APPENDIX A

Design Criteria Memo

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TECHNICAL MEMORANDUM

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Date:

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Arcadis Project No.:

02255306.0000

Subject:

Regional Biosolids Facility Design Criteria

INTRODUCTION

The Albany County Water Protection District (ACWPD) and Saratoga County Sewer District (SCSD) are evaluating options for a regional solids handling facility. ACWPD owns and operates two wastewater treatment plants (Plants), the North and South Plants. SCSD owns and operates a single WWTP. All three Plants are equipped with sewage sludge incinerators (SSIs) which has historically been the sole solids disposal mechanism. Due to increasing emissions regulations and the need for large capital upgrades, incineration is not considered viable for future operations. SCSD decommissioned its SSIs in 2016, and has been hauling dewatered sludge cake to a landfill disposal facility at considerable cost. ACWPD still incinerates sludge at both the North and South Plants but plans to discontinue operations and decommission the SSIs in the near future.

Both ACWPD and SCSD recognize that hauling undigested sludge cake to a landfill is not a cost effective or sustainable long-term approach to solids management. Each organization has individually conducted studies into implementing new solids treatment onsite. Based on the findings of the individual studies, both organizations have elected to jointly evaluate a regional biosolids facility that would take advantage of capital construction and O&M cost economies of scale. In addition, this biosolids facility will also target the importation of high strength organic waste and fats, oils and grease (FOG) streams in the area to further drive beneficial economics and enhance energy recovery.

The new regional biosolids facility will be located at ACWPD's North Plant. This site has several beneficial aspects such as greenfield space to build anaerobic digesters, idle aeration tanks that could be repurposed and utilized, and a new Organic Rankine Cycle (ORC) turbine system in place that can generate electricity

from captured heat. The regional biosolids facility would treat sludge generated onsite at the ACWPD North Plant, receive sludge from ACWPD's South Plant and the SCSD Plant, as well as imported material from other sources such as cake from other municipal treatment plants, high-strength organic waste from local industries, commercial processing and prepping facilities, and fats/oils/grease (FOG).

PURPOSE

This is the initial technical memorandum for investigating and determining the configuration for a new regional biosolids facility. The purpose of this technical memorandum is to define the current quantities and characteristics of sludge streams that are generated at each of the three Plants and possible outside sources of organic waste. This technical memorandum also outlines the current solids handling practices and equipment in place at each Plant that would be involved with a regional biosolids facility. Projections were made for sludge amounts to be generated in the future over a design and planning period ending in 2035. The solids information quantified will be used as the primary input information into a Solids and Energy Flow Model that will be used to evaluate potential configurations and operational strategies for a regional biosolids facility. The development and results from the Solids and Energy Flow Model will be provided in a subsequent technical memorandum.

BASELINE LOADING

The proposed facility will be designed to handle a baseline load encompassing sources which either are already contributing to ACWPD or SCSD's sludge production, or can be reasonably depended on to contribute sludge to the facility in the future. These sources are described below. Potential sources for future expansion of the facility will be discussed separately.

ACWPD North Plant

ACWPD's North Plant generates primary sludge and waste activated sludge (WAS). Primary sludge is currently intermittently pumped from the bottom of the primary clarifiers to the sludge holding tanks. Primary sludge characteristics were reported by ACWPD based on data from 2013 to 2016.

Secondary sludge from the final clarifiers is drawn into a wet well, where it is either returned to the aeration tanks or wasted. WAS is pumped from the wet well to a splitter box in the Solids Disposal Building which distributes it to the Plant's five dissolved air flotation thickeners (DAFTs). Polymer is added to these tanks to aid the sludge's thickening. Thickened WAS (TWAS) is then collected in a well below the DAFTs and pumped to the sludge holding tanks where it is combined with primary sludge. **Appendix A** contains schematics of the Plant. TWAS characteristics were reported by ACWPD based on data from 2013 to 2016.

The North Plant is equipped with four sludge holding tanks. Assuming the effective capacity of these tanks encompasses the volume from two feet off the tank bottom to six inches below the overflow, these tanks total approximately 1.1 million gallons (MG) of capacity. Three sludge transfer pumps, each with a design capacity of 150 gpm, currently convey the combined sludge to dewatering. Dewatering is accomplished using a set of Belt Filter Presses (BFPs) located on the upper level of the solids disposal building.

The sludge characteristics selected for use in further analyses including Solids and Energy Flow Modeling are summarized in **Table 1**. Using these sludge flow values provided by ACWPD, the total sludge holding tank volume translates to approximately 7.4 days of storage capacity at average flow and 3.9 days of storage capacity at maximum monthly flow.

Sludge production at the North Plant is not anticipated to change appreciably in the future based on stable population projections for the service area. At the conclusion of the design and planning period in 2035, the North Plant will still generate two separate streams of sludge: primary sludge and WAS. These streams will be directed separately to the sludge storage tanks, with WAS thickened first. The sludge characteristics reported for each stream by ACWPD will be used in the Energy Flow Model as summarized in **Table 1**.

There should be considerations for enhancement of sludge thickening and pumpability of this sludge to optimize liquid sludge transfer. These enhancements will be explored in subsequent solids and energy flow modeling analyses. The use of WAS from the North Plant for cake rewetting and de-lumping will also be evaluated during the preliminary engineering evaluation.

Table 1: ACWPD North Plant Selected Sludge Characteristics

Parameter	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day	%	dry lb/day	dtpd	%
Average Conditions					
Primary Sludge	110,300	2.0%	18,400	9.2	77.5%
TWAS	38,600	5.0%	16,100	8.1	79.6%
Combined Sludge	148,900	2.8%	34,500	17.3	78.0%
Maximum Month Conditions					
Primary Sludge	230,000	2.0%	38,400	19.2	77.5%
TWAS	54,200	5.0%	22,600	11.3	79.6%
Combined Sludge	284,000	2.6%	61,000	30.5	77.9%

ACWPD South Plant

ACWPD's South Plant generates primary sludge and WAS. Primary sludge is pumped intermittently to the sludge holding tanks. Primary sludge characteristics were reported by ACWPD based on data from 2013 to 2016.

Secondary sludge undergoes the same thickening process employed at the North Plant. WAS is sent from the return pump station wet well to one of three DAFTs, where polymer is added to improve thickening. TWAS is pumped from the DAFTs to the sludge holding tanks and combined with the primary sludge. TWAS characteristics were reported by ACWPD based on data from 2013 to 2016.

The South Plant is equipped with three sludge holding tanks. Assuming the effective capacity of these tanks encompasses the volume from two feet off the tank bottom to six inches below the overflow, these tanks total approximately 0.57 MG of capacity. Three sludge transfer pumps, each with a design capacity of 150 gpm, currently convey the combined sludge to dewatering. Dewatering is accomplished using BFPs. Plant schematics may be found in **Appendix A**.

Using the combined sludge flow values calculated by adding the primary sludge and TWAS flow rates, the total sludge holding tank volume translates to approximately 8.6 days of storage capacity at average flow and 6.3 days of storage capacity at maximum monthly flow. Based on the solids production, if converted to cake at 20% TS the volumetric loading of the combined sludge would be 1,315 ft^3 (9,830 gal) per day under average conditions and 1,820 ft^3 (13,600 gal) per day under maximum conditions.

Sludge production from the South Plant is not anticipated to increase in the future based on stable population projections for the service area. Primary sludge and TWAS generated by the South Plant will be combined in the sludge storage tanks. Due to the large amount of trucks needed for liquid sludge hauling, it is expected that BFPs would continue existing operations and dewatered cake from the South Plant will be hauled to the new regional biosolids facility. The South Plant combined sludge characteristics summarized in **Table 2** will be used for future conditions in the flow model.

Table 2: ACWPD South Plant Selected Sludge Characteristics

Parameter	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day	%	dry lb/day	dtpd	%
Average Conditions					
Primary Sludge	47,600	2.0%	7,900	4.0	73.1%
TWAS	18,800	5.5%	8,500	4.3	68.9%
Combined Sludge	66,400	3.0%	16,400	8.2	71.9%
Maximum Month Conditions					
Primary Sludge	63,000	2.0%	10,500	5.3	73.1%
TWAS	26,800	5.5%	12,200	6.1	68.9%
Combined Sludge	89,800	3.0%	22,700	11.4	71.9%

SCSD Plant

The SCSD Plant produces primary sludge and WAS. Primary sludge is pumped directly to the Plant's sludge holding tanks. Primary sludge characteristics were reported by SCSD are summarized in **Table 3**Table . The dry solids loading rate was calculated using the sludge flow and % TS provided.

WAS is pumped from the secondary sludge return station to two 1.5-meter gravity belt thickeners (GBTs). SCSD reported unthickened WAS flow rates of 324,000 gal/day average and 360,000 gal/day maximum at approximately 0.5% TS. SCSD also reported that TWAS leaves the GBTs at approximately 6% TS. Using this solids content and the dry solids loading calculated for the unthickened WAS, the TWAS characteristics summarized in **Table 3** were calculated. TWAS from the GBTs is then pumped to the sludge storage tanks and combined with primary sludge.

Dewatering consists of two 1.5-meter BFPs. Cake leaves the BFPs at approximately 20 to 22% TS, and is conveyed through a two-truck loading bay and into trucks for hauling. **Appendix A** contains schematics of the plant. SCSD Plant staff report that they dispatch on average 12 truckloads per week at 33 wet tons per truckload for a total of 396 wet tons per week. At 21% TS, this results in a dry solids loading of 11.9 dtpd.

The combined sludge loading calculated from hauling data is less than the sum of the primary sludge and TWAS loading estimates, but the hauled data from a single source is assumed to be the more accurate

number. The solids composition of the combined sludge is assumed to be approximately 50% primary sludge and 50% WAS.

Table 3: SCSD Plant Reported Sludge Characteristics

Parameter	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day	%	dry lb/day	dtpd	%
Average Conditions					
Primary Sludge	77,800	3.5%	22,700*	11.4*	82.0%
TWAS	27,000	6%	13,500*	6.8*	84.0%
Dewatered Cake	13,600	21%	23,800	11.9	82.7%
Maximum Conditions					
Primary Sludge	97,200	3.5%	28,400*	14.2*	82.0%
TWAS	30,000	6%	15,000*	7.5*	84.0%
Dewatered Cake	16,900	21%	29,600	14.8	82.7%

* Calculated from the provided sludge flow and % TS

The combined sludge dry solids loading rates calculated are comparable with values presented in the study *Saratoga County Sewer District Incinerator Evaluation*, dated April 2016, although slightly smaller. Previously, 2015 biosolids production reported values of 28,700 dry lb/day or 14.4 dtpd (average) and 32,650 dry lb/day or 16.3 dtpd (maximum). The sludge characteristics selected for analysis are summarized in **Table 4**.

