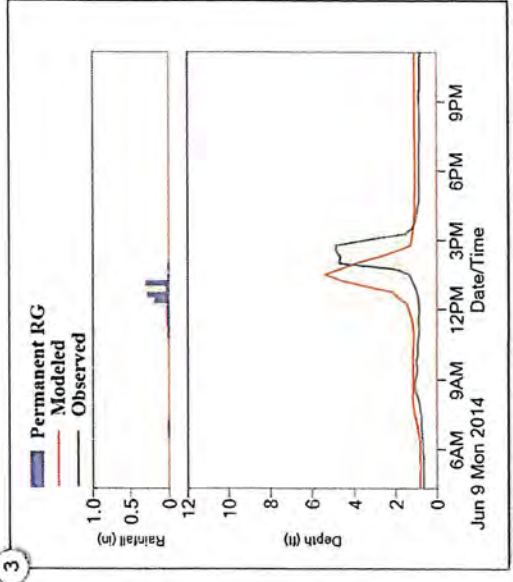
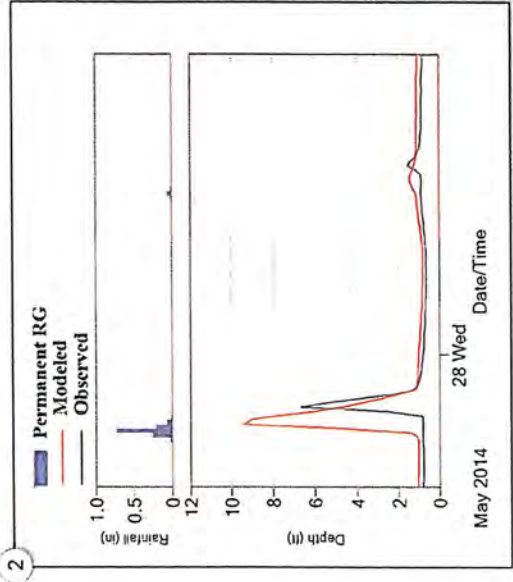
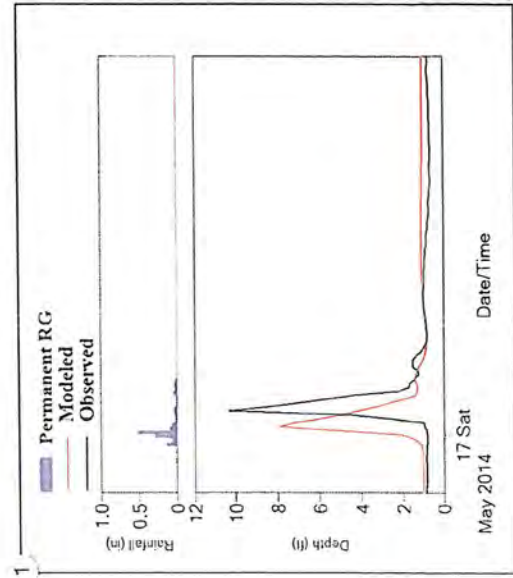
Prepared for:
Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:
CH2MHILL



Model Calibration Results
Flow Meter: OF-025 Frontage
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

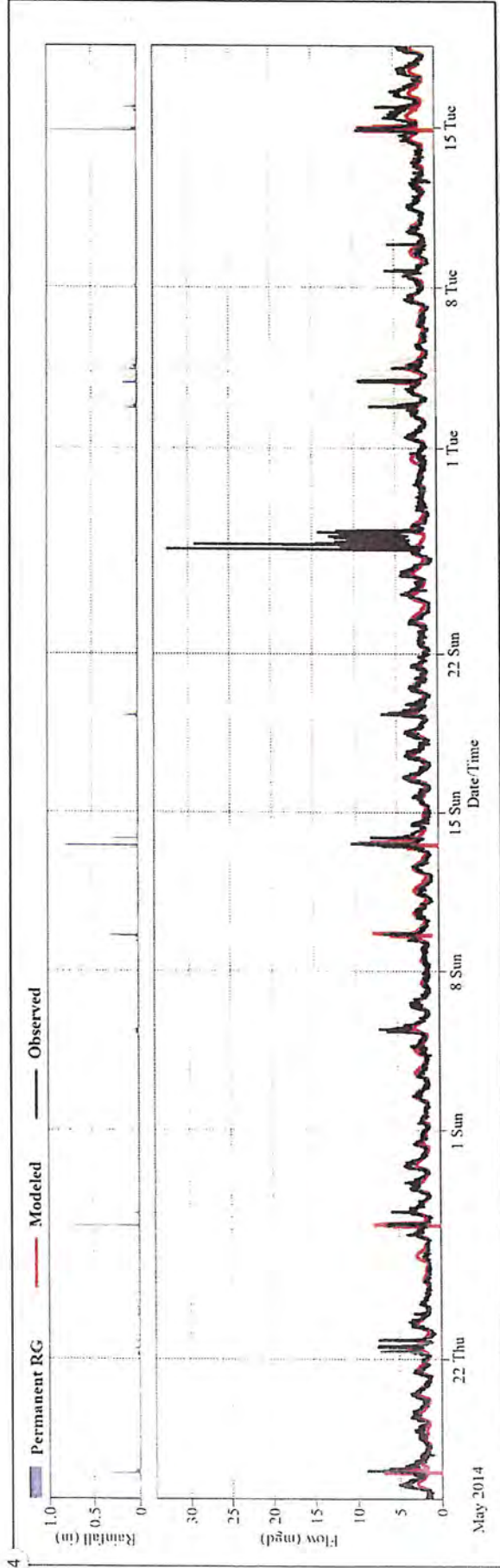
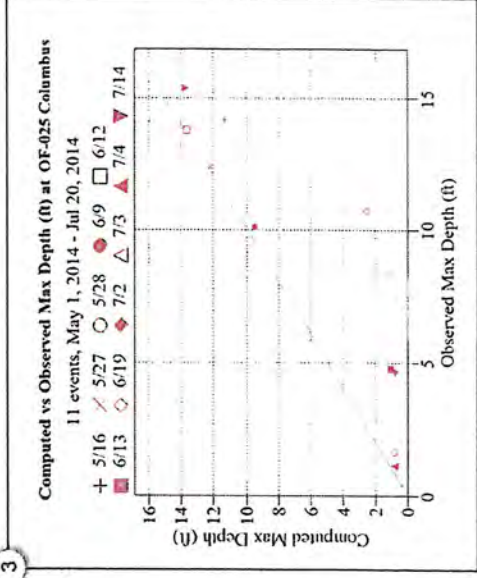
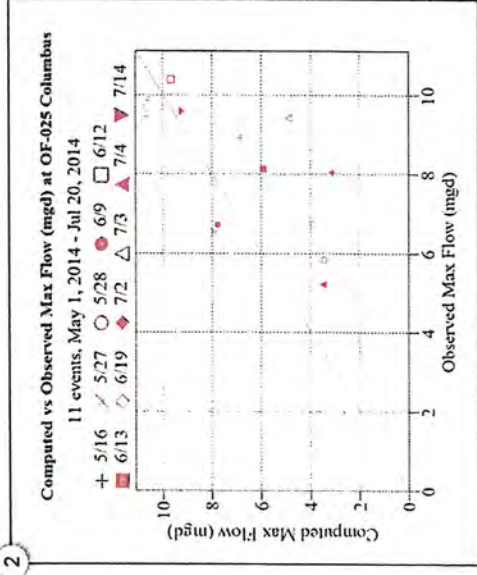
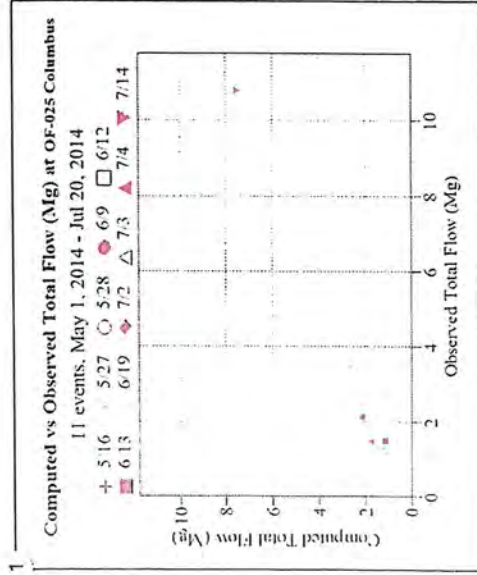


Model Calibration Results
Flow Meter: OF-025 Frontage
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-025 COLUMBUS
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



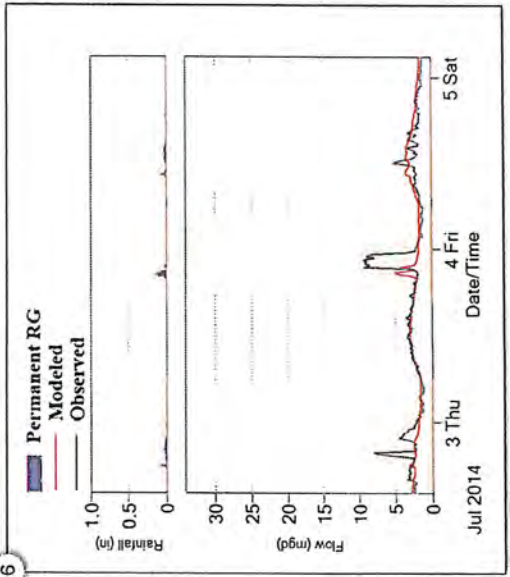
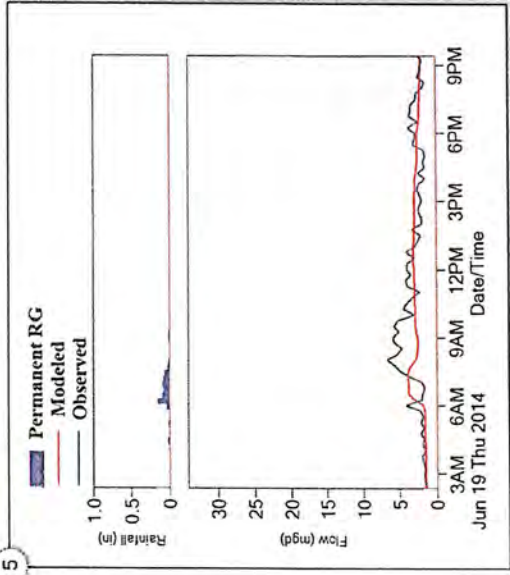
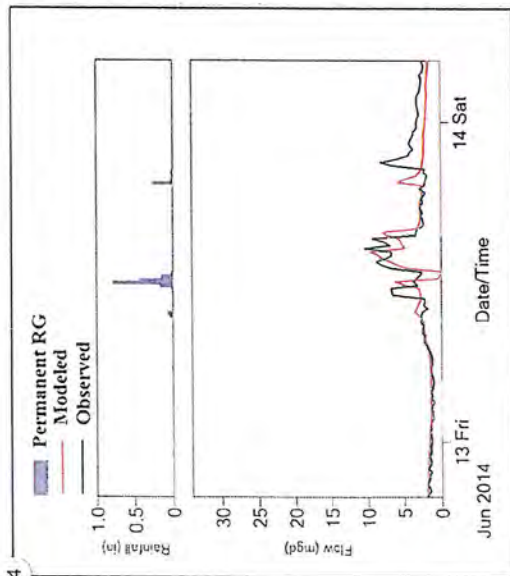
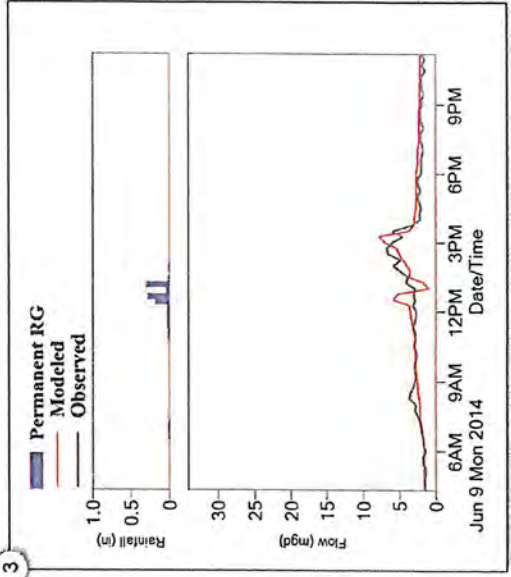
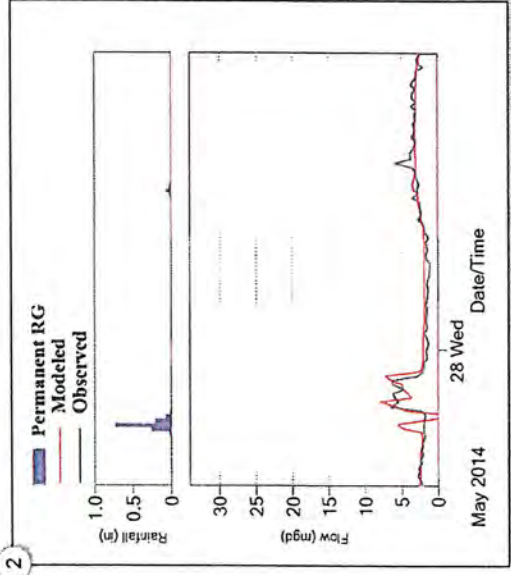
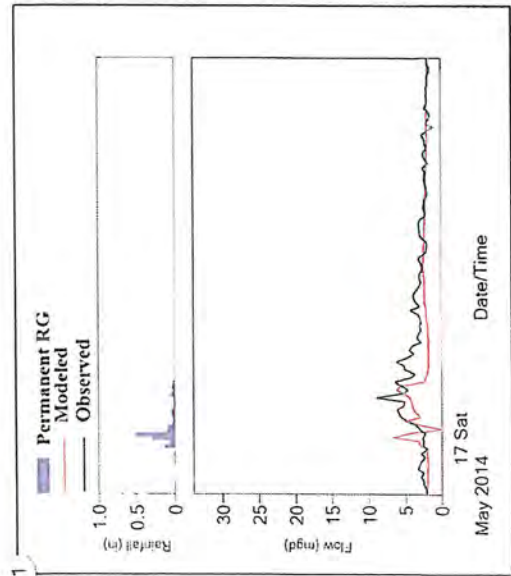
Model Calibration Results
Flow Meter: OF-25 Columbus
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

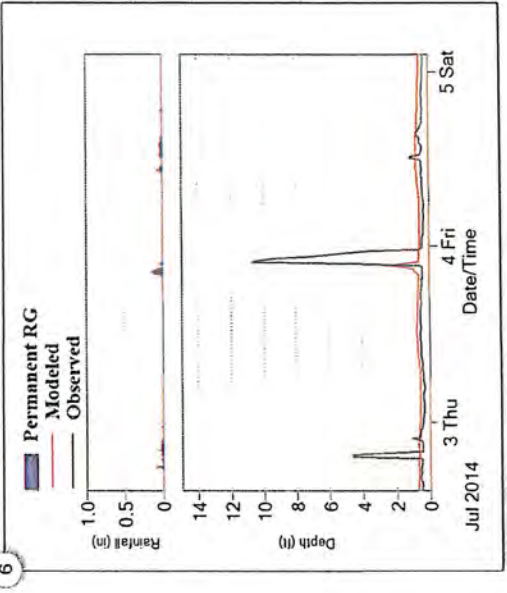
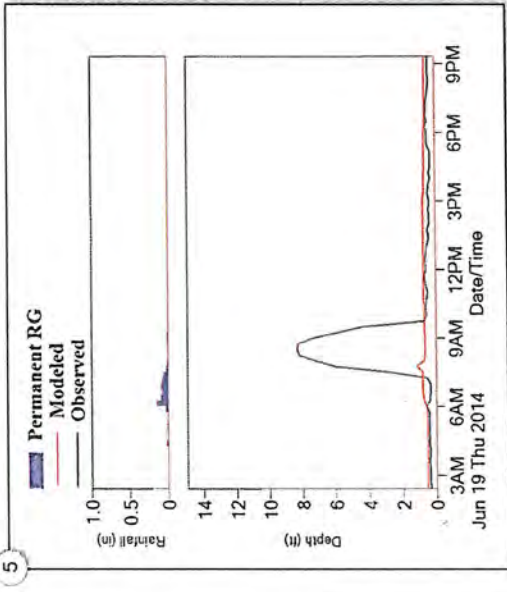
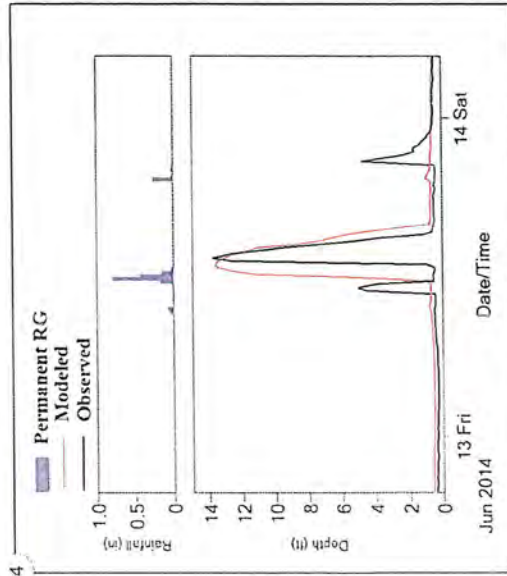
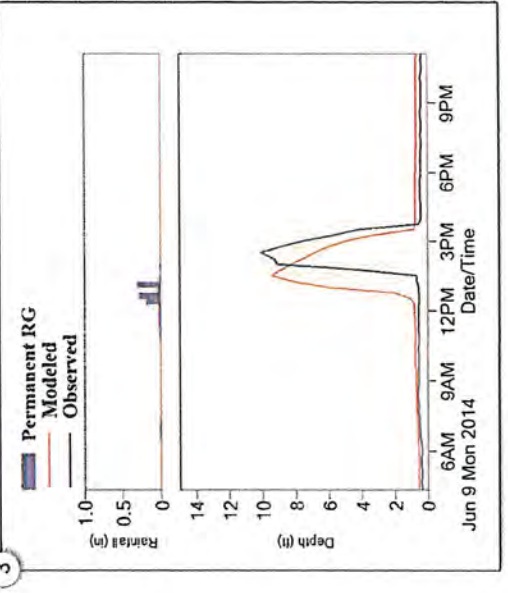
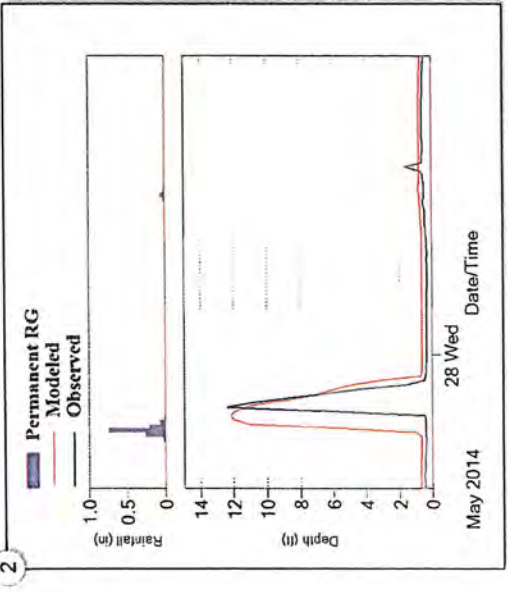
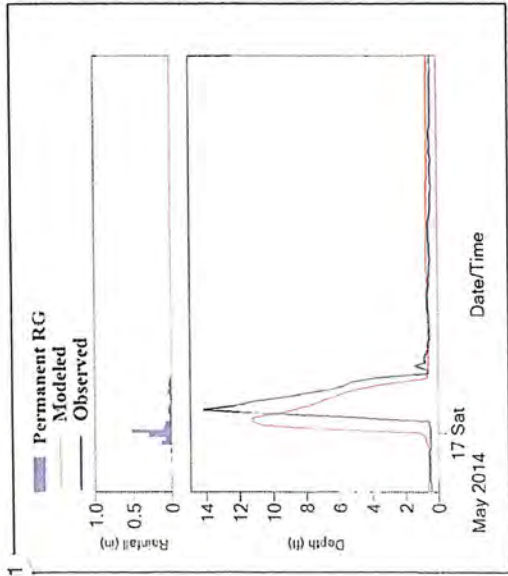
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:
 CHEM-HILL



Model Calibration Results
Flow Meter: OF-025 Columbus
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

