Mining the Flow Data for System Optimization

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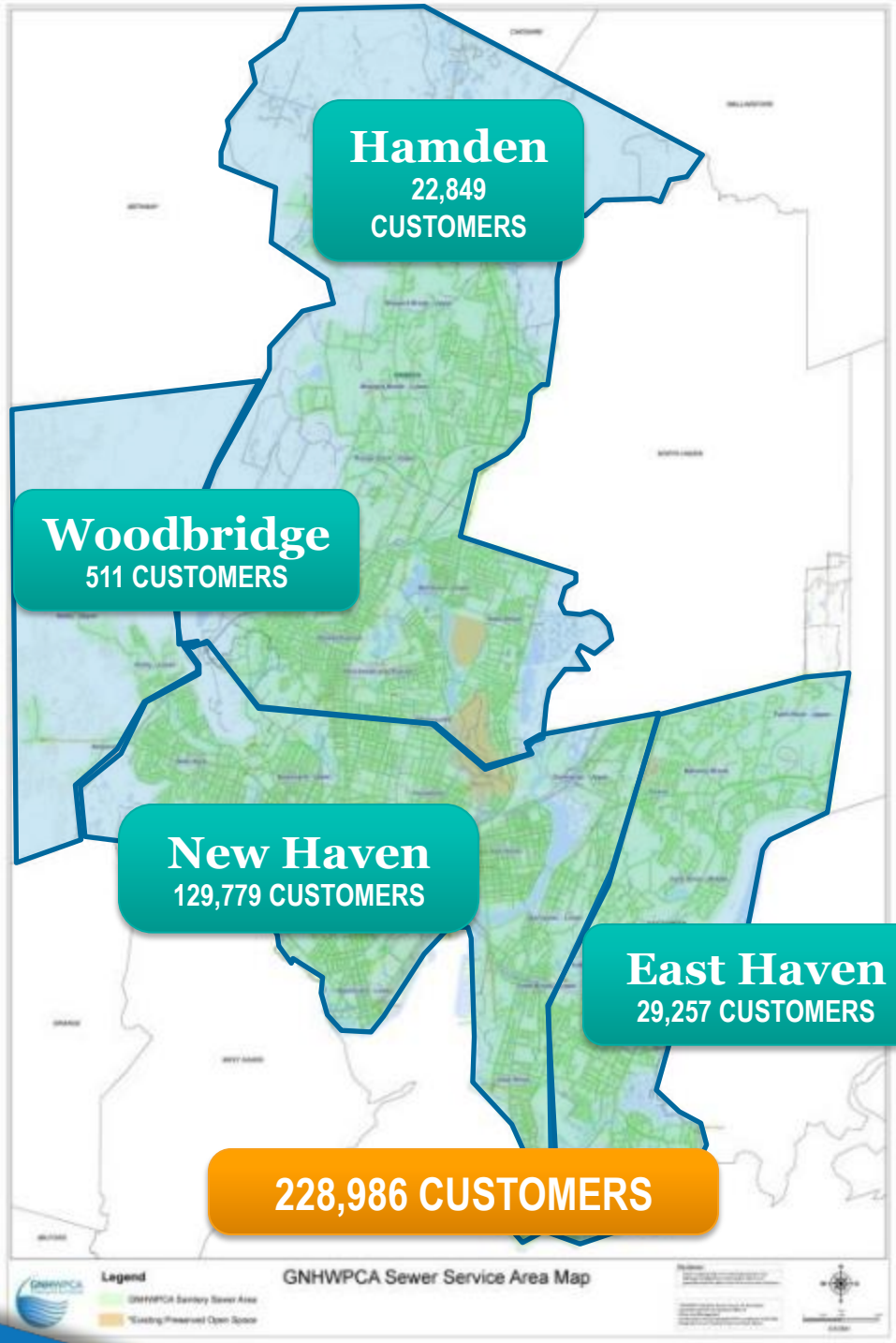
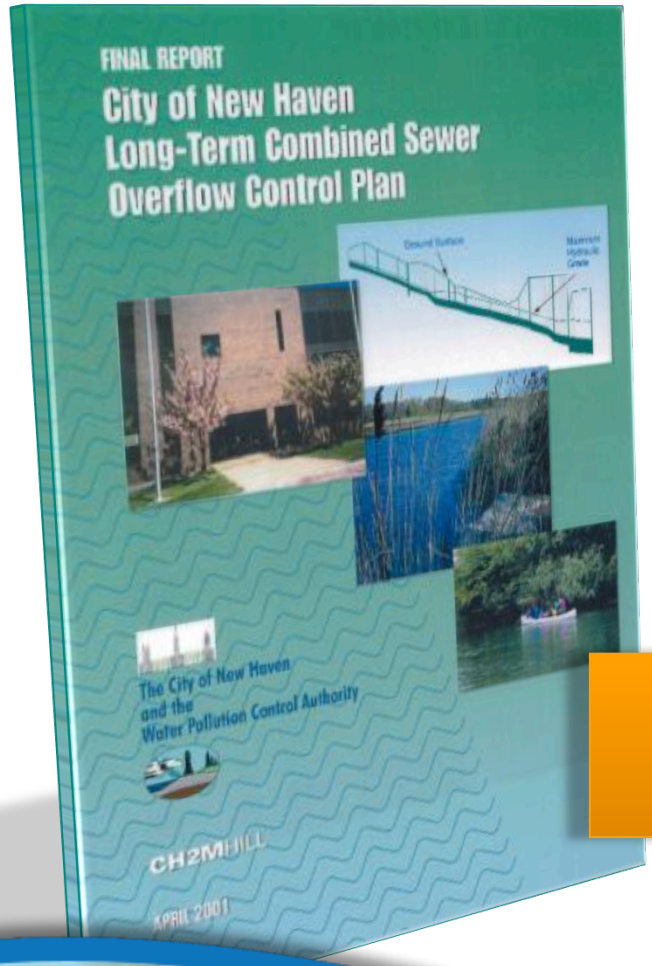
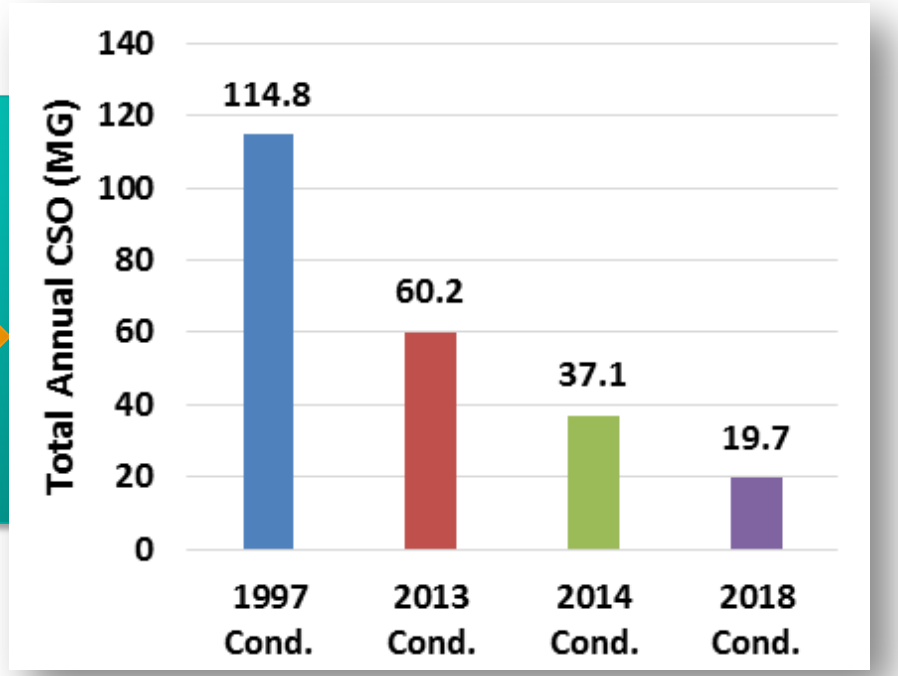
- **Four Member Communities**
  - Hamden
  - East Haven
  - Woodbridge
  - New Haven
- **Over 500 Miles of Collections Systems**
- **30 Pump Stations**
- **East Shore Treatment Plant**
  - 29 MGD – Average
  - 60 MGD – Secondary Design Flow
  - 100 MGD – Wet Weather Primary



Establishment of a Long Term Control Plan

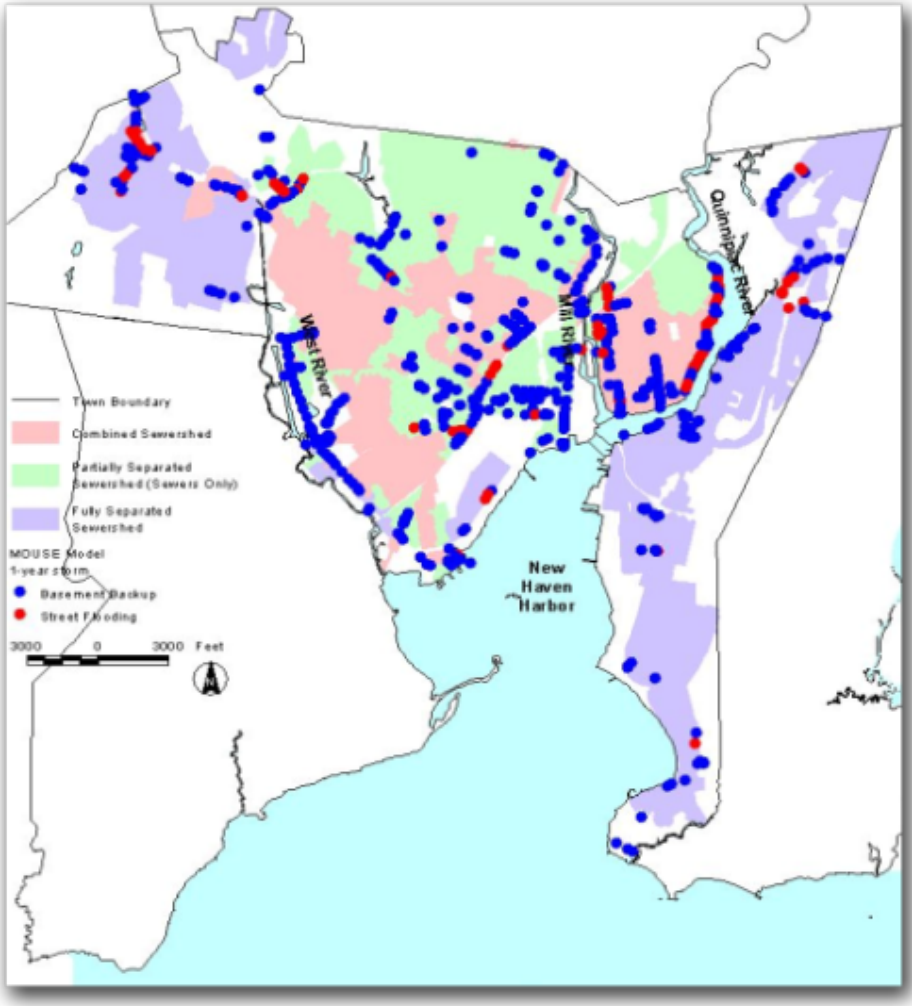


- LTCP approved in 2003
- Updated LTCP approved in 2011
- Next Update Due to be completed in 2016



