

WPCA Bridgeport WWTP Upgrade

*Progressively Improving West and East Side WWTPs while
Managing Cost to Rate Payers
Industry Day*

Lauren Mappa, PE, WPCA
Joe Laliberte, PE, CDM Smith
Dan Murphy, PE, CDM Smith
Jane Madden, PE, CDM Smith

June 20, 2024

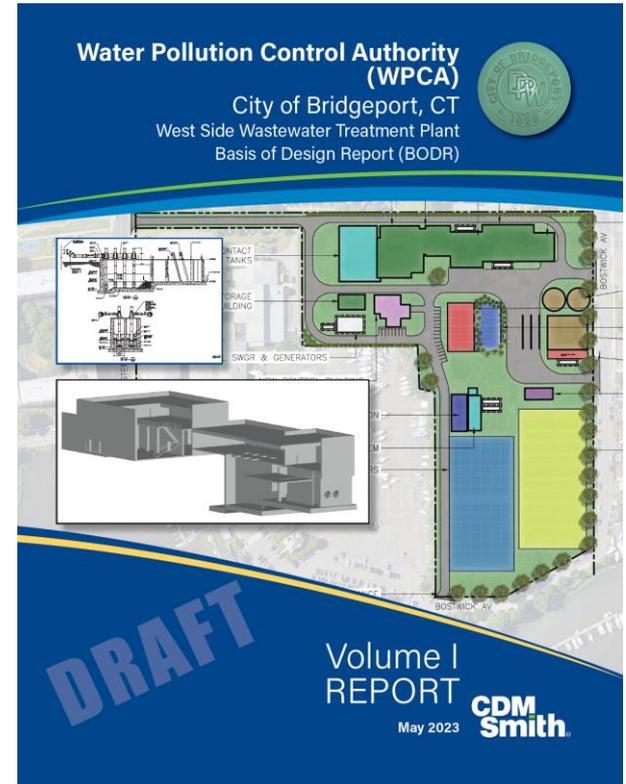


**CDM
Smith**



Agenda

- Background
- Proposed Improvements
- Proposed Program Packaging
- Proposed Program Schedule
- Where We Are
- CT DEEP Requirements
- Questions



Punch Line:

WPCA, Bridgeport will be spending more than \$1 BILLION in the next 10 – 12 years to upgrade and expand their two wastewater treatment plants

Background

- Bridgeport moving forward under two Administrative Orders: 1 for CSOs, 1 for WWTPs
- The West Side and East Side WWTPs suffer from aging, undersized and inadequate treatment processes

Bridgeport West Side Wastewater Treatment Plant UPGRADES

The West Side Wastewater Treatment Plant suffers from aging, undersized and inadequate treatment processes which directly and indirectly impact the environment in and around Bridgeport

Goals of the Upgrade

- ✓ Replace aging assets
- ✓ Meet codes and standards
- ✓ Improve water quality
- ✓ Improve system resilience to climate change
- ✓ Energy efficiency
- ✓ Address community concerns

Antiquated pumping and piping are unreliable.

Inadequate screening and scum removal results in pass through during high flow events.

Mission of the Bridgeport WPCA

- Provide reliable, resilient, and high-quality service
- Contribute to economic prosperity through cost-effective wastewater collection and treatment
- Preserve and restore natural resources
- Create a healthy environment through permit compliance
- Limit financial impact on economically stressed community by securing grants

About Bridgeport

- Environmental Justice Community
- Population: over 150,000
- Median Household Income: \$50,597
- Living in poverty: 23.2%
- Unemployment rate: well above CT average
- High burden on sewer rate payers

Water Pollution Control Authority
City of Bridgeport

Project Implementation Goals

- Replace aging assets and meet current codes and standards
- High flow management to reduce untreated combined sewer overflows (CSOs)
- Improve treatment and improve water quality
- New odor control systems
- Update instrumentation and controls for efficient operations
- Improve system resiliency

