



**SEWER SYSTEM IMPROVEMENT PROGRAM | Grey. Green. Clean.**

# Biosolids Digester Facilities Project

## SOUTHEAST TREATMENT PLANT

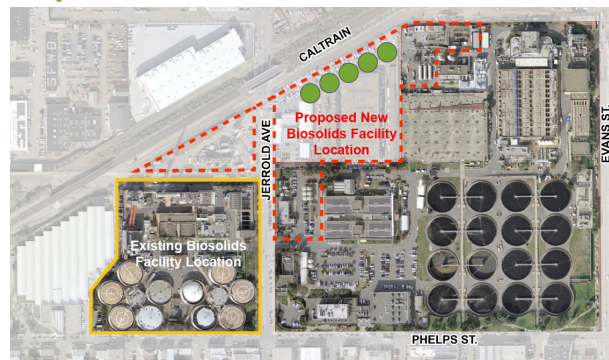
### Project Summary

The San Francisco Public Utilities Commission (SFPUC) proposes to construct new solids treatment, odor control, energy recovery, and associated process and maintenance facilities as part of improvements to the wastewater treatment facilities at the existing Southeast Treatment Plant (SEP) in San Francisco. The proposed project, the Biosolids Digester Facilities Project (BDFP or project), would replace the outdated existing solids treatment facilities with more reliable, efficient, modern technologies and facilities. The project will replace the existing digesters with new, state-of-the-art digesters and other new facilities that produce a higher quality biosolids, capture and treat odors more effectively, and maximize biogas utilization and energy recovery for the production of heat, steam, and energy. The SFPUC anticipates that project construction would require approximately five years to complete, from mid-2018 through mid-2023, followed by two to three years of full facility commissioning ending in 2025 to 2026.

### Proposed Project

The BDFP would include construction of new digesters, an odor control facility energy recovery system, and maintenance and other process support facilities. The proposed new facilities would use a new technology to pretreat the solids upstream of the digesters, which would reduce the volume of biosolids produced compared to the existing technology. The project would also improve odor control such that noticeable odors from the new BDFP facilities would be limited to within the SEP property boundaries. In addition, the project would more than double the current energy recovery capability at the SEP, generating an estimated annual average power output ranging from 4.2 to 5.2 megawatts.

### Project Location



### Anticipated Project Timeline

**DRAFT ENVIRONMENT IMPACT REPORT (EIR)**

Winter 2016

**FINAL EIR**

Winter 2017

**DESIGN**

Winter 2016 to Spring 2018

**REQUEST FOR CM/GC QUALIFICATIONS**

Summer 2016

**REQUEST FOR CM/GC PROPOSALS**

Fall 2016

**CONSTRUCTION START**

Spring/Summer 2018

### Biosolids Digester Facilities Project By the Numbers

- Over \$800 million: estimated construction cost
- 247,000 cubic yards: soil excavation
- 27,000 cubic yards: building demolition debris
- 559,000 square feet: total area of project construction site
- 220,000 square feet: total area of proposed Biosolids Digester Facilities

## Project Facilities and Processes

Facility	Processes/Purpose
<b>Sludge Pumping</b>	<ul style="list-style-type: none"> <li>Primary sludge (PS) and waste active sludge (WAS) pumping to the solids treatment processes. BDFP design includes WAS pumping upgrades, which are to be made to the existing WAS pumping facilities.</li> </ul>
<b>Solids Pretreatment</b>	<ul style="list-style-type: none"> <li>One consolidated Solids Pretreatment building that incorporates the following processes:               <ul style="list-style-type: none"> <li>WAS thickening using gravity belt thickeners (GBTs)</li> <li>Blending of thickened activated sludge (TAS) and PS, to produce combin primary and active sludge (CPAS)</li> <li>Screening of CPAS using inline strainpress-type screens</li> <li>Pre-Thermal Hydrolysis Pretreatment (THP) dewatering of screened CPAS using centrifuges</li> </ul> </li> </ul>
<b>Thermal Hydrolysis and Cooling</b>	<ul style="list-style-type: none"> <li>Thermal hydrolysis of dewatered, screened CPAS using THP (3 THP units)</li> <li>Cooling of thermally hydrolyzed sludge (THS)</li> </ul>
<b>Digestion</b>	<ul style="list-style-type: none"> <li>Mesophilic anaerobic digestion and digested sludge (DS) storage using digesters</li> <li>5 silo-shaped digesters</li> <li>Assumes 45-foot deep secant pile wall foundation</li> </ul>
<b>Biosolids Dewatering</b>	<ul style="list-style-type: none"> <li>Biosolids Dewatering building that includes: Biosolids dewatering of Class A biosolids using belt filter presses (BFPs) and storage and load-out of dewatered Class A biosolids product using silos, screw conveyors, and truck hauling.</li> </ul>
<b>Energy Recovery</b>	<ul style="list-style-type: none"> <li>Energy recovery to beneficially use biogas generated in the digestion process and to generate power and to produce steam for thermal hydrolysis, using gas turbines and future microturbines. Includes biogas storage and treatment.</li> <li>Standby power</li> </ul>
<b>Odor Control</b>	<ul style="list-style-type: none"> <li>Pre-Digestion and Post-Digestion odor control</li> </ul>
<b>Ancillary Facilities</b>	<ul style="list-style-type: none"> <li>Pumped plant recycle (PPR) system to convey the liquids return streams from thickening, pre-THP dewatering, and biosolids dewatering</li> <li>Process support systems including W2 plant water upgrade, BDFP plant air, BDFP polymer systems, and BDFP cooling water system</li> <li>Ferric chloride facility for struvite control</li> <li>Below grade galleries and pipe chases connecting facilities</li> <li>Power distribution</li> <li>Yard piping</li> </ul>
<b>Maintenance Shops 1 and 2</b>	<ul style="list-style-type: none"> <li>Maintenance Facilities to support operations, engineering, and maintenance of BDFP facilities</li> </ul>

### Expected Trades:

boilmakers | carpenters | concrete finishers | cement masons | heavy civil construction/building laborers | drillers | dry wall | electricians | electrical technicians | elevator constructors | equipment operators (heavy, medium and light equipment) | formsetters | glaziers | grade checkers | landscapers | laborers | mechanics | millwrights | miners | oilers | pile driver operator | ironworkers (rebar and structural steel) | pipefitters | plumbers | sheet metal workers | welders | teamsters (heavy, medium and light trucks) | roofers | painters | grade setters | security guards | flagmen/traffic controllers | paving/surfacing/tamping equipment operators | and cement grout equipment operators | crane operators

### Want to Learn More?

Contact: Iris R.Martin-Lopez at [ilopez@sfgwater.org](mailto:ilopez@sfgwater.org) or 415-554-3222

### About the Sewer System Improvement Program (SSIP)

The Sewer System Improvement Program (SSIP) is a 20-year, multi-billion dollar citywide investment required to upgrade our aging sewer system. The program is the result of an eight-year community planning process and will ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.



Services of the San Francisco Public Utilities Commission



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