Table 4: SCSD Plant Selected Sludge Characteristics

Parameter	Sludge Cake Volumetric Loading	% TS	Dry Solids Loading	% VS
	gal/day	%	dtpd	%
Dewatered Cake – Average Conditions*	13,600	21%	11.9	83%
Dewatered Cake – Maximum Conditions*	16,900	21%	14.8	83%

*Dewatered cake is assumed to be 50% primary sludge and 50% WAS

Sludge production from the SCSD Plant is anticipated to increase with projected population growth in the county. Census data for the county were obtained and analyzed for the period between 2003 and 2014. The population was found to have grown at an average annual rate of 0.59% over this period. For the purposes of this analysis, it was assumed that future flows and loadings would increase in direct proportion with the county population.

Table 4 above contains a summary of the combined sludge characteristics under current conditions. The %TS and %VS values were assumed to remain constant with population increase. The projected trend in sludge flow and dry solids loading is shown in **Table 5** based on annual increases of 0.59%.

Table 5: SCSD Plant Projected Sludge Production Increase

Parameter	Sludge Cake Volumetric Loading	% TS	Dry Solids Loading	% VS
	gal/day	%	dtpd	%
Average Conditions				
2020	13,800	21%	12.1	83%
2025	14,300	21%	12.5	83%
2030	14,700	21%	12.8	83%
2035	15,100	21%	13.2	83%
Average Conditions				
2020	17,200	21%	15	83%
2025	17,700	21%	15.5	83%
2030	18,200	21%	15.9	83%
2035	18,800	21%	16.5	83%

Existing Hauled Outside Sludge

The ACWPD South Plant currently receives hauled outside sludge from the Villages of Coeymans and Bethlehem in liquid form. These streams are currently added to the Plant's sludge storage facilities and combined with primary sludge and WAS. ACWPD provided characteristics for the two hauled sludge sources as summarized in **Table 6**. Previously, the Town of East Greenbush used to send liquid sludge to the South Plant. East Greenbush has discontinued that practice, opting for dewatering, stabilization and landfill disposal for economic reasons. If the Town of East Greenbush could haul unstabilized sludge to the North Plant, they would realize savings for chemical usage and hauling. It is anticipated that a regional biosolids facility will allow ACWPD to recapture Town of East Greenbush sludge. The Town East Greenbush sludge characteristics as reported in the November 2016 report *Albany County Sewer District North Plant Biosolids* are summarized in **Table 6**.

Table 6: Reported Hauled Outside Sludge Characteristics

Parameter	Sludge Flow	% TS	Dry Solids Loading	
	gal/day	%	dry lb/day	dtpd
Village of Coeymans	2,500	2.3%	500	0.25
Village of Bethlehem	9,000	4.2%	3,000	1.5
Town of East Greenbush	9,300	3.0%	2,300	1.15
Sum of Hauled Outside Sludge	**20,800**	**3.3%**	**5,800**	**3.9**

It is likely that the Town of East Greenbush and the Village of Coeymans will haul sludge the Regional Biosolids Handling Facility as cake. Sludge production from these three wastewater treatment plants is not expected to change significantly. The parameters contained in **Table 6** will be used for all anticipated future hauled outside sludges.

Fats/Oils/Grease

Per the November 2016 report *Albany County Sewer District North Plant Biosolids*, ACWPD reported receiving FOG at the North Plant. Based on data provided for FOG received at the Scavenger Station, the FOG currently received is characterized as shown in **Table 7**.

Table 7: Reported FOG Characteristics

Parameter	Sludge Flow	% TS	Dry Solids Loading	
	gal/day	%	dry lb/day	dtpd
FOG	14,000	2%	2,300	1.15

For future conditions, an estimate was made of the amount of FOG that could potentially be available for co-digestion with sludge at the regional biosolids handling facility. This estimate was assumed to include FOG currently received at the ACWPD North Plant.

According to a 1998 study by the National Renewable Energy Laboratory (NREL) titled *Urban Waste Grease Resource Assessment*, population is a reliable predictor of a region's FOG production. Using data collected in metropolitan areas across the country, the study found that "trap" grease or "brown" grease (which typically consists of waste grease from restaurants, and is the portion of grease which is of interest to anaerobic digestion) is produced at a rate of approximately 13 lb per capita per year. This value reflects the actual grease content; the study notes that the waste grease discharged to treatment plants often has a grease content of only 5 to10%, with the rest consisting mainly of water. A 2013 report from Birdsall Services Group prepared for Bergen County, NJ corroborates this result, reporting a grease content of approximately 8% in the brown grease waste delivered to the wastewater treatment plant. A separate detailed study in San Francisco found a grease content of 6% TS, with a % VS of 93%. For this analysis, a conservative estimate of 6% TS for grease will be used to calculate flows and loads.

Because the grease content is being estimated based on population, the growth of Saratoga County will impact grease loading projections. **Table 8** presents the county population numbers used for this analysis. The Albany County population was held constant from the 2014 census result. The Saratoga County population was increased at the observed annual average 0.59% rate from the 2014 census result.

Table 8: Population Projections

Year	Population		
	Saratoga	Albany	Total
2020	233,000	308,000	541,000
2025	240,000	308,000	548,000
2030	247,000	308,000	555,000
2035	254,000	308,000	562,000

Using the population projections, an estimate may be obtained for the total amount of FOG produced in the two counties. The facilities will be designed assuming 100% capture of the available FOG; however, a conservative factor of 80% will be applied to the total amount of FOG when conducting energy calculations.

Table 9 presents the total projected FOG input to the new facility for the design period through the year 2035. Estimates for COD loading are based on the assumption that 1 lb VS = 1.42 lb COD.

Table 9: FOG Model Inputs

Parameter	FOG Flow	% TS Brown Grease in FOG	Brown Grease Loading		% VS	COD
	gal/day	%	lb/day	ton/day	%	lb/day
2020 FOG Inputs	38,520	6%	19,280	9.6	93%	25,500
2025 FOG Inputs	39,000	6%	19,520	9.8	93%	25,800
2030 FOG Inputs	39,480	6%	19,760	9.9	93%	26,100
2035 FOG Inputs	40,000	6%	20,040	10	93%	26,500

Baseline Loading Summary

The new facility will be designed to accommodate the projected 2035 baseline loadings described above. The inputs to the facility are assumed to be in the following forms:

- Primary sludge and WAS from the North Plant will be kept separate to maintain operational flexibility for receiving cake.
- Sludge from Bethlehem, Coeymans and East Greenbush will be hauled to the new facility as dewatered cake at 20% TS or liquid sludge at 4.2% TS.
- Primary sludge and WAS from SCSD will be hauled to the new facility as dewatered cake at 21% TS.
- FOG will be hauled to the facility at 6% TS.

Table 10 summarizes the projected 2035 baseline loadings. Cake volumetric loading rates have been converted to cubic yards per day (CY/day).

Table 10: Summary of Baseline Loading Characteristics

Source	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day or CY/day	%	dry lb/day	dtpd	%
Average Conditions					
North Plant Primary Sludge	110,300	2.0%	18,400	9.2	77.5%
North Plant TWAS	38,600	5.0%	16,100	8.1	79.6%
South Plant Cake	48 CY/day	20%	16,400	8.2	71.0%
Bethlehem Sludge	9,000	4.2%	3,200	1.6	80%
East Greenbush/Coeymans Cake	8.3 CY/day	20%	2,800	1.4	80%
SCSD Cake	75 CY/day	21%	26,500	13.2	83%
FOG	40,000	6%	20,000	10.0	93%

Maximum Conditions					
North Plant Primary Sludge	230,200	2%	38,400	19.2	77.5%
North Plant TWAS	54,200	5%	22,600	11.3	79.6%
South Plant Cake	67 CY/day	20%	22,700	11.4	79.6%
Bethlehem Sludge	9,000	4.2%	3,200	1.6	80%
East Greenbush/Coeymans Cake	8.3 CY/day	20%	2,800	1.4	80%
SCSD Cake	93 CY/day	21%	32,900	16.5	83%
FOG	40,000	6%	20,000	10.0	93%

Accommodations may be made in the future to expand for additional imported material to the digesters. This additional material is described in the next section.

FUTURE EXPANSION LOADINGS

Additional sources of biomass in the form of HSW, organic waste, and hauled cake from outlying communities would likely be available for future expansion of the facility. These sources may also be able to be accepted during periods when sludge loading to the facility falls short of the design loading.

Hauled Outside Sludge

The New York State Department of Environmental Conservation's *Descriptive Data of Municipal Wastewater Treatment Plants in New York State* dataset was queried to identify wastewater treatment plants within a 75 mile radius of Albany, NY that were reported not to have sludge digestion and that utilize landfill or incineration for disposal of their sludge. The query indicated that 27 wastewater treatment plants have municipal sludge that should be suitable for treatment at the regional biosolids handling facility. Refer to **Appendix B** for a list of the wastewater treatment plants.

The dataset contains data on population served for most wastewater treatment plants. Average daily flow was estimated from population using a value of 100 gallons per capita per day (gpcd). For wastewater treatment plants where population data was not reported, the average flow was estimated at half the permitted flow. Sludge production was estimated using a value of 1.95 pounds sludge per 1,000 gallons wastewater, which Metcalf & Eddy recommends for wastewater treatment plants with primary and secondary treatment. Using this approach, wastewater treatment plants within 75 miles that may consider hauling sludge to the regional biosolids handling facility are estimated to produce approximately 35 dtpd of sludge combined. For this analysis, it is assumed that approximately 25% of this outside sludge could be hauled to the regional biosolids handling facility as dewatered cake with a solids content of 20%. VS information is not available for any of the hauled sludges, but was assumed to be 80% for undigested combined sludge with a 50/50 split between primary sludge and WAS. **Table 11** presents the projected characteristics for the imported outside cake market.

Table 11: Selected Imported Outside Cake Parameters

Parameter	Sludge Flow	% TS	Dry Solids Loading	
	gal/day	%	dry lb/day	dtpd
25% of Imported Outside Cake Market	10,500	20%	17,500	8.75

High Strength Waste and Organic Food Waste

Under current New York State solid waste management law, nonresidential waste generators are not required to source separate food scraps from other solid waste, and can dispose of those materials through a variety of methods including landfilling and incineration. As outlined in the proposed changes to the Part 360 regulations, anticipated new diversion requirements will compel that group of waste generators who produce, at a single location, an annual average of two tons of food waste per week, to source separate their food not donated and food scraps. Generators that are within 50 miles of an organics recycler will then be required to dispose of all food scraps at the recycler, to the extent that the recycler is able to take all or part of that waste volume. The generator will be required to de-package food waste to the extent practicable or send those materials to a facility for de-packaging prior to disposal at an organics recycler. Generators will be further required to ensure that food waste is not the byproduct of a recall or seizure due to the presence of pathogens.