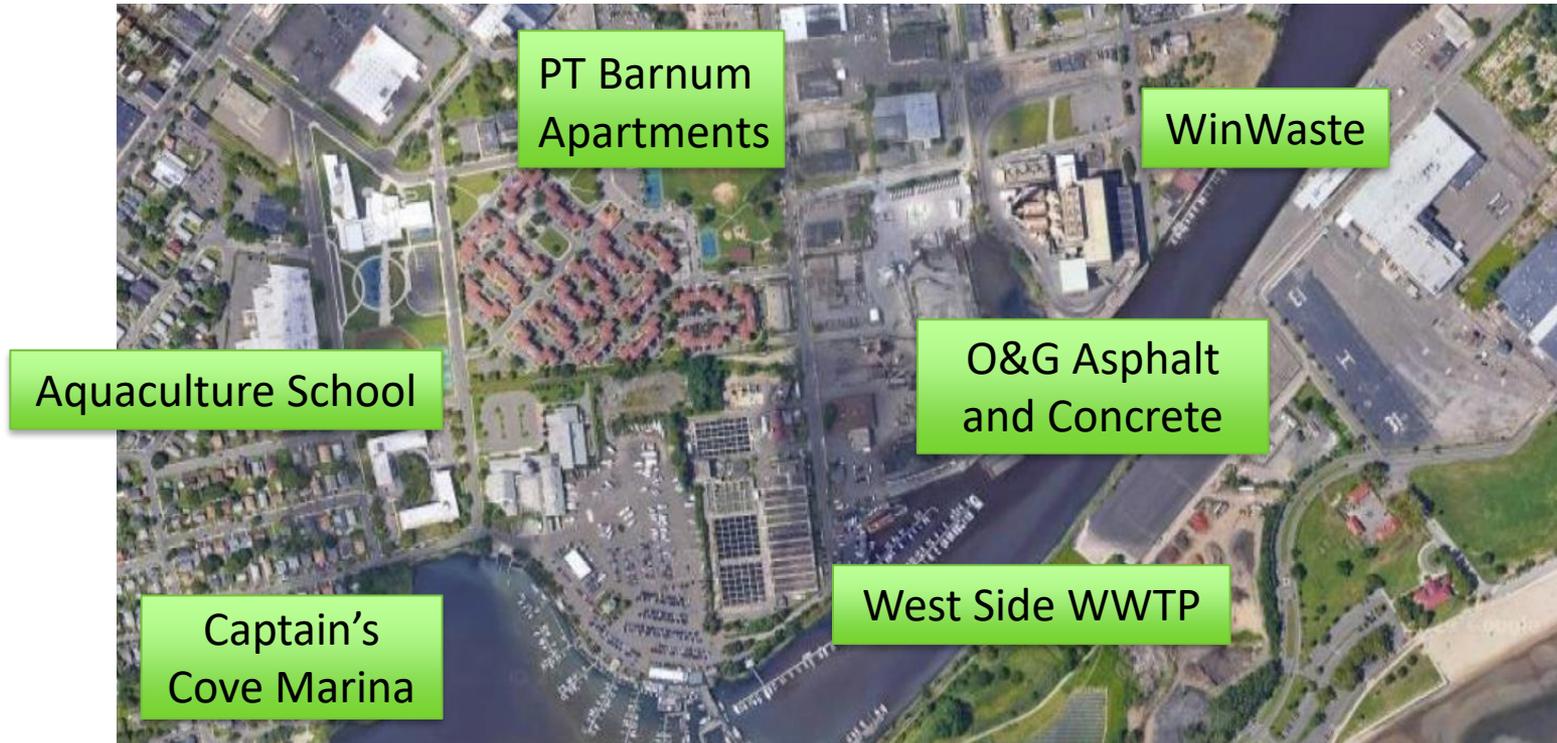


Program Location

- Bridgeport, CT
 - West Side: 205 Bostwick Ave
 - East Side: 695 Seaview Ave
- Along I-95 Corridor
- Close proximity to highways, railroad, airport, ports
- 55 miles from Hartford, 65 miles from NYC