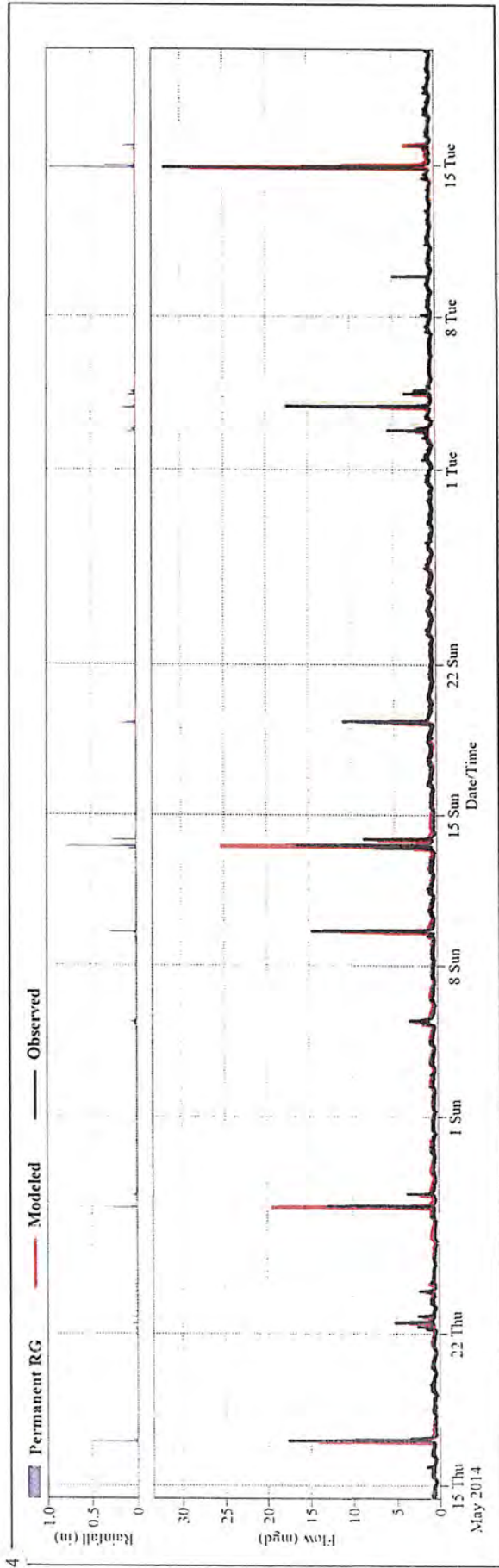
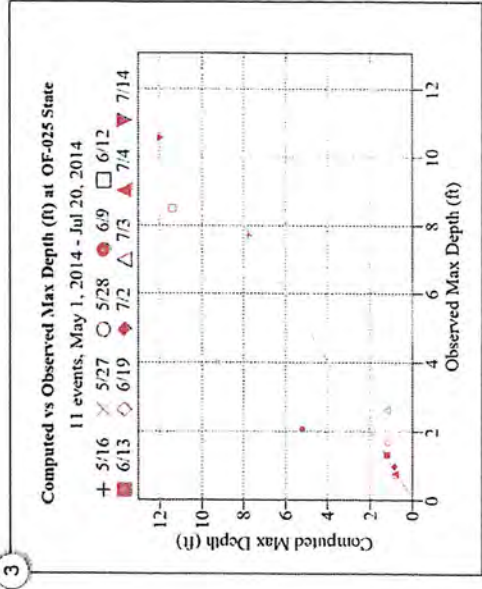
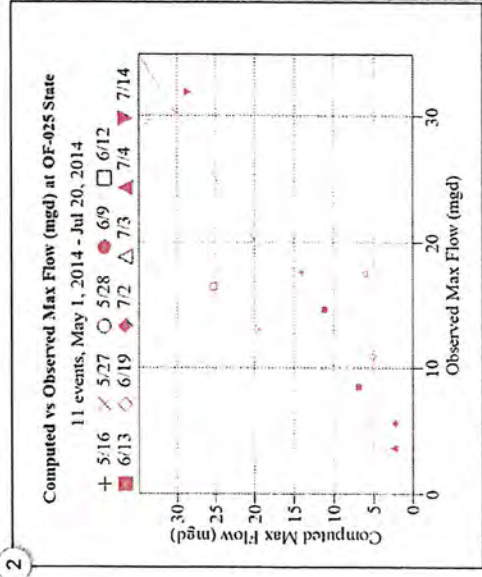
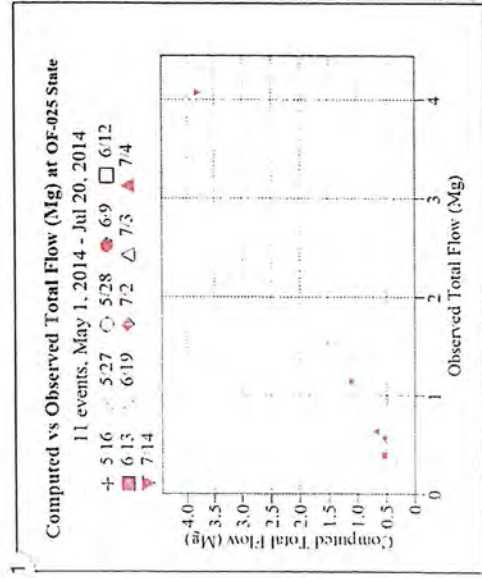


Model Calibration Results
Flow Meter: OF-025 Columbus
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-025 STATE
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)

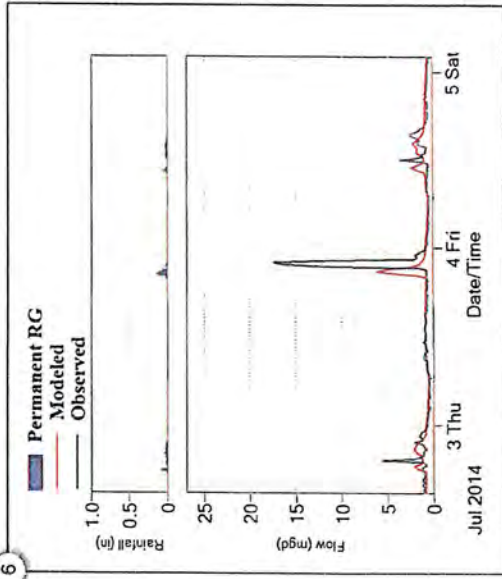
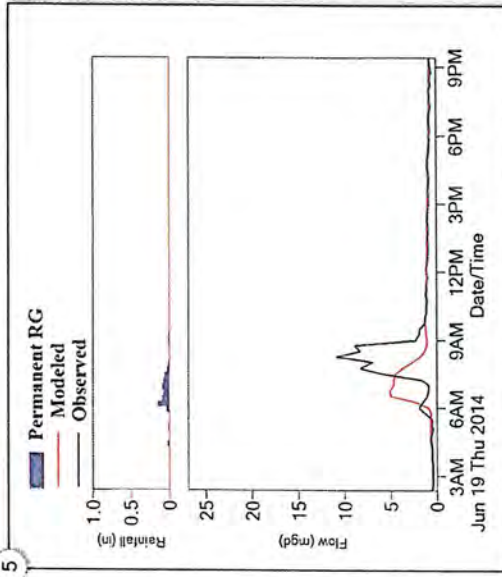
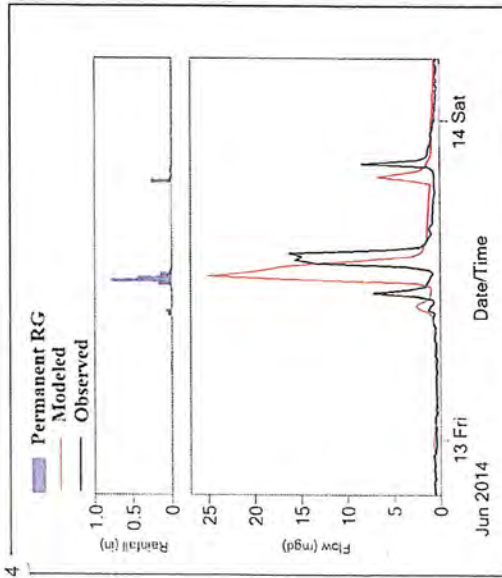
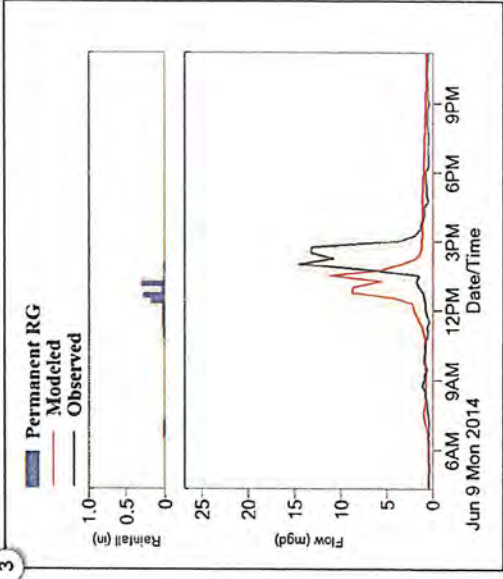
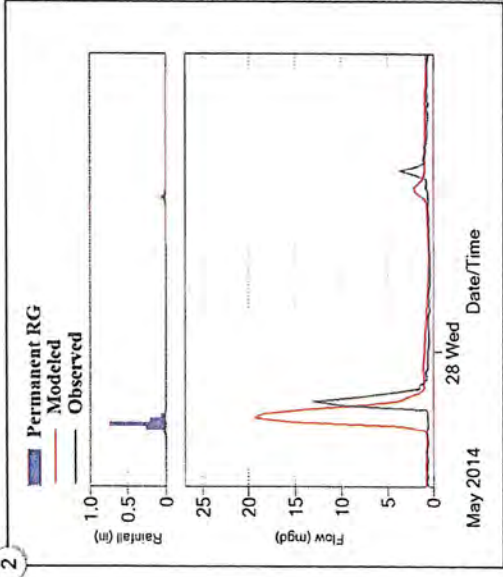
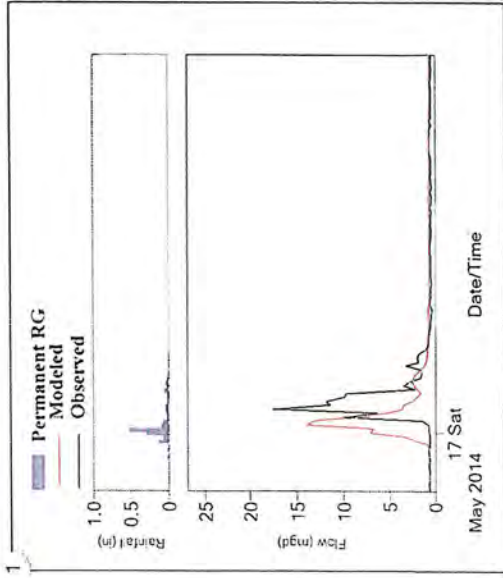


Model Calibration Results
Flow Meter: OF-25 State
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

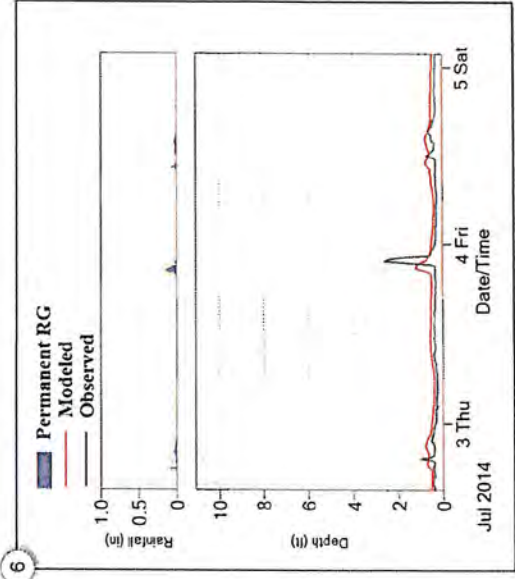
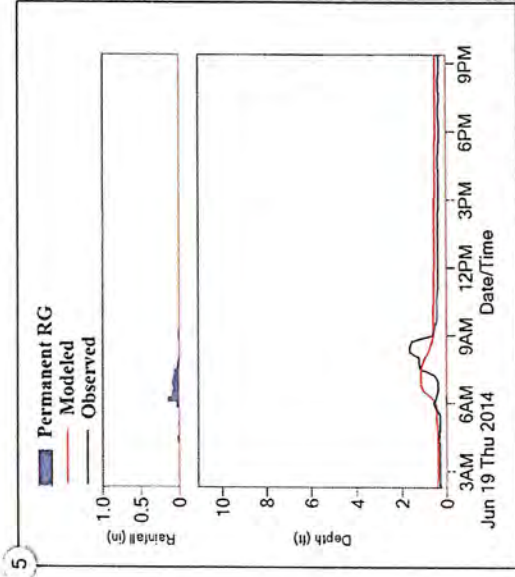
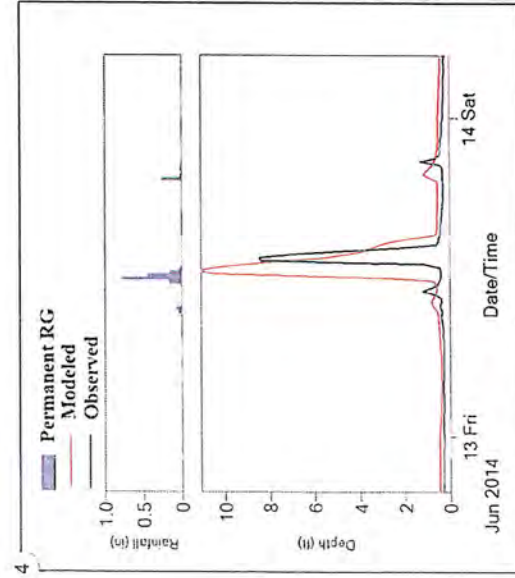
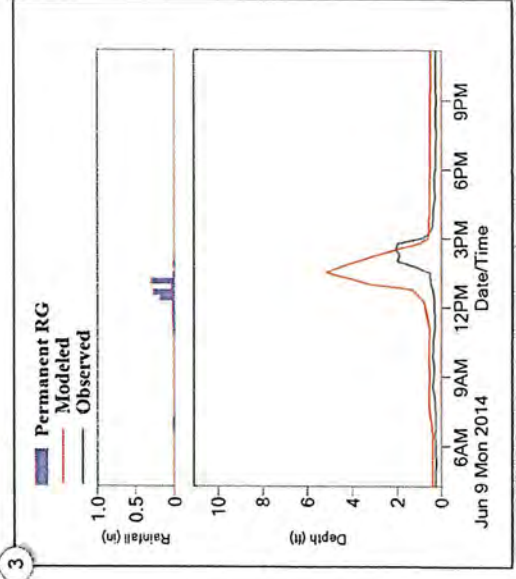
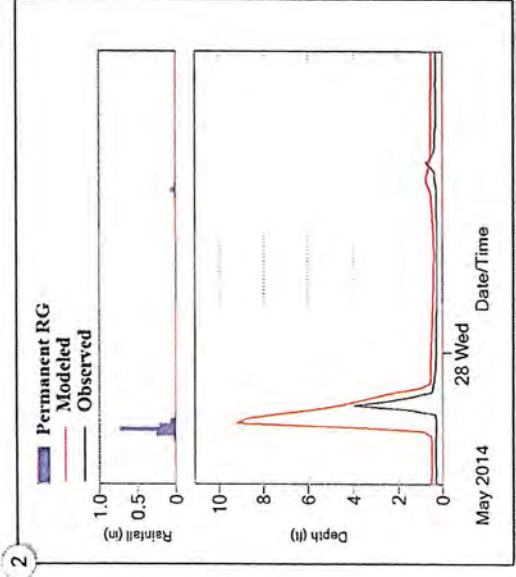
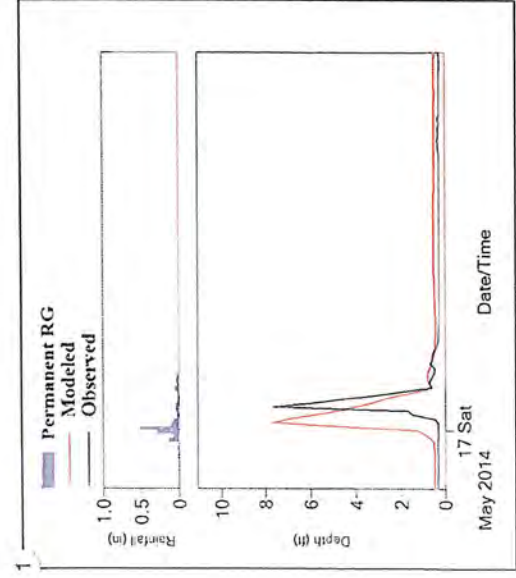


Model Calibration Results
Flow Meter: OF-025 State
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

Prepared for:
 Greater New Haven Water Pollution
 Control Authority (GNHWPCA)

Prepared by:

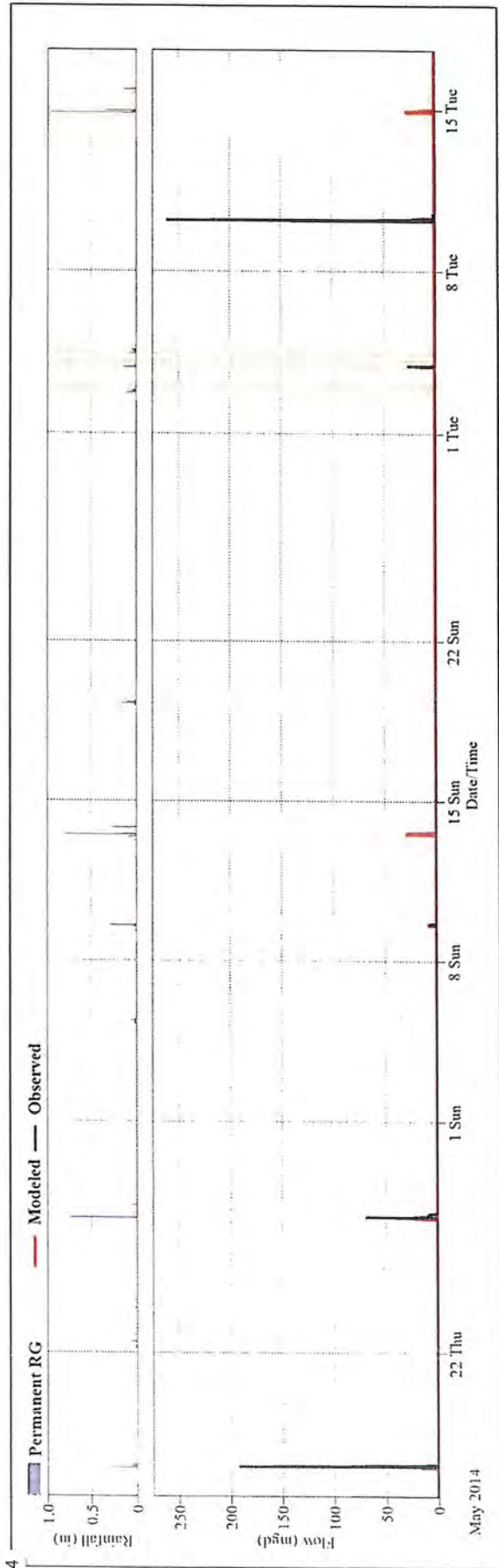
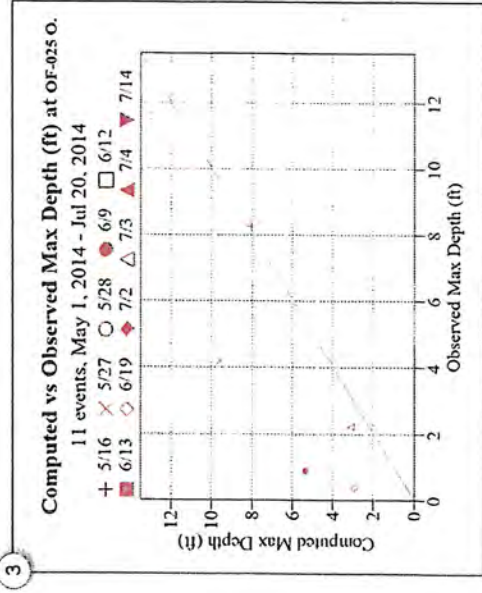
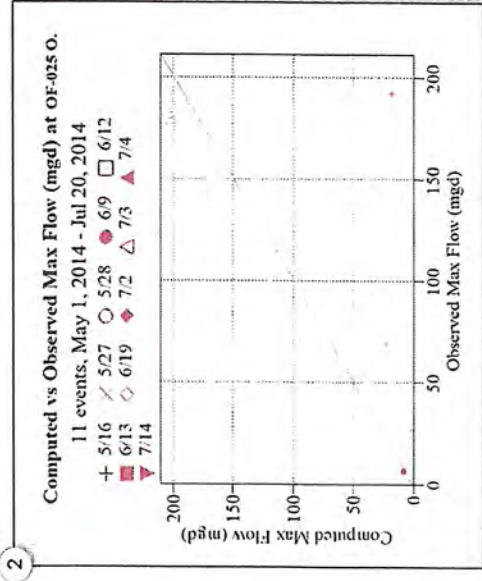
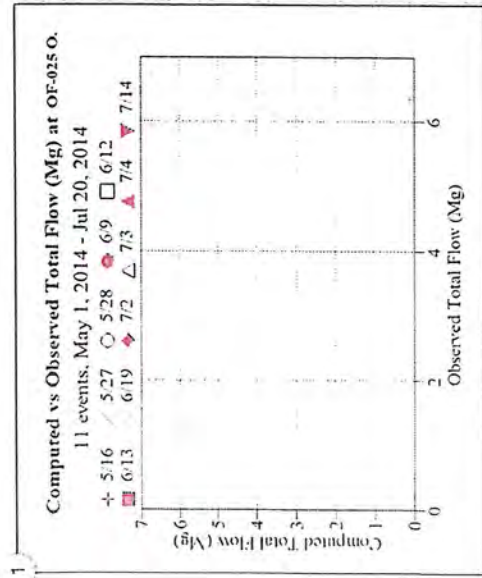