Entities transporting food waste will be required to take those materials to a transfer station for distribution to an organics recycler or to an organics recycler directly. Transporters will no longer be allowed to landfill food waste, dispose of those materials through incineration, and/or comingle food waste with other solid waste unless those materials can be processed by an organics recycler.

Under the proposed modifications to the Part 360 regulations, solid waste disposal facilities would no longer be allowed to receive food waste for landfill or combustion, and will be required to divert those materials to an organics recycler effective January 1, 2021. With regard to disposal of the organic recycling material byproduct, changes to the Part 360 solid waste regulations would apply if the intention was to beneficially reuse the resulting digestate instead of landfilling those materials. If the organics recycler elects to landfill the digestate, then the facility disposing of those materials will require coverage for that activity under the following SPDES permit requirements:

360-5.4 General permit application requirements for organic waste processing facilities

360-5.5 Organic waste processing facilities for biosolids, mixed solid waste, septage and other sludges

360-5.5(d)(14)(v) specifies how the digestate is regulated if beneficially reused.

The cost-effective operation of a utility scale, anaerobic digester located at the North Plant will be significantly dependent on modifications to the food donation and food scraps recycling requirements set forth in the New York State Title 6 NYCRRA Part 360 regulations.

On several past occasions, changes to the sections of the Part 360 regulations that would require the disposal of food waste in a manner that does not allow for landfilling or incineration have been legislatively proposed. For a variety of different reasons, at this time, no changes to those sections of the Part 360 regulations have been successfully enacted. Most recently, proposed modifications to the regulations were outlined in Governor Andrew Cuomo's Food Recovery Act as set forth in the Title 22 section of the FY 2018 New York State Executive Budget Transportation Economic Development and Environmental Conservation Article VII Legislation. Though the proposed changes outlined therein were not legislatively adopted, it is now widely understood that the legal language put forth in the FY 2018 budget was very mature in its development and that the language has become the new foundation for any future proposed changes to the Part 360 regulations focusing on food waste. It is anticipated that a further attempt to pass the changes set forth during FY 2018 budget will be pursued again during the 2018 legislative cycle. Though "unofficial" in nature, through direct dialogue with the NYSDEC Bureau of Waste Reduction and Recycling and the Division of Materials Management, it was made clear to Arcadis during the month of September 2017 that

adequate support now exists in the New York State Senate to allow for passage of the regulatory changes, and that the changes will closely mirror the legal language set forth in the FY 2018 state budget.

Arcadis utilized the online Organic Resource Locator tool developed and maintained by the New York State Pollution Prevention Institute (NYSP2I) to query organic waste generators within a 50 mile radius of Albany, NY. Refer to **Figure 1** for a GIS map of organic waste generators. **Appendix C** contains a summary list of the generators.

Based on this database, there is a market of 1,050 tons per week of organic wastes produced within 50 miles of Albany, NY and that generate two tons per week or more. Assuming that 25% of the market could be diverted to the regional biosolids handling facility a total of 40 wet tons per day of organic waste could be captured. **Table 12** summarizes the estimated characteristics of organic waste, assuming a density of 900 lb/cy for commercial food waste and 30% TS.

Table 12: HSW and Organic Food Waste

Parameter	Volume	% TS	Solids Loading		% VS	COD
	gal/day	%	dry lb/day	dtpd	%	lb/day
HSW/Organic Food Waste	17,500	30%	43,800	21.9	90%	102,000

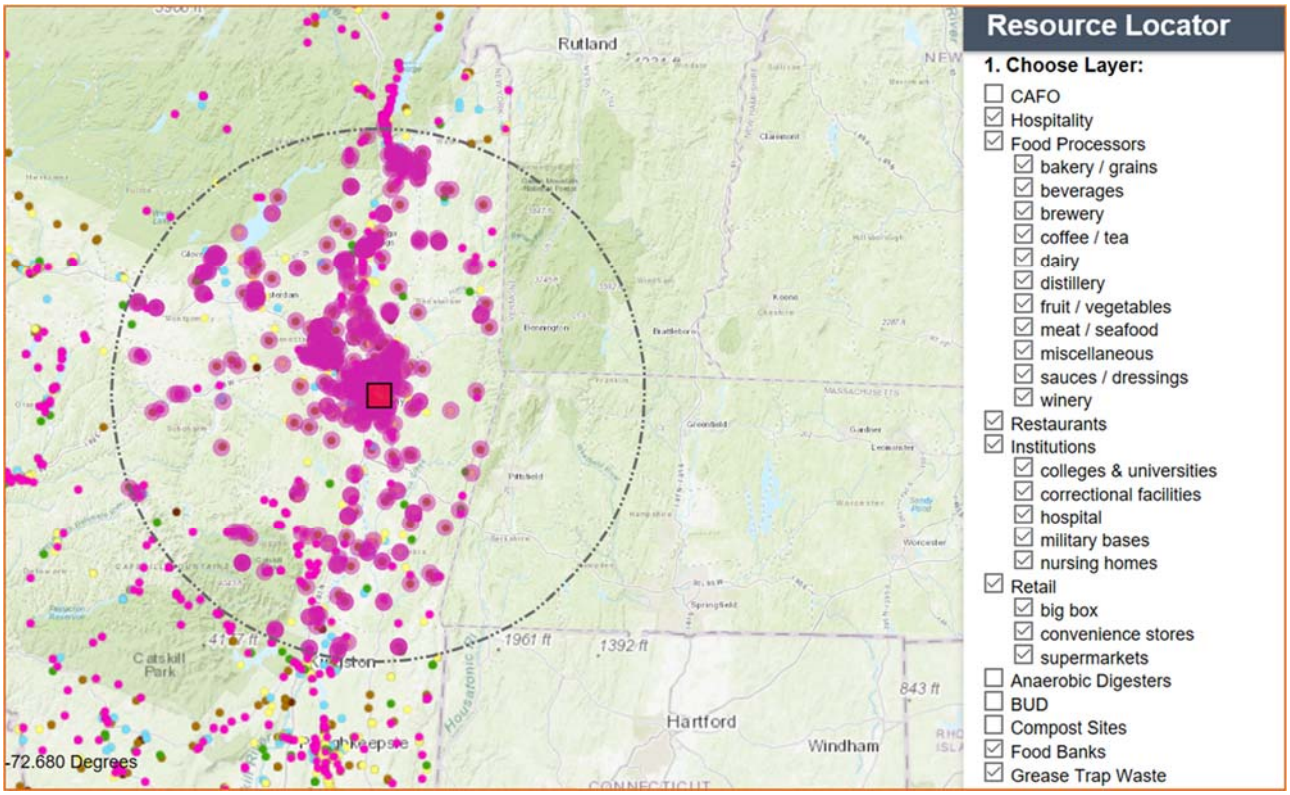


Figure 1: Organic Generators within 50 Miles of Albany, NY

Future Expansion Loading Summary

The facility may be expanded in the future to accommodate the loadings described in the previous section. **Table 13** summarizes the projected future expansion loadings, which will be held constant throughout the design period. Cake volumetric loading rates have been converted to cubic yards per day (CY/day).

Table 13: Summary of Future Expansion Loading Characteristics

Source	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day or CY/day	%	dry lb/day	dtpd	%
Average Conditions					
25% of Hauled Cake Market	52 CY/day	20%	17,500	8.8	80%
25% of HSW/Organic Food Waste Market	17,500	30%	43,800	21.9	90%

SUMMARY OF COMBINED PROJECTED LOADINGS

Combined Basline Loading Summary

The baseline loadings will ultimately be combined and thickened into a single uniform digester feed. Assuming the blended digester feed can be conditioned to achieve 7.5% TS, the projected combined loading to the digesters over the design period is as summarized in **Table14**.

Table 14: Baseline Digester Loading Summary

Year	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day	%	dry lb/day	dtpd	%
Average Conditions					
2020	160,500	7.5%	100,400	50.2	81.2%
2025	162,100	7.5%	101,400	50.7	81.2%
2030	163,700	7.5%	102,400	51.2	81.3%
2035	165,300	7.5%	103,400	51.7	81.4%
Maximum Conditions					
2020	222,100	7.5%	138,900	69.5	80.2%
2025	224,000	7.5%	140,100	70.1	80.2%
2035	225,700	7.5%	141,200	70.6	80.3%
2035	227,700	7.5%	142,400	71.2	80.3%

Combined Future Expansion Loading Summary

In the future, the facility may be expanded to receive additional hauled sludge cake and HSW/organic food waste. The available market for these two waste streams was projected, and it was assumed that 25% of the available market could be captured. These projections were held constant over the duration of the design

period. Assuming these additional loadings are blended with the baseline loadings and the mix is again conditioned to 7.5% TS, the projected combined digester feed including imported sludge cake and HSW/organic food waste in 2035 is as summarized in **Table 15**.

Table 15: Future Expanded Digester Loading Summary for 2035

Year	Sludge Flow	% TS	Dry Solids Loading		% VS
	gal/day	%	dry lb/day	dtpd	%
Average Conditions - 2035	263,300	7.5%	164,700	82.4	83.5%
Maximum Conditions - 2035	325,700	7.5%	203,700	101.9	82.4%