Neighborhood Concerns and Opportunities – West Side



East Side Neighborhood



Engineering Challenges

- Both plants on tight sites requiring ingenuity with expansion and phasing
- New preliminary and primary treatment required
- Effluent pumping required to pass peak flow during extreme tides and high flow



Existing West Side WWTP

- Design Flow
 - 30 mgd avg
 - 90 mgd peak
 - 58 mgd to secondary
- Current Average Flow
 - 22 mgd



Existing East Side WWTP

- Design Flow
 - 10 mgd avg
 - 40 mgd peak
 - 24 mgd to secondary
- Current Average Flow
 - 5.7 mgd



Proposed West and East Side Facility Upgrades – Generally

- Increase peak flow to reduce CSOs by over 50%
 - West Side 90 mgd to 200 mgd
 - East Side 40 mgd to 80 mgd
- New preliminary and primary treatment facilities
- Maintain and upgrade existing secondary treatment systems
- Sequentially demolish all buildings and tankage replaced
- New disinfection, effluent pumping and outfall improvements
- New and/or upgraded solids handling
- New electrical, odor control, control building, chemical buildings and blower building

Proposed West Side WWTP – 30%

- 6 Construction Phases proposed to encompass both West and East Side Improvements (3 phases on West Side shown)
- More details follow