Model Calibration Results
Flow Meter: OF-025 State
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

**FLOW METER OF-025 OVERFLOW
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



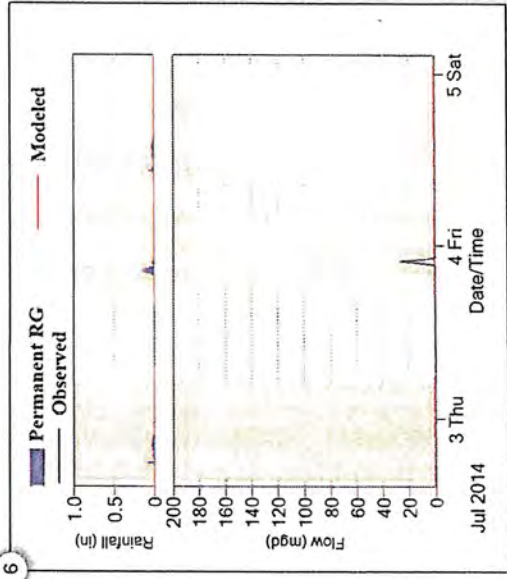
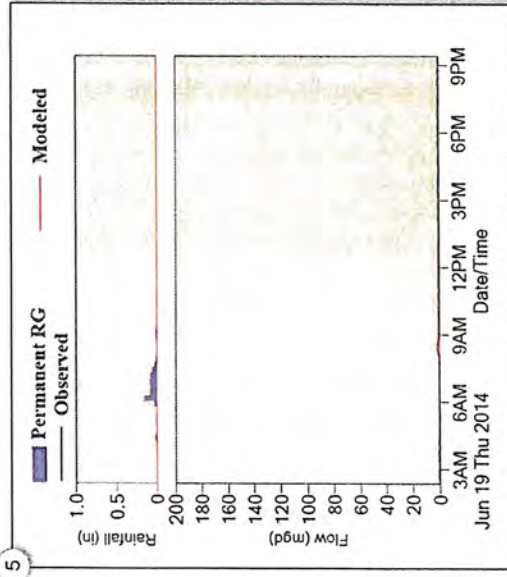
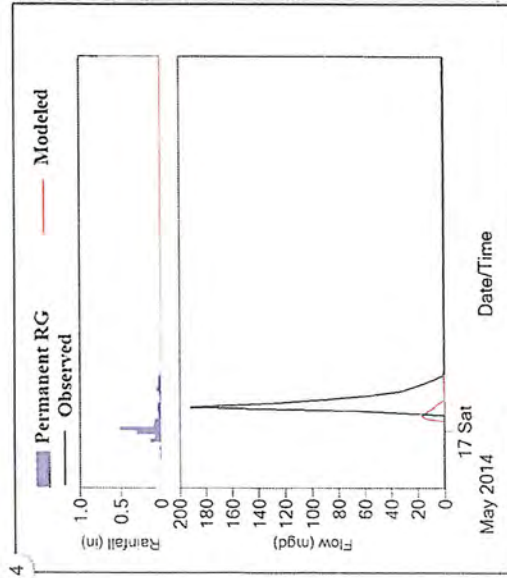
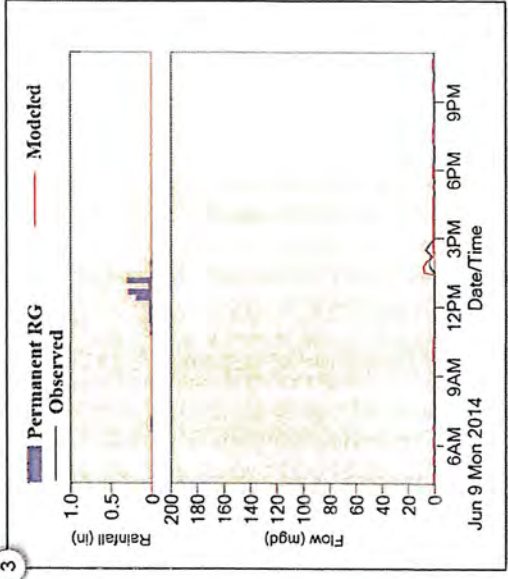
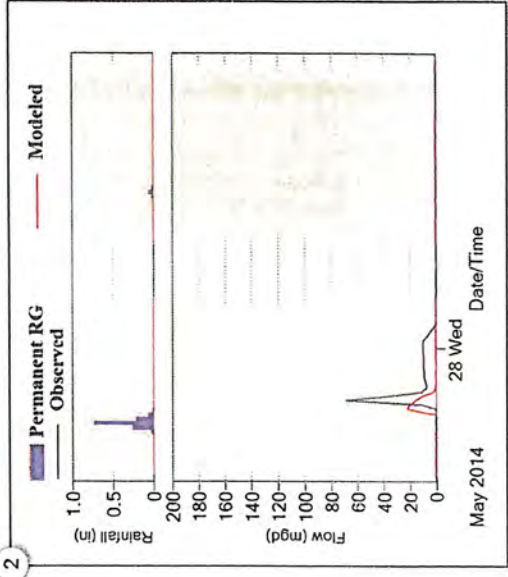
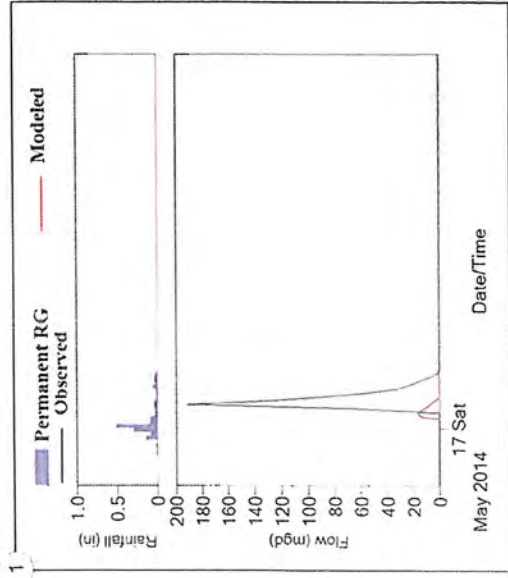
Model Calibration Results
Flow Meter: OF-25 Overflow
Meter Summary

- ① Total Event Volume
- ② Maximum Event Flow
- ③ Maximum Event Depth
- ④ Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

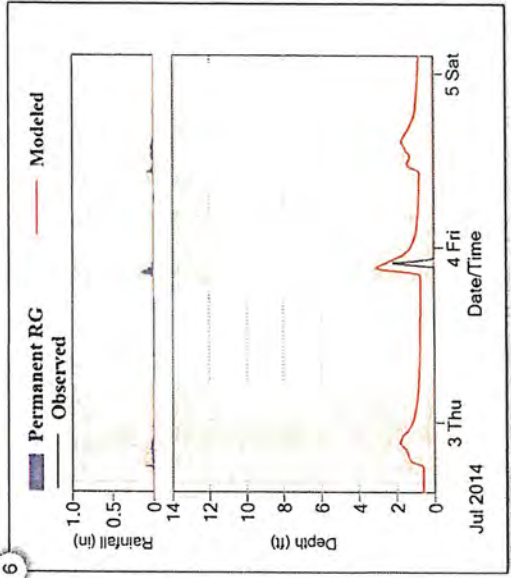
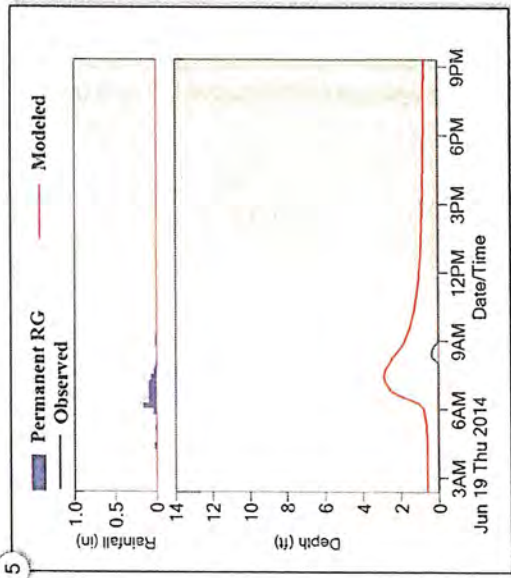
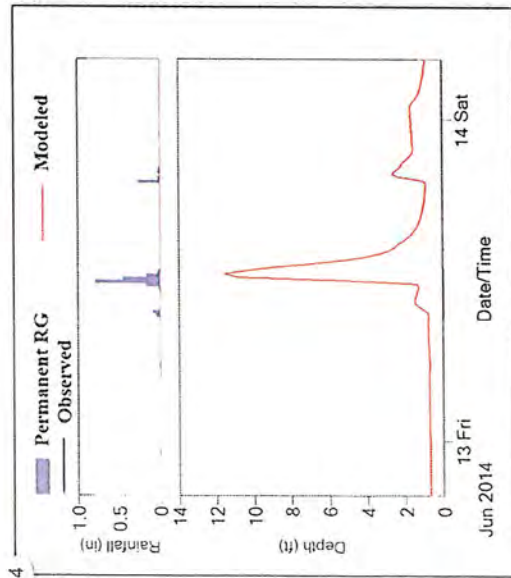
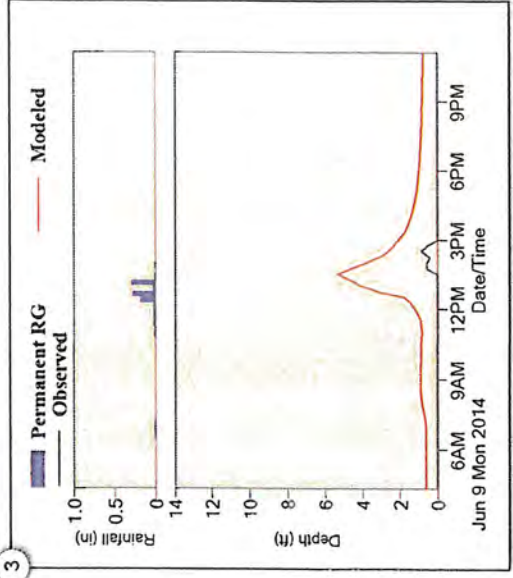
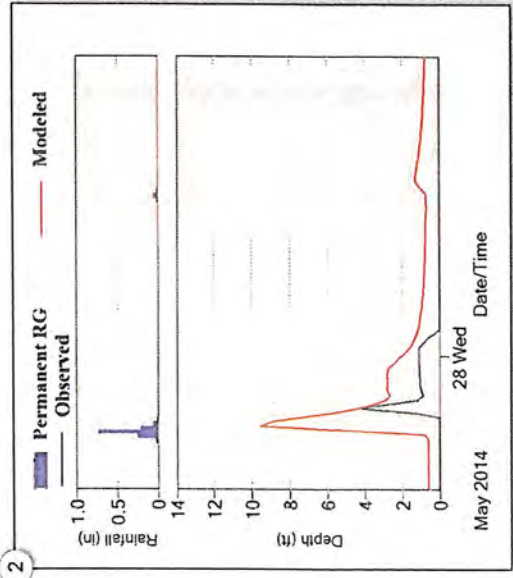
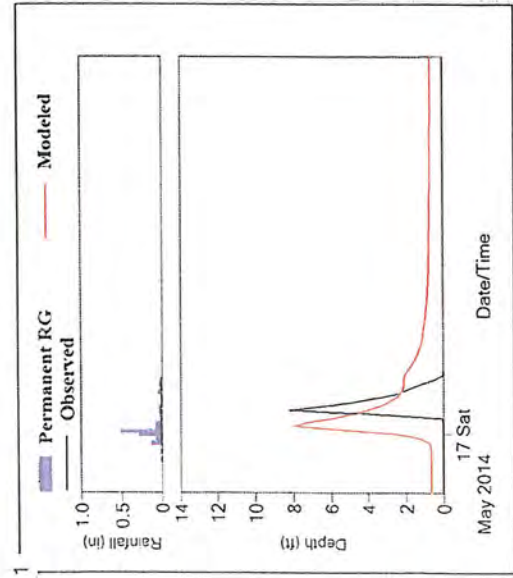
Prepared for:
Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:



Model Calibration Results
Flow Meter: OF-025 Overflow
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)



Model Calibration Results
Flow Meter: OF-025 Overflow
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.61 in.)
 - 2 May 27, 2014 (1.33 in.) and May 28, 2014 (0.1 in.)
 - 3 June 9, 2014 (1.02 in.)
 - 4 June 12, 2014 (1.78 in.) and June 13, 2014 (0.32 in.)
 - 5 June 19, 2014 (0.74 in.)
 - 6 July 2, 2014 (0.40 in.), July 3, 2014 (0.52 in.) and July 4, 2014 (0.36 in.)

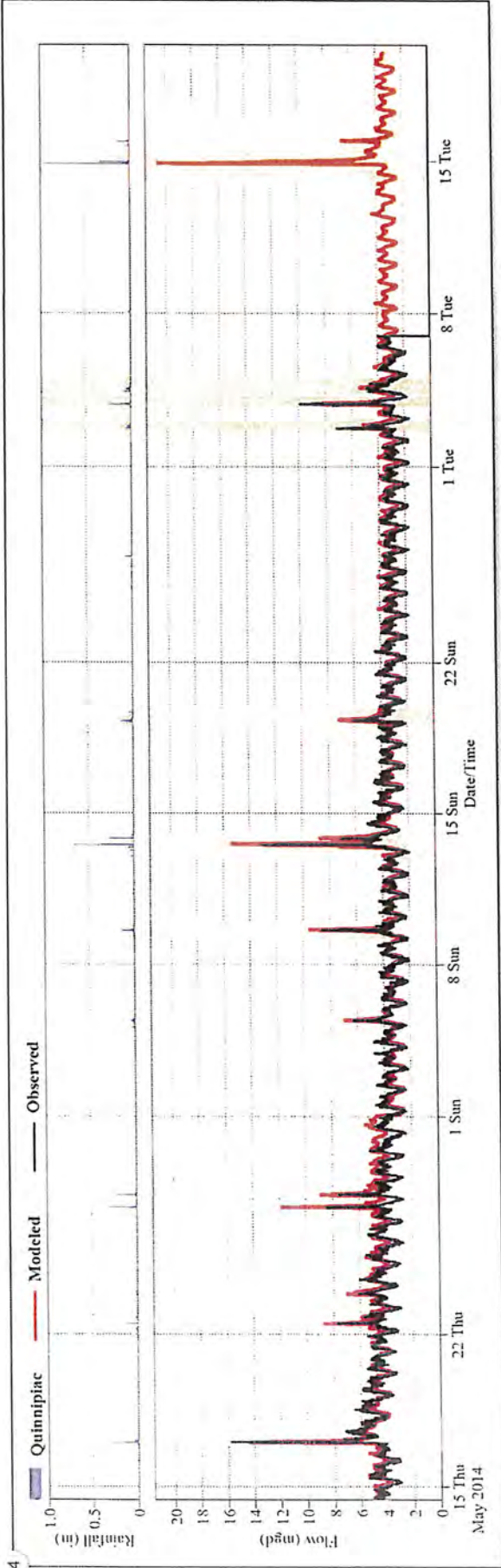
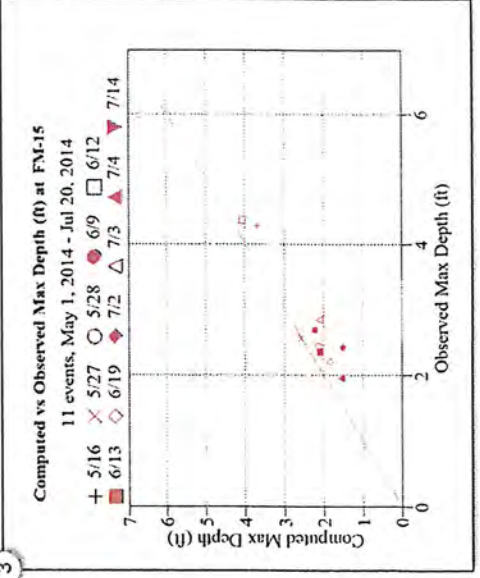
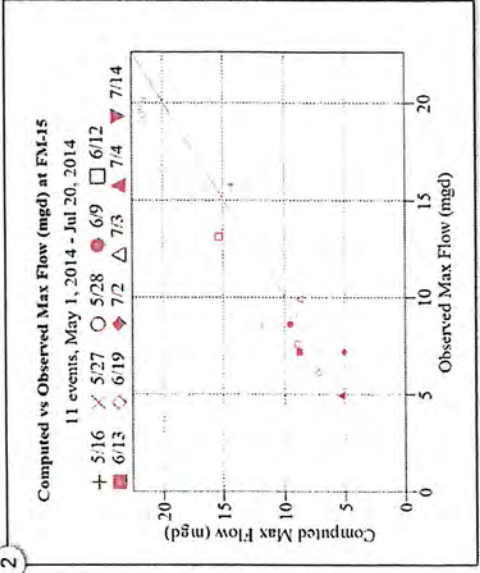
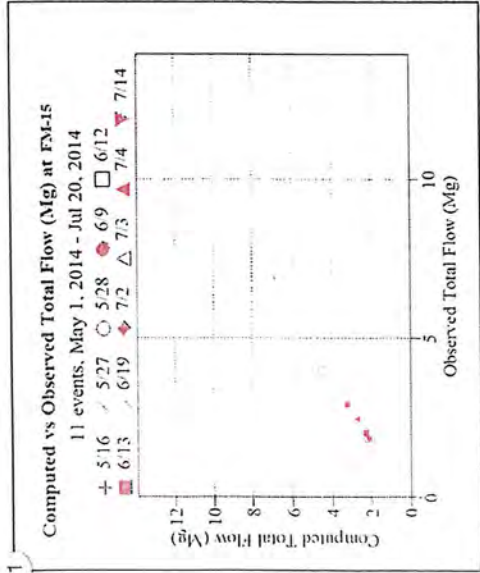
APPENDIX E

WET WEATHER CALIBRATION RESULTS

REGULATOR 012 STUDY AREA

FLOW METER FM-15
WET WEATHER CALIBRATION RESULTS

(May through July 2014)