Components of the Long Term Control Plan

- **Maximize Treatment Capacity at East Shore WPAF**
- **Collection System Improvements**
  - Major Pump Station Upgrades
  - CSO Regulator Modifications
  - Sewer Separation
  - Green Infrastructure
  - Storage Tanks

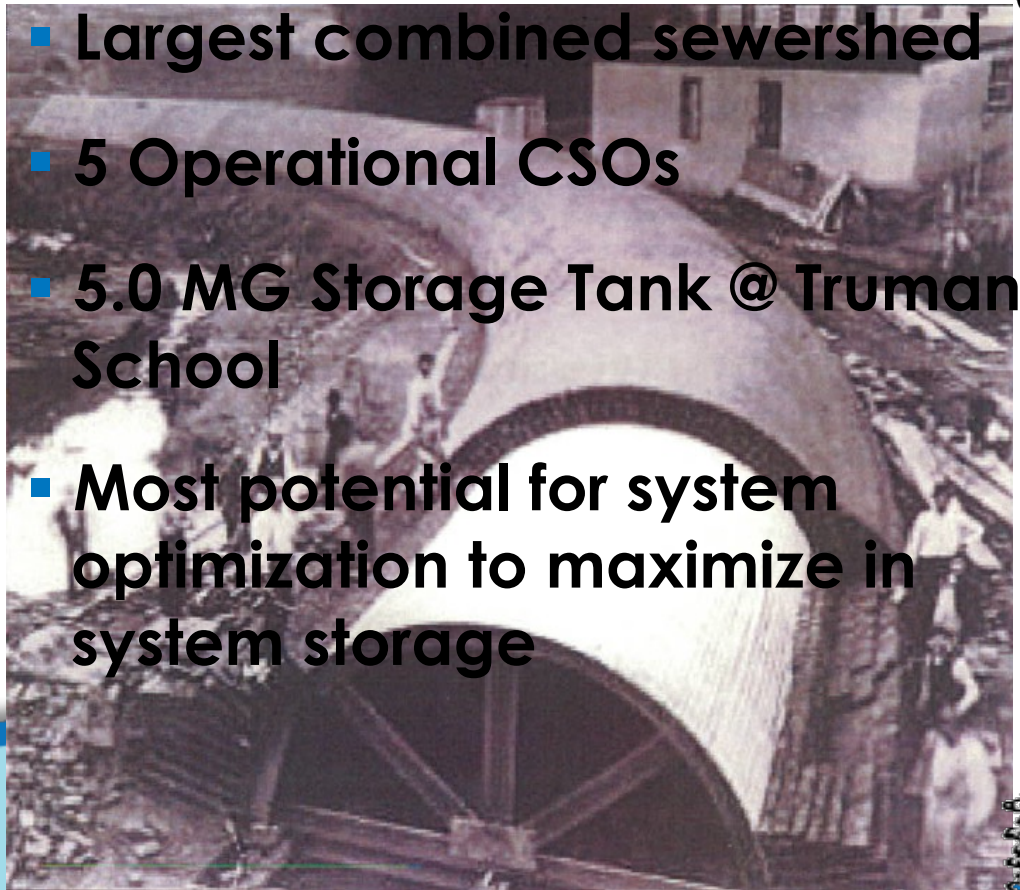


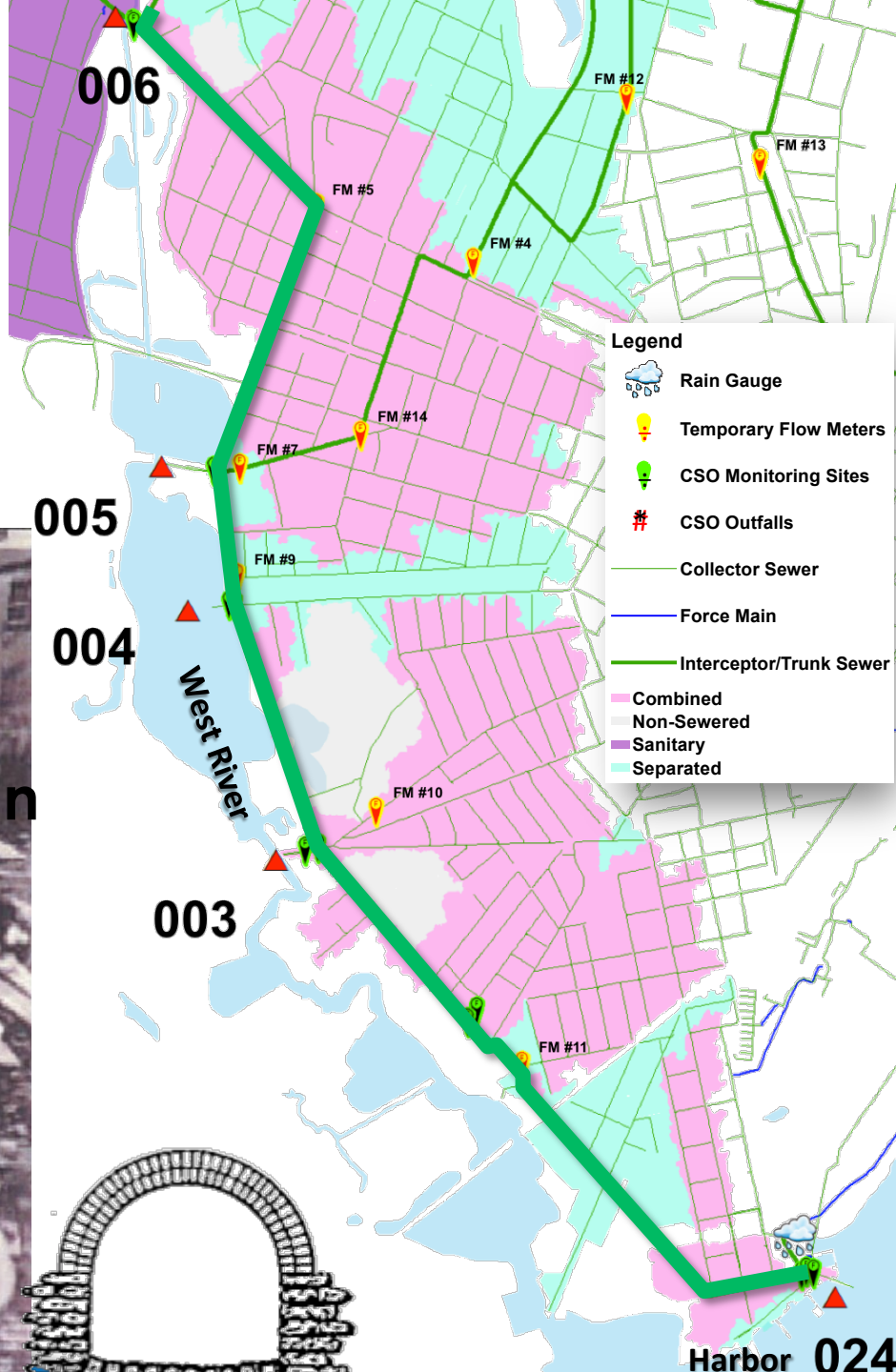
LTCP PROJECT COSTS (2009 $)