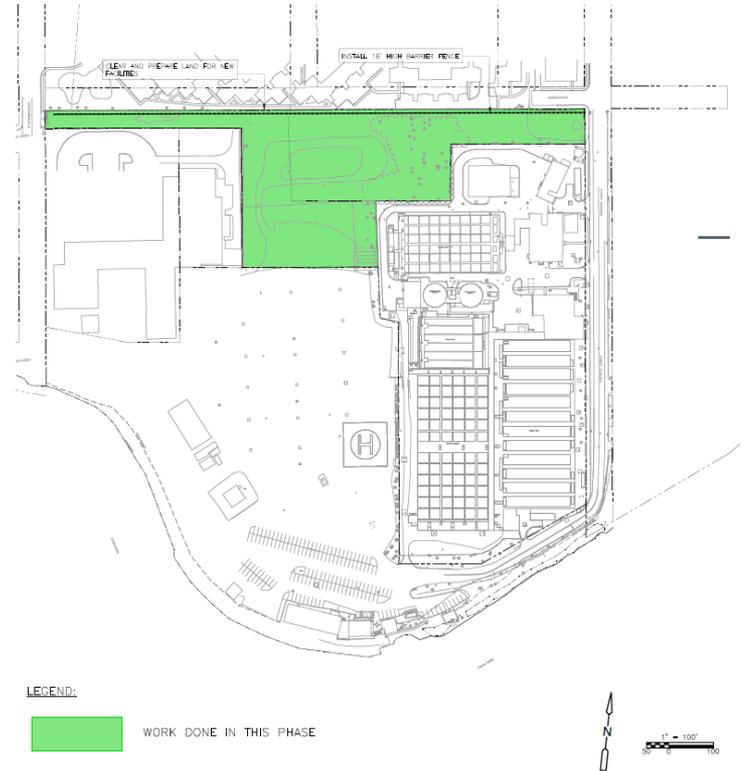


PHASING DIAGRAM

WPCA – CITY OF BRIDGEPORT
WEST SIDE WWTP IMPROVEMENTS
NOT TO SCALE

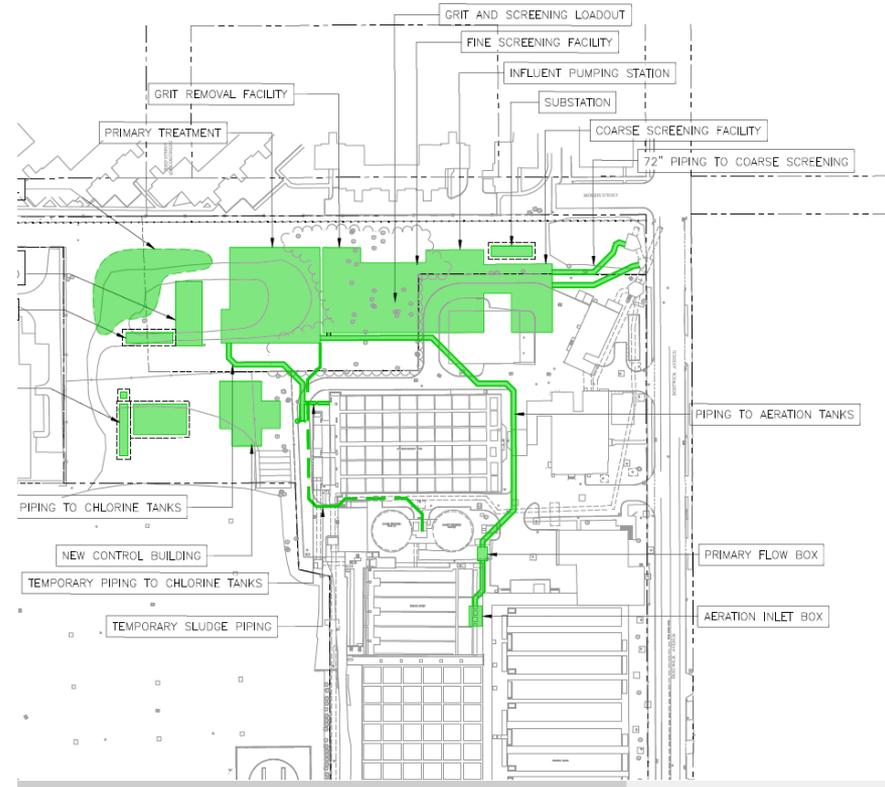
Phase 1 – Site Preparation – West Side

- Approximate Bid Date: Fall 2024
- Subject to CT DEEP, EPA approvals
- Removal of debris on-site
- Clearing and grubbing of northern parcel
- Excavation and removal of most contaminated soils (no sheeting or dewatering anticipated)
- Barrier wall and landscaping on northern border installed early to shield neighbors
- Improved fencing around entire site for security



Phase 2 – Preliminary and Primary Treatment – West

- Approximate Bid Date: Spring 2025
- New prelim. and primary treatment and odor control
- New control building
- New electrical infrastructure
- Large diameter piping connections

