



# State of New Jersey

PHIL MURPHY  
*Governor*

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
Mail Code – 401-02B

CATHERINE R. McCABE  
*Commissioner*

Water Pollution Management Element  
Bureau of Surface Water Permitting  
P.O. Box 420 – 401 E State St  
Trenton, NJ 08625-0420

SHEILA OLIVER  
*Lt. Governor*

Phone: (609) 292-4860 / Fax: (609) 984-7938

September 6, 2019

Andrew Kricun, Executive Director  
Camden County Municipal Utilities Authority  
1645 Ferry Avenue  
Camden, NJ 08104

Eric G. Fooder, CPWM, Direct  
Department of Utilities  
City of Gloucester  
512 Monmouth Street  
Gloucester City, NJ 08030

Orion Joyner  
Department of Planning and Development  
City of Camden  
520 Market Street, Suite 325  
Camden, NJ 08101

Re: Review of Development & Evaluation of Alternatives Report  
City of Camden, NJPDES Permit No. NJ0108812  
City of Gloucester, NJPDES Permit No. NJ0108847  
Camden County Municipal Utilities Authority (CCMUA), NJPDES Permit No. NJ0026182

Dear Permittees:

Thank you for the submission dated June 2019 entitled: “Development & Evaluation of Alternatives Report” (“the report”) as submitted to the New Jersey Department of Environmental Protection (the Department). The report was submitted in a timely manner and was prepared in accordance with Part IV.D.3.b.v of the above referenced NJPDES permits. This report, along with the subsequent submission dated August 2, 2019, includes the appropriate certification statements as per Part IV.D.1.b.i of the NJPDES CSO permit. The report is part of the development of the Long-Term Control Plan (LTCP) submittal requirements which is due on June 1, 2020.

The overall objective of the Development and Evaluation of Alternatives Report is to develop and evaluate a range of CSO control alternatives that meet the requirements of the Federal CSO Control Policy Section II.C.4, N.J.A.C. 7:14A-11, Appendix C, and the USEPA Combined Sewer Overflows Guidance for Long-Term Control Plan (EPA 832-B-95-002). Such evaluation shall include a range of CSO control alternatives for eliminating, reducing, or treating CSO discharges using an approved hydrologic, hydraulic and water quality model. In conjunction with the other reports referenced in Part IV.D.3.b of the NJPDES permit, this subject report builds on the modeling and other information as included in the June 2018 “System Characterization Report”, as required by Part IV.D.3.b. ii, where the System Characterization Report was approved by the Department on January 24, 2019.

As per Part IV.G.4.e.i – vii of the above referenced NJPDES permits, the Development and Evaluation of Alternatives for the LTCP shall include, but not be limited to, an evaluation of the following CSO control alternatives:

- i. Green infrastructure.
- ii. Increased storage capacity in the collection system.
- iii. Sewage Treatment Plant (STP) expansion and/or storage at the plant while maintaining compliance with all permit limits.
- iv. Inflow and Infiltration (I/I) reduction to meet the definition of non-excessive infiltration and non-excessive inflow as defined in N.J.A.C. 7:14A-1.2 in the entire collection system that conveys flows to the treatment works.
- v. Sewer separation.
- vi. Treatment of the CSO discharge.
- vii. CSO related bypass of the secondary treatment portion of the STP in accordance with N.J.A.C. 7:14A-11.12 Appendix C, II C.7.

The Department finds that the report includes an analysis of a range of CSO control alternatives as identified in the NJPDES permit as well as inclusion of certain control programs. A general overview of the information provided for each of the CSO control alternatives, as provided in response to Part IV.G.4.e, can be summarized below where the Department's comments follow:

