EAJSA

Easton Area Joint Sewer Authority

2019 Annual Report

Dedicated to the Protection of Our Rivers

Chairman's Messsage

This 2019 annual report of the Easton Area Joint Sewer Authority is intended to provide our member municipalities governing bodies, municipal staff and the public with information about the performance of the Authority during this past year.

This past year the Authority's capital spending focus has been completely upgrading the pumping systems in our three pump stations in the conveyance system. Also, the Authority's professional staff has been very active in working on many projects within the wastewater treatment plant to continue the program of updating the facilities, to meet the requirements of the PA DEP and EPA, and to improve the efficiency of the plant. The projects completed in 2019 are reported within this document.

The financial status of the Authority continues to be strong. Over the past several years our capital spending has been high as we continue to work on replacing or rebuilding much of the equipment which has been in operation for 20+ years in a harsh environment that is typical with any wastewater treatment plant. For the last couple of years the cost of operating the plant has been at or slightly below budget.

I thank the management and staff of the wastewater treatment plant and our professional consulting group for their commitment and dedication in operating the plant in a safe and effective manner so as to carry out our mission. And finally, I thank our Authority members who volunteer their time towards carrying out our mission in the interest of the communities they represent. Also, we are all proud of doing our part in making the Delaware River the "2020 River of the Year".

Richard Marzuoli
Chairman

Mission Statement

EAJSA delivers exceptional value to our member municipalities through our high quality and reliable wastewater services. We will meet the need and expectations of our stewardship that protects and preserves water resources for current and future generations.

EAJSA Board Members

Richard Marzuoli (Easton) - Chairman
Robert A. Lammi (Palmer) - Vice Chairman
James McGowan (Wilson) - Treasurer
Stephen Riegel (Tatamy) - Secretary
Robert Blanchfield (Palmer) - Member
David Hopkins (Easton) - Member
Paul James (West Easton) - Member
Joseph Mauro, Jr. (Easton) - Member
Charles Peterson (Easton) - Member
John Van Arman (Easton) - Member
Timothy Weis (Forks) - Member
Robert Werner (Easton) - Member

Professional Staff

Consulting Engineer - SC Engineers
Solicitor - McFall, Layman & Jordan, P.C.
Accountant - John Schimmel
Auditor - Palmer & Company
IPP Manager - Alexandria Hoffman
WWTP Superintendent - Charles Wilson
Secretary to the Authority - Barbara Kipp

Member Municipalities

The municipalities who are members of the EAJSA include: The City of Easton; The Boroughs of Wilson, West Easton, and Tatamy; and the Townships of Forks and Palmer. Wastewater also comes from portions of the Borough of Glendon and the Townships of Bethlehem, Lower Nazareth and Williams who are non-members. In 2020, the Borough of Stockertown is scheduled connect to the EAJSA system as a non-member. The total population served is approximately 74,000.

Industrial Pretreatment Program

The Easton Area Joint Sewer Authority (EAJSA) Industrial Pretreatment Program (IPP) was initiated as part of an EPA requirement to monitor and control Industrial Users of the wastewater system and the Wastewater Treatment Plant (WWTP) that may discharge toxic unconventional or unusually strong wastewater. The EAJSA's IPP was approved by the EPA and initiated in 1984. The goal of the program is to prevent interference with the WWTP operations, pass-through of pollutants, sludge contamination and exposure of workers to chemical hazards. The Program is managed by Alexandria Hoffman and currently has 35 permitted Industrial Users, with 26 obtaining 100% compliance in 2019.

The IPP sampling and analysis is being performed by M.J. Reider Associates, Inc. This monitoring is necessary to assure that the Users are meeting the regulations set by the EPA and/or Authority.

The main goal of the EAJSA IPP is to create a program that allows for growth in the service area in a sound environmental manner. Over the past year, the Program has taken a strong initiative to educate Users concerning the effects of their discharge, keeping them informed of current regulations and changes: leading to compliance and WWTP optimum performance.