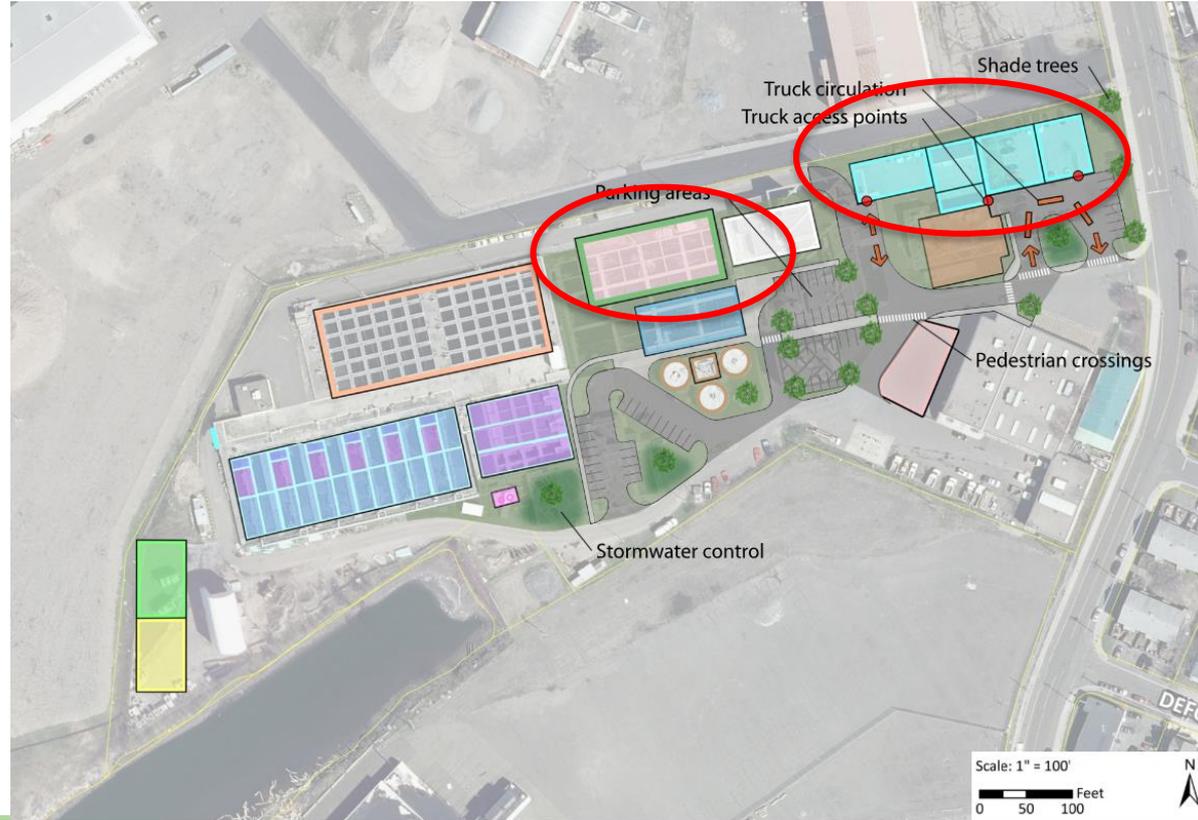


Preliminary 3D Rendering of Preliminary and Primary Treatment Complex



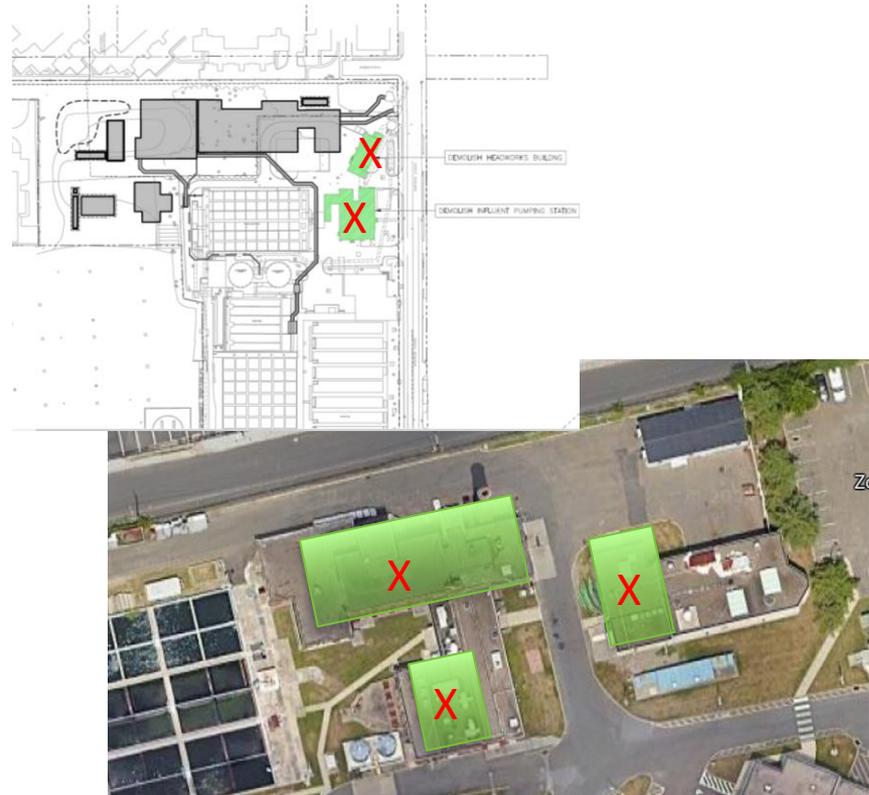
Phase 3 – Prelim and Primary Treatment – East