- While there are specific sections for each of the control alternatives, the most robust and detailed information concerning the CSO control alternatives for **STP Expansion** and **CSO related bypass** including Section 5.7.1 (Source Reduction & Delaware WPCF #1 Expansion) as well as Appendix B "Wet Weather Upgrades at Delaware No. 1 WPCF, Study of Alternatives."
- The phased implementation of **green stormwater infrastructure projects** is described throughout the report as well as in Section 4.4.1 (Green Stormwater Infrastructure) where this alternative is proposed to control the runoff from 10% of the directly connected impervious area (DCIA) that is connected to the combined sewer system.
- The report explains in Section 1.5 (Prior and Ongoing CSO Control Efforts) that there will be **increased storage capacity** within the collection system upon completion of the City of Camden's ongoing cleaning of the collection system as described in the City of Camden's contract with its contractor American Water. While this activity is considered a Nine Minimum Control as associated with operations and maintenance, the Department acknowledges that this measure will improve the overall functionality of the collection system and will help convey additional flows to the STP.
- Information regarding **I/I reduction** is described in Section 4.4.4 (Inflow and Infiltration Reduction) where it is stated on page 4-9 that "Inflow and infiltration reduction will not play a major role in long term CSO control due to the high volumes of wet weather flow generated in the combined sewer areas relative to the volume of I/I contributed from the hydraulically connected sanitary sewer areas."
- Information regarding **sewer separation** is described in Section 4.4.5 (Sewer Separation) and it is concluded on page 4-10 that "the separation of sewers in an urban area poses potential water quality and regulatory concerns."

- The report includes information regarding **treatment of the CSO discharge** in Section 4.4.6 (Treatment of CSO Discharge) as well as storage in Section 4.4.2 (Increased Storage) but this discussion is limited in detail as discussed in further comments below.

### *Specific Comments*

#### **Comment 1**

The Department acknowledges the benefits of dividing the system into outfall groupings in Table 2-3 (Basis for Defined Sub-Systems) within Section 2.2 (CSO Outfall Groupings). The Department agrees that an outfall grouping approach is consistent with the definition of “hydraulically connected system” as defined within the NJPDES permit.

However, additional justification needs to be provided regarding the grouping of Delaware-GL, Newton Creek, and 007A. Specifically, based on Figure 2-2 (Logical Groupings of Outfalls – Schematic View), it appears that King Pump Station (PS) and G07 are hydraulically linked to Delaware-GL as opposed to Newton Creek since the figure shows that “N King St. PS” and “G07” are within the Newton Creek boundary. In contrast, on page 2-7 in Table 2-5 (Flow Components for Each Outfall Group), Delaware River – Gloucester identifies the King PS as inflow, which conflicts with Figure 2-2.

Similarly, based on Table 2-5 (Flow Components for Each Outfall Group) and Table 2-6 (Values of Different Components for Percent Capture Calculation of Each Outfall Group under the Control Alternatives Baseline), it is unclear if some inflows are counted twice for the purposes of percent capture.

Please identify all associated pump stations within each Subsystem in Table 2-3 as well as the pump station associated with Newton Creek in Table 2-5.

#### **Comment 2**

Section 1.2.2, Table 1-2 (System Wide Performance Characteristics Used for Control Alternatives Development); Section 2.3 (the CAB Performances of the Outfall Groups); and Table 2-4 (Control Alternatives Baseline Performance by Outfall Group) includes a range of overflow frequencies. Specifically, Table 1-2 shows a range of overflow frequencies across the Baseline Condition, Control Alternatives Baseline (CAB), and Plant Further Expansion while Table 2-4 shows Annual CSO Volume, Overflow Frequency and Percent Capture by outfall grouping for the Control Alternatives Baseline only. Comments are as follows:

- Additional detail is necessary to explain why the overflow frequencies did not significantly change after Camden hydraulic capacity restoration, plant expansion, bypass, and 10% GI in Table 1-2.
- Expand Table 2-4 or provide a separate table to include Baseline conditions for annual CSO volume (MG), overflow frequencies, and percent capture so that the "start" point is clearly documented. Change the column heading for “Overflow Frequency” to “Annual Overflow Frequency”.
- Given that percent capture is central to the findings and conclusions of the report, expand Table 2-4 (i.e., 1 – 34) into sewershed/regulator groupings as shown in Table 2-1 where the discussion could be amended in Section 5.4 (System Wide Capture Performance).
- Clarify and provide reasoning as to the variability of the Range of Overflow Frequencies in both tables.
- Please consider re-naming name of phases in Section 1.2.2, Section 2.3, Section E.2 (Control Alternatives Baseline) as well as in other sections of the report as these phase names differ from the phase names in the “Wet Weather Upgrades at Delaware No.1 WPCF, Study of Alternatives” report (which uses phase names Baseline, Phase 1, Phase 2).