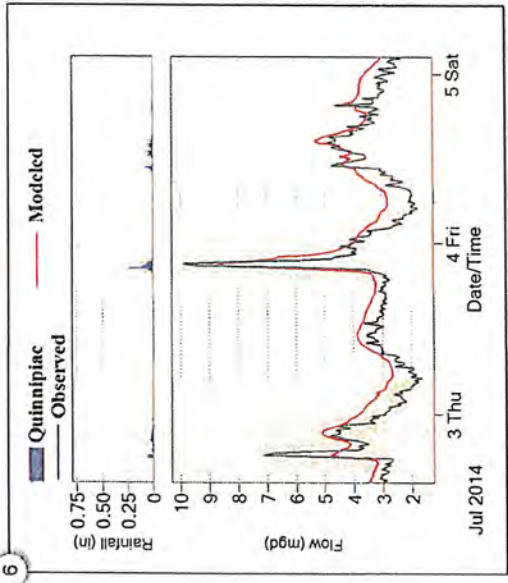
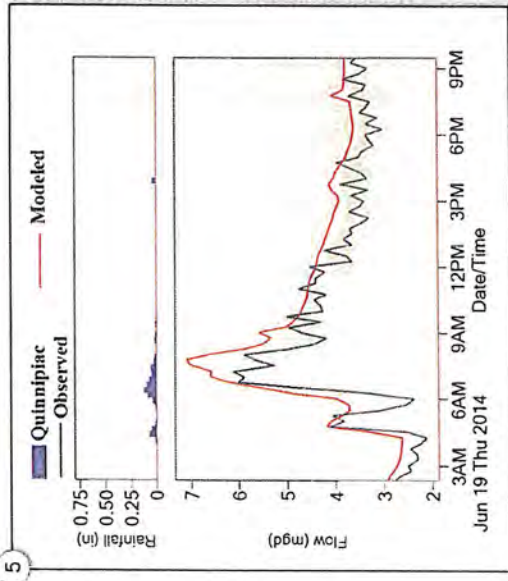
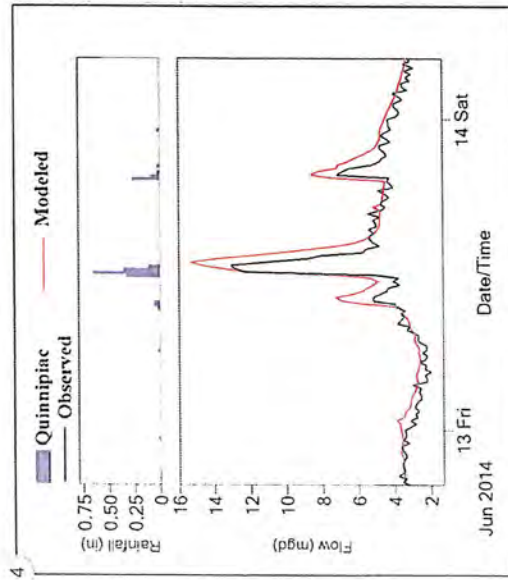
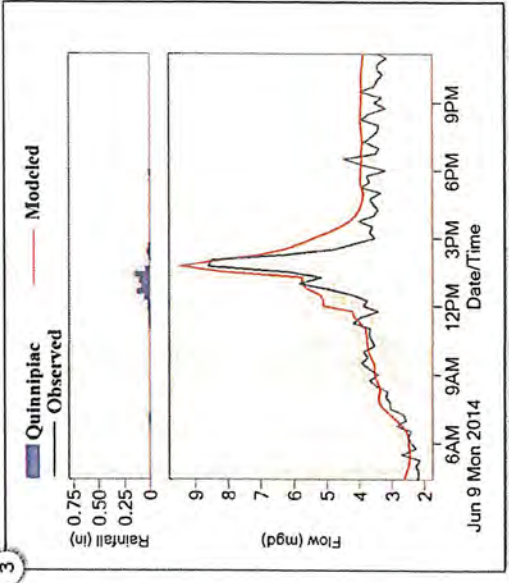
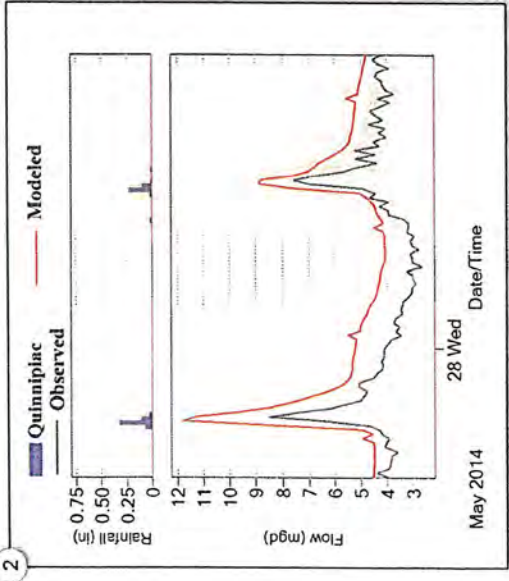
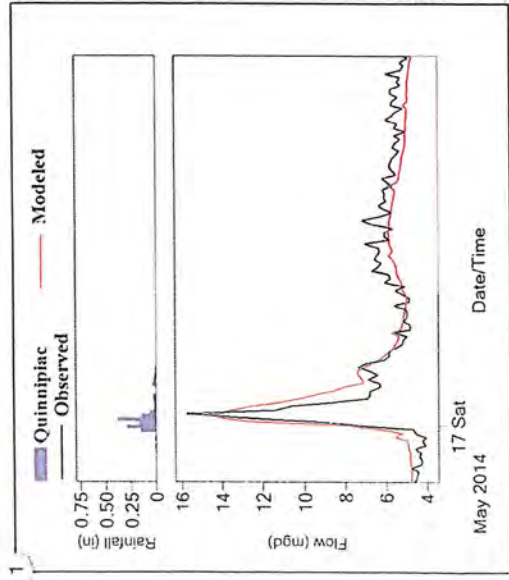
Model Calibration Results
Flow Meter: FM-15
Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

Prepared by:
CH2MHILL

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

Prepared for:
Greater New Haven Water Pollution Control Authority (GNHWPCA)



Model Calibration Results
Flow Meter: FM-15
 Event Comparison: Flow

Permanent Rain Gauge Events:

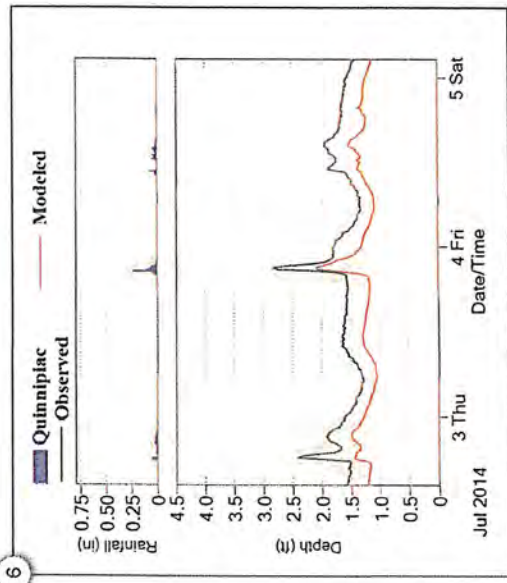
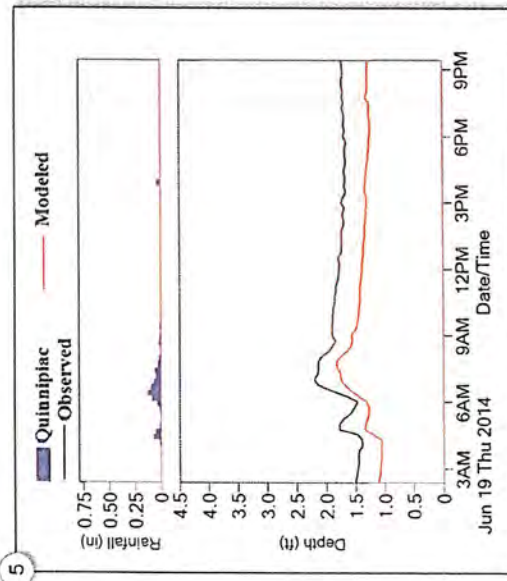
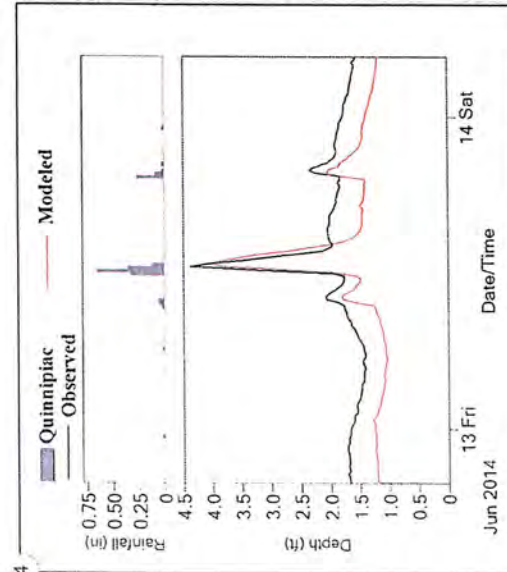
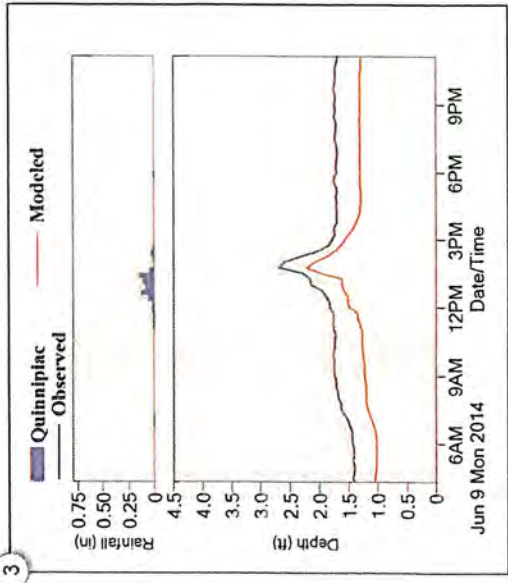
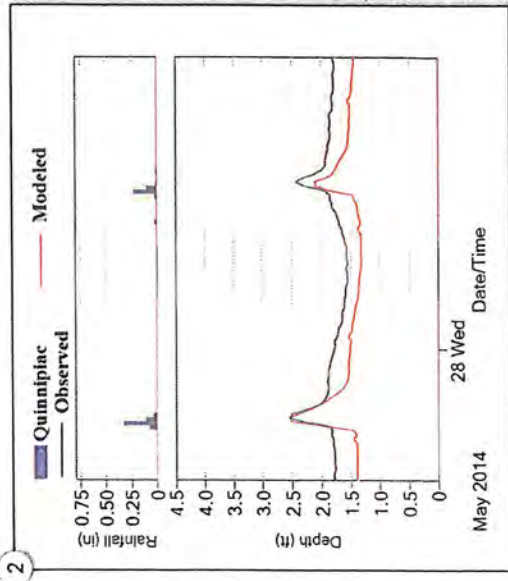
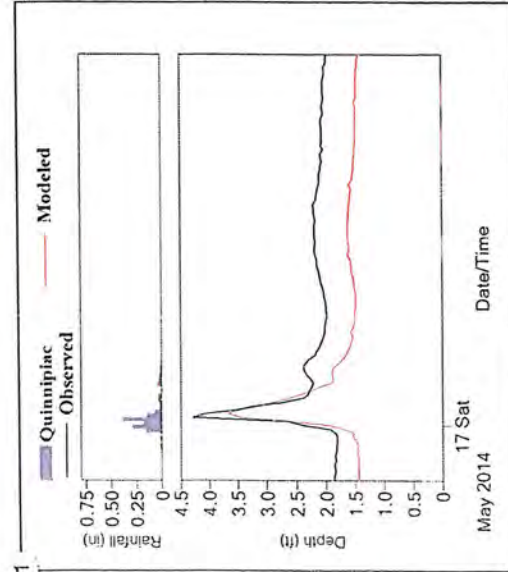
- 1 May 16, 2014 (1.51 in.)
- 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
- 3 June 9, 2014 (0.74 in.)
- 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.)
- 5 June 19, 2014 (0.78 in.)
- 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)


Prepared for:
 Greater New Haven Water Pollution
 Control Authority (GNHWPCA)

Prepared by:



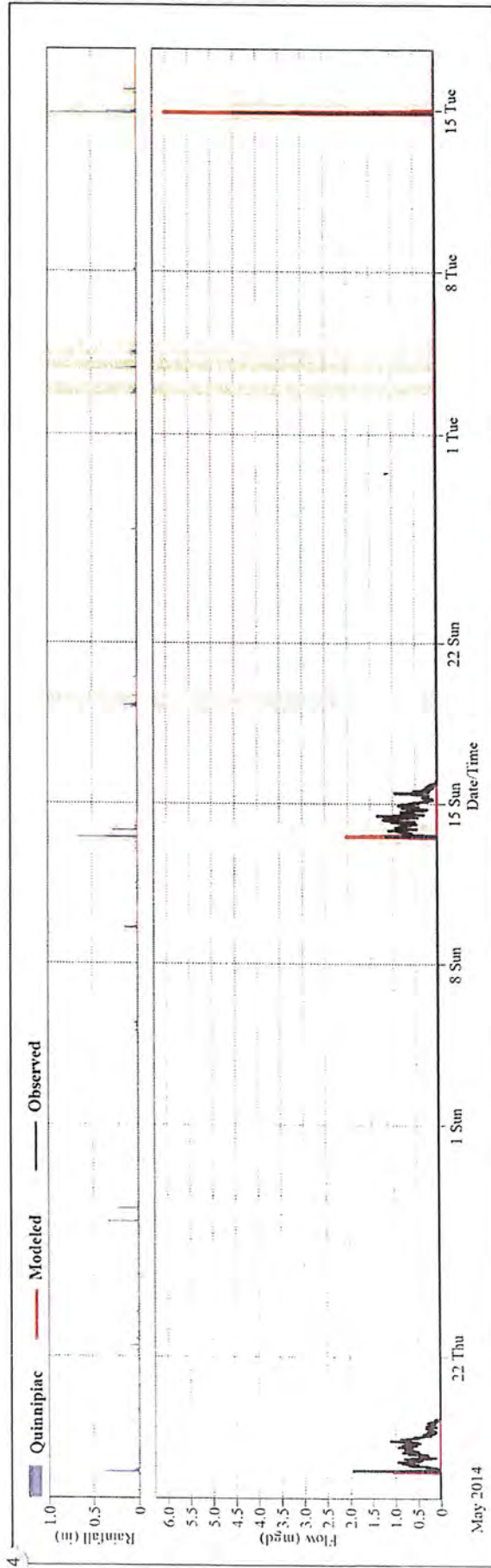
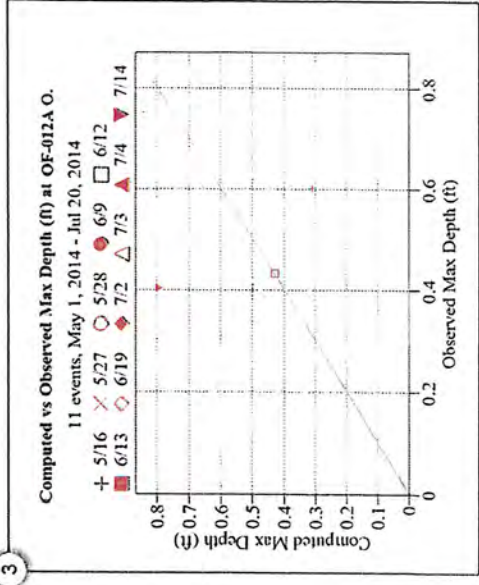
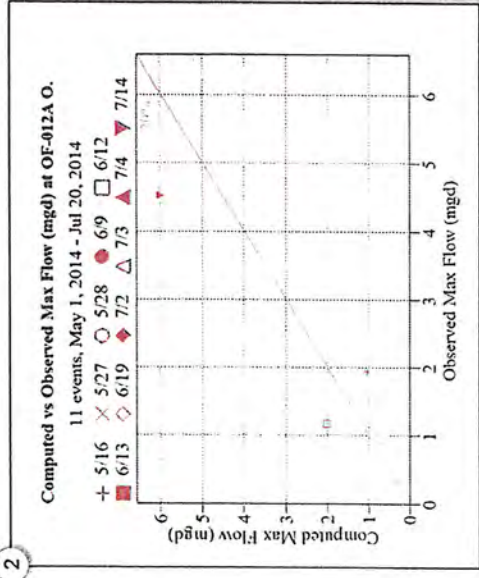
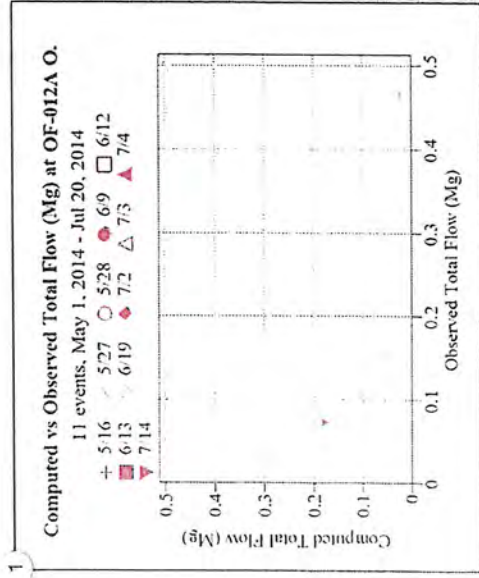
CH2MHILL



<p>Model Calibration Results Flow Meter: FM-15 Event Comparison: Depth</p>	<p>Permanent Rain Gauge Events:</p> <ul style="list-style-type: none"> 1 May 16, 2014 (1.51 in.) 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.) 3 June 9, 2014 (0.74 in.) 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.) 5 June 19, 2014 (0.78 in.) 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.) 	<p>Prepared for: Greater New Haven Water Pollution Control Authority (GNHWPCA)</p> <p>Prepared by: </p>
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**FLOW METER OF-012A OVERFLOW
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



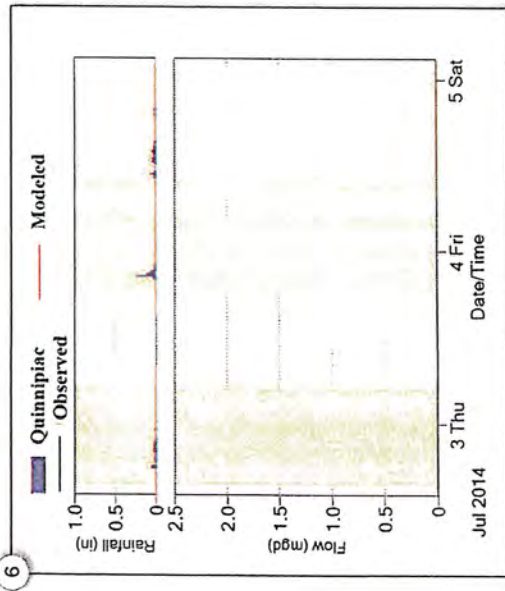
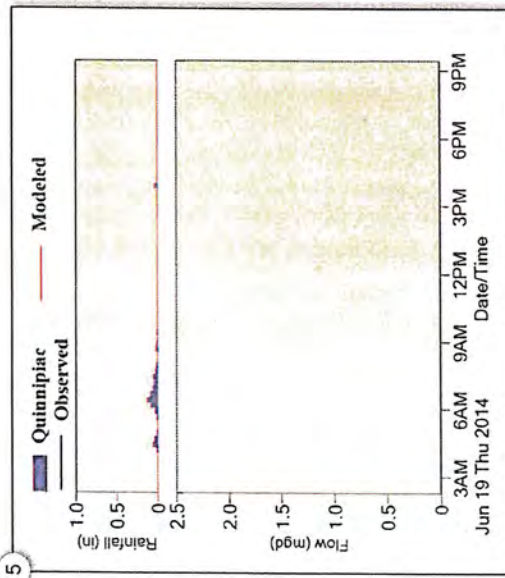
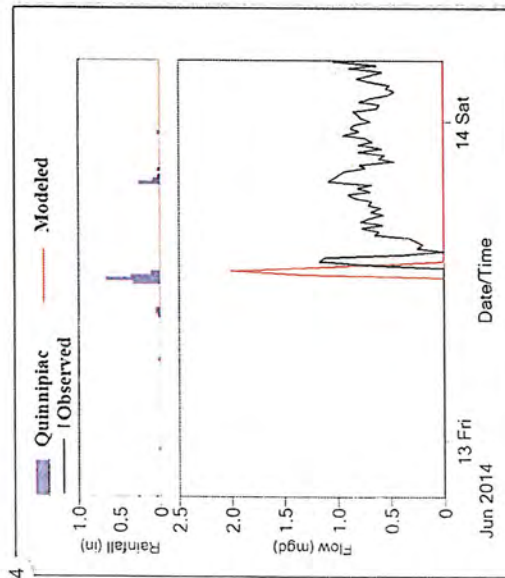
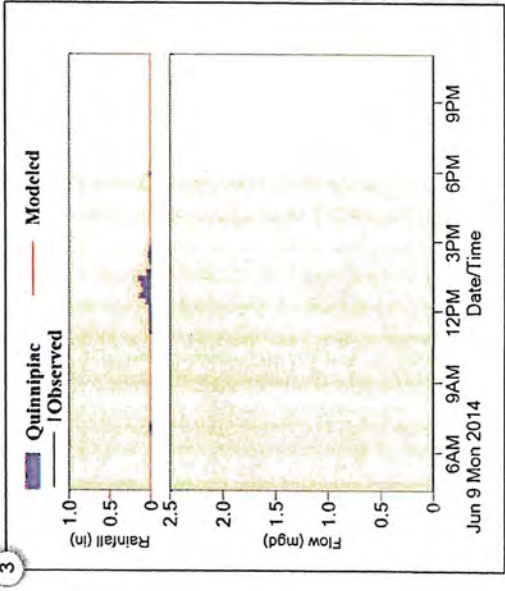
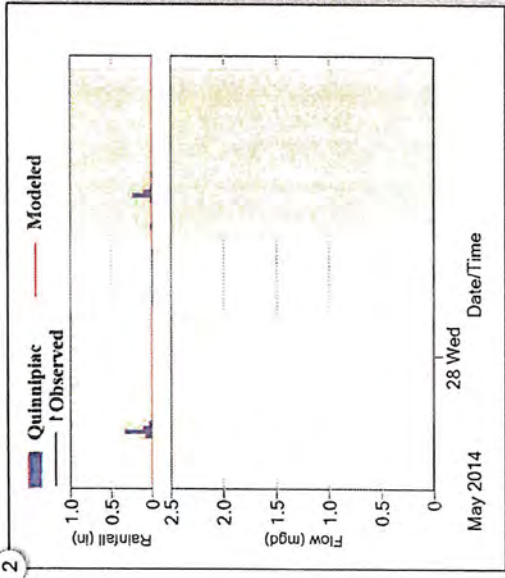
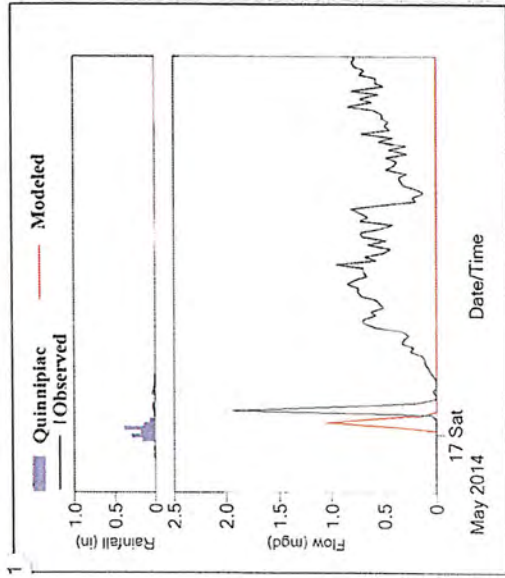
Model Calibration Results
Flow Meter: OF-012A Overflow
 Meter Summary