- Approximate Bid Date: Summer 2027
- Preliminary and Primary Treatment upgrades
- Odor Control
- Upgraded Administration and Control Building



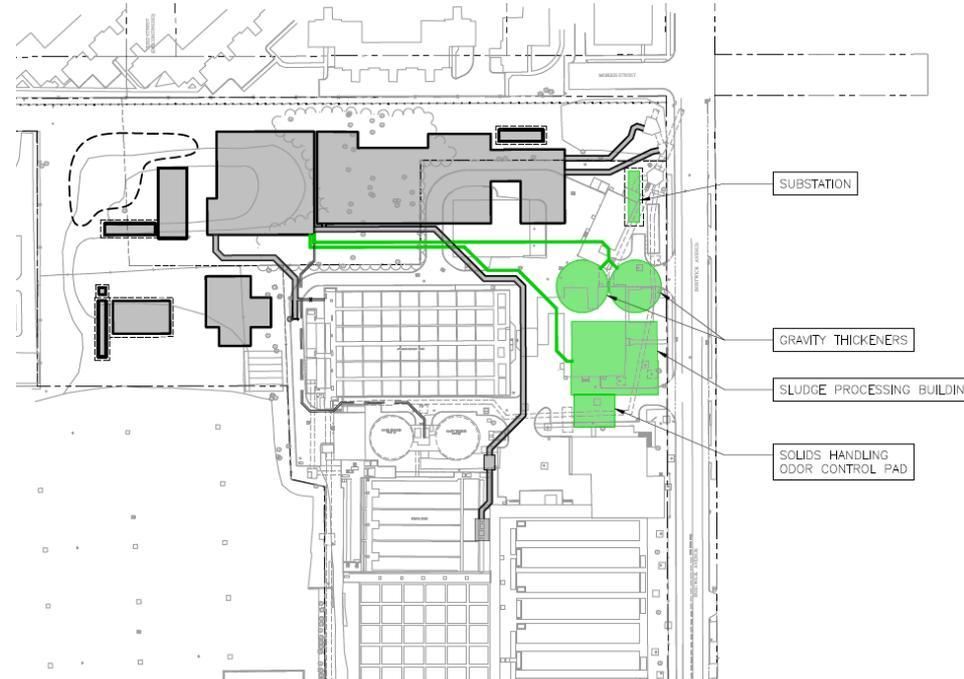
Phase 4 – Demolition (a) West and (b) East Side

- Approximate Bid Date: Summer 2028
- Smaller, specialty contractor increases competitive bidding
- Include hazardous material remediation within buildings