This program is totally funded by the permitted Industrial Users.

Major Projects/Studies

SC Engineers is the Authority's consulting engineer with Jeff Morgan being the principal engineer for the Authority's facilities.

Over the past several years the Authority has been in capital project mode. There are three reasons for this. The first was to continue the program of updating the plant which was built in the 1950s and expanded in the 1970s and 1980s. The second was to meet the requirements of the PADEP and EPA and the third was to improve the effectiveness and efficiency of the Wastewater Treatment Plant (WWTP) and three major pumping stations.

Major Capital Projects Completed in 2018 - 2019 and 2020 Carry Over

The Authority's conveyance system consists of the three (3) wastewater pumping stations commonly referred to as the: South Delaware Drive, Second Street and Lehigh Drive Pumping Stations. These three stations are a wet well/dry pit type, over 60 years old and have been modified over the years. The South Delaware Drive Pumping Station is rated for 25 MGD and has six (6) pumps, the Second Street Pumping Station is rated for 22 MGD and has five (5) pumps and the Lehigh Drive Pumping Station is rated for 3.6 MGD and has three (3) pumps. Two of these three stations receive combined sewer flows and all three stations receive elevated loadings of flushable wipes, rags and fats, oils and grease (FOG). All of these stations have also experienced flood conditions. All pumps at all three stations were vertical line shaft type pumps. In order to eliminate the operations and maintenance issues associated with frequent pump blockages, air-bound conditions and flooding the Authority completed a project which included replacement of all existing pumps at all three stations with new ABS/Sulzer dry pit submersible pumps with the contra-block impeller system. These new pumps run quietly, have significantly reduced operations and maintenance issues, can be easily dismantled and cleaned in the rare case of blockages and have been extremely well received by the management and staff who maintain them. The project also included the following work at the three stations: architectural improvements, HVAC upgrades, new monorail systems, hatches, piping, valves and gates, underground station influent piping and wet well modifications and related electrical upgrades and improvements. This was a complex project because the wastewater had to continue to be pumped while the work was being done. The total construction cost for this project was about $5,825,000.00 and was paid with funds from the Authority's 2015 Bond Issue.

Another major project completed in 2019 was the Equipment Upgrade Project at the WWTP. This project consisted of the replacement of the primary effluent pumps, valves, piping and controls and other pump room modifications in the WWTP Control Building; the replacement of the polymer system, utility water booster pump and other building modifications in the Sludge Thickening Building; the removal of the polymer system from the Chlorine Building; the construction of a new Chemical Building near the Final Clarifier Flow Division Box to house a new polymer system and the relocated ferric chemical system and all related piping modifications; rehabilitation of the three (3) Final Clarifiers; the replacement of various slide gates at the Screening Facility; structural modifications to the masonry building walls of the Centrifuge Building; and all related rehabilitation and electrical work associated with the project. The total construction cost for this project was about $1,950,000.00 and was paid with funds from the Authority's 2015 Bond Issue.

In addition to the major projects described above, there were a number of smaller projects that were funded out of the annual

capital budget of the Authority. During 2019, roughly $237,000 in smaller projects were funded by the Authority's annual capital budget. One of these projects was an issue at the Second Street Pump Station where bubbles were seen in the Lehigh River in the vicinity of 16-inch force main from this station which were the potential sign of a leak in the pipe. The Authority spent $39,335 for the underwater investigation, cleaning, leak detection, inspection and video of the 16-inch force main from the Second Street Pump Station located in the Lehigh River (which was installed in 1928) as well as the depth of cover survey for both the 16-inch and 24-inch (installed in 1978) force mains for this station located in the River.

