

Water System Improvements

Status Update

City Council Workshop

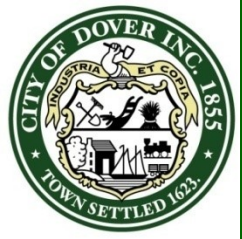
January 2, 2019

*By: John B. Storer
Director of Community Services*



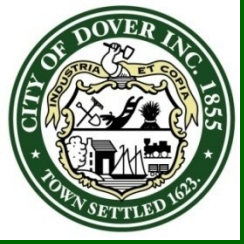
Water System Facilities Master Plan

- Completed April 2015 – Underwood Engineers
- Current use: average 2.4 mgd
- Projected use: average day 3.8 mgd
- Recommended multi-year, 3 phase improvements plan
- Total projected costs ~ \$30 million*



Overview of Water System

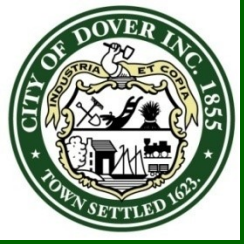
- 9 wells (including Pudding Hill)
- 5 Aquifers
- 3 water treatment facilities
- 2 artificial recharge facilities
- 2 water storage tanks
- 1 booster pumping station
- 170 miles water main, 1,200 fire hydrants
- Replacement value ~ \$150+/- million
- Safe water - priceless



Phase 1 System Improvements

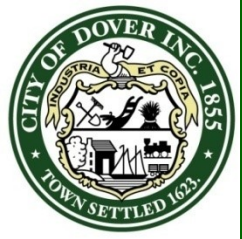
- Completed summer 2018
- \$9.35 million SRF Loan, 10% principal forgiveness
- Reconstruct Lowell Ave Filtration Plant





Lowell Avenue WTP - 2018





Phase 1 System Improvements Cont.

- Upgraded Calderwood & Campbell Wells
- Improvements at North End Storage Tank





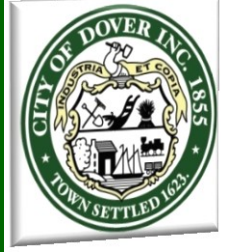
Phase 2 Improvements

- Projected costs \$12 million +/-
- \$9.1 million SRF loan – 10% principal forgiveness
- \$2.6 million Grant Groundwater Trust Fund
- Key components – in design/development
 - Willand Pond New Wells
 - Raw Water Transmission Main
 - Somersworth Interconnection
 - Garrison Hill Reservoir Rehab
 - Isinglass Recharge Facility
 - Bellamy Recharge Facility



Phase 2 Improvements

- Willand Pond Wells & Somersworth Interconnection
- Combined Facility
- Bids received Dec 20
- \$3.52 total – Scherbon Consolidated, Inc.
 - \$1.30 million Interconnection
 - \$2.22 million Wells & Pump House
- Seek Council Approval January 9; construct Spring 2019
- Also includes upgrades at Smith & Cummings