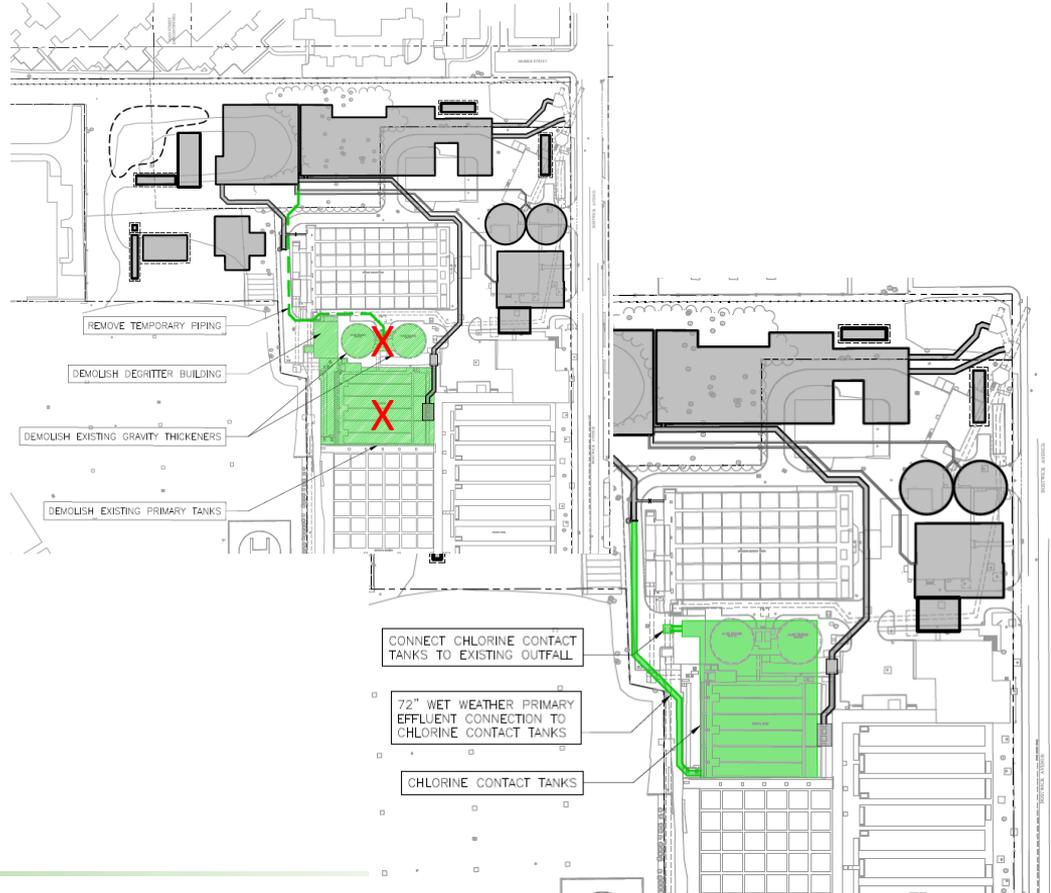
Phase 5 – Must Occur Sequentially and Includes both West and East Improvements

- Approximate Bid Date: Winter 2029/2030
- Solids Handling
 - New GTs, RTDs and sludge holding tanks
 - Additional odor control for solids handling
- Size optimized based on data from new primary system
- Combining with East Side for like-equipment



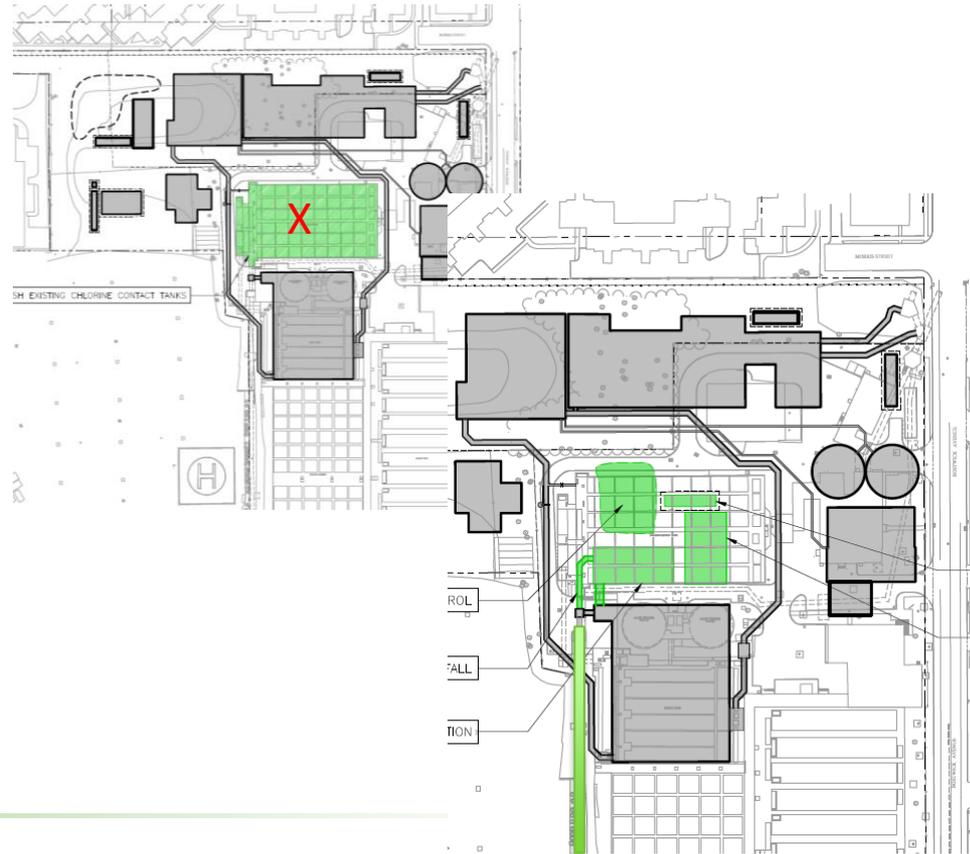
Phase 5 (cont.'d)