During early 2020, the Authority spent $120,470 from its annual capital budget for the underwater emergency repair of this 16-inch force main. In general, the repair included excavating under a 14 foot section of the force main to a depth of about two feet, cleaning all the debris from the existing 10 foot long by ¾ inch wide crack in the pipe, cleaning/brushing/scraping the cracked portion of the pipe to a white metal condition, wrapping the cracked portion of the pipe two times with a primer material and 12 times with a repair material which cures in water at temperatures above 40 degrees Fahrenheit, covering the repair area with a jacket and running hot water through it and performing a video inspection of the pipe repair after the repair material cured.

Ongoing Studies and Design Engineering Work

In 2016, the Authority authorized a study to determine the opportunities available to turn the plant's biogas, which is burned in two boilers or flared most of the year, into usable energy. In 2017, a study was done to determine how much high strength waste was available in the region to be added to the plant's digesters to produce more biogas thus a greater energy generation opportunity. In 2018 - 2019, with the information gathered from these studies along with a pilot FOG (fats, oils and grease) study which was completed by Manhattan College, the Authority completed a conceptual design report which included equipment and economic evaluations, drawings and a technical memo and will be used as a basis for final design, preparation of contract documents and permits for the project if the Authority decides to move forward with the project.

During 2019, the Authority reviewed a proposal from Hazen for engineering services for the detailed design of a FOG Receiving/ Pre-treatment Facility, Combined Heat and Power System, and Digester Mixing System. The Authority decided to hold off on approval of Hazen's proposal until potential funding options for this project were investigated further. During 2020, the Authority has applied for a PA Department of Community and Economic Development – Alternative and Clean Energy Program Grant to potentially cover a portion of the cost of this project.

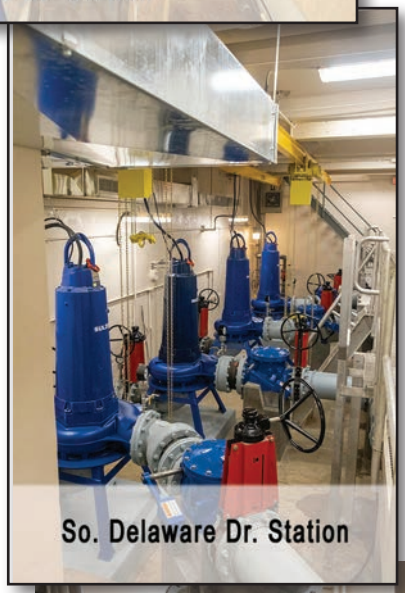
During 2019, plant management reported to the Authority that certain improvements at the Authority's three pumping stations, such as new, larger, non-clogging pumps and wet well mixing systems, have resulted in more rags and inorganic debris being conveyed to the WWTP. This greater volume of rags and inorganic debris was expected upon completion of the pump station improvements. This material is making its way to the primary clarifier sludge pumps and the digesters causing blockages, additional maintenance activities and increased repair costs. The existing plant headworks screening equipment, which removes rags and inorganic debris from the plant influent, is about 20 years old and has an approximate removal efficiency of 35%. The Authority has undertaken a study with BCM Engineers to review and recommend alternatives to better manage elevated loadings of rags and inorganic debris entering the plant.

In 2017, installation of tertiary treatment was discussed as a potential project at the WWTP which could be paid for by anticipated remaining dollars in the 2015 Bond Issue. The purpose of this project is to minimize or eliminate plant effluent violations for Total Suspended Solids (TSS) and fecal coliform during high flow events when solids can, from time to time, wash out of the secondary clarifiers. In addition, the higher quality effluent from a disk filter system may also allow for plant effluent to be used for pump seal water and feed water for various polymer systems which both currently use potable water resulting in a potential cost savings at the plant (exact amount to be determined).

During 2018 - 2019 pilot testing of three disk filter treatment systems was completed and the Authority authorized BCM Engineers to initiate design work on this project. Engineering tasks for this project included a preparation of a pilot testing summary report and concept study for the project, design, preparation of contract documents, permitting, bidding and contract award services. The Authority has also applied for a PA Department of Community and Economic Development – H2O Water Supply, Wastewater and Stormwater Program Grant to potentially cover a portion of the cost of this project.