COLLECTION SYSTEM	$334M
WPAF IMPROVEMENTS	$245M
	$579M

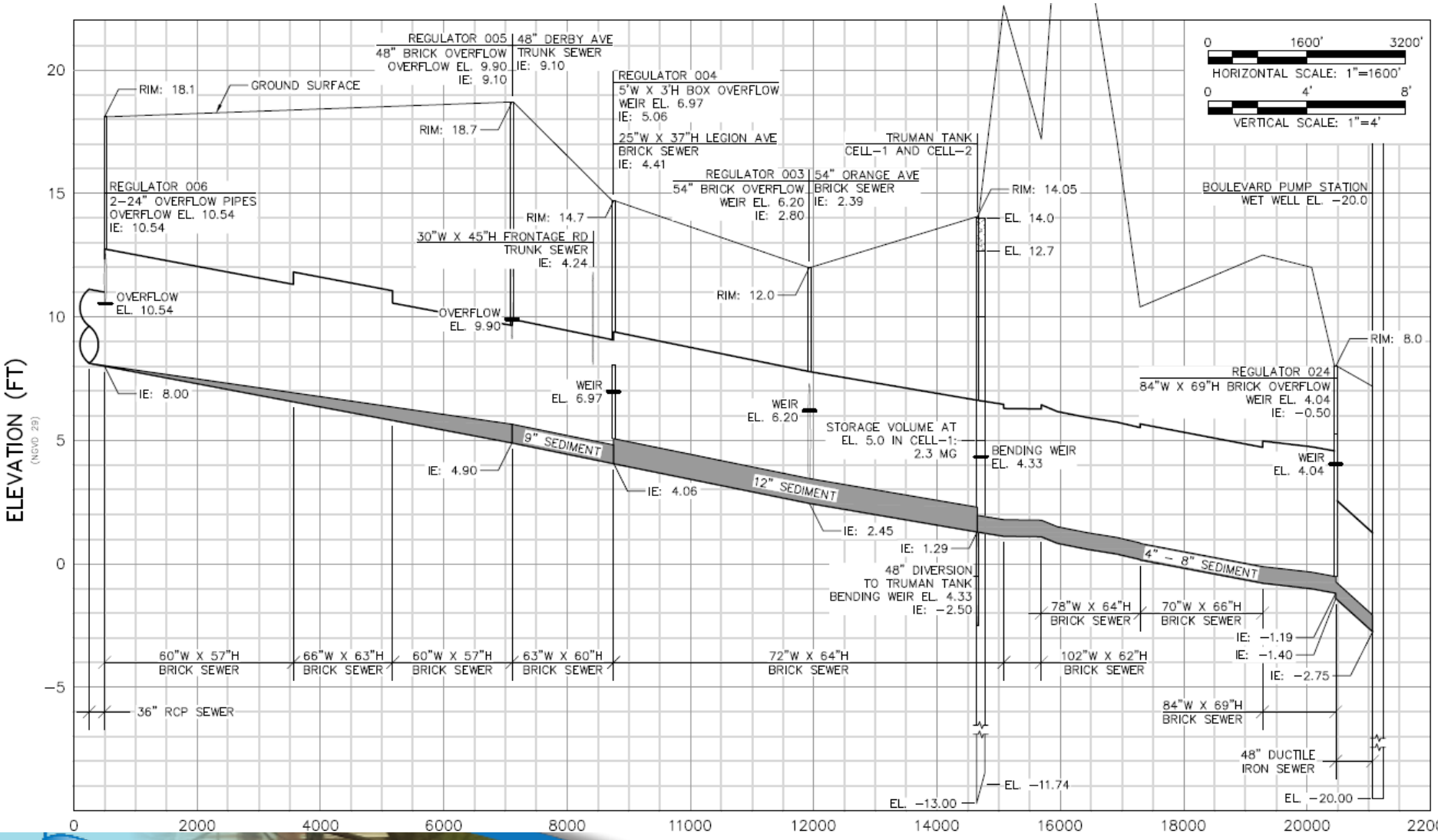
West River Memorial Park Combined Sewers

- ~ 4 miles long 120 year old brick trunk sewer
- Largest combined sewershed
- 5 Operational CSOs
- 5.0 MG Storage Tank @ Truman School
- Most potential for system optimization to maximize in system storage