APPENDIX A: SCHEMATICS OF PLANTS

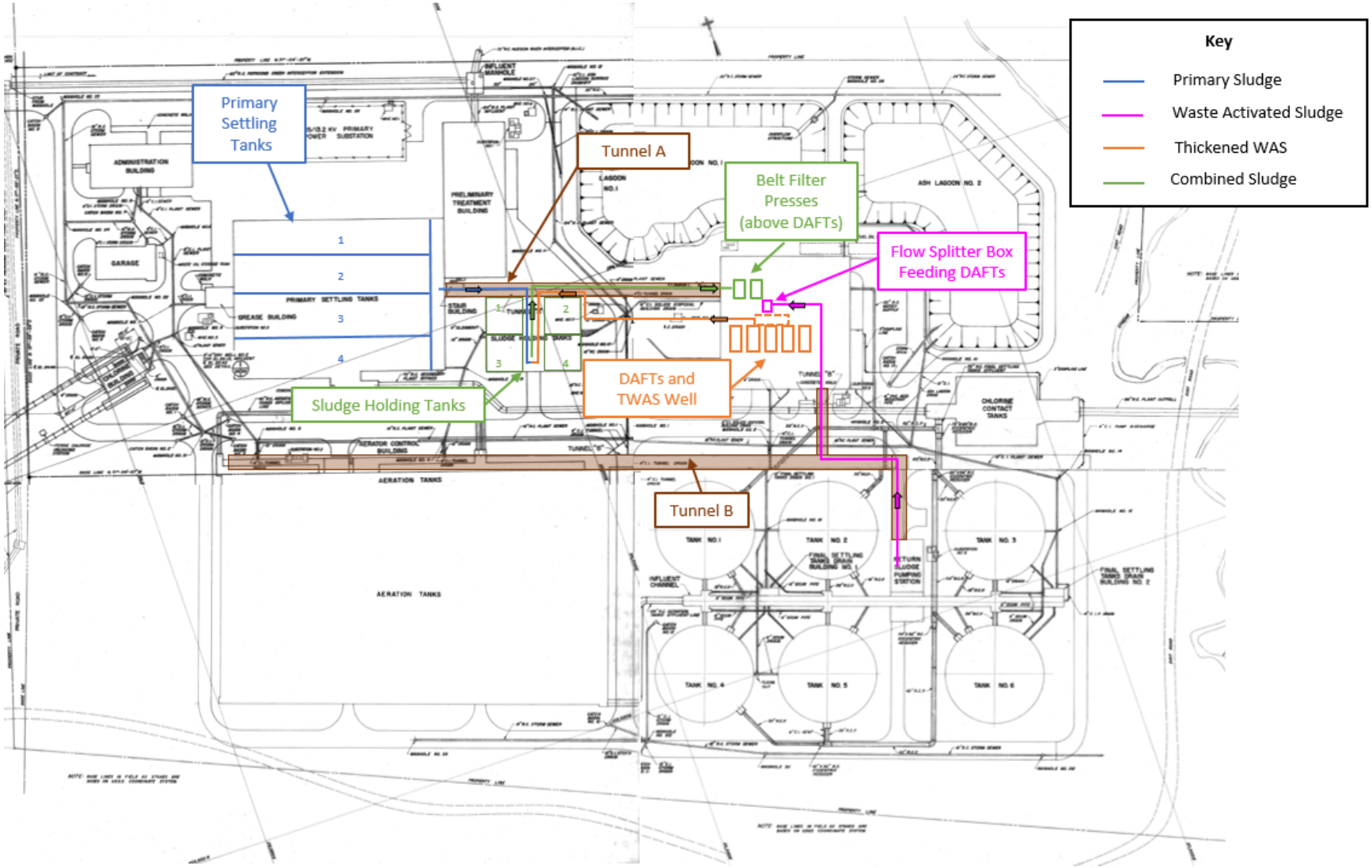
ACWPD North Plant Schematics

ACWPD North Plant Layout

ACWPD/SCSD Regional Biosolids Facility

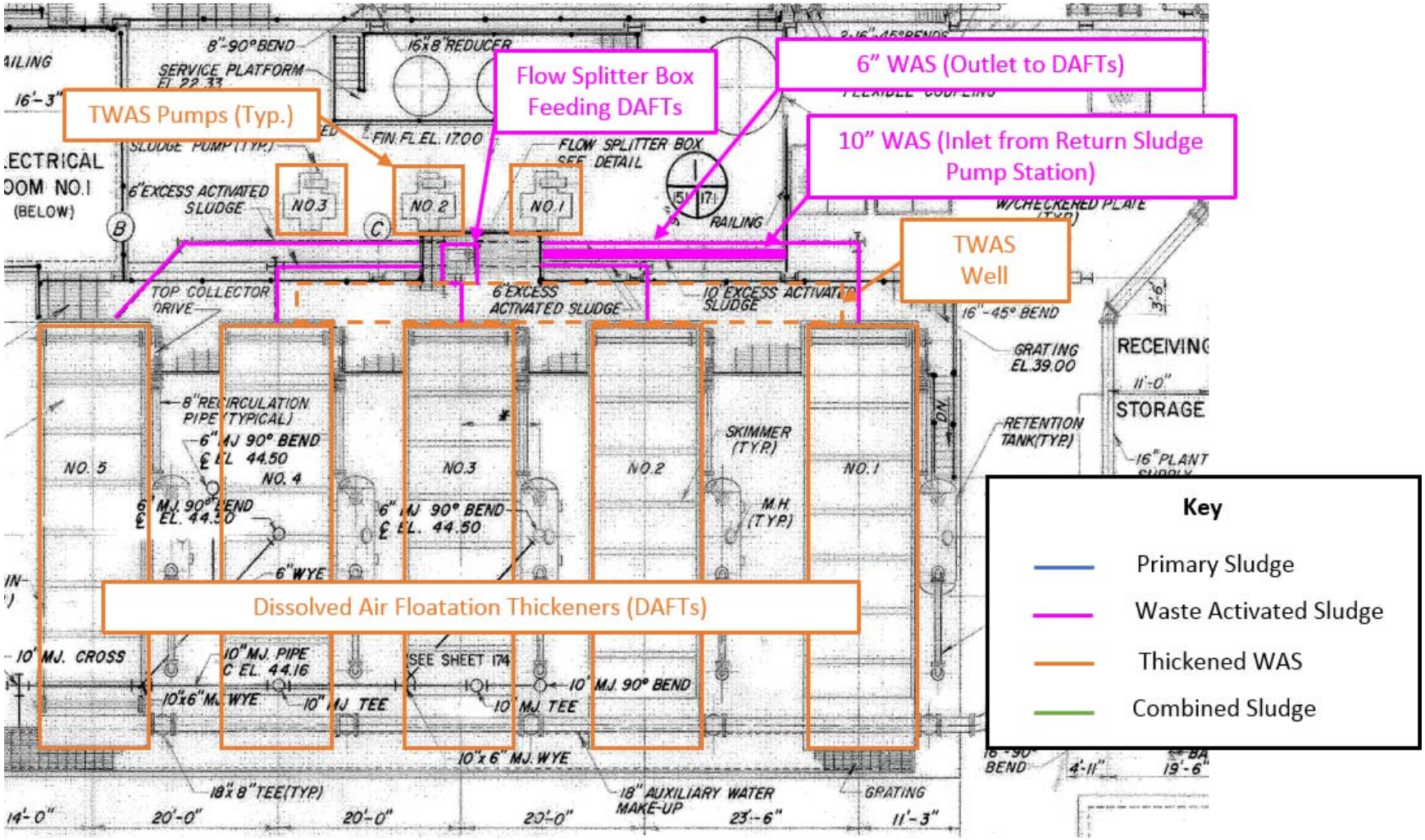
ACWPD North Plant Sludge Routing

ACWPD/SCSD Regional Biosolids Facility



ACWPD North Plant Enlarged Plan of DAFTs

ACWPD/SCSD Regional Biosolids Facility



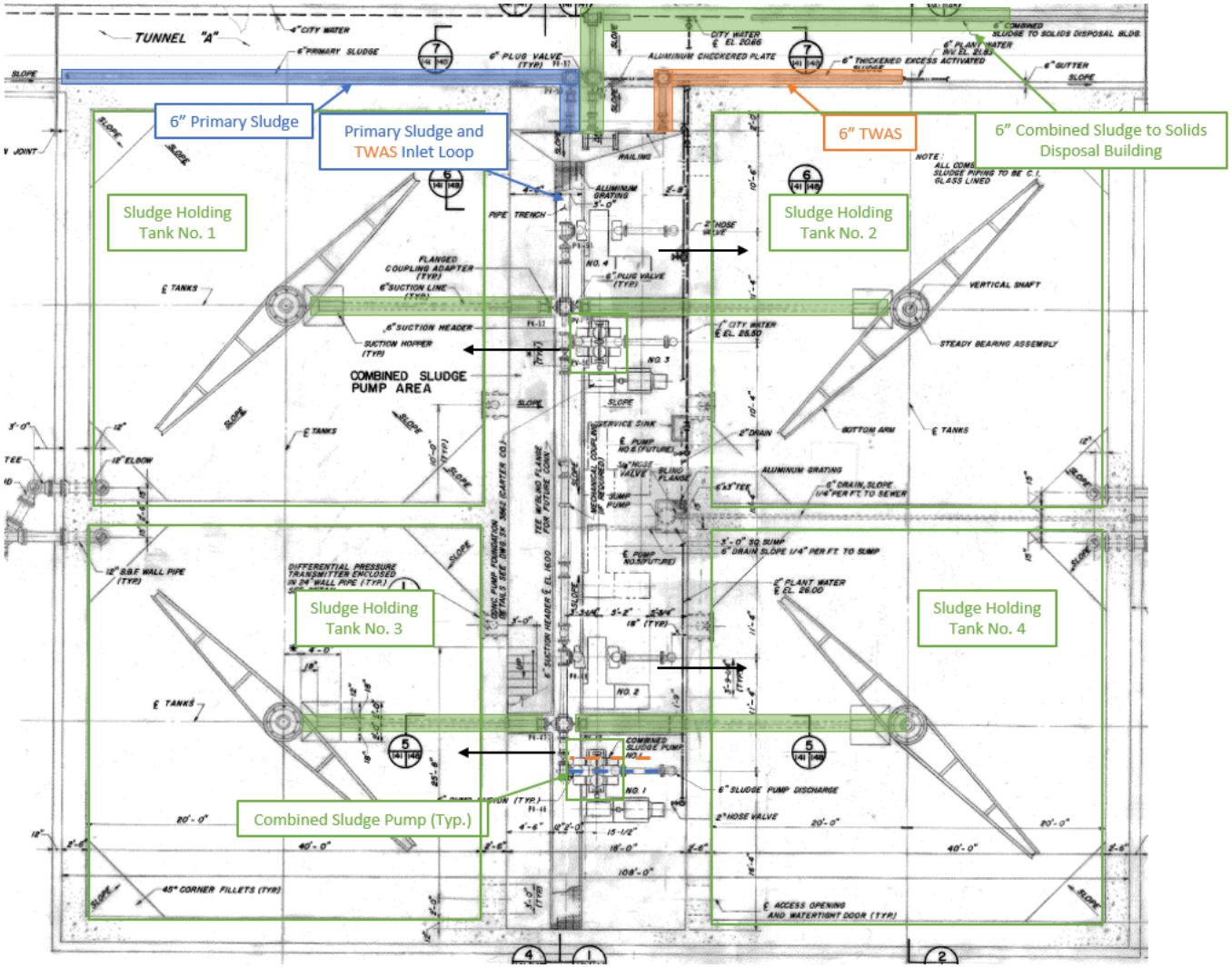
ACWPD North Plant Enlarged Plan of Sludge Holding Tanks