On this page are pictures of the improvements made at the three pump stations mentioned above.


Second St. Station


So. Delaware Dr. Station


Lehigh Dr. Station

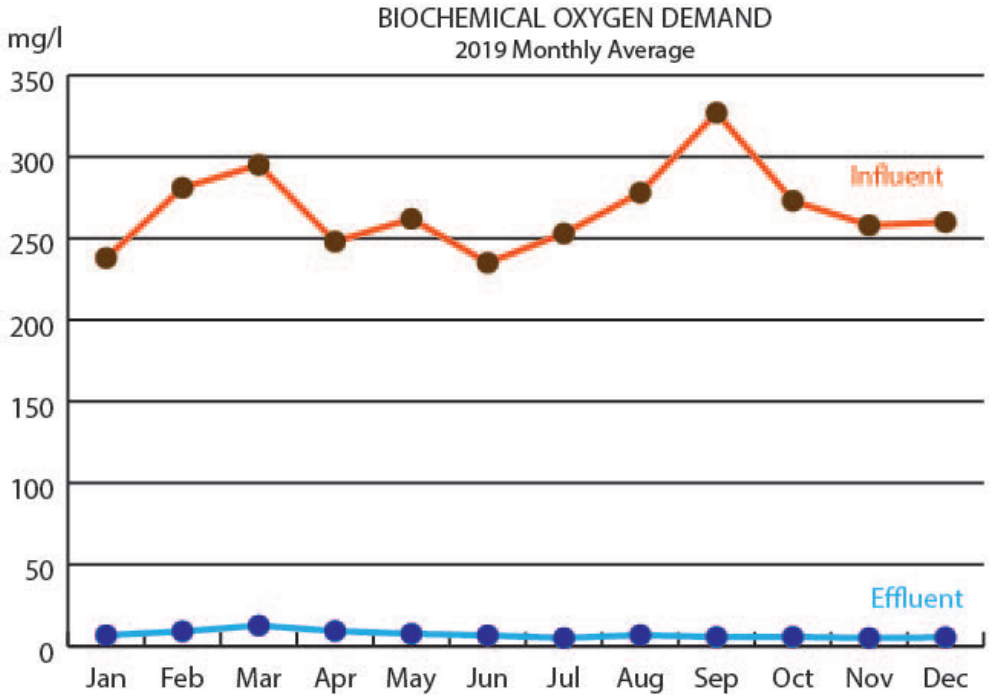

So. Delaware Dr. Station Generator

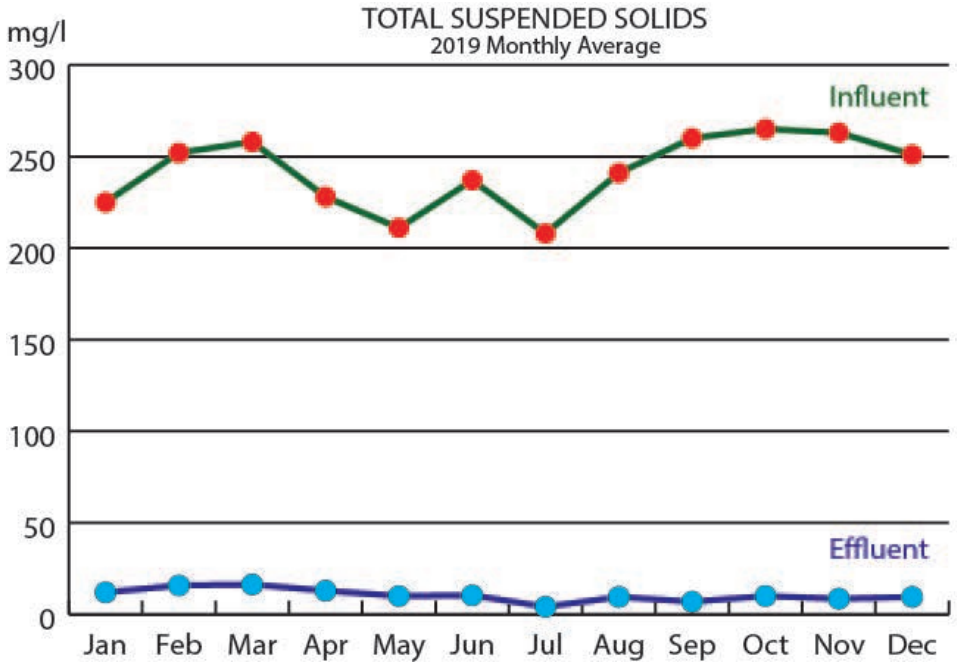
PLANT PERFORMANCE

The WWTP is located on South Delaware Drive (Route 611) south of Easton. The plant, which was built in the 1950s, still has much of the same major equipment that it had since the beginning. Through the years there have been a number of major modifications and recently there have been a number of modifications that have been necessary to meet the regulations of the PA Department of Environmental Protection. As a result, performance of the plant has improved thus providing a high quality effluent to the Delaware River that meets the goal of the plant and meets the requirements of the PADEP, EPA and Delaware River Basin Commission.

One of the capital improvements which has helped the plant management and staff is the implementation of a computerized monitoring system (SCADA). The WWTP includes many pieces of complex equipment so it needs this type of system to