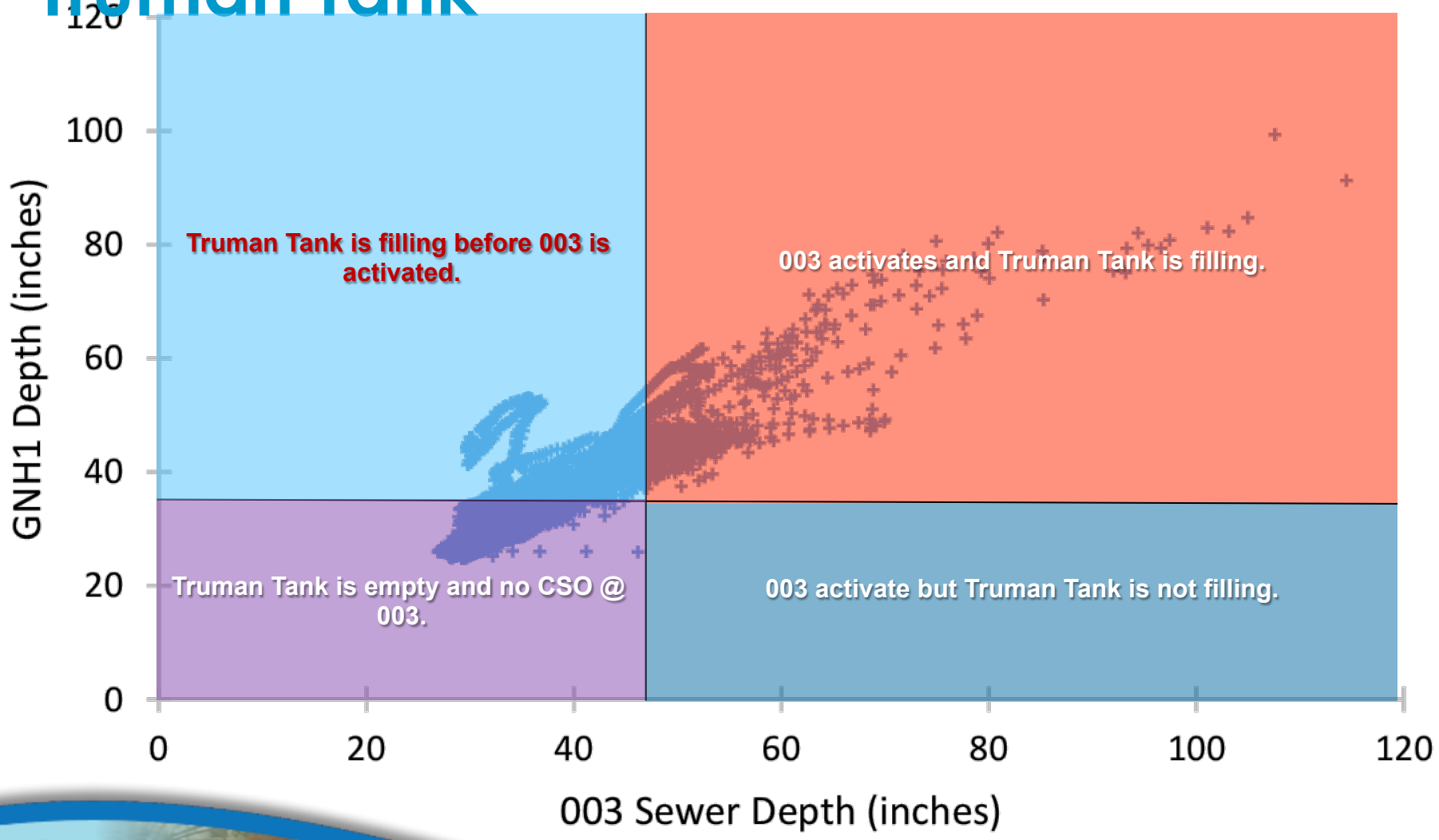




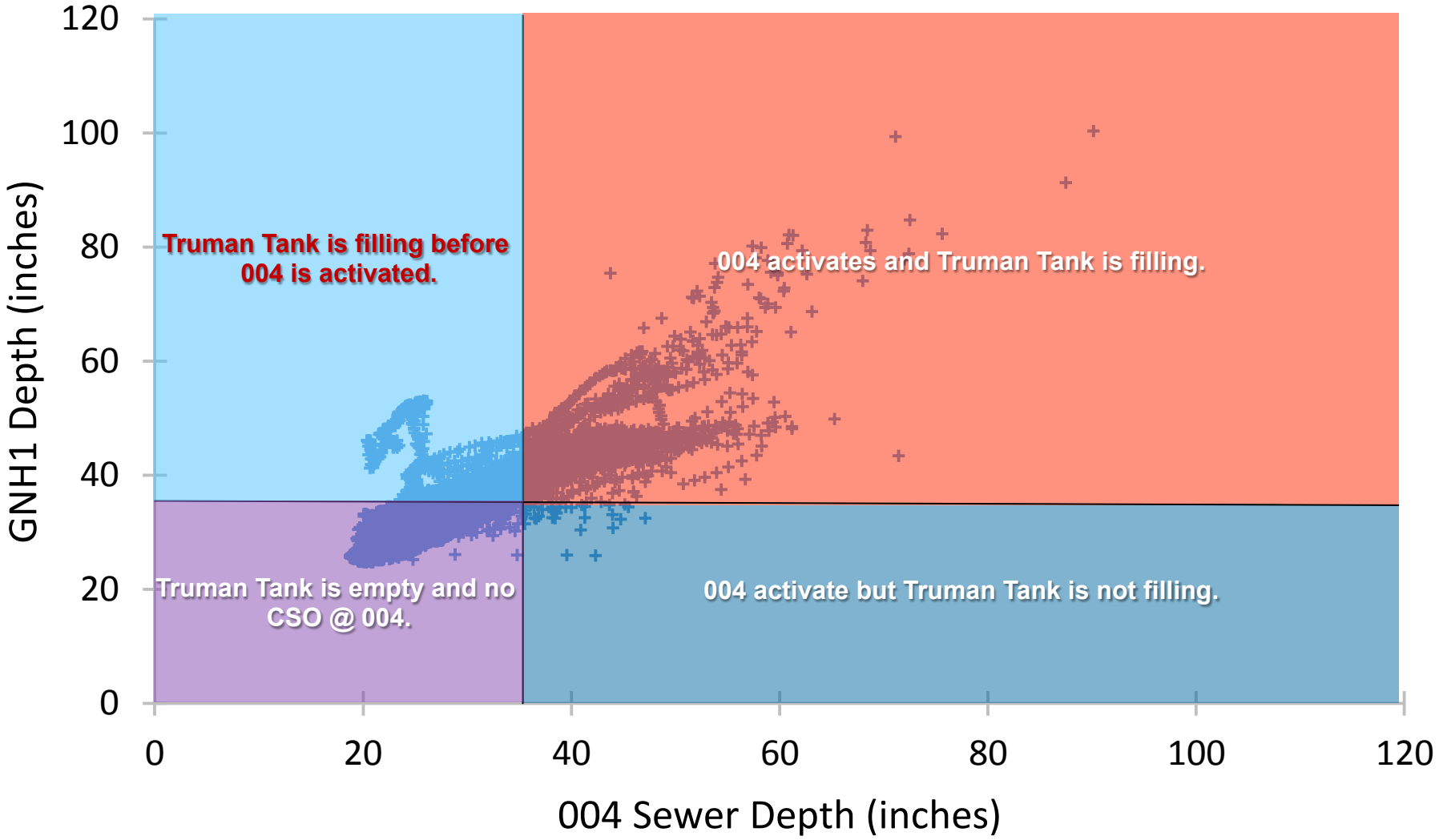
Profiles of Boulevard Trunk Sewer



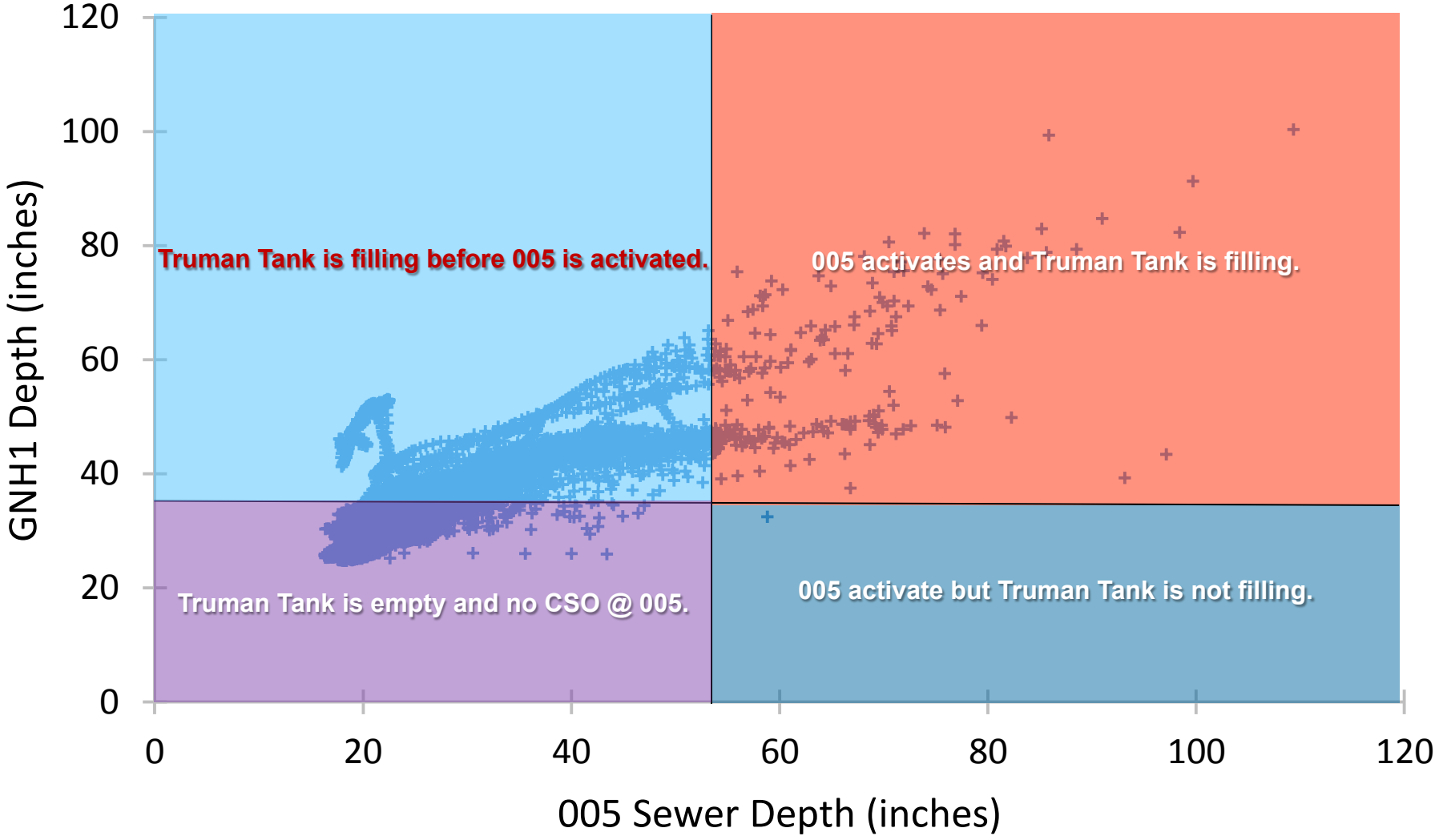
Correlations Between CSO 003 and Truman Tank



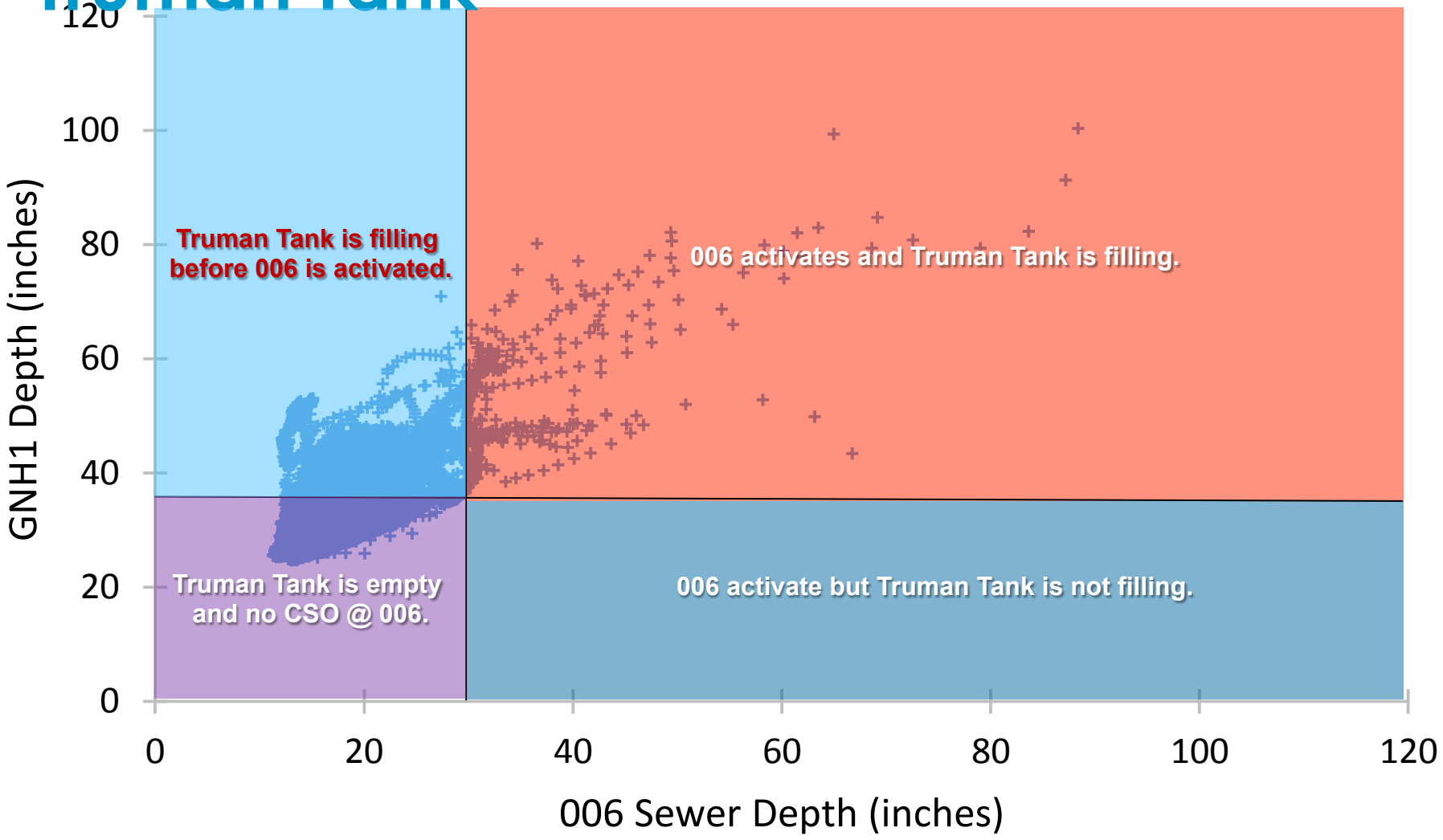
Correlations Between CSO 004 and Truman Tank