ACWPD/SCSD Regional Biosolids Facility

ARCADIS Design & Consultancy for natural and built assets

Key

- Primary Sludge
- Waste Activated Sludge
- Thickened WAS
- Combined Sludge



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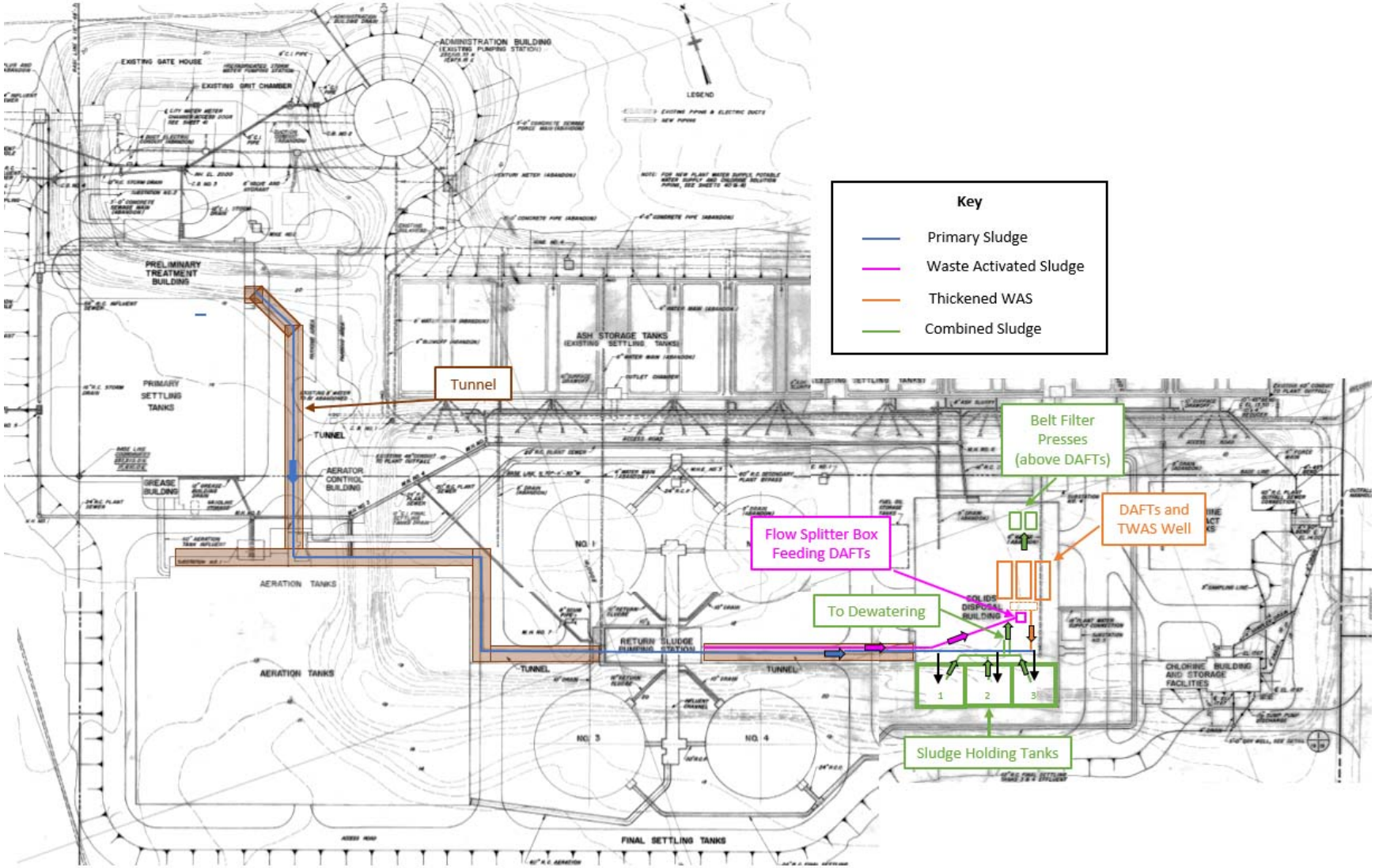
ACWPD South Plant Schematics

ACWPD South Plant Aerial View

ACWPD/SCSD Regional Biosolids Facility

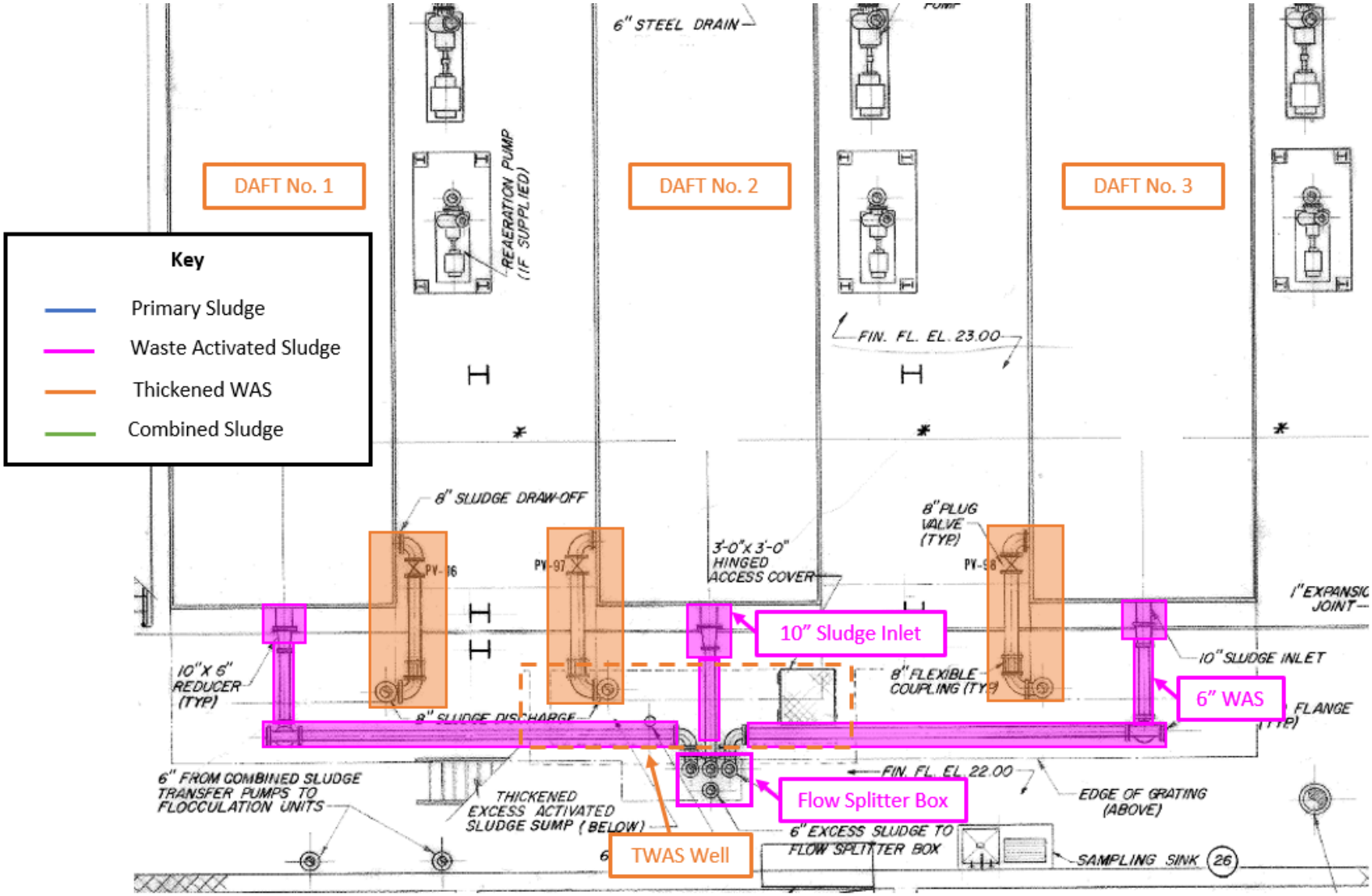
ACWPD South Plant Sludge Routing

ACWPD/SCSD Regional Biosolids Facility



ACWPD South Plant Enlarged Plan of DAFTs

ACWPD/SCSD Regional Biosolids Facility



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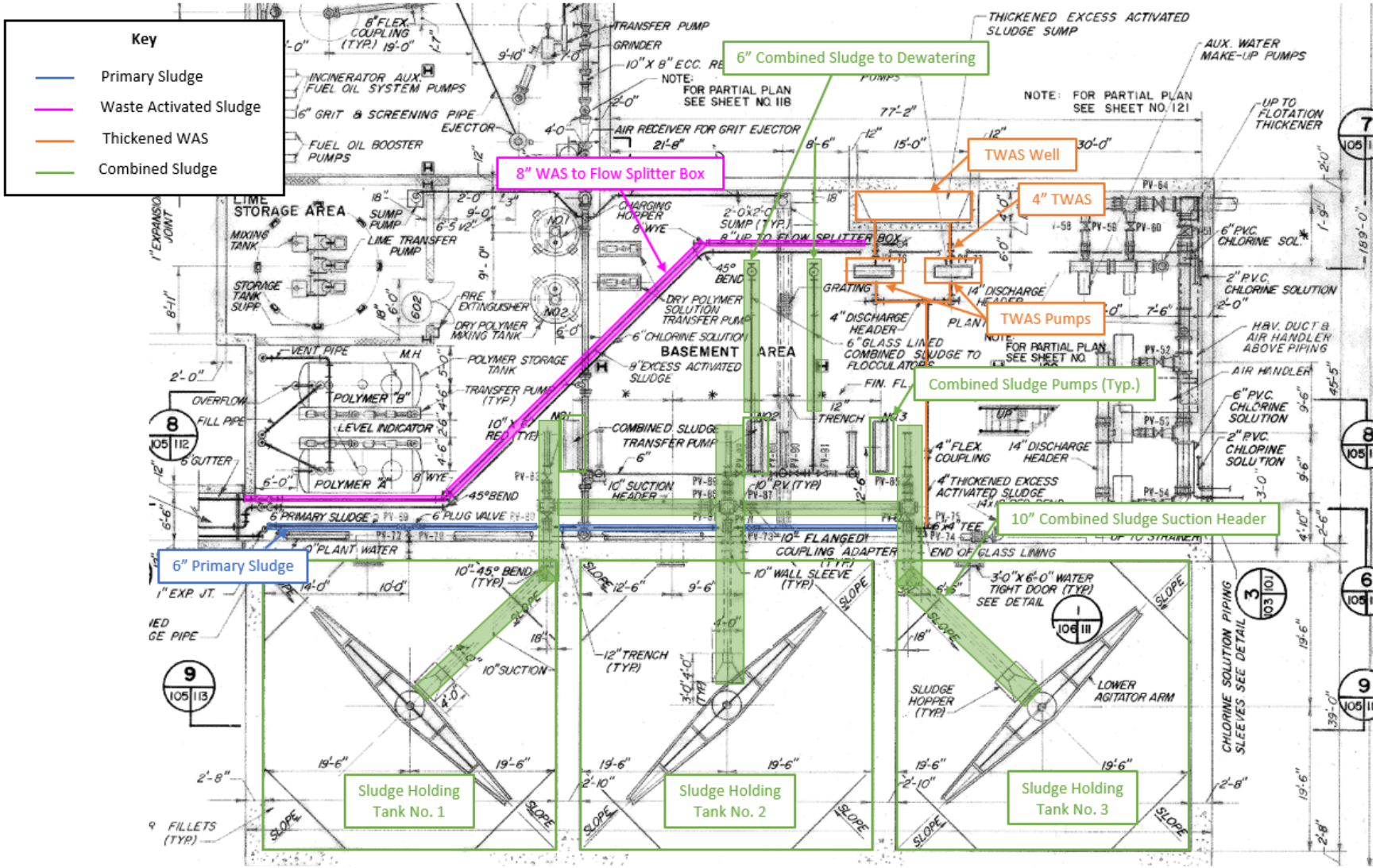
ACWPD South Plant Enlarged Plan of Sludge Holding Tanks