quickly react to changes or alarms in order to provide a consistent, high quality discharge to the river. This real-time monitoring system provides data information to the plant operators in the control room so they can make adjustments where necessary to keep the plant within its operating limits.

There are many parameters the plant monitors and includes within their monthly report to the PADEP. To the right are graphic representations of two examples: Five Day Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS). For the BOD, the effluent permit limit is a monthly average of 25.0 mg/l and for TSS the effluent permit limit is 30.0 mg/l. As noted on the graphs both parameters are below the permit limits.





EAJSA Financial Information

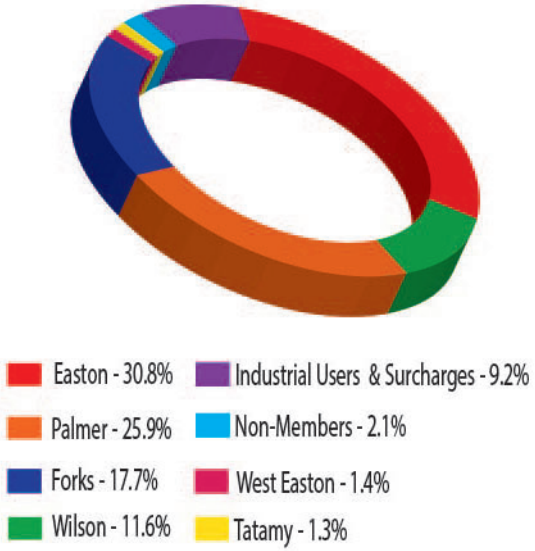
Most Recent Audited Net Position

	2018	2017
Current Assests	$4,527,464	$3,751,096
Non-Current Assests	$34,124,889	$31,930,134
Total Assests	$34,652,353	$35,681,230
Current Liabilities	$1,669,845	$1,040,282
Non-Current Liabilities	$20,045,000	$20,945,000
Total Liabilities	$21,714,845	$21,985,282
Deferred inflow of Resources	$1,179,135	$1,280,141
Net Position	$11,758,373	$12,415,807