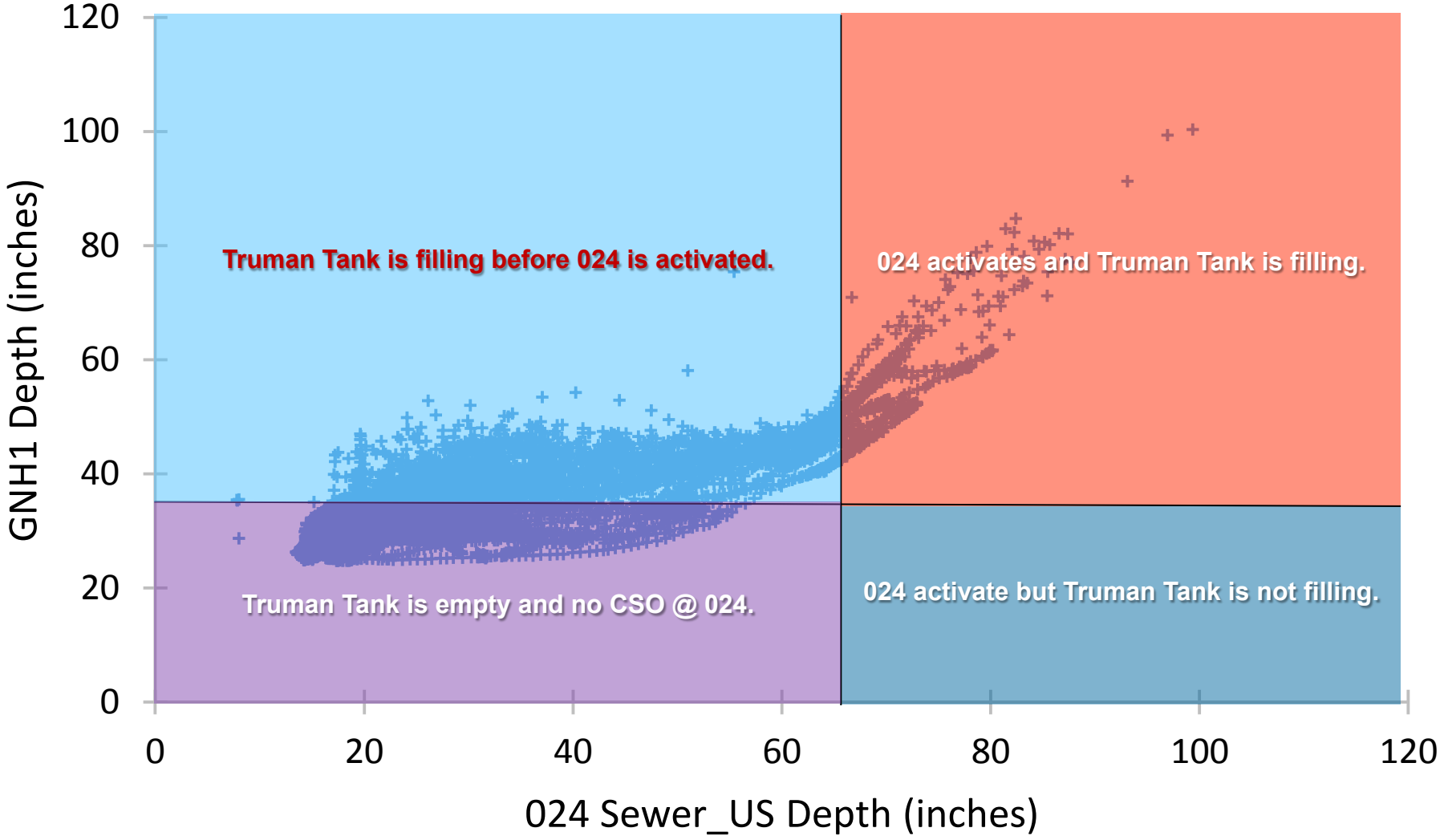
Correlations Between CSO 005 and Truman Tank



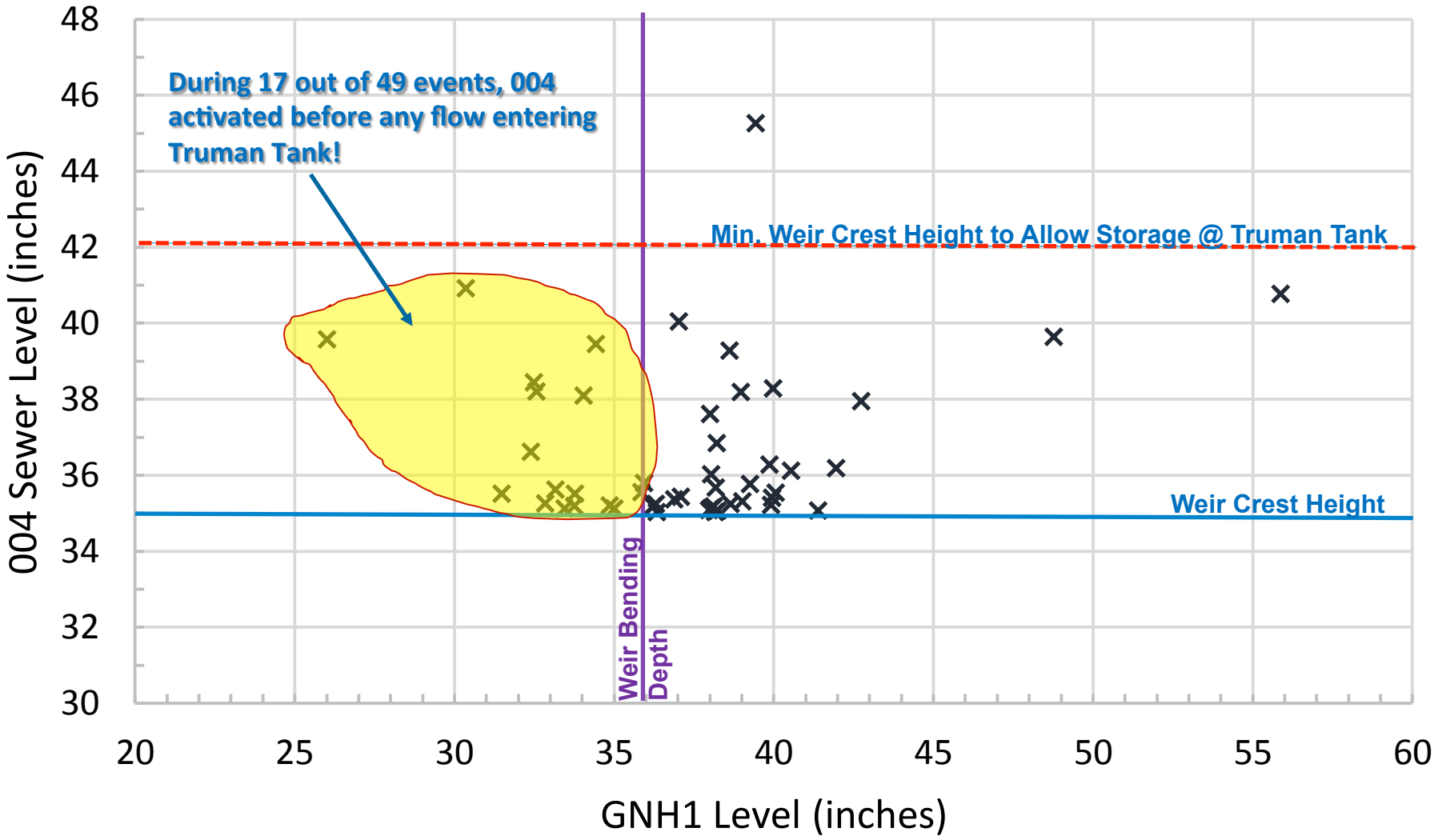
Correlations Between CSO 006 and Truman Tank



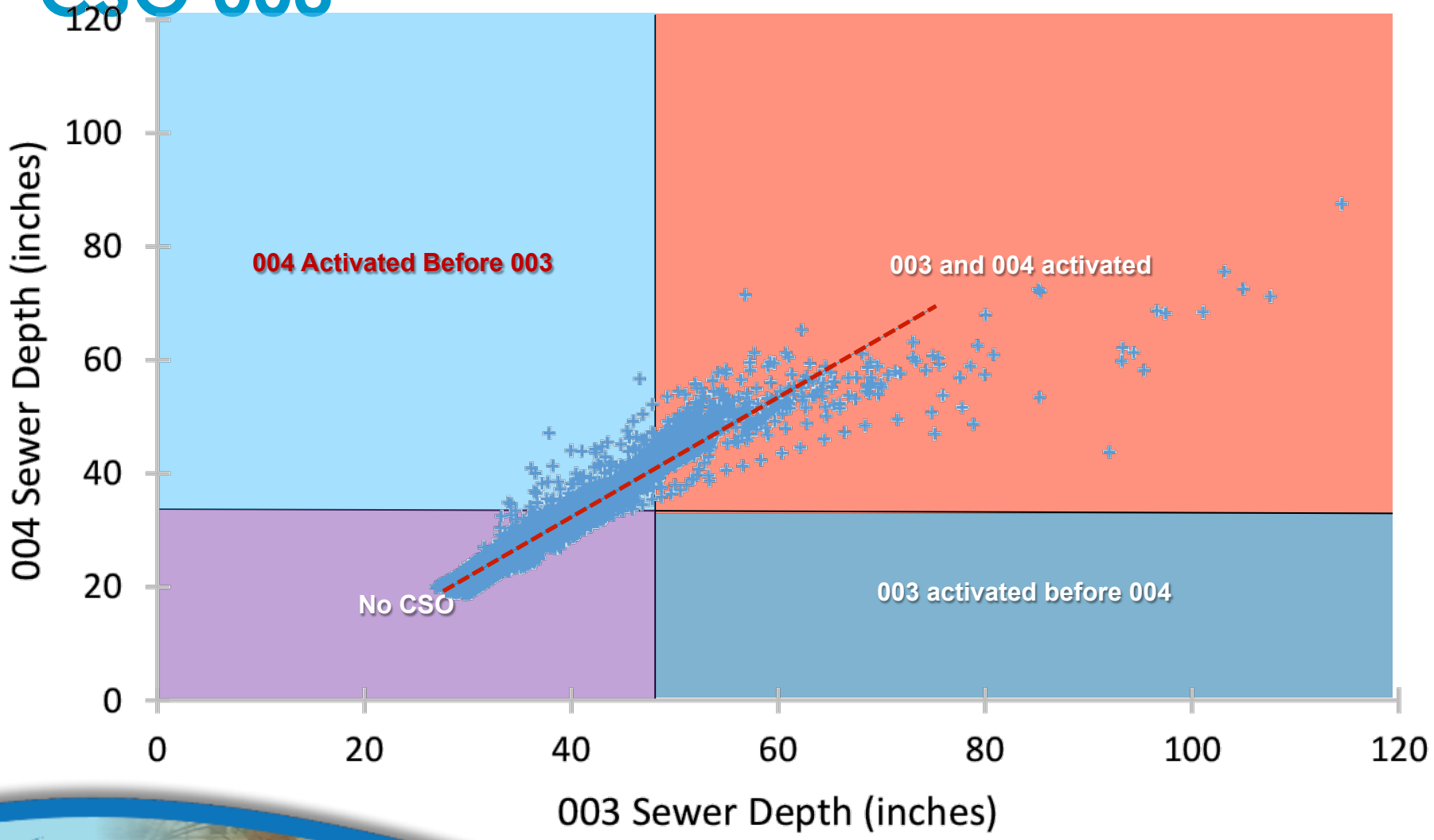
Correlations Between CSO 024 and Truman Tank