Prepared by: CH2MHILL

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

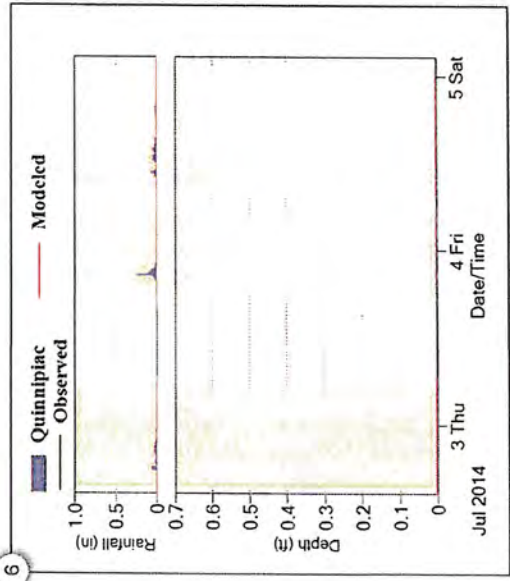
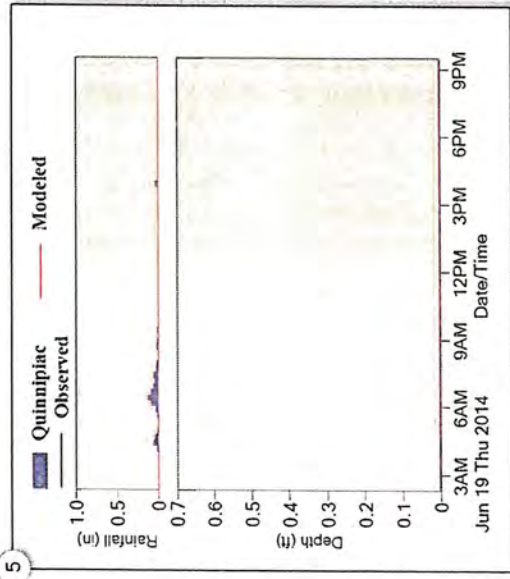
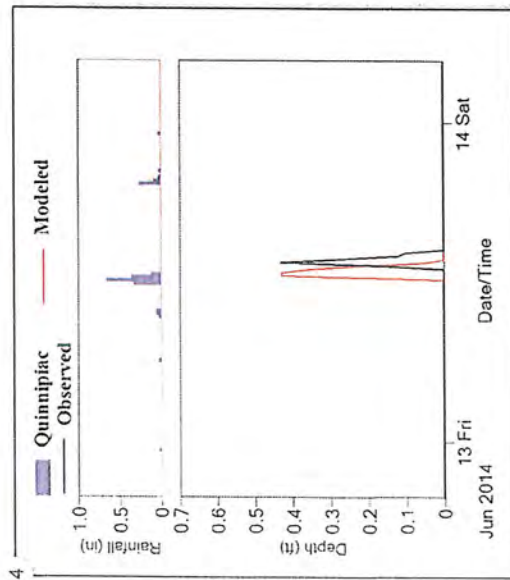
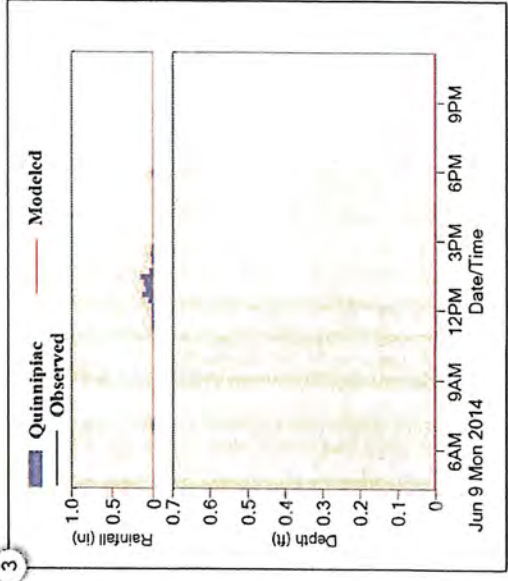
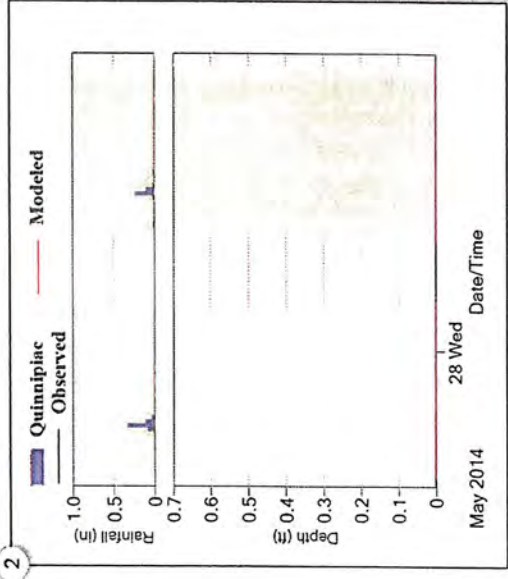
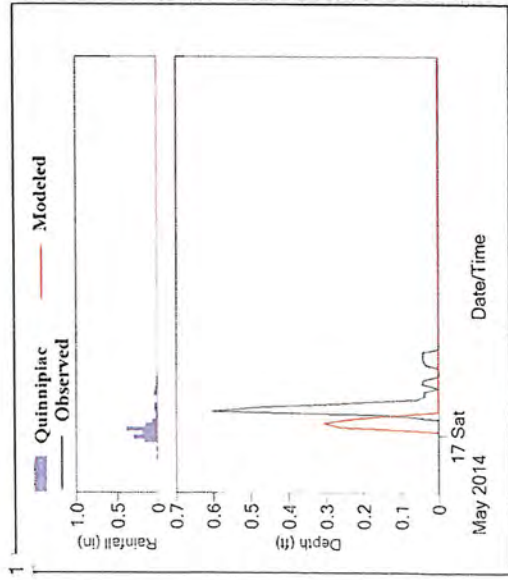
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph



Model Calibration Results
Flow Meter: OF-012A Overflow
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
 - 3 June 9, 2014 (0.74 in.)
 - 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.)
 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)

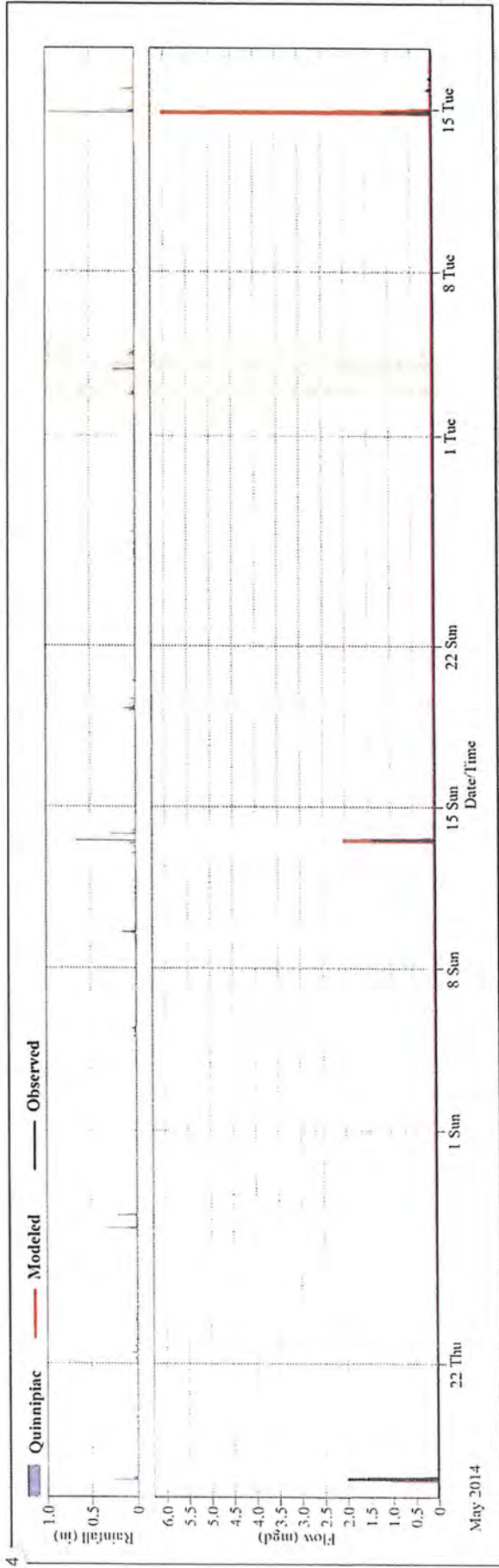
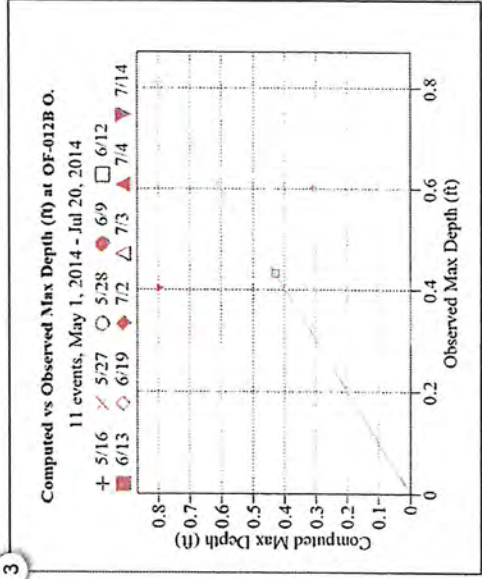
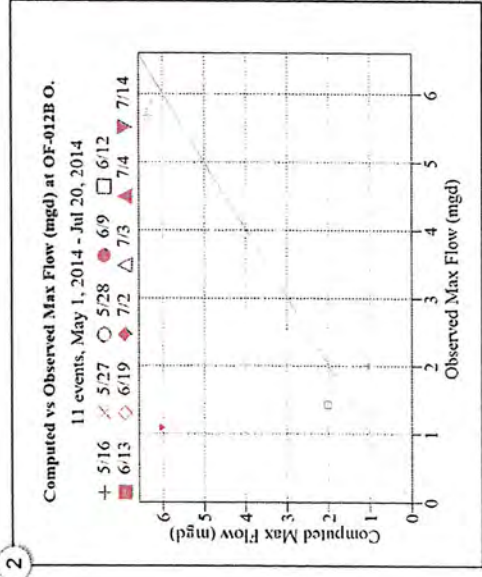
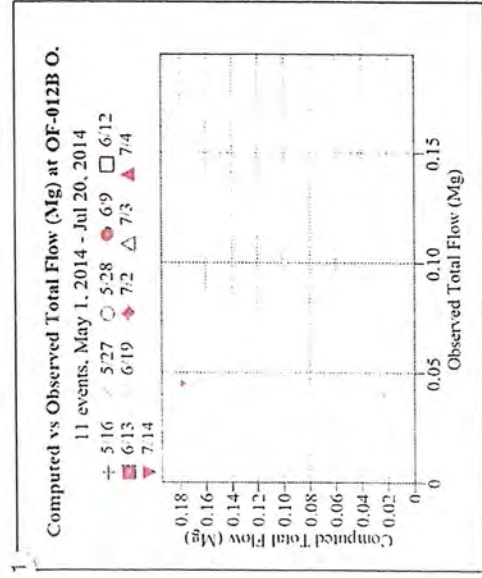


Model Calibration Results
Flow Meter: OF-012A Overflow
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
 - 3 June 9, 2014 (0.74 in.)
 - 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.)
 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)

**FLOW METER OF-012B OVERFLOW
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)

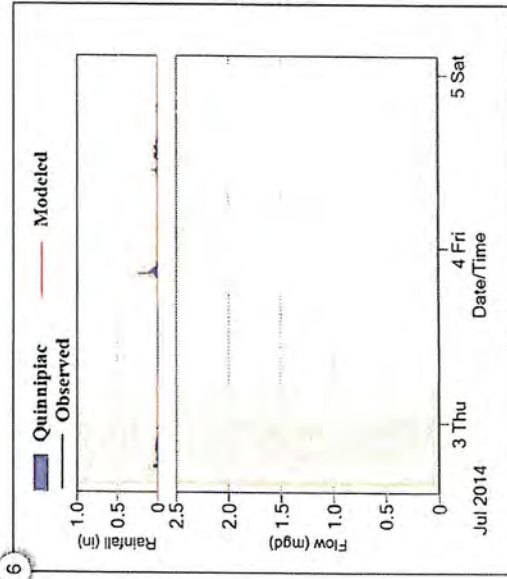
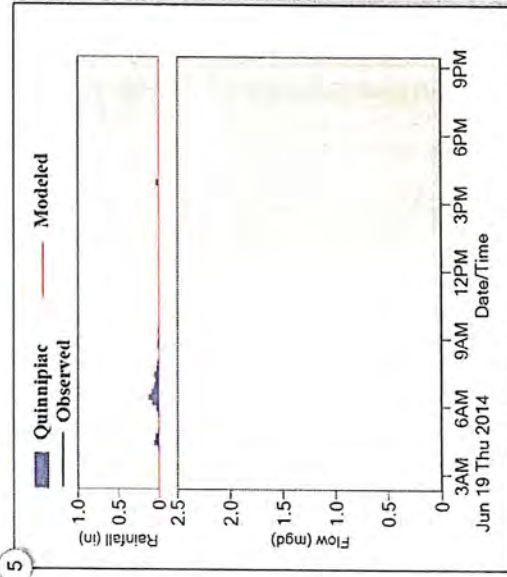
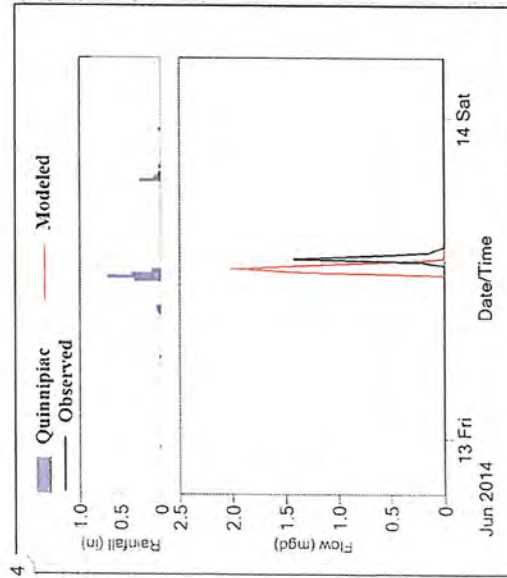
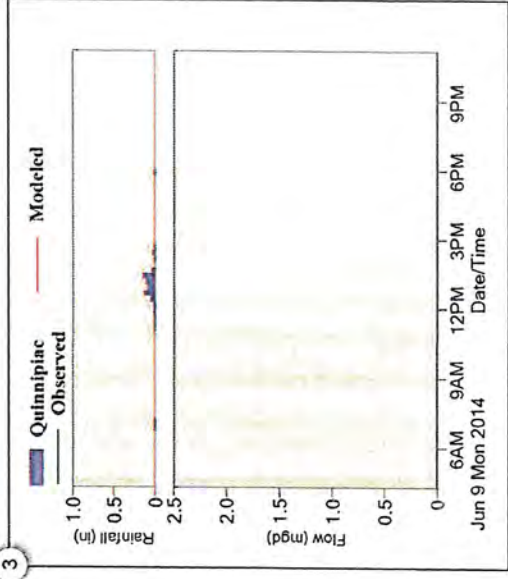
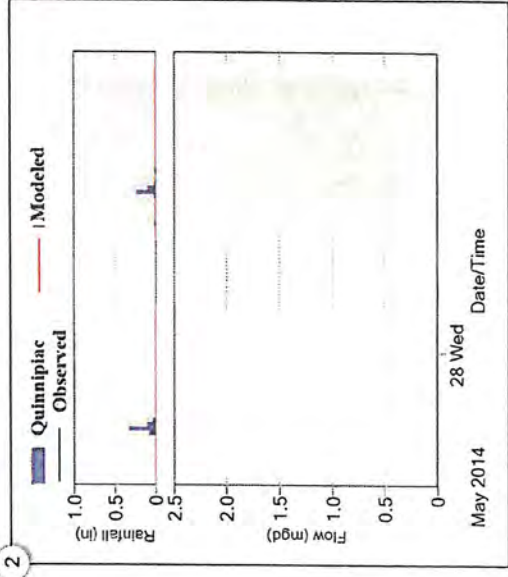
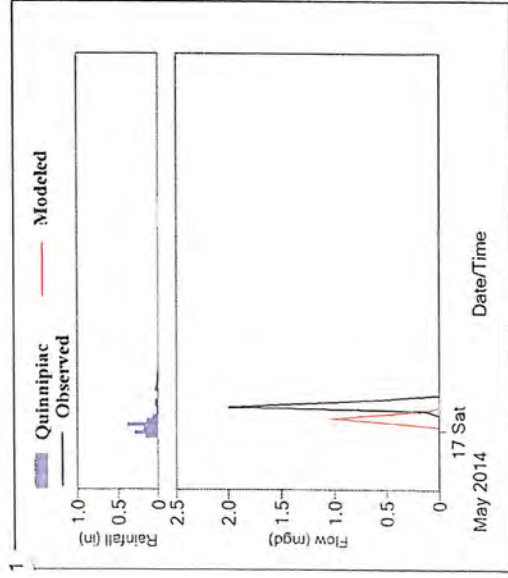


Model Calibration Results
Flow Meter: OF-012B Overflow
 Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