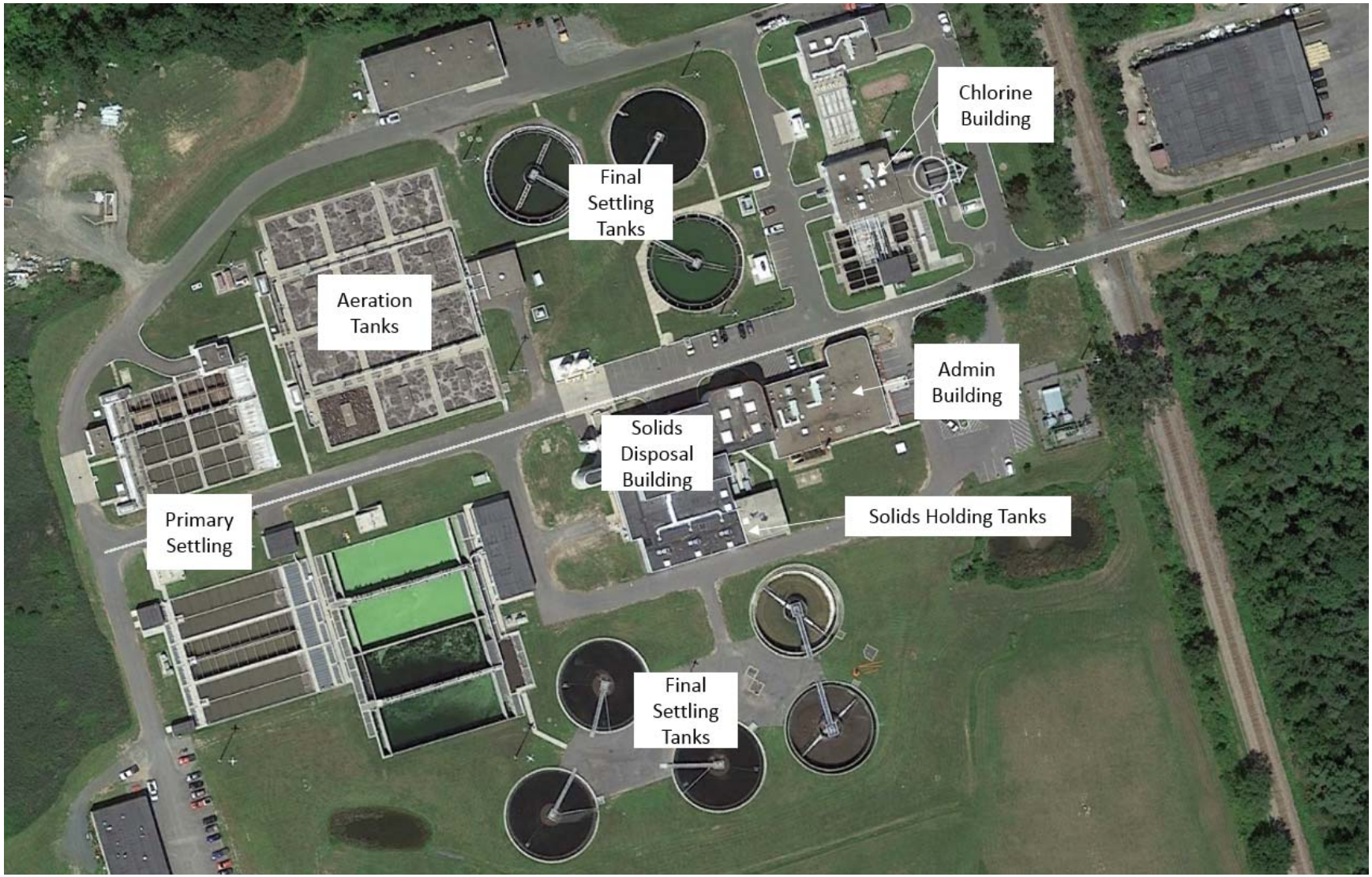
ACWPD/SCSD Regional Biosolids Facility



SCSD Plant Schematics

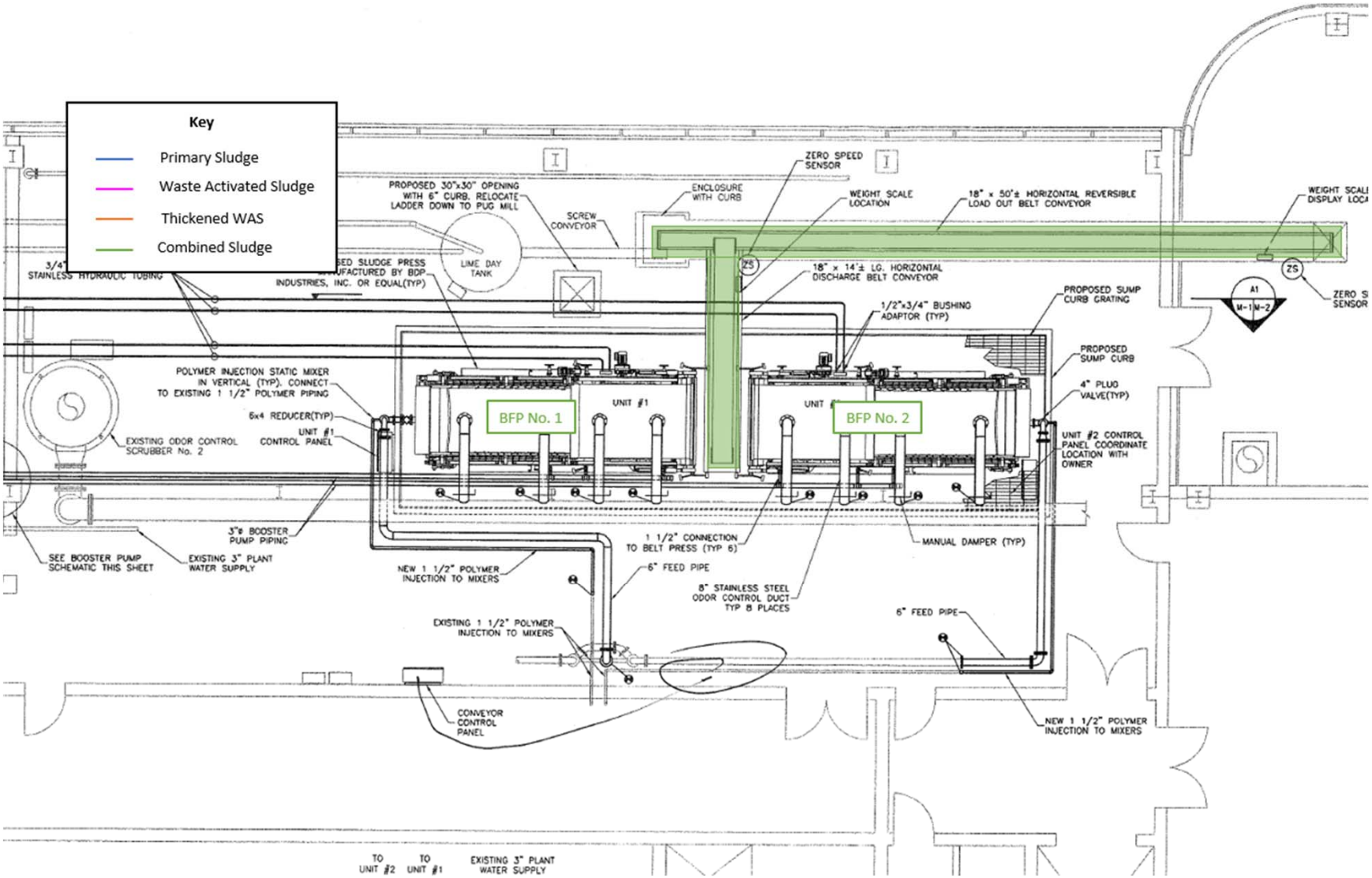
SCSD Plant Aerial View

ACWPD/SCSD Regional Biosolids Facility



SCSD Plant Enlarged Plan of BFPs

ACWPD/SCSD Regional Biosolids Facility



APPENDIX B: POTENTIAL FUTURE HAULED CAKE GENERATORS

Facility Name	Design Flow (MGD)	Population Served	Average Flow (MGD)	Sludge Produced (dtpd)	Sludge Disposal
ROTTERDAM SEWER DIST #2	1.5	0	0.75	0.73	LANDFILL
AMSTERDAM - C WASTEWATER TREATMENT PLANT	10	22000	2.20	2.15	COMPOSTING / LANDFILL
CATSKILL - V WWTP	1.55	0	0.78	0.76	INCINERATED (NOT SPECIFIED)
HERKIMER WATER POLL CTRL FAC	1.7	7949	0.79	0.78	LANDFILL
SHAWANGUNK WALLKILL SEWER DISTRICT	0.635	2500	0.25	0.24	USED FOR FERTILIZER / LANDFILL
HUDSON - C STP	2.8	7800	0.78	0.76	LANDFILL
GUILDERLAND - T NOTT RD STP	2.6	15000	1.50	1.46	COMPOSTING / LANDFILL
LITTLE FALLS WASTEWATER TREATMENT PLANT	7	5000	0.50	0.49	INCINERATED FLUIDIZED BED / LANDFILL
MONTICELLO STP	3.1	8500	0.85	0.83	LANDFILL
CANAJOHARIE - V STP	2.8	0	1.40	1.37	COMPOSTING - OFF SITE / LANDFILL
ONEIDA CO WATER POLLUTION CONTROL PLANT	48	110000	11.00	10.73	ASH LAGOONS / INCINERATED FLUIDIZED BED / LANDFILL
POUGHKEEPSIE STP	14	40000	4.00	3.90	INCINERATED (NOT SPECIFIED)
POUGHKEEPSIE (T) ARLINGTON WWTP	4	26000	2.60	2.54	INCINERATED FLUIDIZED BED / LANDFILL
PINE HILL WWTP	0.5	600	0.06	0.06	LANDFILL
NYC DEP-GRAND GORGE STP	0.5	600	0.06	0.06	LANDFILL
TANNERSVILLE - V STP	0.8	2000	0.20	0.20	LANDFILL
MOHAWK VIEW WATER POLLUTION CONTROL PLANT	4.9	0	2.45	2.39	LANDFILL
GLENS FALLS STP	9.5	15000	1.50	1.46	ASH LAGOONS / INCINERATED (NOT SPECIFIED)
WATERFORD STP	1.5	8000	0.80	0.78	USED FOR FERTILIZER / LANDFILL / TO ANOTHER TREATMENT PLANT
WAWARSING NAPANOCH SIMPRO AREA STP	0.525	0	0.26	0.26	LANDFILL
FORT ANN STP	0.11	500	0.05	0.05	LANDFILL / TO ANOTHER TREATMENT PLANT
LAKE HUNTINGTON SEWER DIST	0.21	0	0.11	0.10	LANDFILL
KIAMESHA LAKE SD STP	2	9200	0.92	0.90	LANDFILL
ROCKLAND ROSCOE STP	0.2	900	0.09	0.09	LANDFILL
TOWN OF BOLTON WWTP	0.3	0	0.15	0.15	LANDFILL / ON SITE / TO ANOTHER TREATMENT PLANT
WOODSTOCK STP	0.23	0	0.12	0.11	LANDFILL
RHINEBECK-V WASTEWATER TREATMENT PLANT	0.26	798	0.08	0.08	LANDFILL
			Total	33.39	