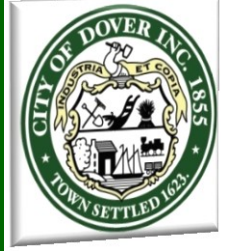
Willand Pond



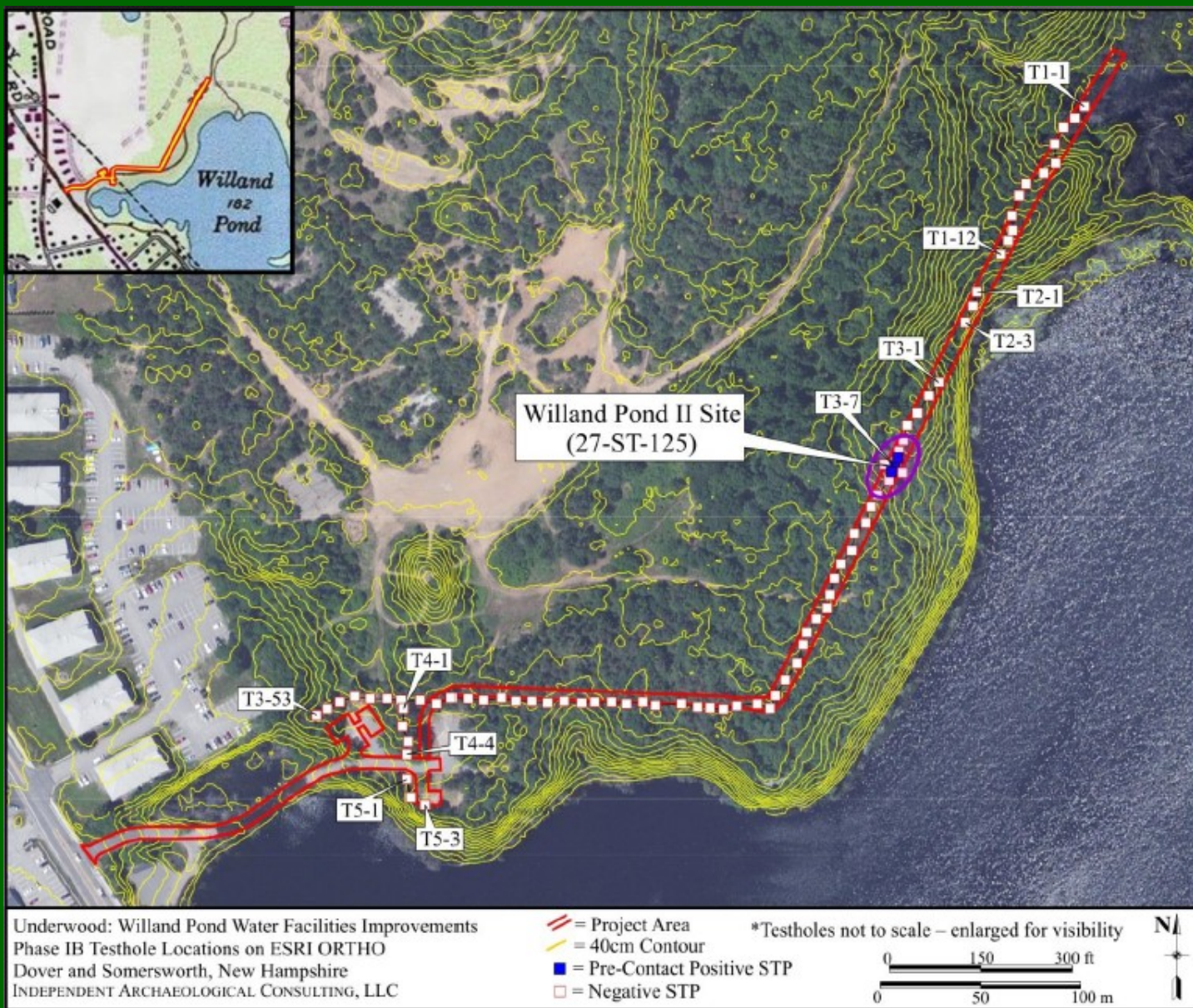
Dover Water Phase II

Front View

Willand Pond



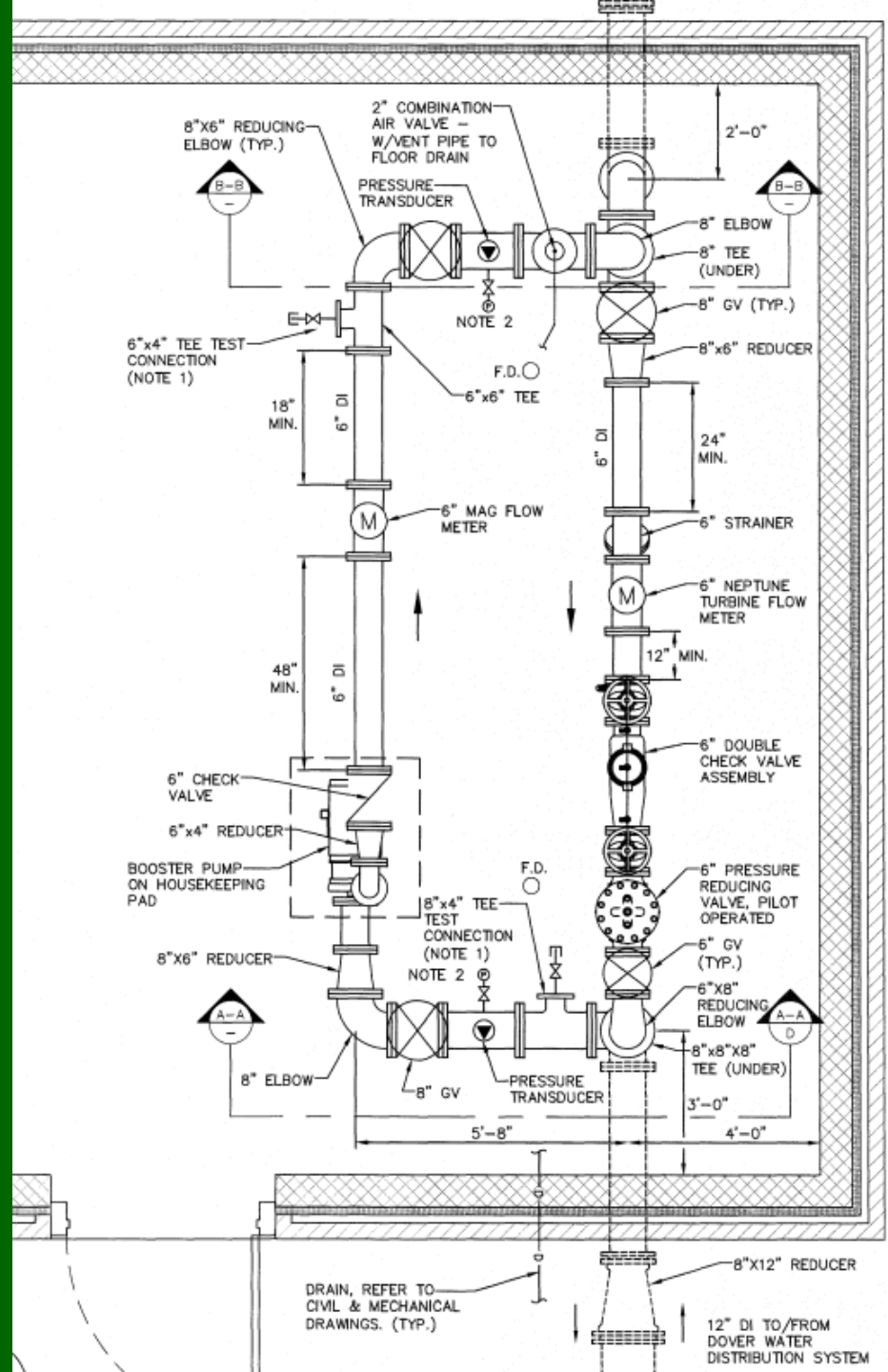
Willand Pond

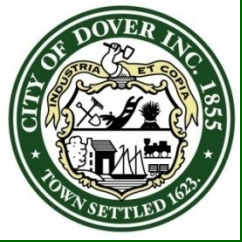




Somersworth Interconnection

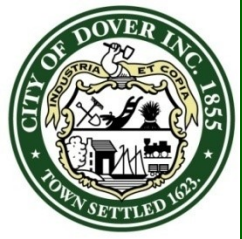
- 2,700 LF new trans. main
- Flow to Dover by gravity
 - 1.4 mgd, or 1,000 gpm
- Flow pumped to Somersworth
 - 1.0 mgd, or 700 gpm
- Emergency Use Only
- Mutual Activation
- Finalizing formal agreement





Phase 2 Improvements

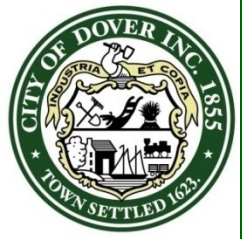
- Raw Water Transmission Main – 5,500 LF
- Willand Pond to Smith & Cummings Wells, down Rt 108, crosses by new bank at Webb Place
- Bids received Dec 5
- Seek Council Approval January 9; construct Spring 2019
- \$2.43 million – Northeast Earth Mechanics
- Traffic impacts



Phase 2 Improvements

Pending work

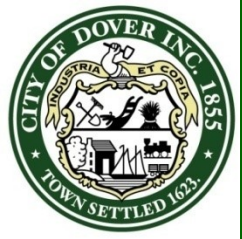
- Isinglass Recharge Facility
 - Bid summer 2019
 - Need 401 Water Quality Certification
- Bellamy Recharge Facility
 - Finalizing 401 Water Quality Certification
 - Bid summer 2019
- Garrison Hill Rehab