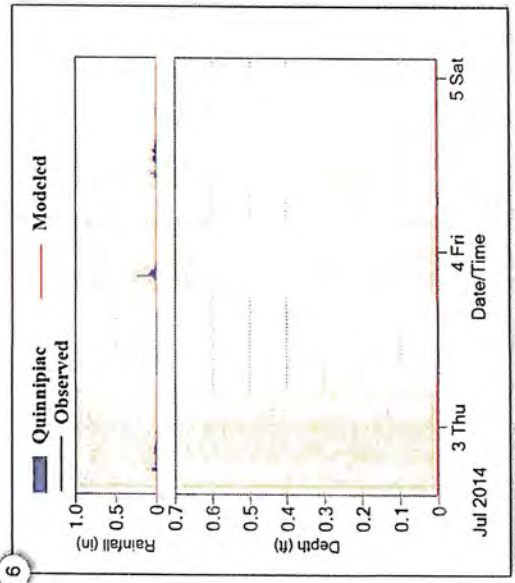
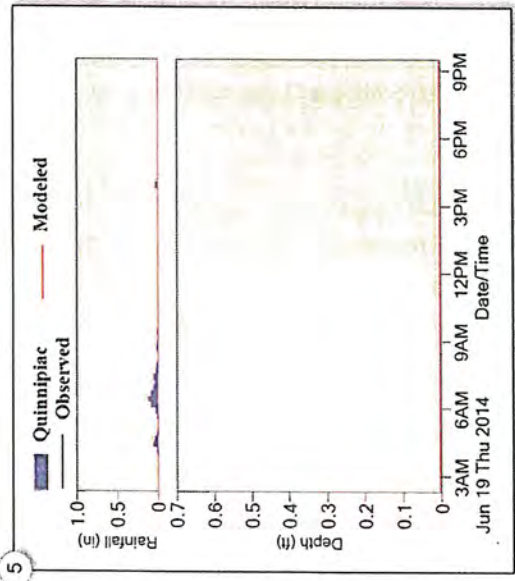
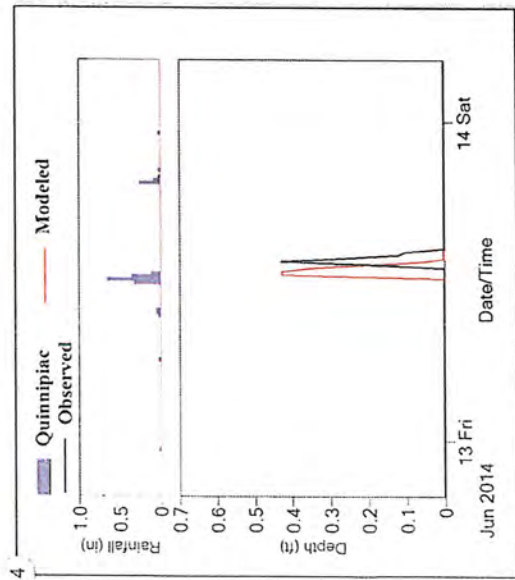
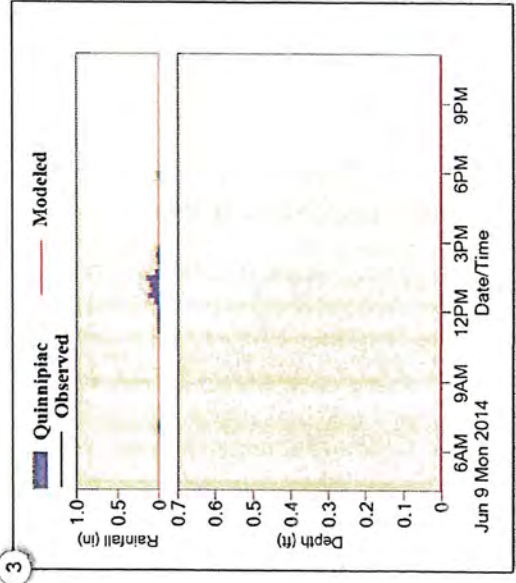
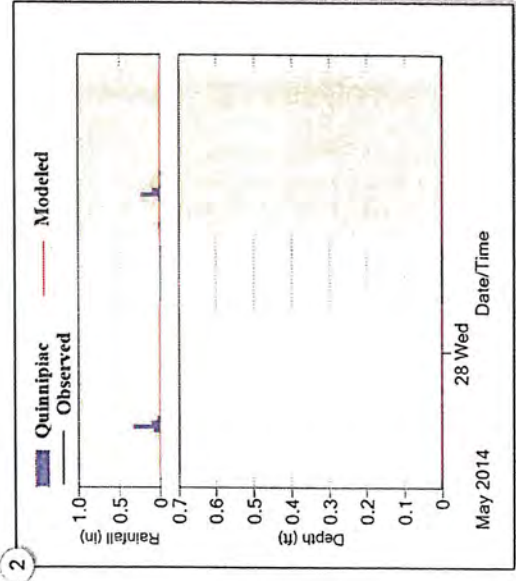
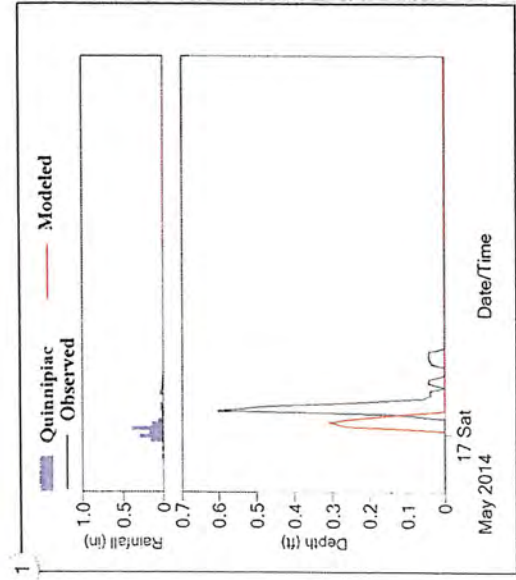
10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)



Model Calibration Results
Flow Meter: OF-012B Overflow
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
 - 3 June 9, 2014 (0.74 in.)
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 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)



Model Calibration Results
Flow Meter: OF-012B Overflow
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
 - 3 June 9, 2014 (0.74 in.)
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 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)

APPENDIX E

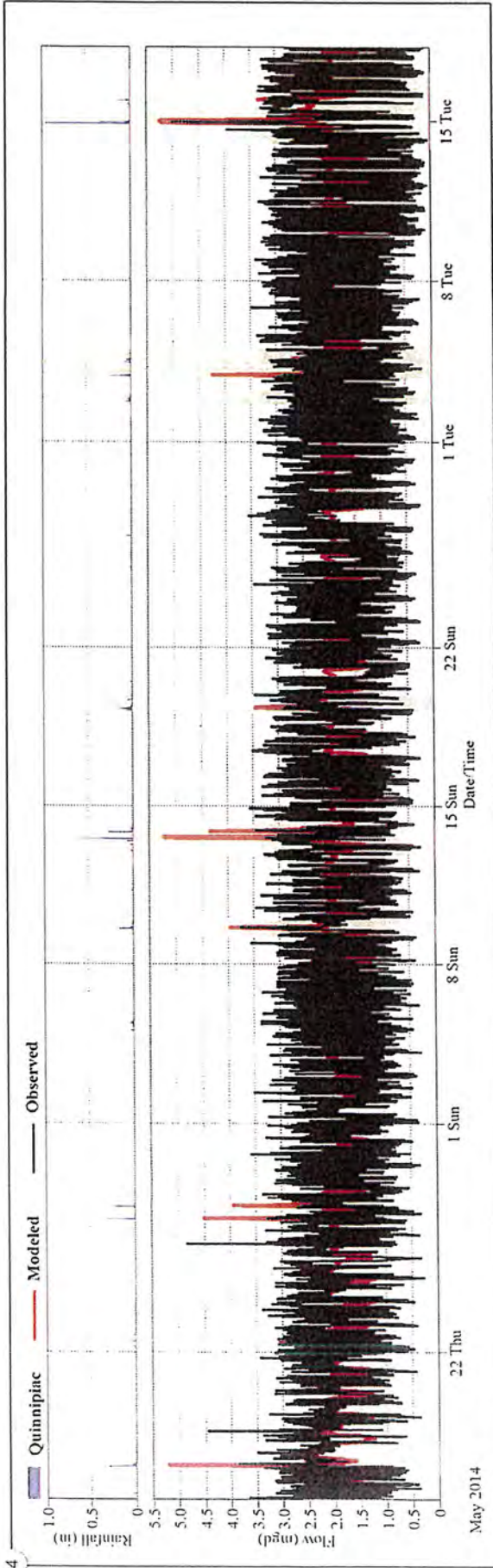
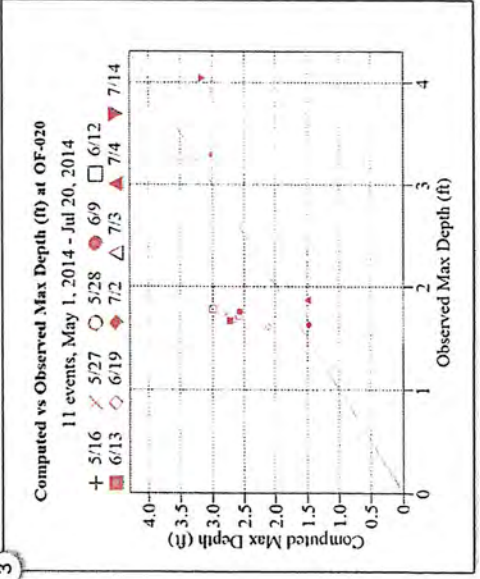
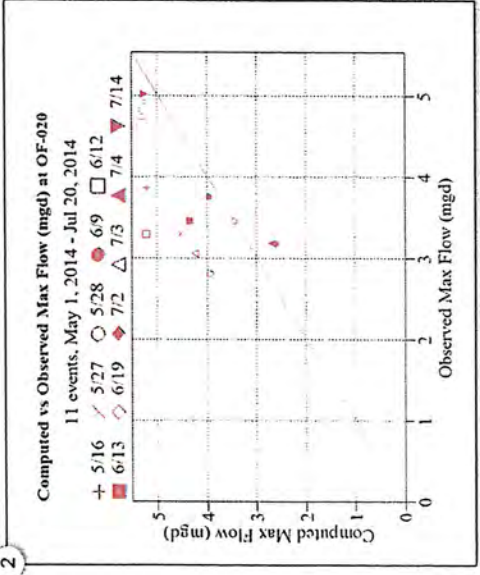
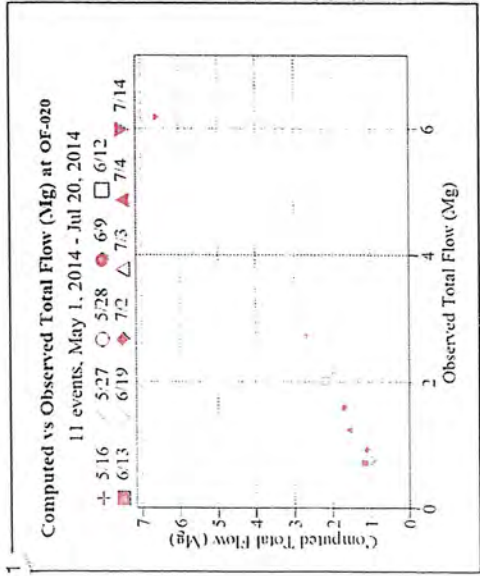
WET WEATHER CALIBRATION RESULTS

REGULATOR AND CSO OUTFALL

020 STUDY AREA

FLOW METER OF-020
WET WEATHER CALIBRATION RESULTS

(May through July 2014)



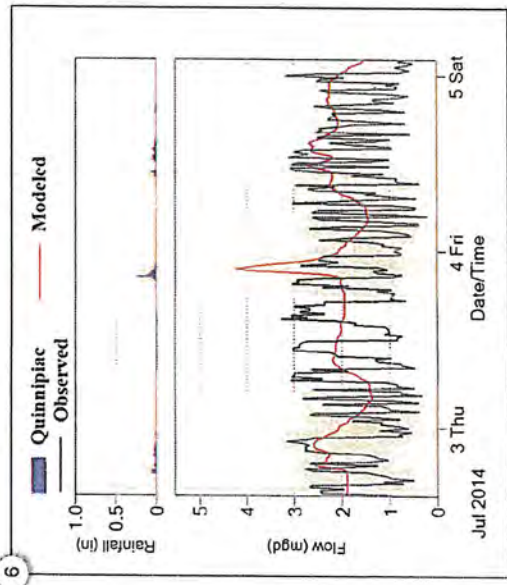
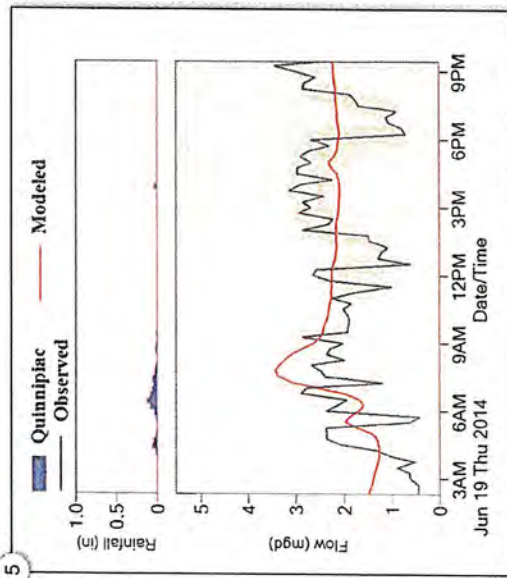
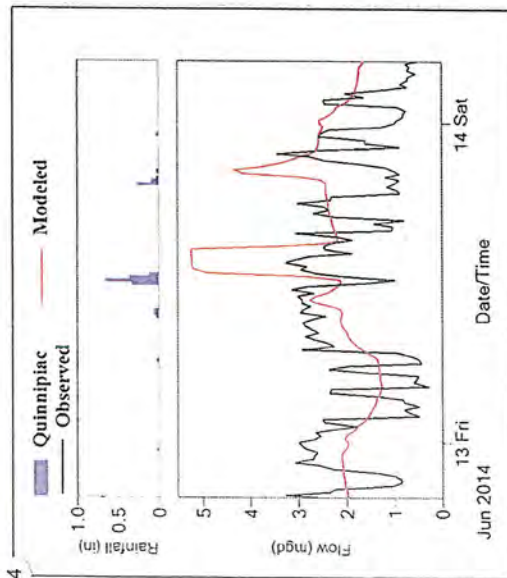
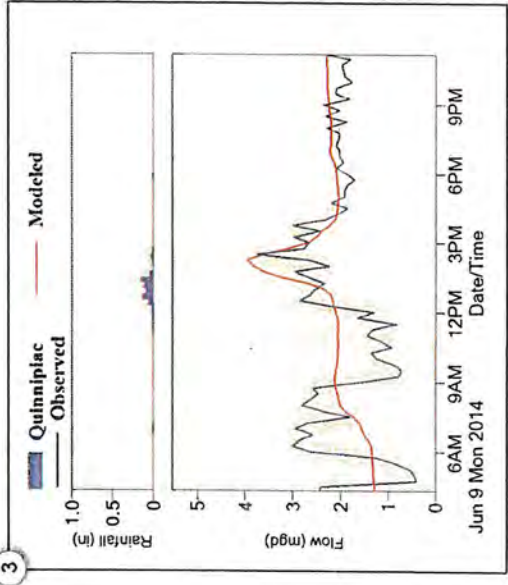
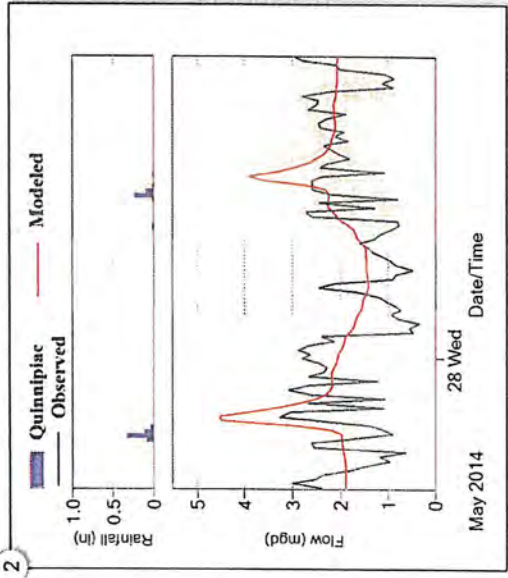
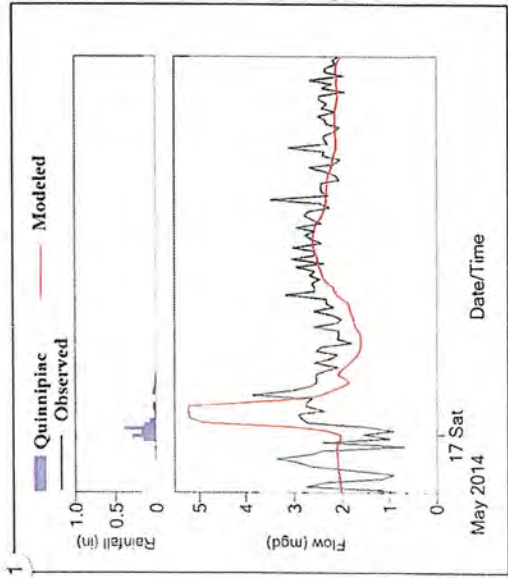
Model Calibration Results
Flow Meter: OF-020
Meter Summary


Prepared by:

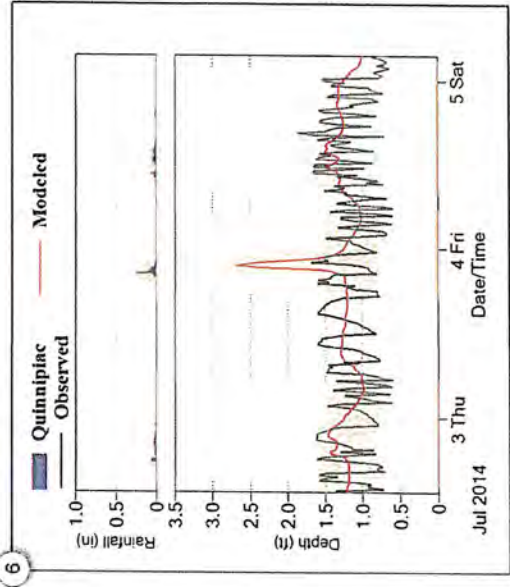
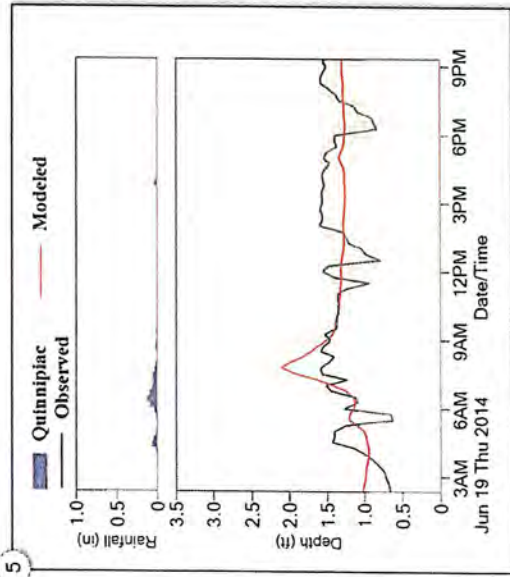
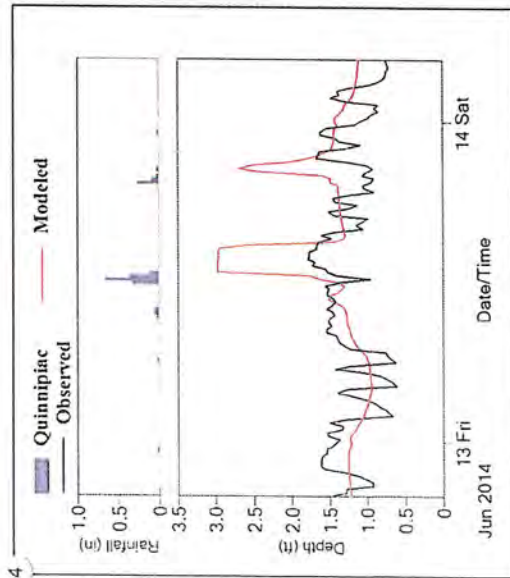
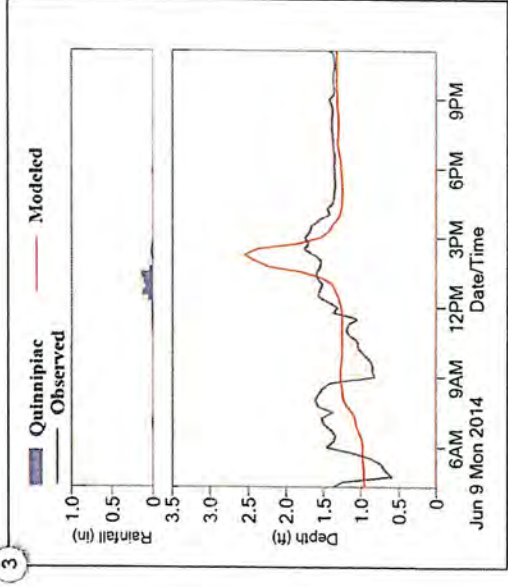
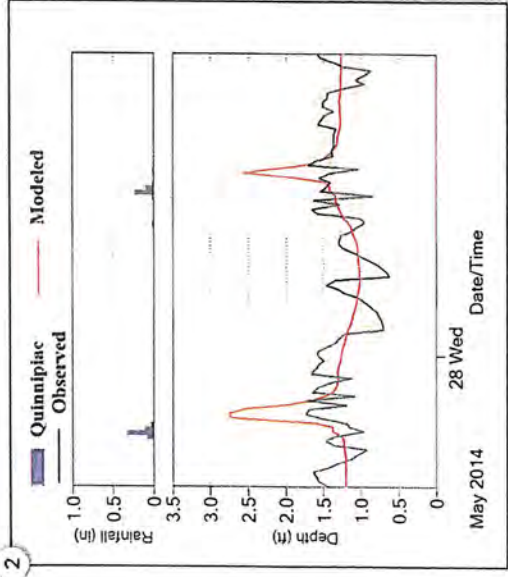
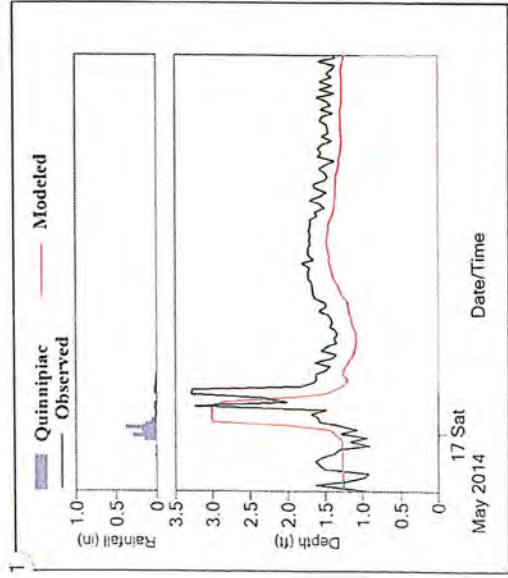
10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