APPENDIX C: SUMMARY LIST OF HSW/ORGANIC FOOD WASTE GENERATORS

Appendix C

HSW/Organic Food Waste Generators

County	Generator Type 1	Generator Type 2	Generator Name	Address	City	Est. Waste (tons/week)
Saratoga	Retail	Wholesale	Sysco Albany LLC	1 Liebich Ln	Halfmoon	118.1
Fulton	Retail	Wholesale	Fage USA Dairy Ind Inc	1 Opportunity Dr	Johnstown	53.7
Albany	Retail	Wholesale	Father's Produce Inc	3 Bethlehem Ct	Delmar	43.0
Albany	Retail	Wholesale	Coca-Cola Bottling Co	38 Warehouse Row	Albany	32.2
Schenectady	Retail	Supermarkets	Price Chopper	442 Balltown Rd	Schenectady	29.0
Montgomery	Retail	Wholesale	Core-Mark International Inc	120 Edson St	Amsterdam	26.8
Albany	Institution	colleges & universities	State University Of New York At Albany	1400 Washington Avenue	Albany	21.2
Warren	Retail	Wholesale	Fitzgerald Brothers Vending	160 Dix Ave	Glens Falls	16.1
Schenectady	Retail	Wholesale	F Cappiello Dairy Products Inc	115 Van Guysling Ave	Schenectady	12.9
Rensselaer	Retail	Supermarkets	Price Chopper	716 Hoosick Rd # 1	Troy	12.0
Albany	Retail	Wholesale	Restaurant Depot	22 Warehouse Row	Albany	11.6
Saratoga	Retail	Wholesale	Frito-Lay Inc	8 Corporate Dr	Halfmoon	11.6
Albany	Retail	Wholesale	Midland Farms	375 Broadway	Menands	10.7
Albany	Retail	Wholesale	Pepsi Beverages Co	421 Old Niskayuna Rd	Latham	10.7
Warren	Service & Hospitality	Hotels/Motels	Sagamore	110 Sagamore Rd	Bolton Landing	10.1
Albany	Institution	hospital	St Peters Hospital	315 South Manning Blvd	Albany	9.6
Saratoga	Institution	colleges & universities	State University Of New York Empire State College	One Union Avenue	Saratoga Springs	9.4
Montgomery	Retail	Supermarkets	Price Chopper	141 Sanford Farms Shopping Ctr	Amsterdam	9.0
Rensselaer	Institution	colleges & universities	Rensselaer Polytechnic Institute	15Th St.	Troy	9.0
Rensselaer	Retail	Supermarkets	Hannaford Supermarket	970 US Highway 9	Schodack Landing	9.0
Saratoga	Retail	Supermarkets	Price Chopper	1 Kendall Way	Ballston Spa	9.0
Schenectady	Retail	Supermarkets	Hannaford Supermarket	3333 Consaul Rd	Schenectady	9.0
Schenectady	Retail	Supermarkets	Price Chopper	1879 Altamont Ave # 2	Schenectady	9.0
Albany	Institution	hospital	Albany Medical Center Hospital	43 New Scotland Avenue	Albany	7.6
Montgomery	Retail	Wholesale	Losurdo Foods Inc	78 Sam Stratton Rd	Amsterdam	7.5
Warren	Retail	Wholesale	Double A Provisions Inc	64 Main St	Queensbury	7.5
Rensselaer	Retail	Supermarkets	Market 32	79 Vandenburgh Ave	Troy	7.0
Schenectady	Retail	Supermarkets	Price Chopper	1640 Eastern Pkwy	Schenectady	7.0
Schenectady	Retail	Supermarkets	Price Chopper	290 Saratoga Rd # 2	Schenectady	7.0
Albany	Service & Hospitality	Restaurants	Compass Group USA	325 Western Ave	Albany	6.5
Albany	Retail	Wholesale	Capital City Produce	381 Broadway # 4	Menands	6.4
Albany	Retail	Wholesale	Chris' Coffee Svc	10 Corporate Cir	Albany	6.4
Saratoga	Retail	Wholesale	Spectrum Food Svc	8 Executive Park Dr	Halfmoon	6.4
Albany	Retail	Supermarkets	Hannaford Supermarket	96 Wolf Rd	Albany	6.0
Fulton	Retail	Supermarkets	Price Chopper	N Comrie Ave	Johnstown	6.0
Rensselaer	Retail	Supermarkets	Price Chopper	501 Columbia Tpke # 27a	Rensselaer	6.0
Rensselaer	Retail	Supermarkets	Price Chopper	865 2nd Ave	Troy	6.0
Rensselaer	Retail	Supermarkets	Hannaford Supermarket	598 Columbia Tpke	East Greenbush	6.0
Warren	Retail	Supermarkets	Hannaford Supermarket	175 Broad St # 2	Glens Falls	6.0
Washington	Institution	correctional facility	Great Meadow Correctional Facility	11739 State Route 22	Comstock	5.9
Albany	Retail	Wholesale	J & J Svc Inc	244 N Mohawk St	Cohoes	5.4
Saratoga	Retail	Wholesale	By-George Food Specialties	1149 Route 50	Ballston Spa	5.4
Albany	Institution	colleges & universities	College Of Saint Rose	432 Western Avenue	Albany	5.2
Saratoga	Retail	Big Box	Walmart Supercenter	1549 Route 9	Halfmoon	5.0
Albany	Retail	Supermarkets	Shop Rite	709 Central Ave	Albany	5.0
Albany	Retail	Supermarkets	Shop Rite	41 Vista Blvd	Slingerlands	5.0
Albany	Retail	Supermarkets	Hannaford Supermarket	579 Troy Schenectady Rd # 202	Latham	5.0
Rensselaer	Retail	Supermarkets	Hannaford Supermarket	9 126th St # 1	Troy	5.0
Saratoga	Retail	Supermarkets	Price Chopper	1 Price Chopper Plz	Mechanicville	5.0
Saratoga	Retail	Supermarkets	Hannaford Supermarket	19 Clifton Country Rd # 16	Clifton Park	5.0
Schenectady	Retail	Supermarkets	Shop Rite	2333 Nott St E	Schenectady	5.0
Schenectady	Retail	Supermarkets	Shop Rite	2341 Nott St E	Schenectady	5.0
Warren	Retail	Supermarkets	Hannaford Supermarket	190 Quaker Rd	Queensbury	5.0
Warren	Institution	hospital	Glens Falls Hospital	100 Park Street	Glens Falls	4.9

Appendix C

HSW/Organic Food Waste Generators

County	Generator Type 1	Generator Type 2	Generator Name	Address	City	Est. Waste (tons/week)
Albany	Retail	Big Box	Walmart Supercenter	311 Route 9w	Glenmont	4.8
Schenectady	Institution	hospital	Ellis Hospital	1101 Nott Street	Schenectady	4.4
Schenectady	Retail	Big Box	Walmart Supercenter	200 Dutch Meadows Ln # 5	Schenectady	4.3
Albany	Service & Hospitality	Restaurants	Wolf's 111 Restaurant & Game	111 Wolf Rd	Albany	4.3
Albany	Retail	Wholesale	Prinzo's Bakery	344 Delaware Ave	Albany	4.3
Columbia	Retail	Wholesale	George W Saulpaugh & Son	1790 Route 9	Germantown	4.3
Fulton	Retail	Wholesale	Antonucci's Wholesale Produce	274 S Main St	Gloversville	4.3
Fulton	Retail	Wholesale	Core-Mark International Inc	199 Enterprise Rd	Johnstown	4.3
Rensselaer	Retail	Wholesale	Walter G Hiney Inc	470 Main Ave	Wynantskill	4.3
Warren	Retail	Wholesale	Gambles	920 State Route 9	Queensbury	4.3
Columbia	Institution	hospital	Columbia Memorial Hospital	71 Prospect Ave	Hudson	4.2
Albany	Institution	colleges & universities	Siena College	515 Loudon Rd	Loudonville	4.2
Albany	Retail	Supermarkets	Market 32	40 Delaware Ave	Albany	4.0
Albany	Retail	Supermarkets	Whole Foods Market	1425 Central Ave	Albany	4.0
Albany	Retail	Supermarkets	Hannaford Supermarket	5239 Western Tpke	Altamont	4.0
Albany	Retail	Supermarkets	Hannaford Supermarket	180 Delaware Ave	Delmar	4.0
Columbia	Retail	Supermarkets	Shop Rite	19 Fairview Ave	Hudson	4.0
Columbia	Retail	Supermarkets	Hannaford Supermarket	32 Route 82	Hudson	4.0
Fulton	Retail	Supermarkets	Hannaford Supermarket	235 5th Ave Ext	Gloversville	4.0
Montgomery	Retail	Supermarkets	Hannaford Supermarket	4901 State Highway 30 # 15	Amsterdam	4.0
Saratoga	Retail	Supermarkets	Hannaford Supermarket	27-41 Gansevoort Rd	S Glens Falls	4.0
Saratoga	Retail	Supermarkets	Price Chopper	Routes 146 & 146a	Clifton Park	4.0
Saratoga	Retail	Supermarkets	Hannaford Supermarket	43 Round Lake Rd	Ballston Lake	4.0
Saratoga	Retail	Supermarkets	Hannaford Supermarket	11 Trieble Ave	Ballston Spa	4.0
Saratoga	Retail	Supermarkets	Hannaford Supermarket	27 Gansevoort Rd	S Glens Falls	4.0
Washington	Retail	Supermarkets	Price Chopper	8648 State Route 22 # 1	Granville	4.0
Washington	Retail	Supermarkets	Hannaford Supermarket	1165 State Route 29	Greenwich	4.0
Albany	Service & Hospitality	Hotels/Motels	Desmond Hotel & Conference Ctr	660 Albany Shaker Rd	Albany	4.0
Rensselaer	Retail	Wholesale	Sycaway Creamery Inc	42 Duncan Ln # 1	Troy	3.9
Saratoga	Retail	Wholesale	Route 87 Donuts LLC	1532 Crescent Rd	Clifton Park	3.9
Saratoga	Retail	Big Box	Walmart Supercenter	16 Old Gick Rd	Saratoga Springs	3.8
Albany	Service & Hospitality	Hotels/Motels	Marriott-Albany	189 Wolf Rd	Albany	3.7
Albany	Retail	Wholesale	Frito-Lay Inc	Arrow Ln	Latham	3.7
Saratoga	Institution	colleges & universities	Skidmore College	815 N Broadway	Saratoga Springs	3.6
Albany	Service & Hospitality	Hotels/Motels	Hilton-Albany	40 Lodge St	Albany	3.6
Albany	Retail	Big Box	Walmart Supercenter	800 Loudon Rd	Latham	3.5
Saratoga	Service & Hospitality	Hotels/Motels	Gideon Putnam Resort & Spa	24 Gideon Putnam Rd	Saratoga Springs	3.5
Albany	Retail	Wholesale	Schwan's Consumer Brands	121 Washington Avenue Ext	Albany	3.4
Saratoga	Retail	Wholesale	Schwan Food Co	193 Perry Rd	Saratoga Springs	3.4
Saratoga	Retail	Wholesale	Schwan's Home Svc	193 Perry Rd	Saratoga Springs	3.4
Saratoga	Retail	Wholesale	Thomas Poultry Farm	192 Stonebridge Rd	Schuylerville	3.4
Albany	Retail	Wholesale	Adventure In Food Trading	381 Broadway # 7	Menands	3.2
Albany	Retail	Wholesale	K P Ventures	120 Washington Avenue Ext	Albany	3.2
Columbia	Retail	Wholesale	Towne & Country Wholesale Food	7 Dock St	Hudson	3.2
Warren	Retail	Big Box	Walmart Supercenter	24 Quaker Rdg	Queensbury	3.2
Rensselaer	Institution	colleges & universities	Hudson Valley Community College	80 Vandenburgh Avenue	Troy	3.2
Rensselaer	Institution	hospital	Samaritan Hospital	2215 Burdett Avenue	Troy	3.0
Warren	Retail	Wholesale	Dobert's Dairy	68 3rd St	Glens Falls	3.0
Warren	Retail	Big Box	Walmart Supercenter	891 State Route 9	Queensbury	3.0
Albany	Retail	Supermarkets	Market 32	1060 Madison Ave	Albany	3.0
Albany	Retail	Supermarkets	Nichols' Market	5 Maple Rd	Voorheesville	3.0
Albany	Retail	Supermarkets	Price Chopper	1892 Central Ave # 26	Albany	3.0
Albany	Retail	Supermarkets	Price Chopper	475 Albany Shaker Rd # 7	Albany	3.0
Albany	Retail	Supermarkets	Price Chopper	911 Central Ave # 21	Albany	3.0

