

# GREATER LAWRENCE SANITARY DISTRICT

2015-2016 Digester Cleaning

N.E. Digester Roundtable #4

January 6, 2017

# GREATER LAWRENCE SANITARY DISTRICT



# GLSD ORGANIZATION

- District Established by Chapter 750 of the Massachusetts Acts of 1968
- Governed by Board of Commissioners
- Operational Since April 1977
- Serves:
  - Lawrence, Methuen, Andover, North Andover, Dracut, MA and Salem, NH
  - Population of over 200,000
  - As Septage disposal location for 40 communities
- Second largest WWTP in Massachusetts (52 MGD design flow)

# GLSD DIGESTER DESIGN

- GLSD Anaerobic Digesters Installed in 2002
- GLSD has Three (3) Digesters:
  - Floating Gas Holding Covers
  - Digesters - 85 foot in diameter
  - Side Wall Height - 38.5 feet
  - 1.5 million gallon capacity each
- Cleaning Work Tasks:
  - Install gutters along top of concrete walls to collect foam
  - Install a hot water flushing system for the gutters
  - Install a secondary containment wall around each digester
  - Clean the three of accumulated grit
  - Repair damage to the interior piping, as necessary

# GLSD DIGESTER CLEANING

- Digester Cleaning: 12/14 – 11/15
- Methuen Construction General Contractor
  - Digester Cleaning
    - Digester 1 - Subcontractor – Mobile Dredging
    - Digester 2 & 3 – Methuen Self Performed
- Total Contract Bid Price - \$2,928,000
- Grit Quantities Removed:
  - Digester #1: 772 dry tons @ \$1,120 per dry ton (1333 wet tons)
  - Digester #2: 1,408 tons @ \$380 per wet ton
  - Digester #3: 1,740 tons @\$380 per wet ton
- Unanticipated Work:
  - Additional Quantity of Grit Removed
  - Repair of deteriorated pipe and metals
- Final Cost of Work: \$4,424,000



# GLSD DIGESTER CLEANING





# GLSD DIGESTER CLEANING DEWATERING EQUIPMENT



# GLSD DIGESTER CLEANING

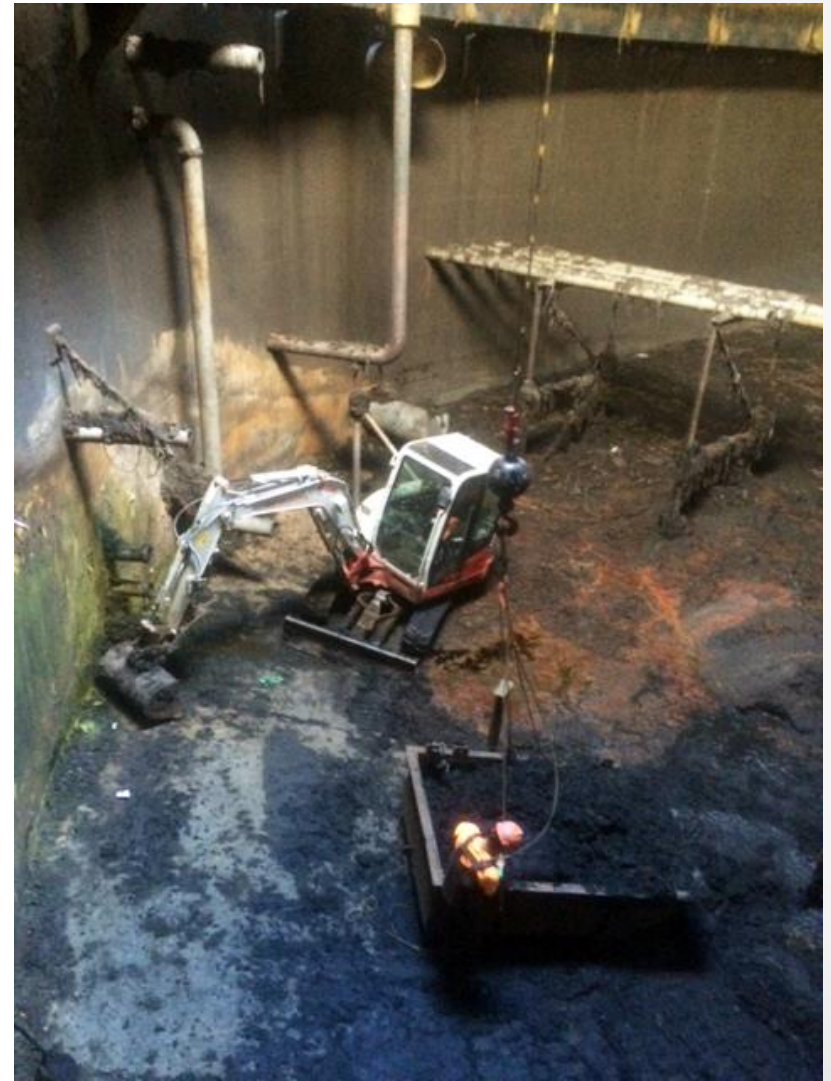
## GRIT REMOVAL





# GLSD DIGESTER CLEANING

## GRIT REMOVAL



# DIGESTER MAINTENANCE

- Implement Adequate Grit Removal at WWTP prior to Digester start-up
- Digester Design should include Plenty of Mixing Capacity
- Quickly Repair any Mixers that are out of Service
- Implement a System to Determine the Amount of Accumulated Grit in the Digester
- If Necessary, take the Digester out of Operation to Determine the Quantity of Grit in the Tank
- Plan to Take the Digester out of Operation to Clean out the Grit and Repair any Deteriorated Piping/Equipment, at least every 5 years



# QUESTIONS

**Richard E. Weare**  
Capital Projects Mgr.  
978-685-1612  
[rweare@glsd.org](mailto:rweare@glsd.org)