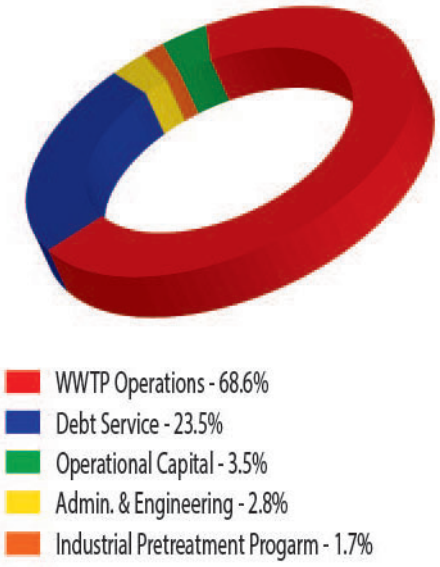
Most Recent Audited Changes in Position

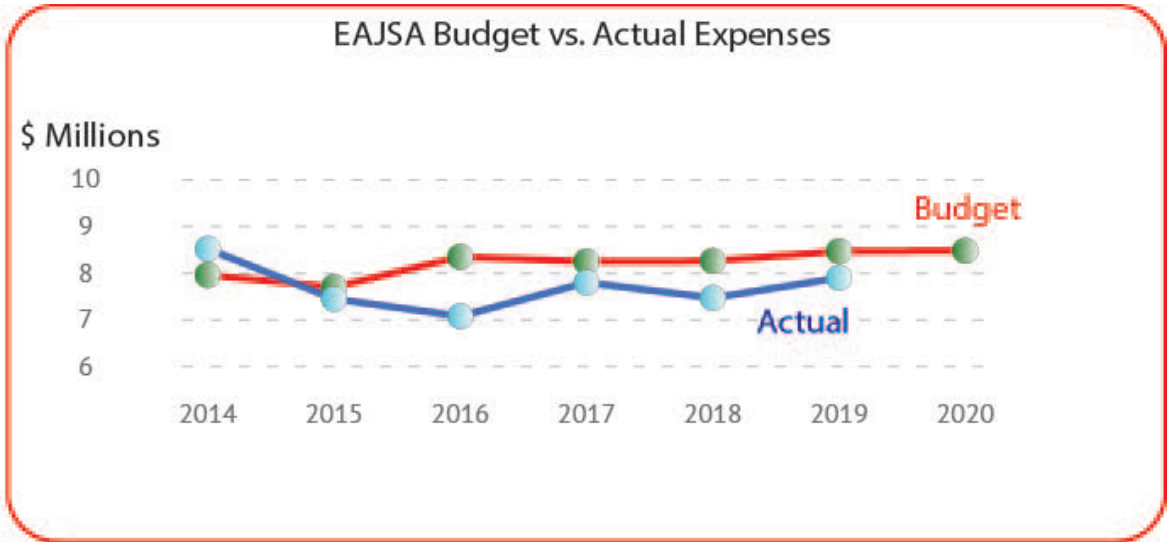
	2018	2017
Opaerating Revenues	$8,444,980	$8,404,248
Operating Expenditures	($7,965,411)	($7,766,788)
Operating Income	$479,569	$637,460
Non-Operating Revenues (Expenses)		
Interest Expense	($772,757)	($716,543)
Interest Income	$198,080	$77,658
Rebates to Municipalities	($562,326)	($1,422,811)
Change in Net Position	($657,434)	($1,422,236)
Net Position Beginning	$12,415,807	$13,838,043
Net Position Ending	$11,758,373	$12,412,807