 - Hold until 2020 after new pump station work complete



Phase 3 Improvements

Future work

- Hughes Well
 - Facility Upgrade
 - Treatment for Iron & Manganese
 - Pump to French Cross Station?
- Additional Supply Sources?
 - Emery & Garrett finalizing bedrock well study
 - Interconnections? Portsmouth? Rochester?
- Treatment at Pudding Hill?



Pudding Hill Aquifer Update

- Aquifer Yield = 780 gpm (1.1 MGD)
- Three Wells –Currently Offline
 - Griffin Well – Dec 2015 PFOA/PFAS
 - Ireland Well – July 2018 PFOA/PFAS
 - DPH-1 Well –Nov 2018 1,4-Dioxane
NH limit is 0.32 ppb, test was 0.34 ppb



Pudding Hill Aquifer Pilot Test

- Funded by Schnitzer/NEMR
- Sampling completed late Dec.
- Pilot Testing underway
 - Greensand Plus (Iron & Manganese)
 - Ion Exchange Resin (PFAS)
 - Advanced Oxidation (MtBE & 1,4-Dioxane)
- Treatment at Griffin and/or Ireland



Pudding Hill Aquifer NEMR Remediation

- Working w/ NH DES on Remediation Plan
- Removal of 30,000 CY's of ASR
- Treatment at Griffin and/or Ireland in lieu of on-site treatment.
- On-site treatment could pull 250 to 350 gpm from aquifer and not address off site contamination