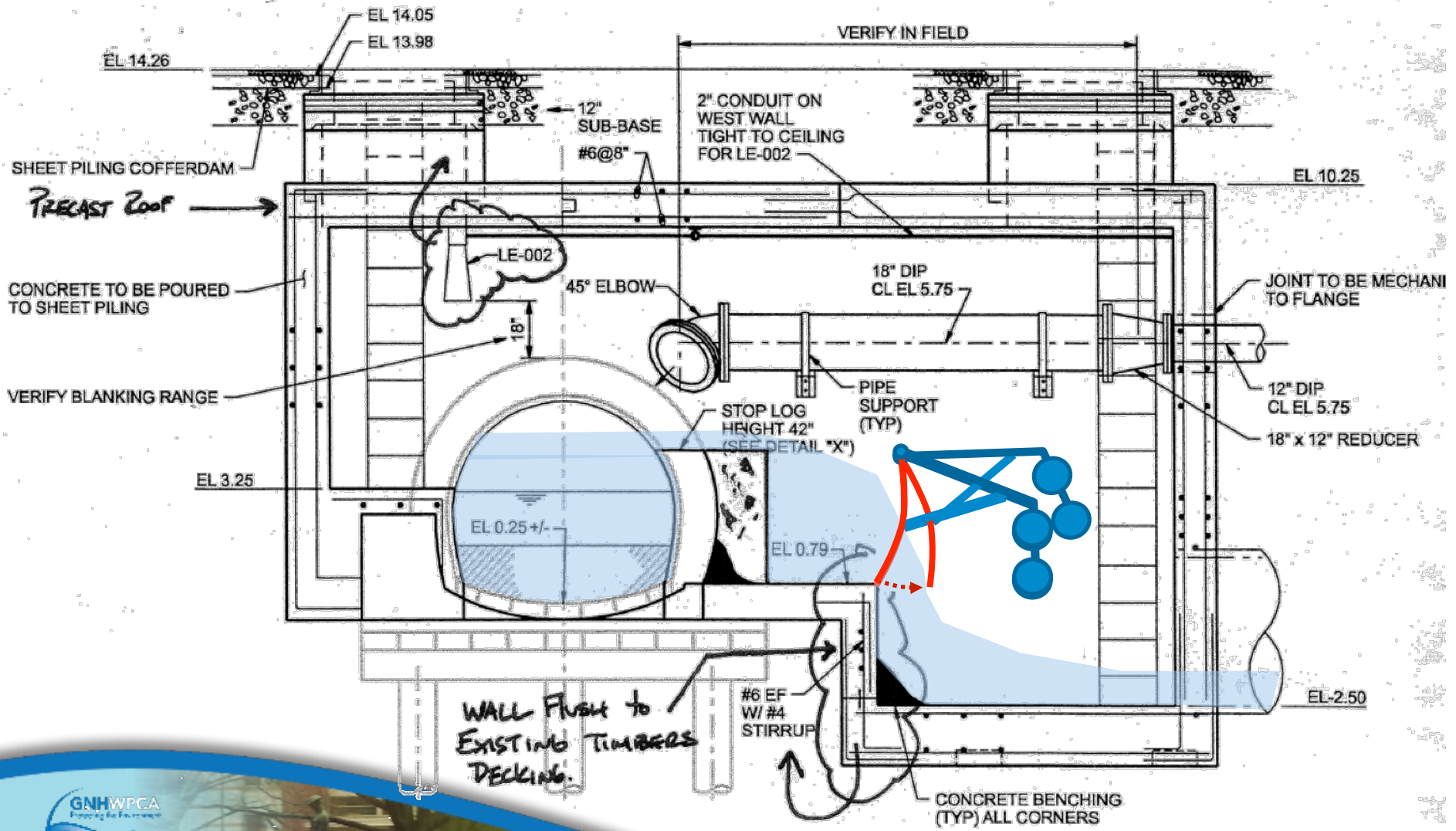
GNH1 Level When 004 Started Overflow



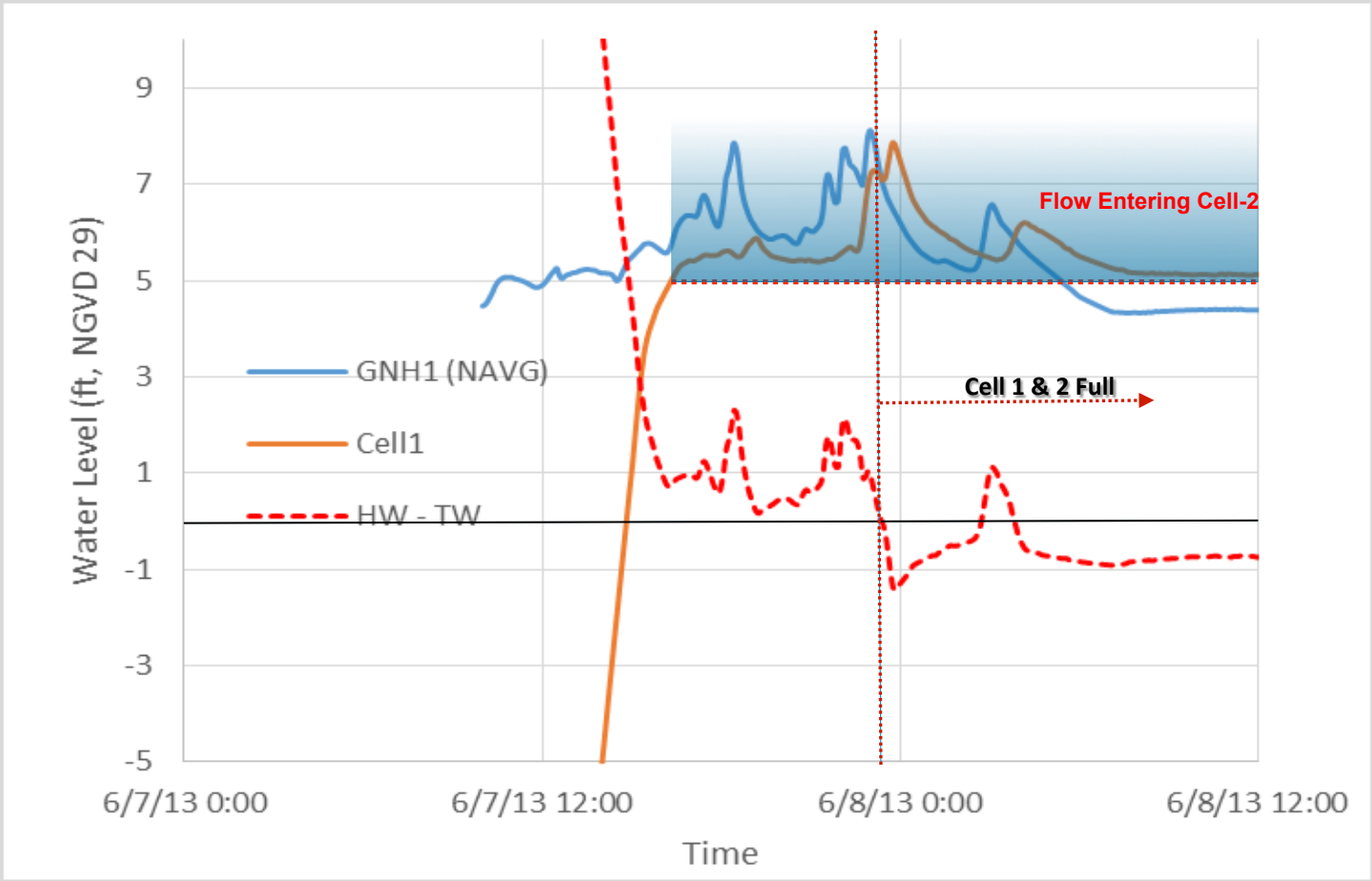
Correlations Between CSO 004 and CSO 003