Appendix C

HSW/Organic Food Waste Generators

County	Generator Type 1	Generator Type 2	Generator Name	Address	City	Est. Waste (tons/week)
Albany	Retail	Supermarkets	Price Chopper	329 Glenmont Rd # 1	Glenmont	3.0
Albany	Retail	Supermarkets	Price Chopper	873 New Loudon Rd # 1	Latham	3.0
Albany	Retail	Supermarkets	Price Chopper	444 Broadway # 5	Menands	3.0
Albany	Retail	Supermarkets	Price Chopper	1395 New Scotland Rd	Slingerlands	3.0
Albany	Retail	Supermarkets	Price Chopper	515 19th St	Watervliet	3.0
Albany	Retail	Supermarkets	Fresh Market	664 New Loudon Rd # 1	Latham	3.0
Albany	Retail	Supermarkets	Trader Joe's	79 Wolf Rd	Colonie	3.0
Albany	Retail	Supermarkets	Hannaford Supermarket	900 Central Ave # 4	Albany	3.0
Columbia	Retail	Supermarkets	Price Chopper	2614 State Route 66	Chatham	3.0
Fulton	Retail	Supermarkets	Price Chopper	358 N Main St	Gloversville	3.0
Montgomery	Retail	Supermarkets	Price Chopper	6025 NY State Rte 5	Palatine Bridge	3.0
Montgomery	Retail	Supermarkets	Price Chopper	6025 State Highway 5	Palatine Bridge	3.0
Rensselaer	Retail	Supermarkets	Hannaford Supermarket	40 Main Ave	Wynantskill	3.0
Saratoga	Retail	Supermarkets	HP Hood	41 Canterbury Rd	Clifton Park	3.0
Saratoga	Retail	Supermarkets	Price Chopper	115 Ballston Ave # 1	Saratoga Springs	3.0
Schenectady	Institution	colleges & universities	Union College	Union Avenue	Schenectady	3.0
Schenectady	Retail	Supermarkets	Hannaford Supermarket	262 Saratoga Rd # 3	Scotia	3.0
Schenectady	Retail	Supermarkets	Price Chopper	501 Duanesburg Rd	Schenectady	3.0
Schenectady	Retail	Big Box	Target	428 Balltown Rd	Schenectady	2.9
Albany	Service & Hospitality	Hotels/Motels	Hilton-Albany	16 Lodge St	Albany	2.9
Albany	Service & Hospitality	Hotels/Motels	Radisson-Albany	205 Wolf Rd	Albany	2.9
Albany	Service & Hospitality	Restaurants	Cheesecake Factory	131 Colonie Ctr	Albany	2.9
Albany	Service & Hospitality	Restaurants	Cheesecake Factory	131 Wolf Rd	Albany	2.9
Albany	Service & Hospitality	Restaurants	Dave & Buster's	120 Washington Avenue Ext # 1	Albany	2.9
Albany	Service & Hospitality	Restaurants	Olive Garden Italian Rstrnt	178 Wolf Rd	Albany	2.9
Albany	Service & Hospitality	Restaurants	TGI Friday's	40-A Stuyvesant Plz	Albany	2.9
Montgomery	Institution	hospital	St. Mary'S Healthcare	427 Guy Park Avenue	Amsterdam	2.8
Albany	Retail	Wholesale	N U C O 2	25 Post Rd	Albany	2.8
Albany	Retail	Wholesale	Polonia Bakery	79 Lexington Ave	Albany	2.8
Albany	Retail	Wholesale	Red Bull North America	116 Railroad Ave # 2	Albany	2.8
Albany	Retail	Wholesale	Vitalityfoodservice Inc	4 Vatrano Rd	Albany	2.8
Albany	Retail	Wholesale	Cheesecake Machismo	293 Hamilton St	Albany	2.8
Albany	Retail	Wholesale	Friendship Discount Beverage	2504 US Route 9w	Ravena	2.8
Albany	Retail	Wholesale	Ganipro	898 Loudon Rd	Latham	2.8
Albany	Retail	Wholesale	Igor Korostil	898 Loudon Rd	Latham	2.8
Albany	Retail	Wholesale	Mbtu Omc	120 Washington Avenue Ext	Albany	2.8
Warren	Retail	Wholesale	Fitzgerald Brothers Beverage	251 Queensbury Ave	Queensbury	2.8
Warren	Retail	Wholesale	Just Beverages LLC	31 Broad St	Glens Falls	2.8
Albany	Service & Hospitality	Restaurants	Red Robin Gourmet Burgers	880 New Loudon Rd	Latham	2.6
Saratoga	Service & Hospitality	Hotels/Motels	Hilton-Saratoga	534 Broadway	Saratoga Springs	2.6
Albany	Retail	Wholesale	Mondelez International	766 Watervliet Shaker Rd	Latham	2.6
Albany	Retail	Wholesale	Adventure In Food Trading	84 Montgomery St	Albany	2.6
Albany	Retail	Wholesale	International Trade Routes-Ny	645 Wemple Rd	Glenmont	2.6
Fulton	Retail	Wholesale	Finest Maid Food Distributors	9 Railroad St	Broadalbin	2.6
Schenectady	Institution	hospital	Ellis Hospital - Mcclellan Division	600 Mcclellan Street	Schenectady	2.6
Columbia	Retail	Big Box	Walmart Supercenter	460 Fairview Ave	Hudson	2.5
Rensselaer	Institution	hospital	St. Mary'S Hospital	1300 Massachusetts Avenue	Troy	2.5
Fulton	Retail	Big Box	Walmart Supercenter	329 S Kingsboro Ave	Gloversville	2.4
Rensselaer	Retail	Big Box	Walmart Supercenter	760 Hoosick Rd	Troy	2.3
Schenectady	Retail	Big Box	Walmart	1320 Altamont Ave # 1	Schenectady	2.3
Rensselaer	Institution	nursing homes	Van Rensselaer Manor	85 Bloomingrove Drive	Troy	2.3
Saratoga	Institution	nursing homes	Wesley Health Care Center Inc	131 Lawrence Street	Saratoga Springs	2.2
Albany	Institution	correctional facility	Albany County Jail	840 Albany Shaker Road┬á	Albany	2.2
Schenectady	Service & Hospitality	Hotels/Motels	Angelo's Tavolo	1 Glen Ave	Schenectady	2.2

Appendix C

HSW/Organic Food Waste Generators

County	Generator Type 1	Generator Type 2	Generator Name	Address	City	Est. Waste (tons/week)
Schenectady	Service & Hospitality	Restaurants	Angelo's Tavolo	1 Glen Ave	Schenectady	2.2
Montgomery	Retail	Big Box	Walmart Supercenter	101 Sanford Farms Shopping Ctr	Amsterdam	2.1
Saratoga	Institution	hospital	Saratoga Hospital	211 Church Street	Saratoga Springs	2.0
Albany	Retail	Supermarkets	Honest Weight Food Co-Op Inc	100 Watervliet Ave	Albany	2.0
Albany	Retail	Supermarkets	Price Chopper	240 Congress St	Cohoes	2.0
Rensselaer	Retail	Supermarkets	Hannaford Supermarket	3703 NY Highway 43	West Sand Lake	2.0
Saratoga	Retail	Supermarkets	Price Chopper	55 Railroad Pl # 102	Saratoga Springs	2.0
Saratoga	Retail	Supermarkets	Fresh Market	52 Marion Ave	Saratoga Springs	2.0
Schenectady	Retail	Supermarkets	Bunzel Scocia	702 Potential Pkwy	Scotia	2.0
Schenectady	Retail	Supermarkets	Price Rite	2330 Watt St # 1	Schenectady	2.0
Warren	Retail	Supermarkets	Price Chopper	84 Cooper St	Glens Falls	2.0
Albany	Institution	hospital	Albany Memorial Hospital	600 Northern Blvd	Albany	2.0

Total:	1051.5
Required 25% Minimum	272.4
Top 10 Generators Combined	353.0