2019 Revenue
$8,788,731



2019 Expenses
$7,902,516

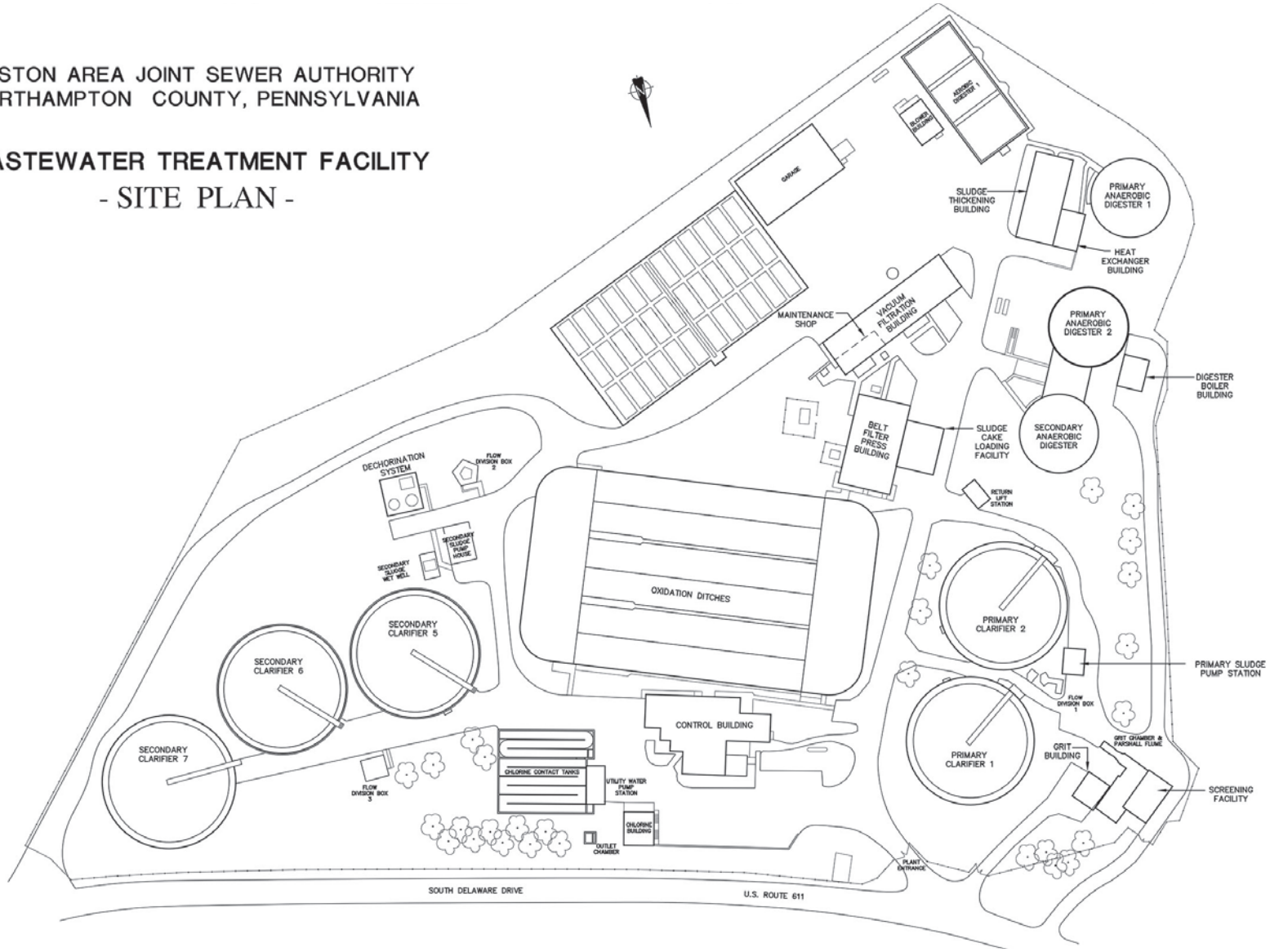




EASTON AREA JOINT SEWER AUTHORITY
NORTHAMPTON COUNTY, PENNSYLVANIA

WASTEWATER TREATMENT FACILITY

- SITE PLAN -



Easton Area Joint Sewer Authority
50-A South Delaware Drive
Easton, PA 18042-9405
(610) 250-6707 Phone
(610) 250-6606 Fax
www.eajsa.com

Designed by Bob Lammi