### **Comment 3**

The Presumptive Approach has been selected within the report on page 1-1 for the evaluation of alternatives; namely Part IV.G.4.f.ii “The elimination or the capture for treatment of no less than 85% by volume...” Consistent with this approach, Tables 5-2 through 5-6 are included for the five CSO outfall groupings in Section 5.3 (85% Capture Alternatives by Sub-System). Table 5-2 (Summary of Performance for Sub-System Delaware River-Camden) and Table 5-6 (Summary of Performances for Sub-System Newton Creek) show a subsystem percent capture greater than 85% for “185 MGD WPCF With Control of Runoff from 10% of DCIA [Directly Connected Impervious Area]” Conversely, Table 5-3 (Summary of Performance for Sub-System Delaware River – Gloucester); Table 5-4 (Summary of Performance for Sub-System Delaware River – Back Channel); and Table 5-5 (Summary of Performances for Sub-System Cooper River) show an estimated range of Subsystem Annual CSO in million gallons (MG); CSO Frequency; and Subsystem Percent Capture based on a conceptual list of alternatives.

Comments on these tables are as follows:

- a) In the five above referenced tables 185 MGD WPCF is combined with Control of Runoff from 10% of DCIA. Provide a separate column to all five tables to show the breakdown of the effect of the 185 MGD expansion on percent capture without Control of Runoff from 10% of DCIA. Specifically, the one existing column should be changed to two columns in each table.
- b) Add an additional column for Expansion of WPCF to 220 MGD to the five tables to verify what the effects of any such expansion would be on the various outfall groupings separate from Control of Runoff from 10% of DCIA. This is appropriate since it is likely that bypass could be implemented in the short-term whereas green infrastructure is proposed to be implemented over a longer period of time.
- c) For the purposes of compliance with 85% capture under the Presumption Approach, note that the Department will utilize the lowest value in the range for subsystem percent capture.

### **Comment 4**

In Section 5.3.2 (Delaware River – Gloucester) under the alternative for “Delaware River – Gloucester 2 – Satellite Treatment/Storage + Increase Conveyance” the alternatives are described as follows:

- Control of runoff from 10% of the directly connected impervious area reduction using GSI [Green Stormwater Infrastructure]
- Expansion of WPCF # 1 to 185 MGD or 220 MGD
- Operate CCMUA’s Gloucester City PS at 35 MGD
- 11.7 MGD high rate treatment or 0.9 MG storage serving G-4 and G-5”

Provide information regarding the effects of an expansion to 185 MGD and bypass to 220 MGD. While it is understood that these changes would impact G4 and G5, describe how these changes would impact G1-3, and G-6.

### **Comment 5**

Comments on the evaluation of the CSO control alternatives as included in Sections 4 and 5 are as follows:

- **Treatment of CSO Discharge and Storage:** Satellite treatment and tank storage are discussed in a conceptual manner in Table 4-4 (Summary of Initial Screening) where it is indicated that they alternatives could be appropriate for the system. However, later in the report it is acknowledged in Tables 5-3, 5-4, and 5-5 that these alternatives are necessary for certain groupings in order to achieve 85% capture. Additional information is required in order to provide sufficient analysis of satellite treatment and tank storage.
- **GI as an Alternative:** Regarding GI as a CSO control alternative, the following is stated in Section 4.4.1 (Green Stormwater Infrastructure) on page 4-8:

“The 10% impervious area reduction target reflects the upper limit of feasible GSI implementation during a twenty – forty-year implementation timeframe typical of CSO control programs.”

Additional details are needed to provide assurances that GI is feasible to attain the ambitious target of 10% impervious area reduction. For example, a list of potential projects and/or available land locations as well as an estimate of the number of acres required would be valuable to better understand how much land would be required to attain this target. It would also be acceptable to equate a GI target on a volumetric basis of stormwater that would not be diverted to the combined sewer system based on GI practices. Furthermore, it is unclear how much GI will be implemented in the next 3-5 years (page E-7) as opposed to the 20-40 year timeline provided on page 4-8. Additional information and/or incremental goals regarding the expected timeline would be beneficial.

- **Additional Bypass and/or Satellite Treatment:** In Section 5.3.4 (Cooper River) on page 5-6, the following language is included as one of the alternative combinations under Cooper River 3 – Conveyance Only:

“Additional wet weather treatment capacity beyond 220 MGD at the WPCF#1. System-wide, an additional 130 MGD wet weather capacity at or in the vicinity of the WPCF No. 1 would be required for aggregate conveyance only controls.”