Prepared for:
Greater New Haven Water Pollution Control Authority (GNHWPCA)

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph



<p>Model Calibration Results Flow Meter: OF-020 Event Comparison: Flow</p>	<p>Permanent Rain Gauge Events:</p> <ul style="list-style-type: none"> 1 May 16, 2014 (1.51 in.) 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.) 3 June 9, 2014 (0.74 in.) 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.) 5 June 19, 2014 (0.78 in.) 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.) 	<p>Prepared for: Greater New Haven Water Pollution Control Authority (GNHWPCA)</p> <p>Prepared by:</p>  <p>CH2MHILL</p>
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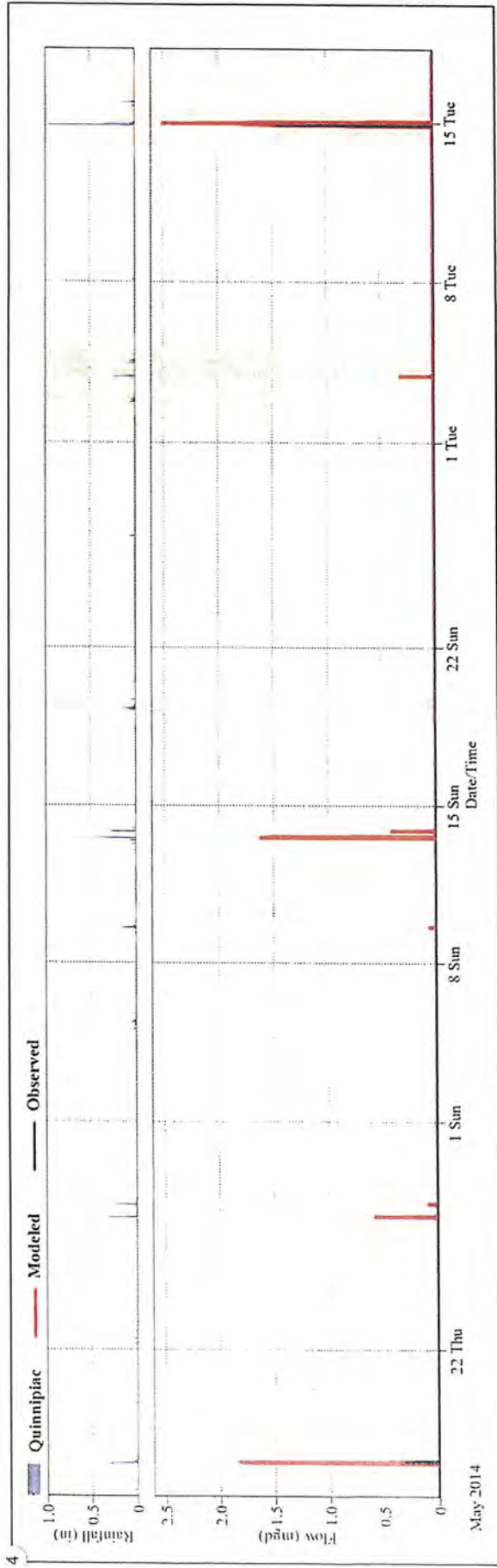
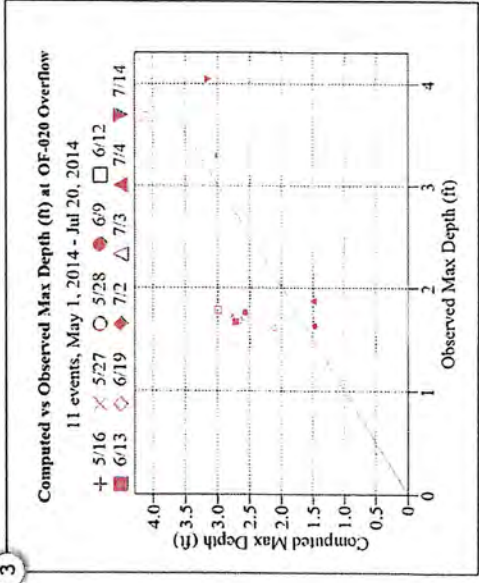
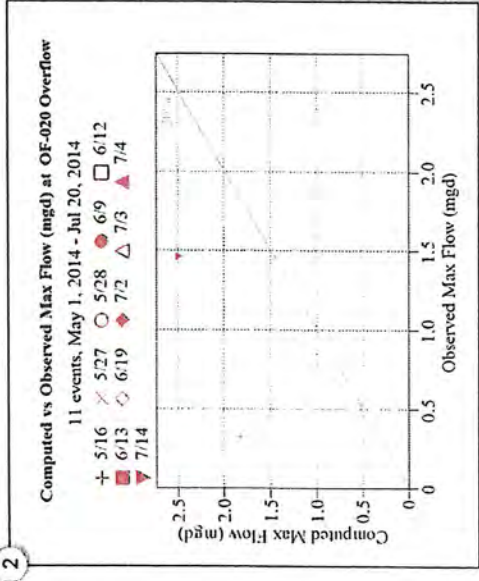
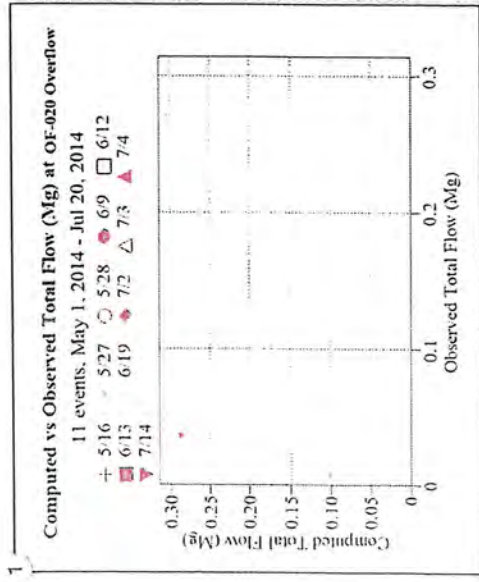


Model Calibration Results
Flow Meter: OF-020
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
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 - 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.)
 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)

**FLOW METER OF-020 OVERFLOW
WET WEATHER CALIBRATION RESULTS**

(May through July 2014)



Model Calibration Results

Flow Meter: OF-020 Overflow

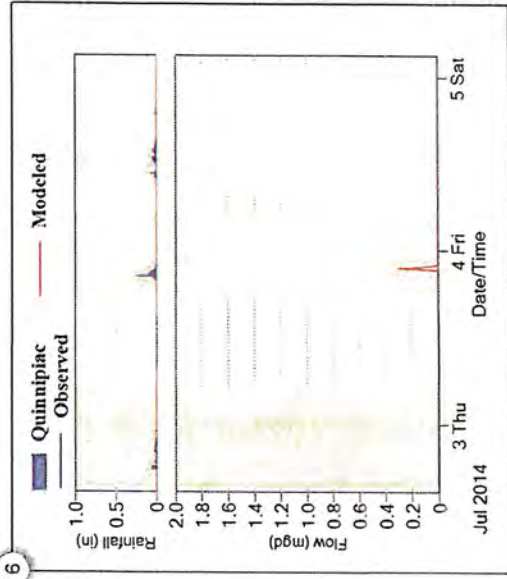
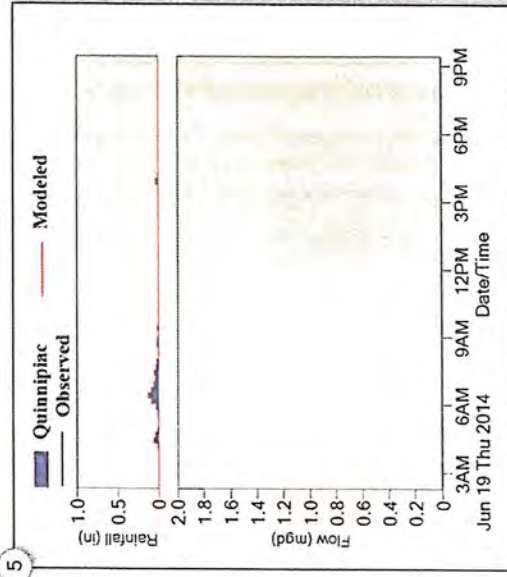
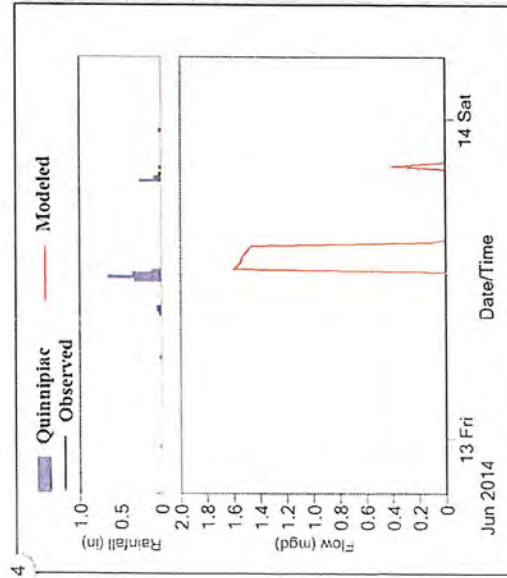
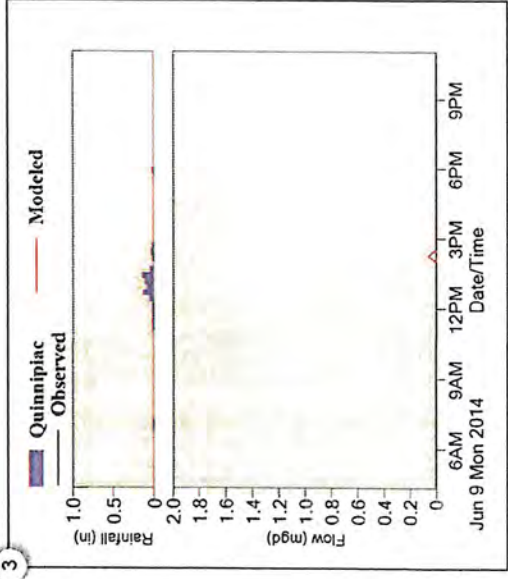
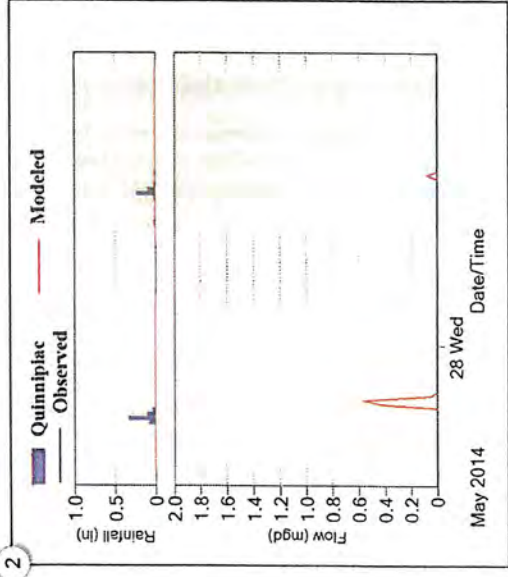
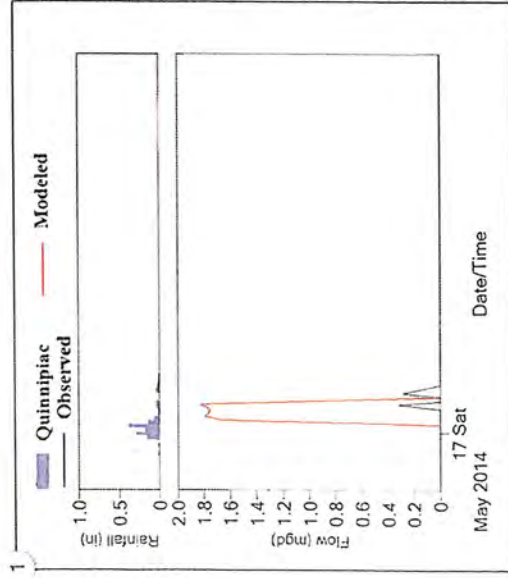
Meter Summary

- 1 Total Event Volume
- 2 Maximum Event Flow
- 3 Maximum Event Depth
- 4 Complete Hydrograph and Hyetograph

10 events fell in the May 7 - July 7, 2014 monitoring campaign with 1 validation event on July 14, 2014.

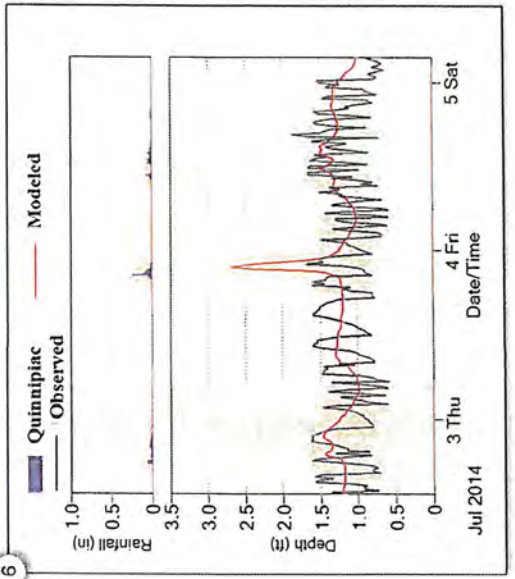
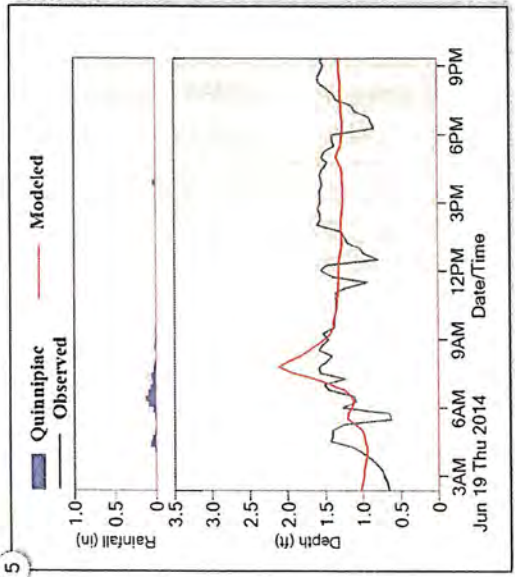
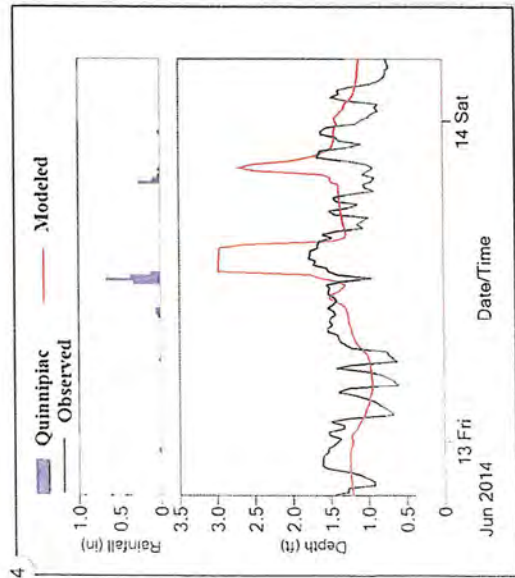
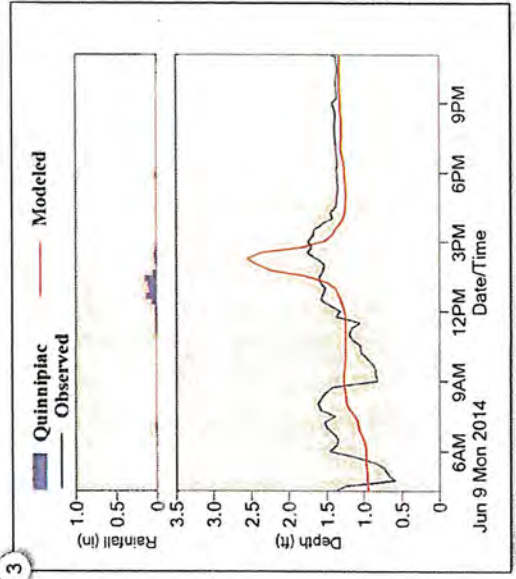
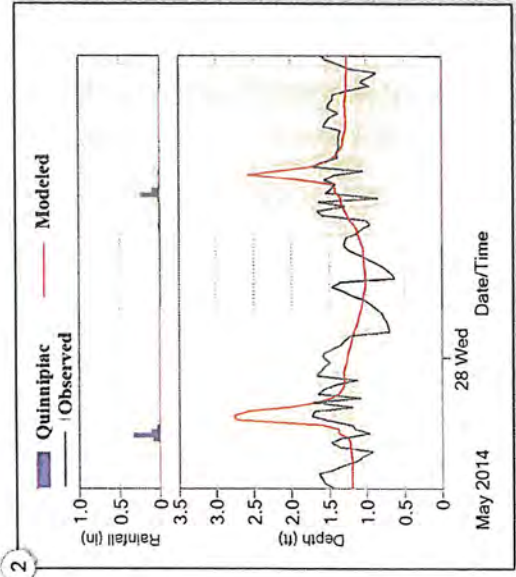
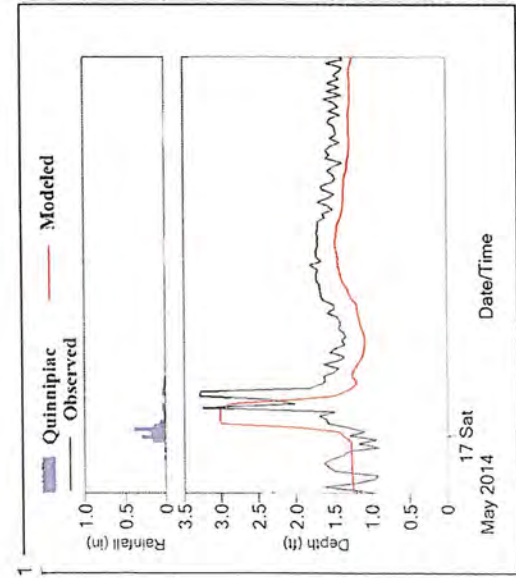
Prepared for:
 Greater New Haven Water Pollution Control Authority (GNHWPCA)

Prepared by:



Model Calibration Results
Flow Meter: OF-020 Overflow
 Event Comparison: Flow

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
 - 2 May 27, 2014 (0.56 in.) and May 28, 2014 (0.39 in.)
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Model Calibration Results
Flow Meter: OF-020 Overflow
 Event Comparison: Depth

- Permanent Rain Gauge Events:**
- 1 May 16, 2014 (1.51 in.)
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 - 3 June 9, 2014 (0.74 in.)
 - 4 June 12, 2014 (1.68 in.) and June 13, 2014 (0.45 in.)
 - 5 June 19, 2014 (0.78 in.)
 - 6 July 2, 2014 (0.38 in.), July 3, 2014 (0.60 in.) and July 4, 2014 (0.47 in.)

