City of Pocomoke
WWTP Corrective Action Plan

PRIORITY	ITEM	DESCRIPTION	LOCATION/AREA	STATUS	ASSIGNED TO	ONE TIME COST	ANNUAL COST	CAPITAL COST
1	Completely clean out the bottom of the clarifier	The bottom of the clarifier is believed to be full of trash and debris resulting from the headworks being out of commission for several months. The trash/debris is clogging the RAS pipes continuously preventing the system from performing as designed. Consequently, the clarifier retains more sludge than is intended to.	Clarifier	In progress	Phillips/Divers	$5,000		
1	Ensure all RAS sludge lines are open and valves are operational	Ensure all sludge lines are open, valves are fully open and under AUTO control. This will allow the clarifier to work as it was designed to.	Clarifier	In progress	Phillips	$4,000		
1	Have KET service the filter routinely	The filter requires daily monitoring and routine maintenance. Kershner Environmental Technologies (KET), who supplied the filter, has a program in which they provide a technician quarterly to perform required maintenance. It is important to keep the filter running optimally to ensure ENR compliance.	Filter	Complete	Phillips/KET		$10,000	
1	Obtain replacement valves and actuators. Inventory four (4) spare valves at all times.	The Biolac uses automated valves to control air and recirculation on sludge. These valves are critical to the treatment process. Spare valves and actuators should be obtained and stored for when needed.	Biolac	In progress	Phillips/Southern Design	$7,500	$5,000	
1	Replace BNR PLC and HMI	The BNR PLC controls the Biolac equipment. Shoreite Controls has been retained to replace the PLC and HMI needed for operator interface.	BNR Control Room	Unresolved	GMB/Shorite	$35,000	$3,500	
1	Replace failed reject pump	The reject pumps send the dirty water from the filter back to the head of the plant. One of the pumps has failed and should be replaced.	Filter	Unresolved	Phillips/Sherwood Logan	$5,000		
1	The station needs a complete overhaul	A preliminary engineering report is being completed that details all the issues and associated corrections.	Clark Street PS	In progress	GMB		$0	$1,700,000
1	Immediate safety maintenance Repair	Repair and/or replace detriorated metal componements affecting safety; recoating wet well and dry well	Clark Street PS	Complete	ProCoat	$50,000		
1	Replace Biolac blower	The existing 4th blower for the Biolac is inoperable. During certain periods the system requires 3 blowers to run. The 4th blower needs to be available in the event one of the 3 fail. The blowers are critical to the process.	Biolac	Unresolved	Phillips	$30,000		
1	Reinstall alarm dialer	The alarm dialer was removed during the office building demolition. It should be reconnected not that the new building is complete.	Office	Unresolved	Phillips	$1,000		
2	Conduct jar testing with polymers	Have Intercoastal Trading perform jar testing in order to select the proper polymer prior to purchasing.	Clarifier	Unresolved	GMB/ Intercoastal			

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2	Add provisions to feed polymer	Adding polymer prior to the clarifier will aid in settling out TSS that would otherwise carry over to the dead zone and collect on the bottom.	Clarifier	Unresolved	GMB/Phillips	$10,000	$500	
2	Completely clean out the bottom of the dead zone	Several feet of sludge has collected on the bottom of the dead zone creating a significant operational challenge since there is no automated system for sludge removal.	Dead Zone	In progress	Phillips	$8,000		
2	Remove the cover	The cover could be removed to allow the reinstallation of the air chain. However, the cover was placed on the dead zone to prevent algae and duckweed from forming. It is possible that the DO will rise during the day as a result of photosynthesis and the duckweed may obstruct flow in the filter downstream. Operators may elect to "wait and see" how well the clarifier improvements take before implementing steps 2 & 3.	Dead Zone	Unresolved	Phillips	$1,500		
2	Reinstall the air chain	The original air chain could be installed and operated 5 mins/hour (this will require actuated valve and power/control wiring), which is the same timing as the chain installed in the PAR. The purpose is to suspend any solids that may accumulate in the bottom of the dead zone. It will likely create more TSS for the downstream filter so again operators may want to "wait and see" how well the clarifier improvements take before implementing this step.	Dead Zone	Unresolved	Phillips	$4,000		
2	Have KET service the Aqua Guard	The aqua guard prevents rags and debris from entering the Biolac and is a critical part of the treatment process. KET should service this equipment every 3-5 years.	Headworks	Unresolved	Phillips/KET		$2,500	
2	Have KET service the ChemScan	The ChemScan controls the chemical feeds based on realtime data. Several issues with the ChemScan unit need to be addressed for it to work properly. KET offers a maintenance program for routine maintenance.	ENR Control Room	Unresolved	Phillips/KET		$2,500	
2	Replace existing lab meters	Replacement pH meter should be obtained as well as a new spectrophotometer for nutrient testing.	Lab	Unresolved	Phillips	$4,000	$2,000	
3	Replace inoperable influent valves	Two of the four valves do not operate. Replacement valves are in stock and should be installed for use in the event the filter would need to be taken offline.	Filter	Unresolved	Phillips	$4,000		
3	Replace DO meter cap	The DO meter caps should be replaced 2x a year. Spares should be obtained and stored on the shelf.	Biolac	Unresolved	Phillips	$2,000	$1,000	
3	Obtain rake cable	The clarifier skimmer travels along a cable to collect scum from the surface. Spare cable should be obtained and stored for when needed.	Clarifier	Unresolved	Phillips	$1,500		

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3	Corrections to ENR PLC programming	The ENR PLC controls the methanol and alum feeds for the filter. There are some issues with respect to programming that need to be corrected. Shoreite Controls could do this.	ENR Control Room	Unresolved	GMB/Shorite		$5,000	
3	Perform extensive maintenance to air compressor	The air compressor is a critical part of the filter operation. The unit should be serviced by a trained specialists.	ENR Control Room	Unresolved	Phillips		$1,500	
3	Perform extensive maintenance to blowers	The effluent blowers raise the disolved oxygen levels in the final effluent prior to discharge. These units should be serviced by trained specialists.	Final Effluent	Unresolved	Phillips		$1,000	
3	Obtain spare alum pump	The alum is fed to the Biolac and filter to reduce phosphorus. The pumps are critical to the process. One pump should be obtained and stored for when needed.	Chemical Feed	Unresolved	Phillips/Blue White	$2,000		
3	Obtain 3rd methanol pump	There are to be 3 pumps in service - 1 pump is to feed methanol to the Biolac and 1 pump is to feed methanol to the filter. The 3rd pump is spare. Sherwood-Logan owes the City one pump.	Chemical Feed	Unresolved	GMB/Phillips	$2,500		
3	Install new septage receiving facility	A new septage receiving facility should be constructed at the WWTP that includes monitoring features. The new facility will allow operators to control the flow quantity and quality through the treatment facility.	Septage Receiving	Unresolved	GMB/Phillips			$150,000
4	Replace overflow meter	The flow meter/chart recorder needs to be replaced adding an enclosure to protect the new meter from the weather. The meter records the amount of water that overflows into the ponds during peak flow periods.	Headworks	Unresolved	Phillips	$9,000		
4	Replace ORP probe in basin	The exisitng ORP probe does not work and should be replaced.	Biolac	Unresolved	Phillips		$3,000	
4	Obtain replacement membranes	Spare membranes should be obtained and stored on the shelf ready to use.	Biolac	Unresolved	Phillips/Parkson		$5,000	
					TOTALS	**$186,000**	**$42,500**	**$1,850,000**