Similarly, in Section 5.7.1 (Source Reduction & Delaware WPCF #1 Expansion) on page 5-15 it states:

“To eliminate the need for satellite facilities in the Cooper River and Delaware River – Gloucester subsystems, additional wet weather treatment capacity beyond 220 MGD would be needed at or adjacent to the WPCF #1. The feasibility of adding a wet weather process train using ballasted flocculation or other high rate treatment technology will be evaluated further during the development of the Final LTCP.”

Provide additional information on how the wet weather capacity value of 130 MGD was derived.

#### **Comment 6**

Section 5.5 (85% Capture Sub-System Facility Cost Estimates), Section 6.1 (Affordability and Financial Capability Assessments); Section 6.3 (Cost& Performance Considerations) as well as other sections of the report describe cost/performance considerations. While the Department acknowledges that these analyses are provided within the report, please note that the Department is not commenting on cost/performance considerations at this time and will defer its comments as part of the LTCP submission.

## Comment 7

The issue of location for satellite treatment and storage facilities is addressed to some extent in Figures 5-1a through 5-4b as well as in the accompanying text. As stated on page 5-14:

“Each vicinity for potential satellite treatment or storage facilities shown above are preliminary. Each is likely problematic, being located within public parkland (e.g. Gloucester and C27 – Thorndyke), on private property or on environmentally sensitive areas such as the wildlife refuge adjacent to the C32 screening facility. They should not be viewed as recommendations but as a preliminary determination that space might be available for a satellite facility. That said, it is possible that the sites for satellite facilities could serve multiple community benefit purposes such as the installation of the bulk of the facilities below grade with the surface being used for such purposes as recreational fields or community gardens. The feasibility of siting satellite facilities will be evaluated further in close cooperation with the neighborhood stakeholders and the CSO Supplemental Committee during the development of the Final LTCP.”

Satellite treatment and storage near the CSO outfalls will require ample space for the location of treatment units and/or tanks or other storage appurtenances. However, the challenges and constraints of finding locations must be discussed in more detail in the LTCP, to ascertain whether satellite treatment is a feasible alternative and if it will be utilized as a means to attain 85% capture.

## Comment 8

In Section 6.4 (Opportunities for Community Benefits), the following is stated on page 6-2:

“Reduction in Street Flooding – while no CSO control program will fully address street flooding after rain that is experienced by Camden, the ability of CSO technologies to contribute to the reduction of street flooding is an important criterion.

Similarly, in the “Overview of Findings” on page E-1 it is stated that “Street flooding volume will be reduced by an estimated 61%.”

Flooding of combined sewage in streets is a public health concern and is not acceptable. Please elaborate as to whether or not this excerpt concerns flooding caused by combined sewage and stormwater or if just stormwater is intended here.

## Comment 9

a) The following errata are noted within the document and require correction:

- Page E-9, Section E.9 - The Long-Term Control Plan is due June 1, 2020 (not in July 2020).
- Page 1-7, Table 1-5 - The Baseline Consideration of Sensitive Areas was approved by NJDEP on January 17, 2019 (not September 20, 2018).
- Page 3-1 - “Under the presumption approach, CCMUA and the Cities must **[meet]** any of the following three criteria below:”
- Page 3-1, Bullet #3 - “Section G.4.f.ii” should be G.4.f.iii
- Page 4-11, Section 4.4.6 - The reference to Appendix B appears to be an error, it should be Appendix A.

b) Please provide clarification for the following sections:

- Table 2-1, Section 2.1 - Provide corresponding outfall numbers for the sewershed regulator names within this table.
- Page 4-10, Section 4.4.5 - Provide the technical source for the figures in Table 4-6.
- Page 5-5, Section 5.3.3 – Provide clarification on what is intended by “Reduce flow restriction at C-32.”
- Page 5-5, Section 5.3.3 – Provide information as to the intention of “Maintaining a velocity of 5.5 fps or less can avoid the high cost of upgrading this long force main.”

Please incorporate these changes to the report and submit a revised version to the Department no later than 60 days from the date of this letter. Thank you for your continued cooperation.

Sincerely,



Susan Rosenwinkel  
Bureau Chief  
Bureau of Surface Water Permitting

C: Joe Mannick, Bureau of Surface Water Permitting  
Marzooq Alebus, Bureau of Surface Water Permitting  
Teresa Guloy, Bureau of Surface Water Permitting  
Molly Jacoby, Bureau of Surface Water Permitting  
Dwayne Kobesky, Bureau of Surface Water Permitting  
Adam Sarafan, Bureau of Surface Water Permitting  
Armando Alfonso, Community Collaborative Initiative