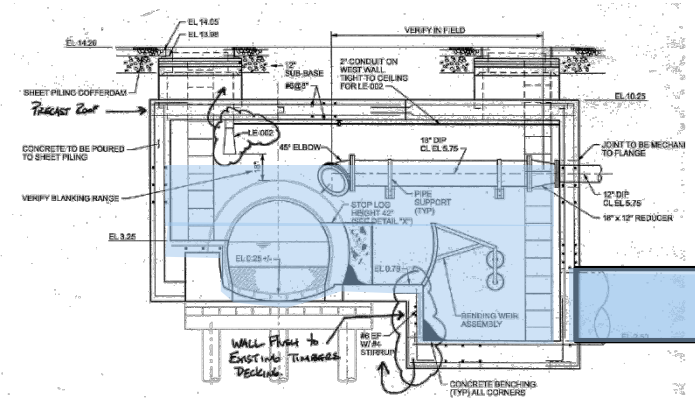
Diversion to Truman Storage Tank

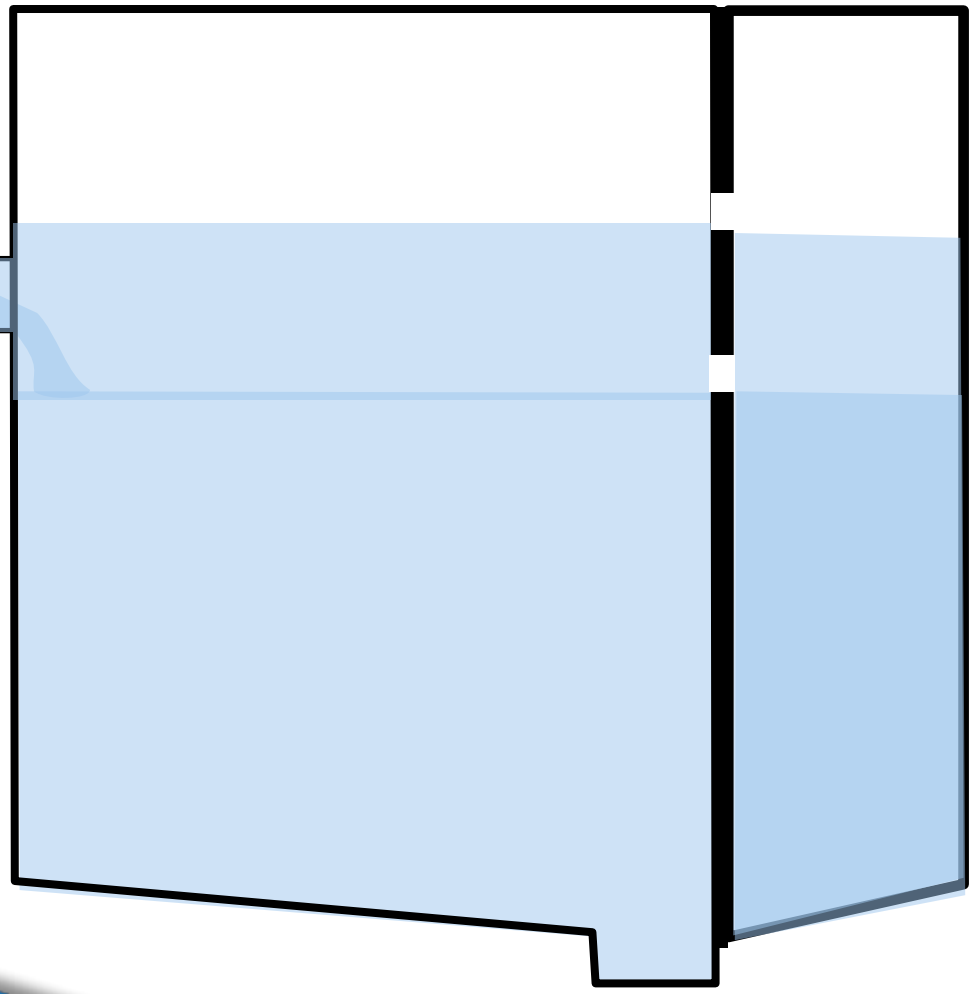


Truman Tank Storage Cells and Diversion Chamber

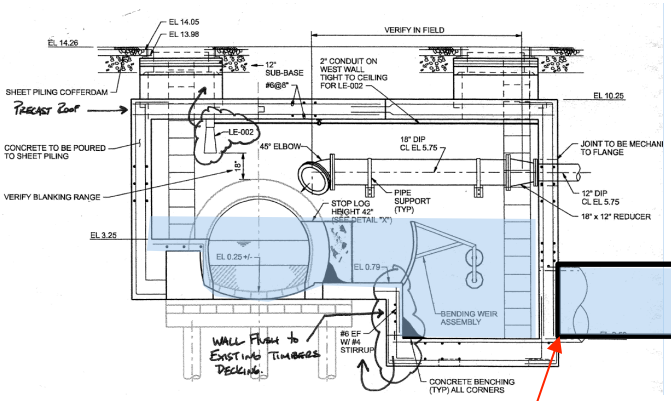


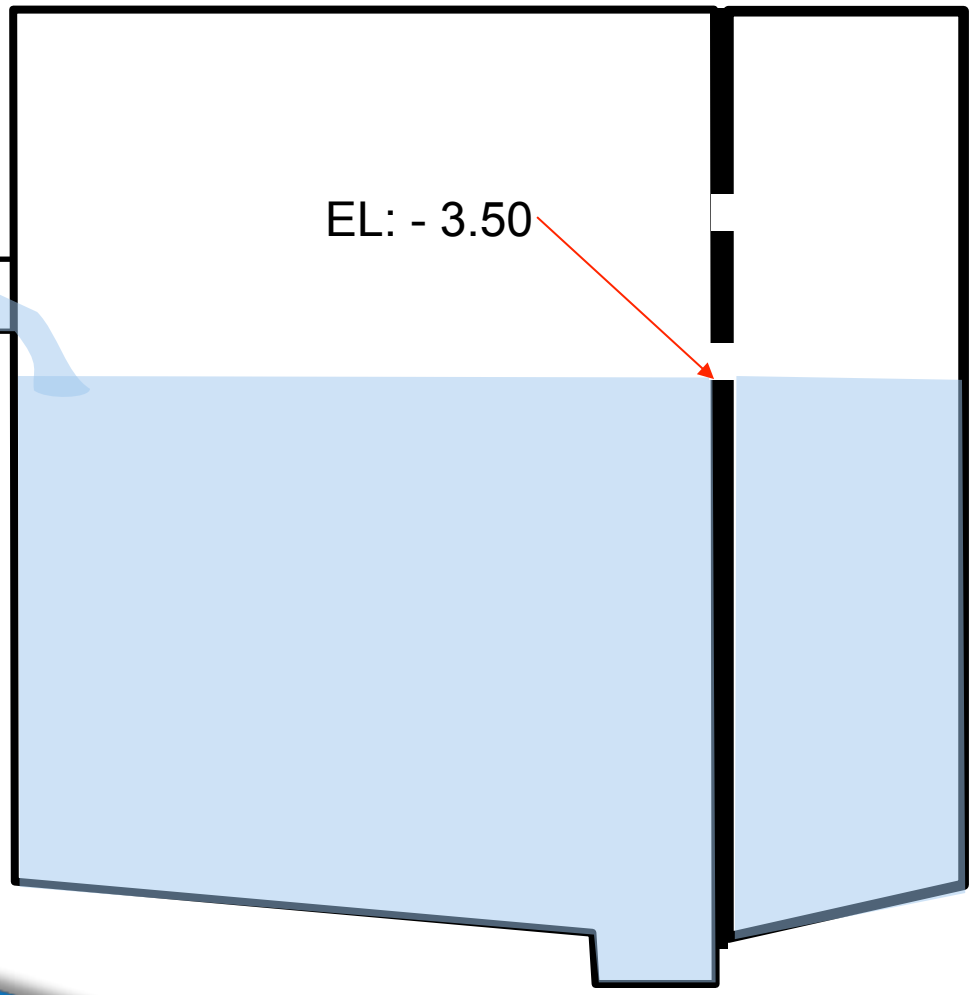
Hydraulic Relation: Diversion Chamber vs Tank