- Disinfection
 - Demolition of existing GTs degritter bldg. and primary tanks
 - New disinfection system
- System design informed and optimized based on data from new primary system



Phase 5 (cont.'d)

- Effluent Pumping, Outfall
 - Demo existing chlorine contact tank
 - New effluent pumping station, outfall, chemical storage, electrical gear, stormwater basin



Phase 6 – BNR Upgrades (West and East Concurrent)

- Approximate Bid Date: Summer 2033
- Design optimized to actual primary effluent flows and loads
- Opportunity to analyze new and improved intensification processes and associated cost savings
- Combine with East Side upgrade for like-equipment



Proposed Design and Construction Schedule

	Design Start	Design Completion	Construction Start	Construction Completion
Phase 1	Ongoing	July 2024	Jan 2025	Dec 2025
Phase 2	Ongoing	Dec 2024	Oct 2025	Dec 2028
Phase 3	Oct 2024	Dec 2026	Jan 2028	June 2030

Phases 2 and 3 – Preliminary and Primary Treatment at West and East Side reduces CSOs, improves water quality and significantly improves O&M at each facility

Dates contingent upon CT DEEP reviews and approvals

Where We Are

- May 1, 2024: Submitted Phase 1- Site Preparation to CT DEEP for Review
- May 24, 2024: Submitted 60% design for Phase 2 – West Side Preliminary and Primary Treatment
- Phase 1 – Bidding Sept. 2024
- Phase 2 – Bidding 2Q 2025

CT DEEP Requirements for Bidding

- Phase 1 – Bidders must be qualified with Connecticut Department of Administrative Services (DAS) for “Sitework”
- Phases 2, 3, 5 and 6 – Bidders must be qualified with CT DAS for “Water Treatment Plant”
- Phases 4a and 4b – Bidders must be qualified with CT DAS for “Demolition”
- Contractor certification must be submitted with the bid or bidder will be disqualified
- Substantial Subcontractors (>\$1,000,000) must also be prequalified
- 30 days after contract award subcontractor certification shall be submitted

Contractor Pre-Qualification Program

- Department of Administrative Services (DAS)
 - Meg Yetishefsky
- das.prequalification@ct.gov

CT DEEP Requirements

- Project funded by the Connecticut State Revolving Fund (SRF), Clean Water Fund (CWF)
- Subject to Davis-Bacon Prevailing Wage Rates
- American Iron & Steel Requirements
- Subject to Connecticut MBE/WBE Requirements (3% and 5% respectively)

Contract Documents will be Available for Review

- CDM Smith, 101 East River Drive,
Hartford, CT
- Bridgeport Purchasing Dept.,
999 Broad Street, Bridgeport, CT
- <http://dodgereports.construction.com>
- www.bidsync.com
- All questions through Bridgeport
Purchasing Department

Questions?