APPENDIX F

PROPOSED RELIEF SEWER INFORMATION

REGULATOR 034 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROPOSED RELIEF SEWER
 CLOSE REGULATOR 034
 FLOW METERS OF-034 GEORGE AND OF-034 TEMPLE

PIPE ID	STREET	PIPE AGE	PIPE MATERIAL	PIPE WIDTH (in)	PIPE HEIGHT (in)	PIPE NOMINAL DIAMETER (in)	PIPE LENGTH (ft)	PIPE UPSTREAM INVERT (NAVD88)	PIPE DOWNSTREAM INVERT (NAVD88)	PIPE SLOPE (ft/ft)
NUN03P0074	North Frontage Road	1961	RCP			42	118	-6.07	-6.80	0.00619
NUN04P0842	Union Avenue	1945	RCP			36	69	-6.01	-6.07	0.00087
NUN04P0059	North Frontage Road	New	PVC			36	312	-4.41	-6.00	0.00520
NUN04P0058	North Frontage Road	New	PVC			36	134	-3.71	-4.41	0.00520
NUN04P0057	North Frontage Road	New	PVC			36	262	-2.35	-3.71	0.00520
NUN04P0750	North Frontage Road	New	PVC			36	117	-1.74	-2.35	0.00520
NUN04P0094	North Frontage Road	New	PVC			36	20	-1.63	-1.74	0.00520
NUN04P0206	North Frontage Road	New	PVC			36	271	-0.22	-1.63	0.00520
NUN04P0205	North Frontage Road	New	PVC			36	158	0.60	-0.22	0.00520
NUN04P0204	North Frontage Road	New	PVC			36	67	0.95	0.60	0.00520
NUN04P0468	North Frontage Road	New	PVC			36	299	2.50	0.95	0.00520
NUN04P0467	North Frontage Road	1961	RCP			30	38	3.04	2.75	0.00763
NUN04P0466	Temple Street	1961	RCP			30	77	3.33	3.04	0.00377
NUN04P0465	Temple Street	1961	RCP			24	262	8.85	3.33	0.02107
TOTAL							1640			

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROPOSED RELIEF SEWER CONNECTION
 UNION AVENUE SEWER UPSTREAM FROM REGULATOR 025

PIPE ID	STREET	PIPE AGE	PIPE MATERIAL	PIPE WIDTH (in)	PIPE HEIGHT (in)	PIPE NOMINAL DIAMETER (in)	PIPE LENGTH (ft)	PIPE UPSTREAM INVERT (NAVD88)	PIPE DOWNSTREAM INVERT (NAVD88)	PIPE SLOPE (ft/ft)
NUN04P0842	Union Avenue	1945	RCP			36	69	-6.01	-6.07	0.00087
NUN04P0841	Union Avenue	1945	RCP			36	140	-5.87	-6.01	0.00100
NUN04P0840	Union Avenue	1945	RCP			36	57	-5.78	-5.87	0.00158
NUN04P0839	Union Avenue	1945	RCP			36	44	-5.67	-5.78	0.00250
NUN04P0838	Union Avenue	1945	RCP			36	45	-5.64	-5.67	0.00067
NUN05P0003	Union Avenue	1945	RCP			36	317	-5.35	-5.64	0.00091
NUN05P0361	Union Avenue	1945	RCP			36	263	-5.10	-5.35	0.00095
NUN05P0360	Union Avenue	1945	Cast Iron			36	23	-4.51	-5.10	0.02565
NUN05P0359	Union Avenue	1911	Brick			54	190	-0.24	-4.51	0.02247
NUN05P0358	Union Avenue	1911	Brick			54	183	-0.19	-0.24	0.00027
NUN05P0168	Union Avenue	1911	Brick	30	45	38	168	0.82	-0.19	0.00601
NUN05P0189	Union Avenue	1911	Brick	30	45	38	37	1.02	0.82	0.00541
NUN05P0174	Union Avenue	1911	Brick	30	45	38	177	1.94	1.02	0.00520
NUN05P0173	Union Avenue	1911	Brick	30	45	38	164	3.05	1.94	0.00677
NUN05P0172	Union Avenue	1911	Brick	30	45	38	245	4.68	3.05	0.00665
NUN05P0171	Putnam Street	1911	Brick	30	45	38	28	5.18	4.68	0.01786
NUN05P0170	Putnam Street	1896	Brick	20	30	25	156	5.71	5.18	0.00340
NUN05P0156	Putnam Street	1896	Brick	20	30	25	168	6.27	5.71	0.00333
NUN06P0221	Putnam Street	1896	Brick	20	30	25	170	6.82	6.27	0.00324
NUN06P0048	Liberty Street	1896	Brick	20	30	25	28	7.11	6.82	0.01036
NUN06P0176	Liberty Street	1896	Brick	20	30	25	157	7.58	7.11	0.00299
NUN06P0175	Liberty Street	1896	Brick	20	30	25	148	7.95	7.58	0.00250
NUN06P0412	Liberty Street	1896	Brick	20	30	25	153	8.33	7.95	0.00248
TOTAL							3130			

APPENDIX F

PROPOSED RELIEF SEWER INFORMATION

REGULATOR 012 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROPOSED RELIEF SEWER
 CLOSE REGULATOR 012
 FLOW METER FM-15

PIPE ID	STREET	PIPE AGE	PIPE MATERIAL	PIPE WIDTH (in)	PIPE HEIGHT (in)	PIPE DIAMETER (in)	PIPE NOMINAL DIAMETER (in)	PIPE LENGTH (ft)	PIPE UPSTREAM INVERT (NAVD88)	PIPE DOWNSTREAM INVERT (NAVD88)	PIPE SLOPE (ft/ft)
NHU05P1003	Mitchell Drive	1890	Brick	35	52	43	43	250	9.89	9.59	0.00120
NHU05P1002	Mitchell Drive	1890	Brick	35	52	43	43	252	10.22	9.89	0.00131
New	Willow Street	New	PVC			42	42	305	10.60	10.22	0.00125
New	Willow Street	New	PVC			42	42	305	10.97	10.60	0.00121
New	Nicoll Street	New	PVC			42	42	235	11.26	10.97	0.00123
New	Nicoll Street	New	PVC			42	42	235	11.55	11.26	0.00123
NHU05P0975	Canner Street	1890	Brick			48	48	318	12.02	11.55	0.00148
TOTAL								1080			

APPENDIX F

PROPOSED RELIEF SEWER INFORMATION

REGULATOR AND CSO OUTFALL

020 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROPOSED RELIEF SEWER
 CLOSE REGULATOR AND CSO OUTFALL 020
 FLOW METER OF-020

STREET	PIPE AGE	PIPE MATERIAL	PIPE DIAMETER (in)	PIPE LENGTH (ft)	PIPE UPSTREAM INVERT (NAVD88)	PIPE DOWNSTREAM INVERT (NAVD88)	PIPE SLOPE (ft/ft)	PIPE UPSTREAM MH RIM (NAVD88)	PIPE UPSTREAM DEPTH (ft)
Essement	1961	RCP	24	32	-5.55	-5.63	0.00250	5.75	11.30
Essement	1961	RCP	24	57	-5.41	-5.55	0.00246	3.55	8.96
Essement	1961	RCP	24	192	-4.95	-5.41	0.00240	3.05	8.00
Essement	1961	RCP	24	195	-4.46	-4.95	0.00251	3.45	7.91
Essement	1961	RCP	24	223	-4.19	-4.46	0.00121	3.85	8.04
Essement	1961	RCP	24	176	-3.75	-4.19	0.00250	8.05	11.80
Essement	1961	RCP	24	202	-3.23	-3.75	0.00257	11.75	14.98
Essement	1961	RCP	24	200	-2.73	-3.23	0.00250	9.75	12.48
Essement	1961	RCP	24	194	-2.24	-2.73	0.00253	7.25	9.49
Essement	1961	RCP	24	205	-1.73	-2.24	0.00249	4.65	6.38
Essement	1961	RCP	24	153	-1.35	-1.73	0.00248	6.65	8.00
Essement	1961	RCP	24	200	-0.85	-1.35	0.00250	8.15	9.00
Essement	1961	RCP	24	150	-0.49	-0.85	0.00240	9.05	9.54
Essement	1961	RCP	24	150	-0.17	-0.49	0.00213	9.85	10.02
Essement	1961	RCP	24	148	0.16	-0.17	0.00223	10.55	10.39
Essement	1961	RCP	24	150	0.63	0.16	0.00313	7.65	7.02
Essement	1961	RCP	24	67	0.74	0.63	0.00164	8.65	7.91
Essement	1961	RCP	24	207	1.25	0.74	0.00246	15.15	13.90
Essement	1961	RCP	24	148	1.30	1.25	0.00034	15.65	14.35
Essement	1961	RCP	24	96	1.65	1.30	0.00365	11.55	9.90
Essement	1961	RCP	24	235	2.80	1.65	0.00489	11.45	8.65
Essement	1961	RCP	24	114	2.95	2.80	0.00132	11.45	8.50
Essement	1961	RCP	24	155	3.65	2.95	0.00452	14.75	11.10
Essement	1961	RCP	24	49	3.91	3.65	0.00531	15.05	11.14
Essement	1961	RCP	24	198	4.01	3.91	0.00051	12.67	8.66
Essement	1961	RCP	24	183	4.22	4.01	0.00115	11.45	7.23
Essement	1961	RCP	24	222	4.81	4.22	0.00266	13.81	9.00
Essement	1961	RCP	24	204	5.57	4.81	0.00373	15.27	9.70
Essement	1961	RCP	24	203	5.73	5.57	0.00079	17.48	11.75
Essement	1961	RCP	24	196	6.33	5.73	0.00306	19.13	12.80
Essement	1961	RCP	24	192	6.83	6.33	0.00260	21.13	14.30
Essement	1961	RCP	24	207	7.32	6.83	0.00237	21.32	14.00
Essement	1961	RCP	24	153	7.77	7.32	0.00294	22.57	14.80
Essement	1961	RCP	24	154	7.96	7.77	0.00123	22.96	15.00
Essement	1961	RCP	24	147	8.33	7.96	0.00252	24.33	16.00
Essement	1961	RCP	24	146	8.69	8.33	0.00247	25.19	16.50
Essement	1961	RCP	24	153	9.07	8.69	0.00248	26.07	17.00
Essement	New	PVC	30	154	9.22	9.07	0.00100	25.02	15.80
Essement	New	PVC	30	120	9.34	9.22	0.00100	23.67	14.33
Essement	New	PVC	30	79	9.42	9.34	0.00100	22.64	13.22
Essement	New	PVC	30	60	9.48	9.42	0.00100	21.71	12.23
Essement	New	PVC	30	160	9.64	9.48	0.00100	20.42	10.78
Essement	New	PVC	30	167	9.81	9.64	0.00100	18.52	8.71
Essement	New	PVC	30	71	9.88	9.81	0.00100	18.89	9.01
Essement	New	PVC	30	211	10.09	9.88	0.00100	18.70	8.61
Essement	New	PVC	30	168	10.26	10.09	0.00100	16.25	5.99
Essement	New	PVC	30	172	10.43	10.26	0.00100	15.55	5.12
Essement	New	PVC	30	178	10.61	10.43	0.00100	17.65	7.04
Essement	New	PVC	30	80	10.70	10.61	0.00100	20.00	9.30
Essement	1961	RCP	24	142	16.70	13.43	0.03007	24.25	7.55
Essement	1961	RCP	24	200	22.72	16.70	0.03010	31.25	8.53
Essement	1961	RCP	24	152	27.32	22.72	0.03026	36.85	9.53
Essement	1961	RCP	24	166	33.22	27.32	0.04041	42.25	9.03
Essement	1961	RCP	24	171	40.22	33.22	0.04094	48.25	8.03
Essement	1961	RCP	24	123	41.43	40.22	0.00984	49.95	8.52
Essement				1620					

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROPOSED RELIEF SEWER
 CLOSE REGULATOR AND CSO OUTFALL 020
 FLOW METER OF-020

STREET	PIPE DOWNSTREAM MH RIM (IN/AVD88)	PIPE DOWNSTREAM DEPTH (ft)	CATCHMENT	PIPE FULL FLOW (MGD)	PIPE FULL VELOCITY (fps)	MINIMUM FLOW (MGD)	AVERAGE FLOW (MGD)	PEAK FLOW (MGD)
Essement	5.95	11.58	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	5.75	11.30	Sanitary	6.2	3.1	1.3	1.6	5.2
Essement	3.55	8.96	Sanitary	6.2	3.0	1.3	1.6	5.2
Essement	3.05	8.00	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	3.45	7.91	Sanitary	4.4	2.2	1.3	1.6	5.2
Essement	3.85	8.04	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	8.05	11.80	Sanitary	6.4	3.2	1.3	1.6	5.2
Essement	11.75	14.98	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	9.75	12.48	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	7.25	9.49	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	4.65	6.38	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	6.65	8.00	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	8.15	9.00	Sanitary	6.2	3.1	1.3	1.6	5.2
Essement	9.05	9.54	Sanitary	5.8	2.9	1.3	1.6	5.2
Essement	9.85	10.02	Sanitary	6.0	2.9	1.3	1.6	5.2
Essement	10.55	10.39	Sanitary	7.1	3.5	1.3	1.6	5.2
Essement	7.65	7.02	Sanitary	5.1	2.5	1.3	1.6	5.2
Essement	8.65	7.91	Sanitary	6.3	3.1	1.3	1.6	5.2
Essement	15.15	13.90	Sanitary	2.3	1.1	1.3	1.6	5.2
Essement	15.65	14.35	Sanitary	7.6	3.8	1.3	1.6	5.2
East Ferry Street	11.55	9.90	Sanitary	8.8	4.4	1.3	1.6	5.2
East Ferry Street	11.45	8.65	Sanitary	4.6	2.3	1.3	1.6	5.2
East Ferry Street	11.45	8.50	Sanitary	8.5	4.2	1.3	1.6	5.2
Quinnipiac Avenue	14.75	11.10	Sanitary	9.2	4.5	1.3	1.6	5.2
Quinnipiac Avenue	15.05	11.14	Sanitary	2.8	1.4	1.3	1.6	5.2
Quinnipiac Avenue	12.67	8.66	Sanitary	4.3	2.1	1.3	1.6	5.2
Quinnipiac Avenue	11.45	7.23	Sanitary	6.5	3.2	1.3	1.6	5.2
Quinnipiac Avenue	13.81	9.00	Sanitary	7.7	3.8	1.3	1.6	5.2
Quinnipiac Avenue	15.27	9.70	Sanitary	3.5	1.7	1.3	1.6	5.2
Quinnipiac Avenue	17.48	11.75	Sanitary	7.0	3.4	1.3	1.6	5.2
Quinnipiac Avenue	19.13	12.80	Sanitary	6.4	3.2	1.3	1.6	5.2
Quinnipiac Avenue	21.13	14.30	Sanitary	6.1	3.0	1.3	1.6	5.2
Quinnipiac Avenue	21.32	14.00	Sanitary	6.8	3.4	1.3	1.6	5.2
Quinnipiac Avenue	22.57	14.80	Sanitary	4.4	2.2	1.3	1.6	5.2
Quinnipiac Avenue	22.96	15.00	Sanitary	6.3	3.1	1.3	1.6	5.2
Quinnipiac Avenue	24.33	16.00	Sanitary	6.3	3.1	1.3	1.6	5.2
Quinnipiac Avenue	25.19	16.50	Sanitary	6.3	3.1	1.3	1.6	5.2
Quinnipiac Avenue	26.07	17.00	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	25.02	15.80	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	23.67	14.33	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	22.64	13.22	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	21.71	12.23	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	20.42	10.78	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	18.52	8.71	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	18.89	9.01	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	18.70	8.61	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	16.25	5.99	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	15.55	5.12	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	17.65	7.04	Sanitary	7.2	3.3	1.3	1.6	5.2
Quinnipiac Avenue	20.00	7.57	Sanitary	21.9	10.8	1.3	1.6	5.2
Quinnipiac Avenue	24.25	7.55	Sanitary	21.9	10.8	1.3	1.6	5.2
Quinnipiac Avenue	31.25	8.53	Sanitary	21.9	10.8	1.3	1.6	5.2
Quinnipiac Avenue	36.85	9.53	Sanitary	25.3	12.5	1.3	1.6	5.2
Quinnipiac Avenue	42.25	9.03	Sanitary	25.5	12.6	1.3	1.6	5.2
Quinnipiac Avenue	48.25	8.03	Sanitary	12.5	6.2	1.3	1.6	5.2

APPENDIX G

PROJECT COST ESTIMATE

REGULATOR 034 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROJECT COST ESTIMATE
 REGULATOR 034 STUDY AREA

<u>ITEM</u>	<u>UNIT</u>	<u>UNIT COST (\$)</u>	<u>QUANTITY</u>	<u>COST (\$)</u>
<u>CONSTRUCTION COSTS</u>				
36 inch replacement sewer	feet	\$350	1640	\$574,000
5 foot sewer manholes	vertical feet	\$600	210	\$126,000
Maintenance, protection and relocation of existing utilities	lump sum	\$100,000	1	\$100,000
Pavement restoration	square yard	\$100	1700	\$170,000
Sedimentation and erosion control	lump sum	\$50,000	1	\$50,000
Bypass pumping	lump sum	\$425,000	1	\$425,000
SUBTOTAL				\$1,445,000
Escalation to midpoint of construction (2 years at 3.5% per year)				\$101,150
CONSTRUCTION SUBTOTAL				\$1,546,150
Traffic control (20% of construction subtotal)				\$309,230
Mobilization/demobilization (5% of construction subtotal)				\$77,308
General Conditions (10% of construction subtotal)				\$154,615
Contingency (25% of construction subtotal)				\$386,538
CONSTRUCTION TOTAL				\$2,473,840
<u>ENGINEERING SERVICES</u>				
Design (10% of construction total)				\$247,384
Services during construction (10% of construction subtotal)				\$247,384
ENGINEERING TOTAL				\$494,768
<u>LEGAL AND ADMINISTRATIVE COSTS</u>				
Legal services				\$50,000
Interest during construction				\$75,000
Administration				\$10,000
LEGAL AND ADMINISTRATIVE TOTAL				\$135,000
REGULATOR 034 STUDY AREA PROJECT COST ESTIMATE				\$3,103,608

APPENDIX G
PROJECT COST ESTIMATE
REGULATOR 012 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROJECT COST ESTIMATE
 REGULATOR 012 STUDY AREA

<u>ITEM</u>	<u>UNIT</u>	<u>UNIT COST (\$)</u>	<u>QUANTITY</u>	<u>COST (\$)</u>
<u>CONSTRUCTION COSTS</u>				
42 inch relief sewer	feet	\$375	1080	\$405,000
5 foot sewer manholes	vertical feet	\$600	60	\$36,000
Maintenance, protection and relocation of existing utilities.	lump sum	\$15,000	1	\$15,000
Pavement restoration	square yard	\$50	1200	\$60,000
Sedimentation and erosion control	lump sum	\$10,000	1	\$10,000
SUBTOTAL				\$526,000
Escalation to midpoint of construction (2 years at 3.5% per year)				\$36,820
CONSTRUCTION SUBTOTAL				\$562,820
Traffic control (20% of construction subtotal)				\$112,564
Mobilization/demobilization (5% of construction subtotal)				\$28,141
General Conditions (10% of construction subtotal)				\$56,282
Contingency (25% of construction subtotal)				\$140,705
CONSTRUCTION TOTAL				\$900,512
<u>ENGINEERING SERVICES</u>				
Design (10% of construction total)				\$90,051
Services during construction (10% of construction subtotal)				\$90,051
ENGINEERING TOTAL				\$180,102
<u>LEGAL AND ADMINISTRATIVE COSTS</u>				
Legal services				\$10,000
Interest during construction				\$15,000
Administration				\$2,500
LEGAL AND ADMINISTRATIVE TOTAL				\$27,500
REGULATOR 012 STUDY AREA PROJECT COST ESTIMATE				\$1,108,114

APPENDIX G
PROJECT COST ESTIMATE
REGULATOR AND CSO OUTFALL
020 STUDY AREA

GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY
 PRELIMINARY DESIGN REPORT - CONSTRUCTION OF RELIEF SEWERS FOR CSO ABATEMENT
 PROJECT COST ESTIMATE
 REGULATOR AND CSO OUTFALL 020 STUDY AREA

<u>ITEM</u>	<u>UNIT</u>	<u>UNIT COST (\$)</u>	<u>QUANTITY</u>	<u>COST (\$)</u>
<u>CONSTRUCTION COSTS</u>				
30 inch replacement sewer	feet	\$300	1620	\$486,000
4 foot sewer manholes	vertical feet	\$500	135	\$67,500
Maintenance, protection and relocation of existing utilities	lump sum	\$40,000	1	\$40,000
Pavement restoration	square yard	\$100	1800	\$180,000
Sedimentation and erosion control	lump sum	\$15,000	1	\$15,000
Bypass pumping	lump sum	\$300,000	1	\$300,000
SUBTOTAL				\$1,088,500
Escalation to midpoint of construction (2 years at 3.5% per year)				\$76,195
CONSTRUCTION SUBTOTAL				\$1,164,695
Traffic control (20% of construction subtotal)				\$232,939
Mobilization/demobilization (5% of construction subtotal)				\$58,235
General Conditions (10% of construction subtotal)				\$116,470
Contingency (25% of construction subtotal)				\$291,174
CONSTRUCTION TOTAL				\$1,863,512
<u>ENGINEERING SERVICES</u>				
Design (10% of construction total)				\$186,351
Services during construction (10% of construction subtotal)				\$186,351
ENGINEERING TOTAL				\$372,702
<u>LEGAL AND ADMINISTRATIVE COSTS</u>				
Legal services				\$25,000
Interest during construction				\$35,000
Administration				\$5,000
LEGAL AND ADMINISTRATIVE TOTAL				\$65,000
REGULATOR AND CSO OUTFALL 020 STUDY AREA PROJECT COST ESTIMATE				\$2,301,214