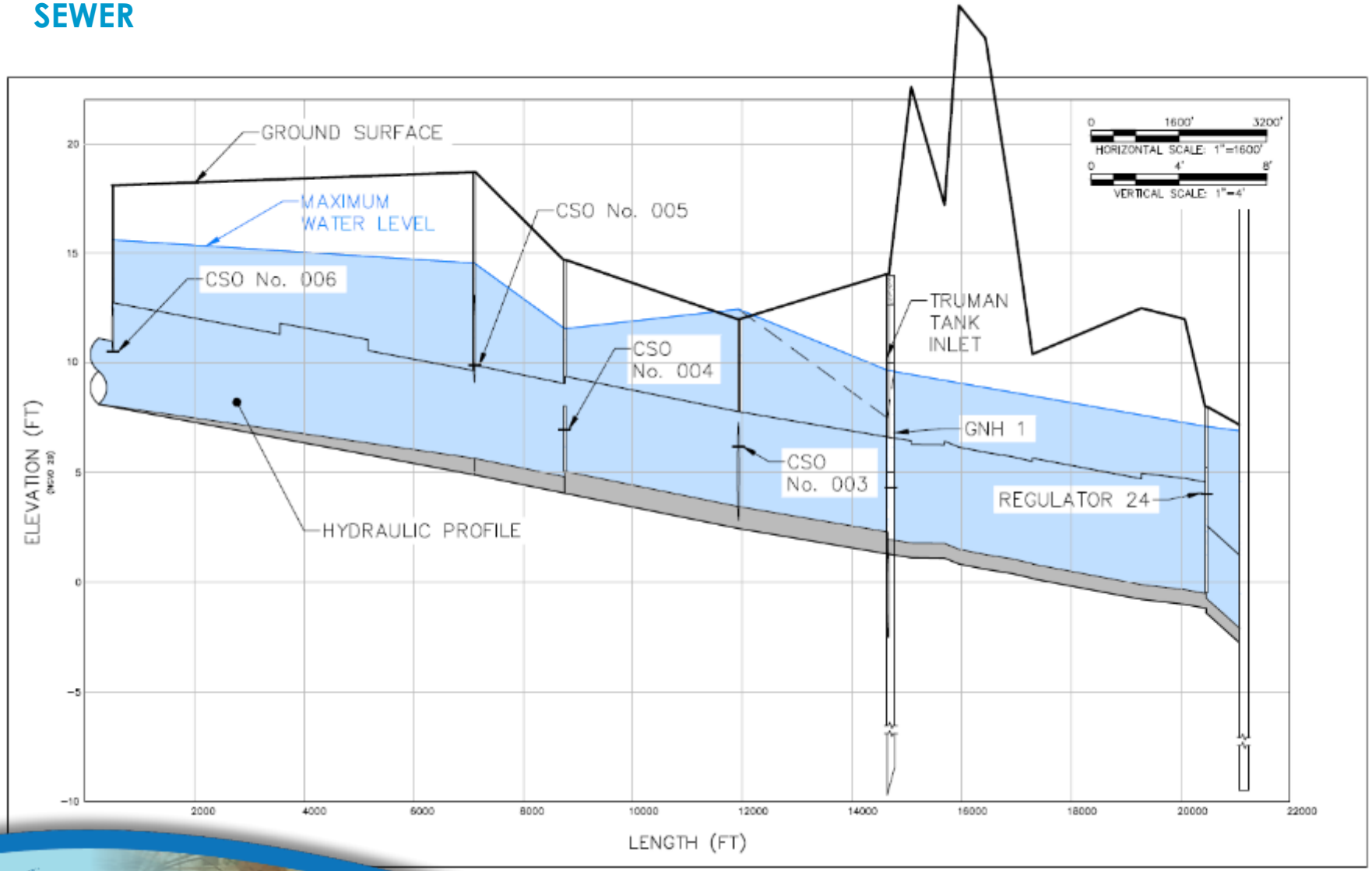


Hydraulic Relation: Diversion Chamber vs Tank



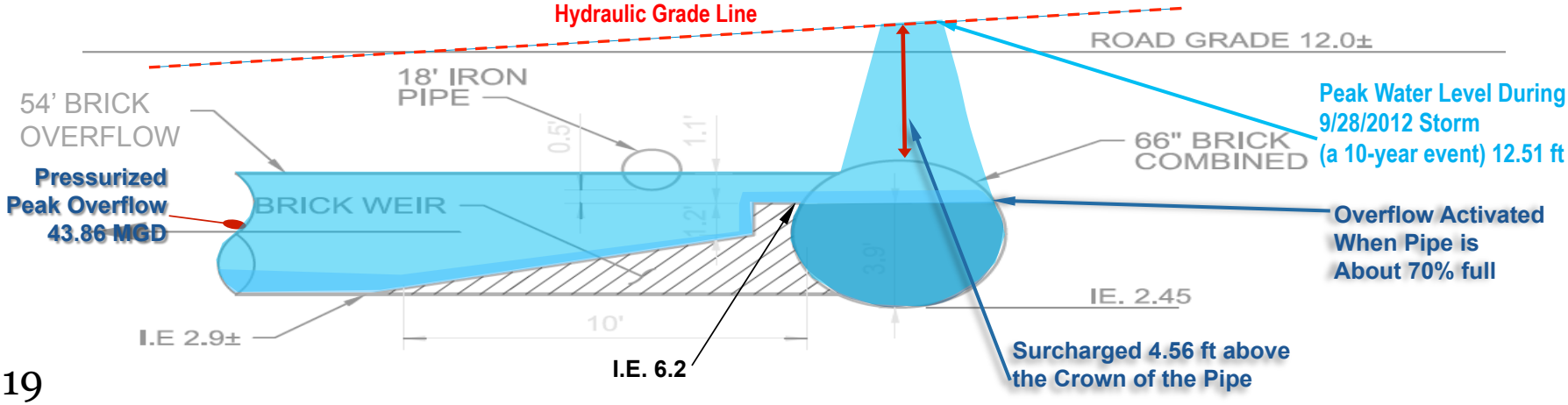


SEPTEMBER 28, 2012 STORM EVENT – FLOW METERING RESULTS IN BOULEVARD TRUNK SEWER



2:00 PM : MAXIMUM WATER LEVEL REACHED

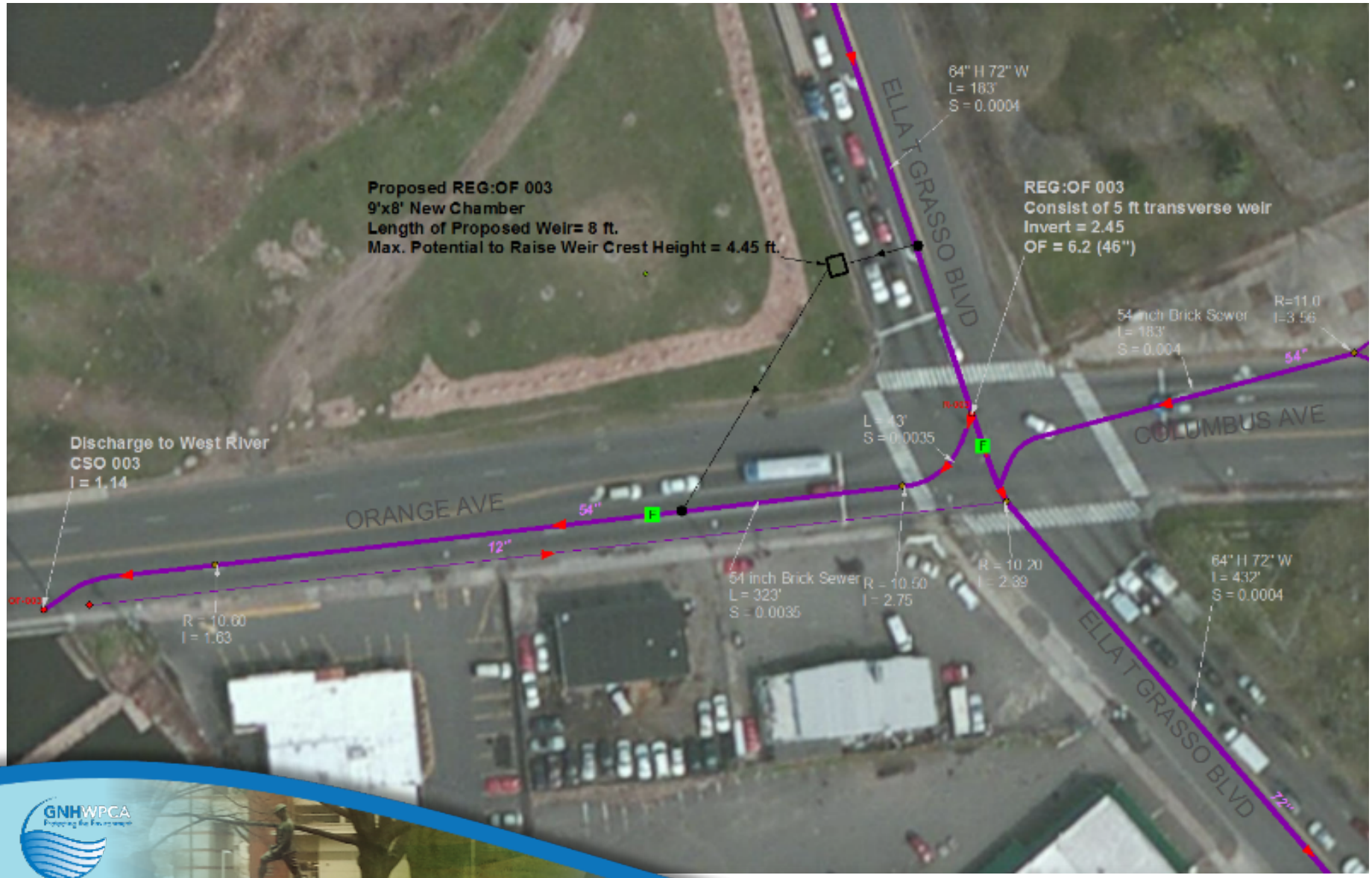
Regulator 003 - Existing Condition



CSO Regulator Improvements

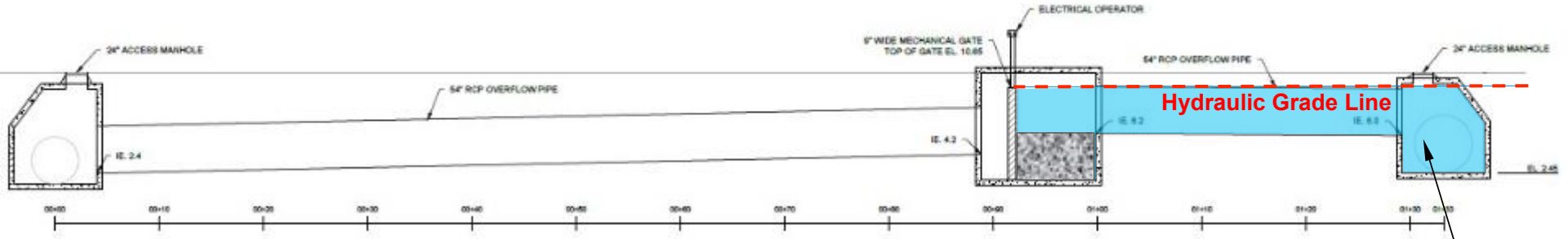
- **Findings**
  - There is additional capacity in the Boulevard trunk sewer
- **Solution**
  - Raise CSO regulators to utilize capacity
- **Results**
  - Reduce CSO volumes
  - Reduce number of CSO activations

Proposed Improvements to Regulator 003



Regulator 003 – Proposed Improvement

Design Criteria:
Ensure the Hydraulic Conditions in Sewer Remain Same as Existing Conditions.

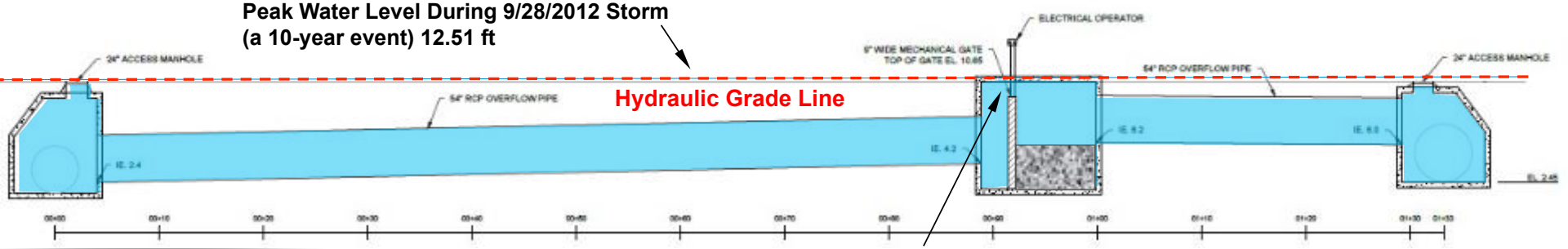


Raising the Weir will Maximize Utilization of Truman Tank While Protecting Sewer Users Under Extreme Wet Weather Conditions

Regulator 003 – Proposed Improvement

Design Criteria:
Ensure the Hydraulic Conditions in Sewer Remain Same as Existing Conditions.

Peak Water Level During 9/28/2012 Storm (a 10-year event) 12.51 ft



1.87' headwater above top of gate to allow overflow at 43.86 MGD

Q & A

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